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Editor's Note

El Nuevo Constante: Investigation of an Eighteenth Century Spanish Shipwreck off the Louisiana Coast was first published in 1981 as the fourth volume in the Anthropological Study Series. More than 15 years later, it continues to be one of the most requested titles in this series of booklets. Public interest has led to this revised and updated second edition.

Dr. Charles E. Pearson, archaeologist, and Dr. Paul E. Hoffman, historian, directed the research reported in this volume. They also are authors of the book entitled *The Last Voyage of El Nuevo Constante*, published by Louisiana State University Press in 1995. That comprehensive work provides many details about the construction, cargo, and archaeological investigation of *El Nuevo Constante*. Readers are encouraged to consult that publication for more information about this landmark project.

I hope that the second edition of *El Nuevo Constante: Investigation of an Eighteenth Century Spanish Shipwreck off the Louisiana Coast* will again raise interest in preserving Louisiana's shipwrecks. Laws protect wrecks in rivers, lakes, and in the Gulf of Mexico. These underwater resources are time capsules filled with information about our state's maritime history. Archaeologists and historians like Dr. Pearson and Dr. Hoffman open these capsules for the education of all our residents.

Nancy Hawkins

Outreach Coordinator

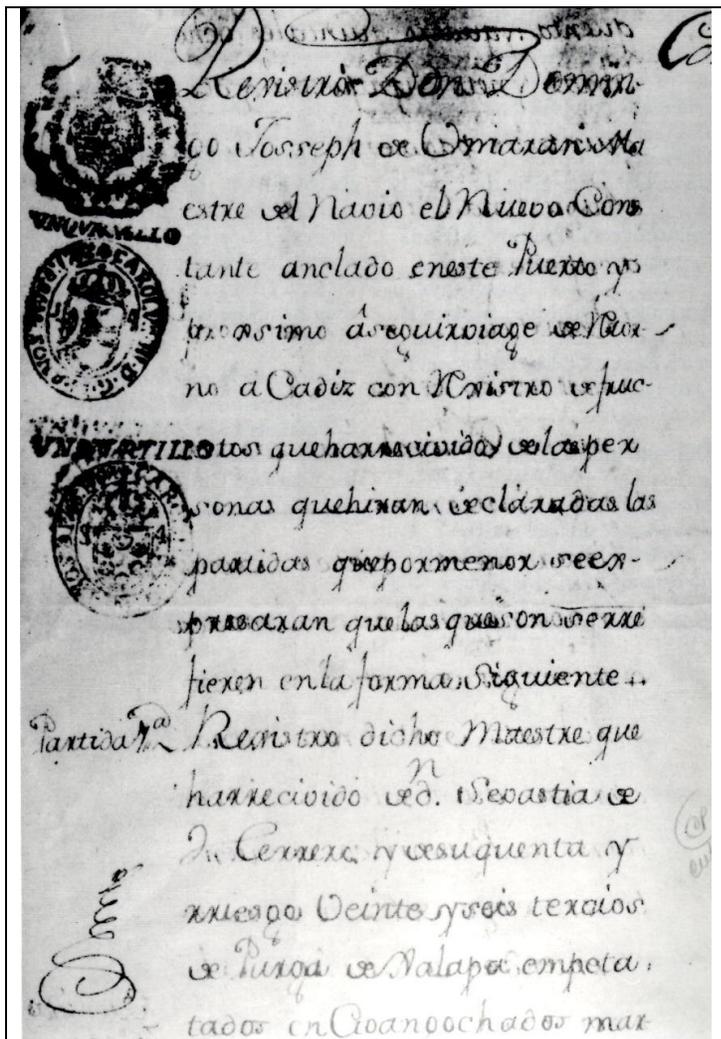
Acknowledgements

The success of this project has been due to the many people who generously provided their assistance and expertise. The State of Louisiana funded research on *El Nuevo Constante* under the auspices of the Department of Culture, Recreation and Tourism. All of the members of the department are thanked. Especially instrumental in this project were Mrs. Lawrence H. Fox, former Secretary; J. Stephen Perry, former Undersecretary; and Kathleen M. Byrd, former State Archaeologist.

The assistance and interest of all of the members of Free Enterprise Salvage, Inc., the original finders of the wreck site, are greatly appreciated. In particular, thanks are extended to Curtis Blume, Doyle Berry, Everett Berry, Steve Smith, and Jimmy Calhoun. Many individuals provided technical assistance and support, including those at Louisiana State University, Coastal Environments, Inc., Rockefeller Wildlife Refuge, and the Archive of the Indies, Seville, Spain. Other researchers and interested supporters provided aid and advice during the course of the project. They are all thanked for their help with this fascinating investigation.

Photographs in this volume were provided courtesy of Coastal Environments, Inc., the Louisiana Office of Cultural Development, the Louisiana Office of Tourism, and the Louisiana State Archives.

Introduction

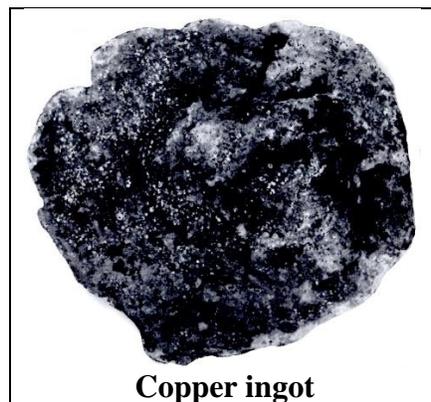


First page of the manifest of *El Nuevo Constante* outbound from Veracruz.

El Nuevo Constante is the first historic shipwreck discovered off the Louisiana coast. Careful study of it is both appropriate and fortunate. Archaeologists and historians found out about the ship and the events leading to its loss. They also excavated well-preserved artifacts, many of which are unique. These tell about the ship's construction, its cargo, and life aboard an eighteenth century merchant vessel.

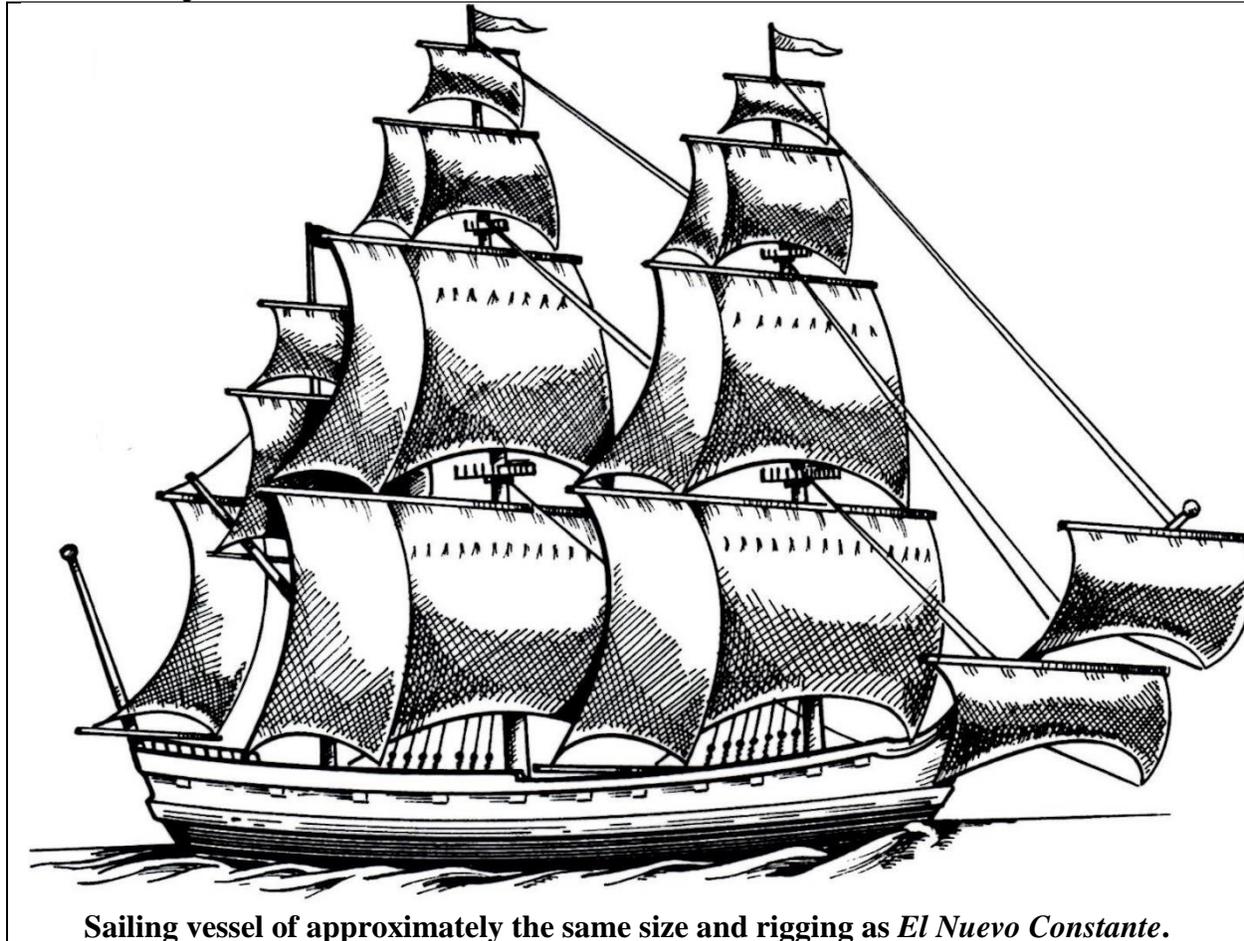
In the first week of September 1766, a hurricane blew two Spanish merchant ships aground on the Louisiana coast. Both were in the New Spain Fleet sailing from Veracruz, Mexico to Spain. Delays in Veracruz had forced the fleet to sail late in August, well into the dangerous hurricane season. The new Spanish government in Louisiana began immediate salvage of the two ships. This work to save and move cargo lasted two months.

Two hundred thirteen years later, Curtis Blume found one of the ships when he caught several large ingots of copper in his shrimp nets. The wreck lay in state waters near the southwestern coast of Louisiana. The State of Louisiana developed an agreement with Curtis Blume and several of his associates. This contract provided for historical and archaeological study of the shipwreck. That investigation led to the positive identification of the merchant ship *El Nuevo Constante*.



Copper ingot

History



Sailing vessel of approximately the same size and rigging as *El Nuevo Constante*.

During the colonial period, Spain depended on a system of fleets of ships that carried goods to and from the Americas. One, known as the New Spain Fleet, left from Cadiz in southwest Spain bound for Veracruz, Mexico. The owners of the frigate *El Nuevo Constante* planned for it to sail with this fleet when it left Cadiz on February 24, 1765. However, they delayed the trip for nearly 10 months, waiting for a complete load of cargo.

El Nuevo Constante began its final voyage from Spain on December 7, 1765. Nine days earlier stevedores had completed loading the main cargo: 1,334 boxes of mercury, each of which weighed 150 pounds. Mercury was vital to Spain because it was critical in the extraction of silver from ores. Other cargo on board was wine, liquor, iron, nails, plow points, vinegar, and a "box of relics from the holy places in Jerusalem," all bound for Mexico.

The ship was making its first trip to the New World under the Spanish flag. Only a year earlier, it belonged to the English trading firm of Bewicke-Timmerman. Then its name was the *Duke of York*. In 1764, a Spanish merchant family bought it for the New World trade.

El Nuevo Constante, under the command of Julian Antonio de Urcullu, arrived at Veracruz, Mexico on February 27, 1766. No one knows how long it took to unload the mercury and other

cargo. Records do show that repair work was done on the ship, including caulking some of the seams. By early May, it was loaded and ready to sail back to Spain with the New Spain Fleet.

Four other ships also were in the convoy. The fleet carried private cargo worth 14,889,890 pesos. For the royal government, it transported copper, cacao, vanilla, dyewood, and 84,937 pesos in silver. *El Nuevo Constante's* private cargo was worth 74,620 pesos. Half of that was in silver coins, gold coins, and silver bars.

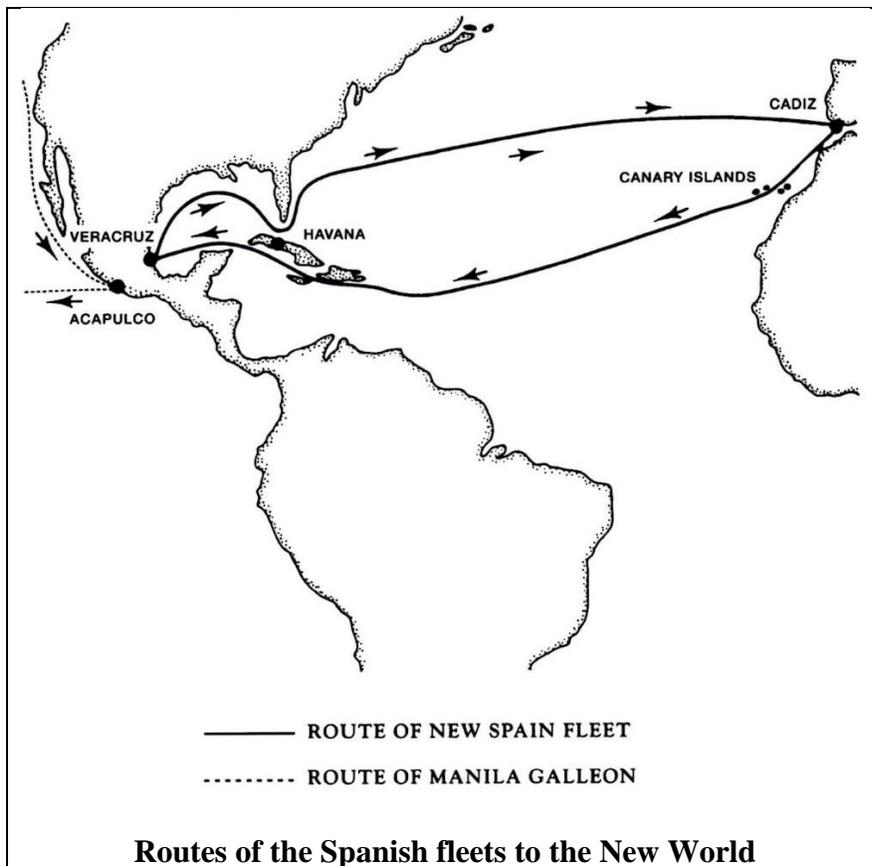
The fleet put to sea during the day of May 25, 1766. A lack of wind kept the ships from going very far. At midnight, a ship reached them with an order to await the arrival of a royal warship that would accompany the fleet to Spain. The warship arrived nearly two months later, on July 11. Bad weather and repairs to the warship's main mast delayed the fleet's final sailing date to August 21.

During the delay, the crew members shifted much of the precious metal from *El Nuevo Constante* to other ships. They added various other export items. Records show that 47 individuals, in addition to the Spanish government, shipped cargo on *El Nuevo Constante*. The ship carried almost the full range of goods exported from New Spain during this period, including cowhides, medicinal plants, ceramics, dyewood, cochineal, copper, and silver. Archaeologists have recovered many of these cargo items.

At least 11 passengers and 60 crew members were aboard *El Nuevo Constante* when the fleet finally left Veracruz on August 21, 1766. By that time, another ship, the *Corazon de Jesus y Santa Barbara*, had joined the fleet. The first 10 days of the voyage went as planned. On September 1, the fleet was just east of Cape Negrillo, Mexico. At 8:30 that night, according to the second pilot of *El Nuevo Constante*, a storm hit. It had "such bad symptoms that it grew by the instant and became strong hurricanes and unimaginable seas" (Echagoyen 1766).

The hurricane scattered the fleet. On September 3, the ships made contact, so the entire fleet was in sight. However, on September 4, the same storm dispersed the fleet again, and the continual pounding of the wind and waves began to take its toll. Soon six of the seven vessels in the fleet lost parts of masts and rigging. Despite the damage, all but two of the ships eventually made it safely to harbor. The *Corazon de Jesus y Santa Barbara* lost all of its masts and rigging, and the storm drove it toward the coast to the north. There it wrecked.

The crew and passengers on *El Nuevo Constante* commented on how well their ship had withstood the three days of the storm. Hours later, however, they noticed a gradual rise of water in the ship. It turned out that during the night of September 3, it had begun to leak. By the morning of September 4, the rising water was getting ahead of the pumps. While more men pumped and bailed, the ship's carpenters and caulkers searched for the source of the water. Clearly, the leaks were in the front part of the ship, called the bow. Afterward, the crew concluded that the pounding seas had worked the caulking out of the seams, or possibly had knocked knots from the planking.



The passengers and crew continually bailed and pumped. However, by dawn on September 5, the ship was gradually settling at the bow. Desperate, the crew threw some cannons overboard to lighten the ship. Realizing that it was but a question of time before *El Nuevo Constanste* would sink, the officers decided to head for the nearest land.

Between 4:00 and 5:00 that afternoon, the keel struck bottom. Lifted and carried a bit farther by the waves, the ship finally came to rest in 10 feet of water about 1,600 feet from shore. Rocked by the

force of the storm, it began to work its way into the mud. Shortly after that, the crew cut down the masts, because their movement in the wind was opening the ship's seams even further. Fortunately, no one died during the hurricane.

For another two days, the storm kept the crew and passengers on the ship. Finally the seas calmed enough so that the crew could go to shore in the ship's boat. At first, they found little but marsh and tangled undergrowth. Then, finally, they discovered an area of high ground about two miles from the wreck. Here the crew and passengers began to build a camp.

Over the next few days they salvaged all the cargo that was above decks and carried it to shore. The captain selected a crew of trustworthy men and put them and supplies into the ship's boat. They began the journey to Balize, about 180 miles to the east, at the entrance to the Mississippi River. Their arrival at Balize set in motion a complex salvage effort that scattered *El Nuevo Constanste's* cargo and crew to many ports around the Gulf of Mexico.

Spain's new Governor of Louisiana, Antonio de Ulloa, sent several ships to the rescue of *El Nuevo Constanste* and the *Corazon de Jesus y Santa Barbara*. A British-American schooner, *El Diquiblot*, and a French vessel reached *El Nuevo Constanste's* camp in mid-September. Four other ships arrived later to help in the salvage efforts.

Vota de lo que conducia para España el navio
 Nuevo Constante, uno de los de la armada de la flota a
 mando de D. Augustin de Siquier

N.º 1.º	Plata acunada	237500
	oro acunado.....	26000
	Plata labrada.....	79 m. ^{cos}
	Polvo de guano y granilla	425 @ 2. 1/2
	Arñ.....	145 @ 24 1/2
	Bainillas.....	220000.
	Cacao Soconusco.....	97 @ 14 1/2
	cho de caracas.....	8 @ 20 1/2
	Punga de Talapa.....	2419 @ 17 1/2
	Achiote.....	217 @ 15 1/2
	Cedano.....	7 @ 17 1/2
	Polvillo de cocao	2 @
	Zevadilla.....	268 @ 9 1/2
	Regalos.....	17 cabos
	Cobice de lavar.....	124 qq. 71 1/2
	Cueros curados.....	2355
	Piel de chivo.....	25
	Bucanos.....	29 cabos
	Amiracas.....	6 atos
	Chocolate.....	1 atos
	Copal.....	5 @

Partial list of cargo initially loaded on *El Nuevo Constante* in Veracruz in 1766.

Register of what was being carried to Spain by the ship *El Nuevo Constante*, one of those which sailed with the fleet commanded by Don Augustin de Idiaquez.

Silver coin . . . . .	.23,750 pesos
Gold coin . . . . .	.2,600 pesos
Silver bar . . . . .	.79 marks
Powdered cochineal and small [wild?] cochineal . . . . .	.425 arrobas 2 libras
Indigo . . . . .	.115 arrobas 21 libras
Vanilla beans . . . . .	.220,000
Cacao from Soconuso . . . . .	.97 arrobas 14 libras
Cacao from Caracas . . . . .	.8 arrobas 20 libras
Purge de Jalapa [Ipomea purga] . . . . .	.2,419 arrobas 17 libras
Anatto . . . . .	.217 arrobas 15 libras
Balsam . . . . .	.7 arrobas 17 libras
Powder of Oaxaca [snuff?] . . . . .	.2 arrobas
Zebadilla . . . . .	.268 arrobas 9 libras
Gifts . . . . .	.17 boxes
Copper ingots . . . . .	.12,471 libras
Tanned hides . . . . .	.2,375
Goat skins . . . . .	.25
Ceramic bowls . . . . .	.29 boxes
Pictures . . . . .	.6 boxes
Chocolate . . . . .	.1 box
Copal . . . . .	.5 arrobas
English translation of cargo list 1 arroba = 25 pounds, 1 libra = 1 pound)	

Crew members completed loading salvaged material on the *Diquiblot* and another vessel by October 2. A large portion of the cargo was still onshore. Therefore, Captain Urcullu bought the *Diquiblot* outright for 1,600 pesos so it could make several trips without a high daily freight charge. The two ships left the camp at 6:00 p.m. on October 2, expecting to get to Balize in a few days. Strong winds prevented them from reaching their destination. On October 13, the vessels were separated in bad weather.

The *Diquiblot* reached Havana harbor on October 29, but that night a storm drove it on the rocks. Both crew and passengers were rescued. Now the twice-salvaged cargo included 25 bales and packages, three gold discs marked M, H, and G, and three small pieces of silver. No one claimed the gold or silver pieces, which probably had been illegally smuggled aboard.



Tax stamp from the ship's manifest

Three other ships had left the salvage camp on October 17 heading for New Orleans. One presumably reached New Orleans, but storms drove the other two to Veracruz. They carried 30 crew members, hides, flour, and some ship's fittings from *El Nuevo Constante*. The final ship to leave the salvage camp arrived at Balize near the end of November. It carried *El Nuevo Constante*'s captain and the last of the passengers, crew, and salvaged cargo. Captain Urcullu remained in Louisiana until early April 1767, when he sailed for Havana, Cuba. Goods from *El Nuevo Constante* were collected in Havana and eventually were carried to Cadiz, Spain on Captain Urcullu's ship, the *Belle Indio*. In Cadiz, the salvaged cargo was weighed, evaluated, and made available to its owners. Their last claim on the cargo was made in July 1769, almost three years after *El Nuevo Constante*

had been lost. The total value of the salvaged cargo was about 7,290 pesos. This is perhaps 11% of the value of the cargo when the ship left Veracruz.

The tale of the salvage of *El Nuevo Constante* was over. Wind, weather, and shipworms soon took the remains of the ship from view. They lay untouched for 213 years beneath a protective cap of fine mud. Erosion claimed the shore where the passengers and crew had come on land, destroying their salvage camp. The name of a nearby stream, Bayou del Constante, preserved the memory of the events of 1766. In time, this became Constance Bayou, a name whose significance was forgotten.

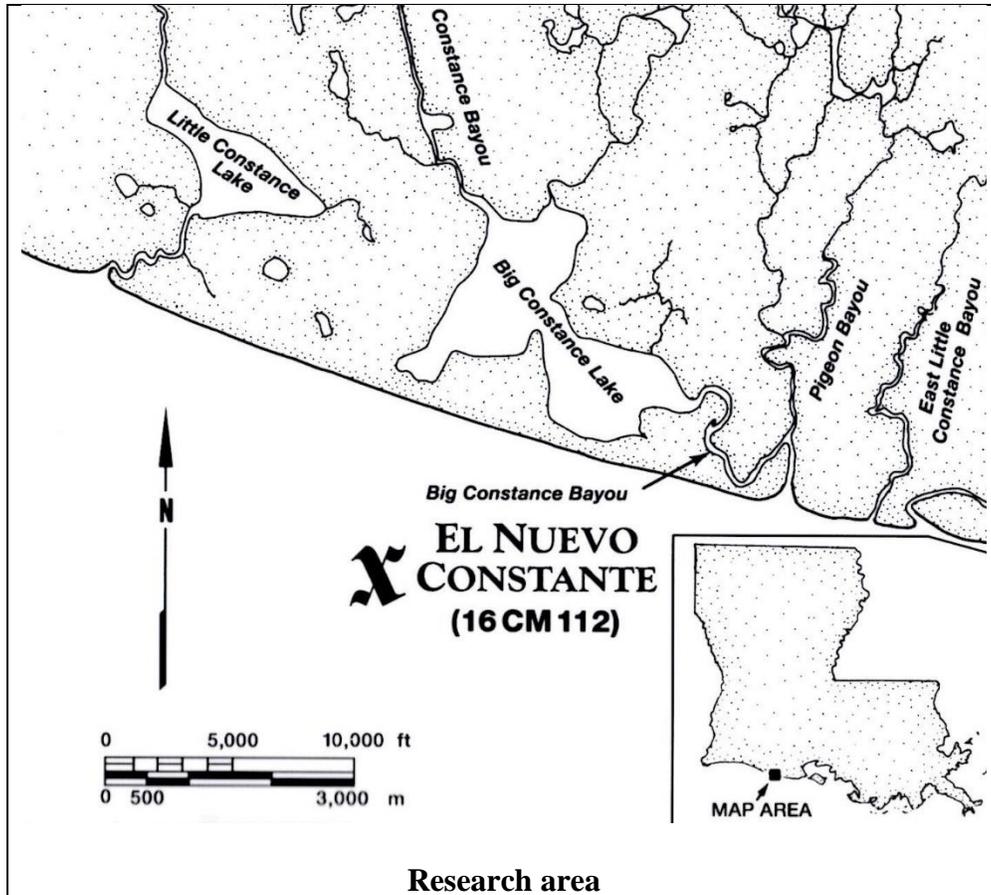
Archaeological Research

Curtis Blume's discovery of the copper ingots and the wreck of *El Nuevo Constante* in 1979 led directly to the research reported in this volume. Until that time, the wreck had received little recent attention. However, in 1785, Jose' de Evia did mention the wreck. During an expedition to map the Louisiana coast, the Spaniard noted:

I followed the coast from here for 27 miles toward the west, to the Bayou del Constante. It was so called because of a vessel of this name having been lost opposite it in the month of September of the year 1766, in a southeast hurricane. It had sailed from Veracruz. (Pichardo 1931:364)

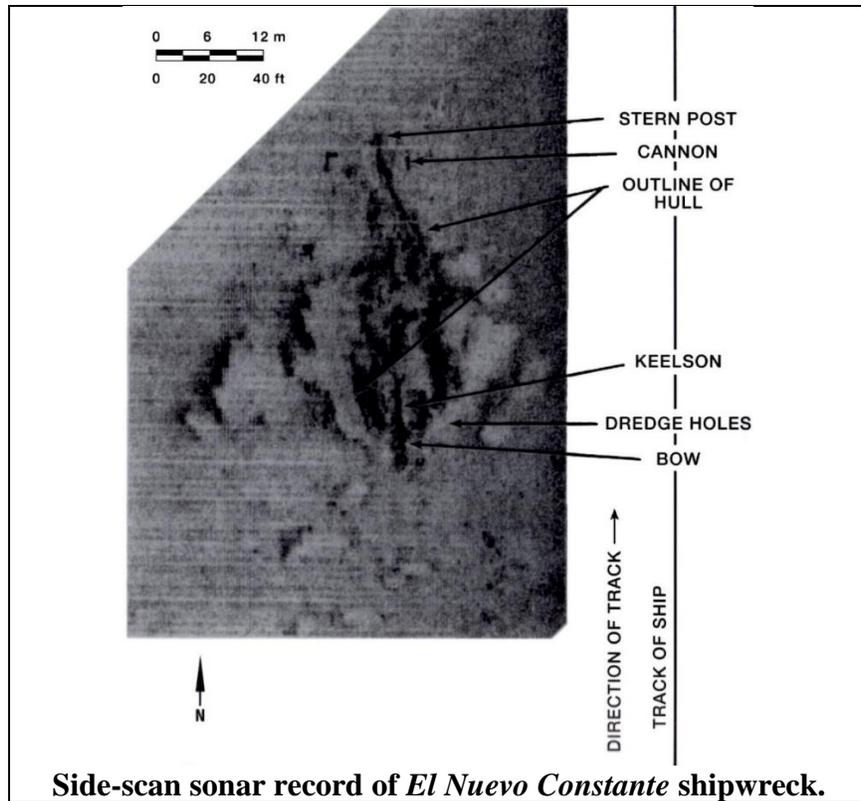
Maps from the late 1700s use some form of *Constante* for the bayou. Even today, bayous and lakes in the area have Constance in their names. The location of the wreck off Constance Bayou was a clue to the name of the ship. Researchers also compared artifacts from the site with cargo listed in Spanish records. This has allowed them to positively identify the shipwreck as *El Nuevo Constante*.

After Blume discovered the copper ingots, he and his associates dove on the ship. Soon they found gold and silver ingots. Then they began digging on the wreck with a mechanical dredge. They removed ballast stones and many other artifacts that covered the wreck. Luckily, this did little damage to the bottom of the ship, which was still intact.



Realizing that the site was in state waters, they told authorities. State officials knew the importance of careful study of the wreck and its place in the history of Louisiana. The state drew up a contract to have the ship excavated under the direction of professional archaeologists from Coastal Environments, Inc., of Baton Rouge, Louisiana. In September 1980, the archaeologists began work.

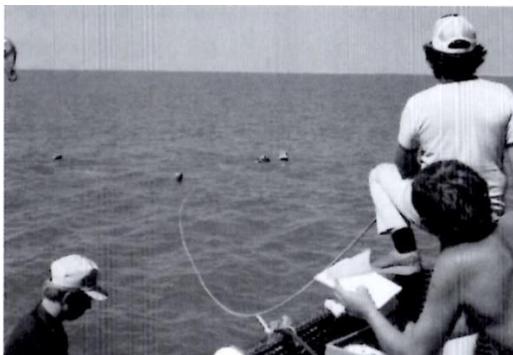
A remote sensing survey was the first research on the wreck site. Archaeologists used a magnetometer, side-scan sonar, and subbottom profiler. The purpose of the survey was to find out about the ship before excavation began. The side-scan sonar gave the most useful information. It produced a clear picture of the sea floor using sound rather than light. This image showed the ship's outline, a cannon, and the holes from the dredging.



The side-scan record served as a map for planning excavations. Archaeologists marked a line down the center of the ship, then laid 10-foot squares off this line. They excavated and recorded what they found within these square units.



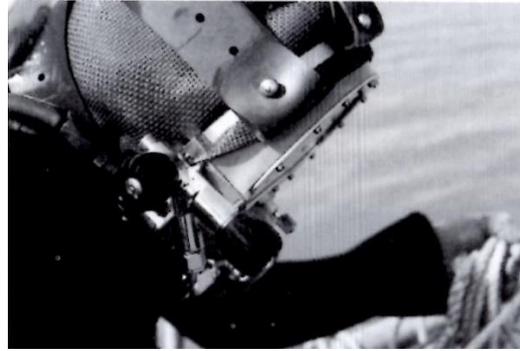
Bringing an iron artifact to the surface



Archaeologists on the dive boat monitoring divers at the wreck.

El Nuevo Constante lay in only about 19 feet of water. However, divers could not see the wreck because of mud. The liquid mud formed a thick soup extending 2 or 3 feet above the sea bottom. As a result, the archaeologists excavated and mapped by touch. Divers used surface-supplied air and had radio contact with the diving boat.

Mud covering the wreck had kept oxygen from reaching it. This reduced organic decay, helping preserve the ship and its contents. Oyster and barnacle growth and shipworm damage occurred only on the upper portions of the wreck, above the thick, liquid mud covering the sea floor.



Preparing for the dive.



Dive boat



Raising ballast stones to the surface



Water lift discharging on the boat

Archaeologists mapped and removed artifacts that could be found by touch in each square. Then they excavated each unit using a hydraulic water lift. This piece of equipment sent a large volume of pressurized water through a pipe down to the bottom. It then forced the water and bottom material through a pipe back up to the diving boat at the surface. On the boat, the material was collected in a wire basket. Archaeologists catalogued all artifacts according to their square. They left large artifacts in place until they mapped them near the end of the excavation. Excavations concluded on February 15, 1981.

Archaeologists also searched the shore for the shipwreck survivors' camp. They found only a few historic artifacts. One of these, a small clay bowl, was identical to several from *El Nuevo Constante*. It appeared, however, that waves had washed it on shore. No other evidence of the survivors' camp was found. Maps show that the shoreline in this area has eroded about 4,600 feet since 1766. It is likely that erosion destroyed the site of the camp.



Recording information about the wreck.



Silver disks



Plate fragments



Ceramic bowl and lid

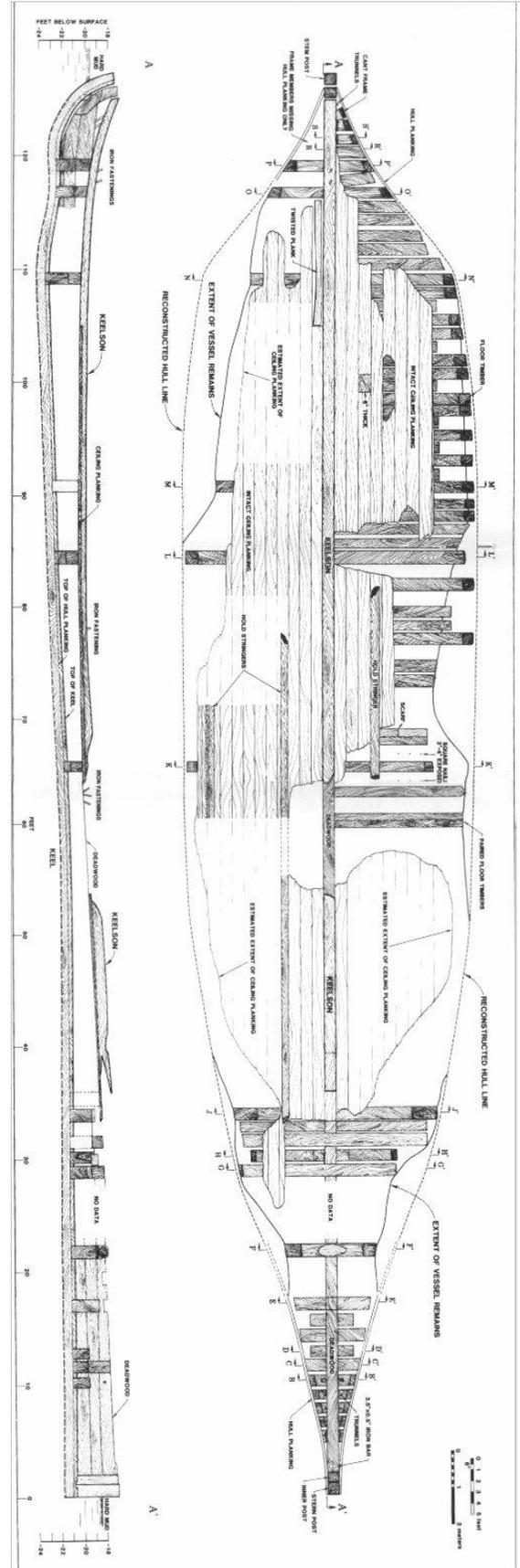


Buckles



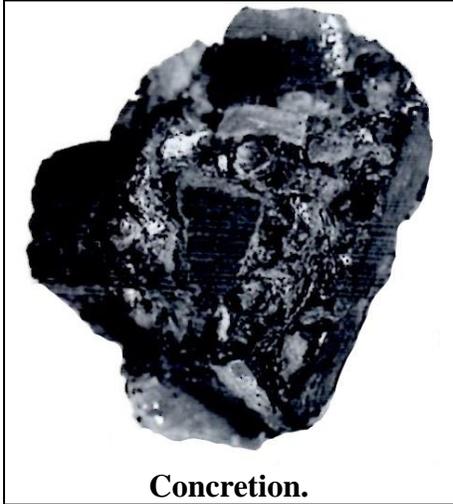
Labeling artifacts in the laboratory.

Plan and Section of the Intact Portion



Introduction to the Artifacts

Hundreds of artifacts came from the wreck of *El Nuevo Constante*. They are unusual because of their variety and their good preservation. Examples include all manner of metal and wooden ship fittings and structural parts. Other artifacts are weapons, possessions of the crew and passengers, and cargo.



Concretion.

Divers also found many objects called concretions. In these, layers of calcium carbonate, iron rust, sand, clay, and shell cover small artifacts. Archaeologists weighed these concretions and x-rayed some of them. They broke most open and recorded their contents. Many concretions contained parts of spikes, nails, and bolts. Some also had pieces of ceramics, wood, bone, and cannon shot.

In spite of the Spanish salvage, many items were still on the wreck. Spanish authorities must have been unable to find or to transport many objects. Perhaps they thought some of them were not important enough to salvage.

The following sections tell what archaeologists and historians learned about the ship, the cargo, and personal items of the passengers and crew.

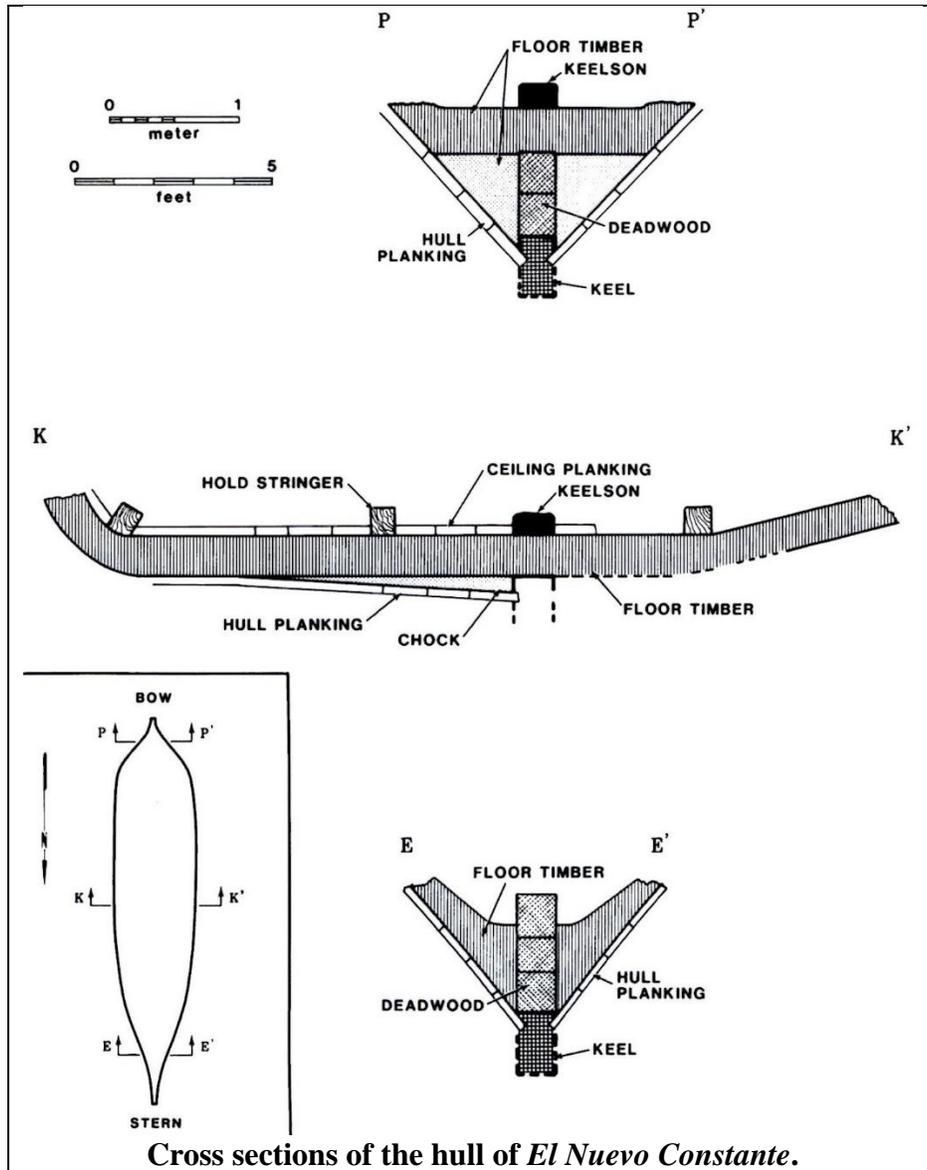
The Ship and Accessories

Historical records describe the ship. Documents of March 1764 say *El Nuevo Constante* was a vessel of about 470 tons. It was 121 feet long, 30 feet wide, 19 feet deep, and had three masts. Records indicate it had four pumps, four large anchors, and two small ones. It was armed with eighteen 8-pounder and four 4-pounder cannons. It also carried 36 muskets, 18 pairs of pistols, 24 war axes, and ammunition. *El Nuevo Constante*, originally the *Duke of York*, probably was of British construction and carried British arms.

The largest object recorded in the excavation was the lower 3 to 4 feet of the ship's hull. Its measurements are similar to those in the historical records. It is 127.5 feet long and 26 feet at its widest point. Excavators cleared most of the interior that did not have decking. However, the compact mud kept them from going deeper than a foot or so down the hull exterior. In the center of this booklet is a drawing that shows the wreck as archaeologists mapped it. It was left in place at the end of fieldwork and allowed to fill in naturally and silt over.

The hull gives a lot of information about shipbuilding in the 1700s. Frame timbers average 11 to 13 inches in width. These are the large pieces that curve upward to form the ribs of the ship. Three cross sections show floor frame shapes required to achieve the curve of the hull. The frame timbers are oak. The large central timber, known as the keelson, is intact down much of the length of the vessel. One-inch diameter iron bolts attach it to the keel and other pieces. A large portion of the interior decking, or "ceiling" planking, also is still in place. Identified samples of ceiling planking are pine.

Wooden planks cover the outside of the hull. Probing with a small iron rod showed that the hull planking is intact on the remaining part of the vessel. These planks are 4 inches thick and up to 13 inches wide. "Trunnels" or "tree nails" (wooden pegs) and iron bolts attach the hull planks to frames. The trunnels are approximately 1.75 inches in diameter. The hull planks and trunnels are made of white oak.



Wood sheathing was often used to reduce worm damage to the planking. Shipbuilders spread tar, often mixed with animal hair, on the hull and then covered it with wood sheathing. Sheathing made from 1-inch-thick spruce boards was found attached to *El Nuevo Constante's* hull. Presumably, most of the lower hull once had this sheathing, though it remained in only a few places.



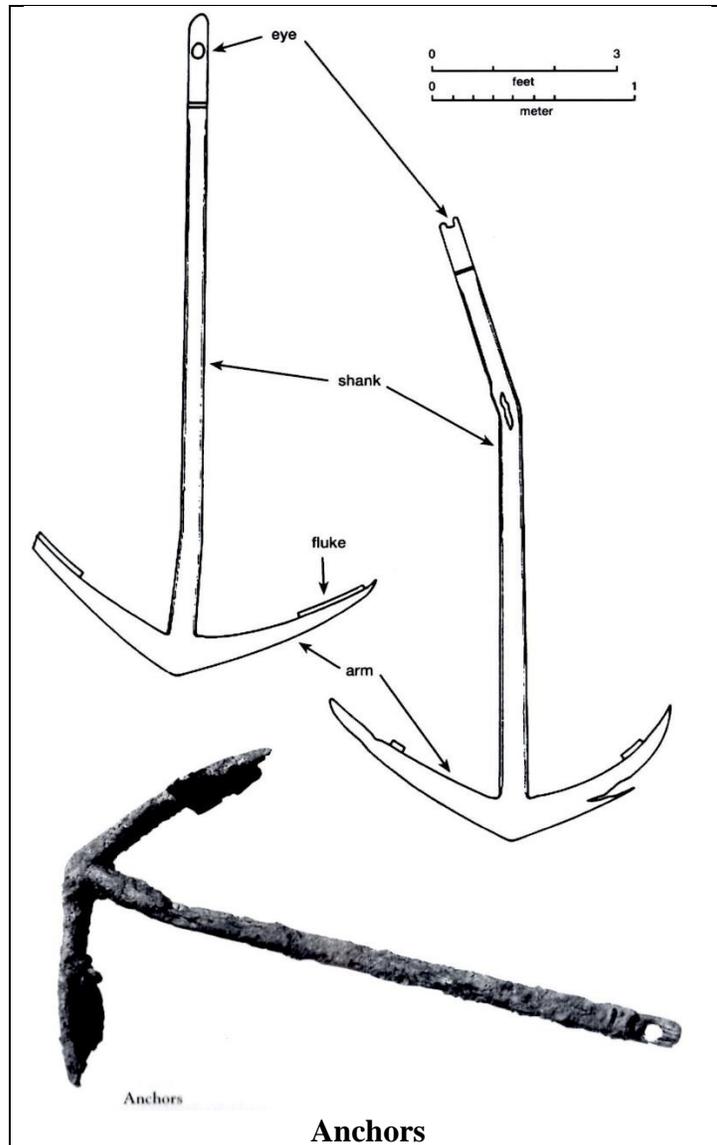
A. Eyebolt before cleaning; B. Portion of preventer plate before cleaning; C. Portion of preventer after cleaning

Several hundred metal and wooden artifacts came from *El Nuevo Constante*. Most relate to the structure and outfitting of the ship. Examples are iron anchors and two iron gudgeons, or braces, that attached the rudder to the ship.

Two anchors were found during dredging at the site. The more intact of the two anchors has a broken tip at the end of one of its arms. This anchor has a shank length of 10.5 feet, an arm length of 3.5 feet, and a fluke length of 18.1 inches. The hole in the anchor, called an eye loop, has a diameter of 3.2 inches. The other anchor is approximately the same size. It is bent and splintered along the shank, has two broken flukes, and is missing the eye loop. These probably are the two small anchors reported to have been on board.

Many iron artifacts are fastenings or fittings of various sorts. These include spikes and bolts, an iron side loop, or eyebolt, with a ring, and fragments of iron preventer plates. Preventer plates were fastened to the side of the ship and were attachments for ropes from the mast.

Other artifacts also relate to the ship and its operation. Examples are lead sheathing, parts of two bilge pumps, bricks, chunks of coal, ballast stones, and a copper soldering iron. Wooden timbers and trunnels, a wooden pulley wheel, and firewood also came from the wreck.



A large number of lead pieces were found throughout the vessel. Most of them appear to have been used as patches on the hull. Round and square holes are in several patches and strips. They show that many shapes and sizes of nails were used trying to keep the hull protected and watertight. Two figure eight-shaped lead pieces also are from the ship. These may have served as gaskets or seals.



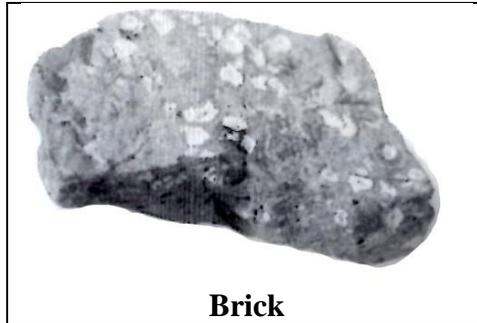
Bilge pump bases

Divers recovered two bases of wooden bilge pumps from the middle part of the vessel. These pieces are the bottoms of the long pump shafts that extended from the low, inner part of the hull to an upper deck. The outside shape of each shaft is hexagonal, and the central, circular hole is 3.5 inches in diameter. They are made of elm. Each specimen has a lead screen nailed to the base.

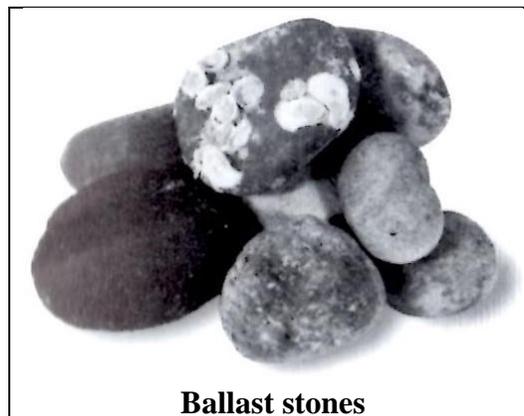


Lead patches

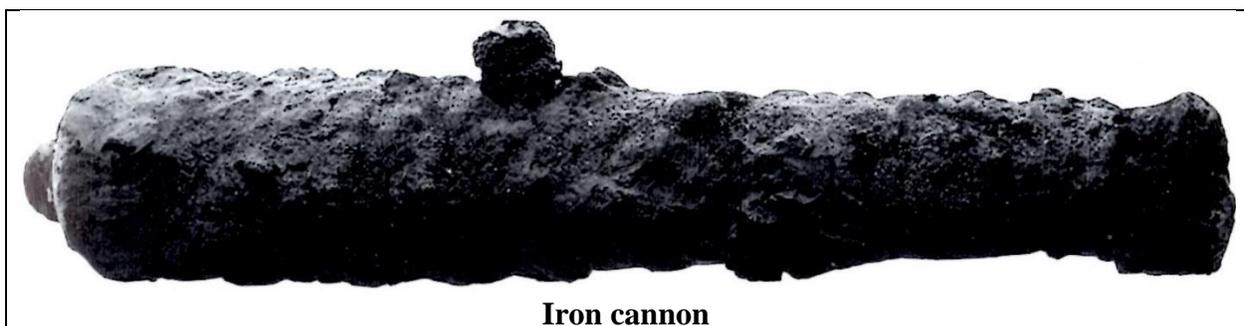
More than 185 pounds of brick came from the ship. These bricks may be from the kitchen, or galley, since fireproofing the cooking area was a vital concern on a wooden ship. Two basic types of brick were found. One is a large, red, rectangular brick or tile. This type is an average of 2.5 inches thick, 9 inches wide, and 17 inches long. The other is a smaller, flatter brick, that is yellow, red, gray, or brown. This smaller type averages 1.5 inches in thickness, 5 inches in width, and 10.5 inches in length.



Other objects possibly from the galley are firewood and several pieces of coal. Firewood pieces are 12 to 14 inches long and are identified as pine. The ship carried ballast stones in the bottom of the hull to give it stability. A layer of ballast stones up to 3 feet thick covered much of the wreck. The stones removed from the ship weigh a total of several tons. Most are round, granite, river cobbles. Their average size is between 8 and 10 inches in diameter.



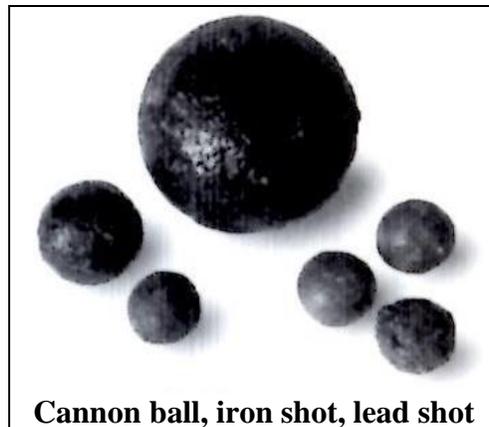
Member ships of the New Spain Fleet carried valuable cargo. Therefore, their protection was a great concern for the Spanish government. Spain provided warships to escort the merchant vessels on their homeward journeys. The ships themselves also had armament of varying sizes.



Three iron cannons and an assortment of ammunition were found at the wreck. The cannons are all about the same size. Cannons of this type usually are called 9-pounders, but the Spanish documents refer to them as 8-pounders. They are 8 feet long and have a muzzle bore diameter of about 4.25 inches. They fired cannon balls weighing about 9 pounds.

Ammunition includes several types of shot. The largest of these are three cast iron cannon balls. They weigh from 8 to 10 pounds apiece and measure about 4.1 inches in diameter. These were the solid shot used in the 9-pounder cannons.

Pieces of two bar shot also were recovered. Each has two solid iron cylinders at the ends of a short connecting iron bar. This type of projectile mainly would have been for destroying a ship's rigging and sails. The bar shot also would have been used in the 9-pounder cannons.



Cannon ball, iron shot, lead shot

Small iron and lead balls that are 1 to 1.5 inches in diameter came from the ship. They probably were used as grape or canister shot. Grape shot is a cluster of several small balls tied or wrapped with canvas in a bundle. Canister shot refers to small shot enclosed in a wooden or metal canister that burst open upon firing. Generally, lead was used for canister shot while iron was used for grape shot. The cannons recovered from the wreck could have fired both canister and grape shot.

Six iron shot with diameters of 1.8 to 2 inches represent the largest type of ammunition. These are larger than the other iron grape shot. How they were used on the ship is unknown.

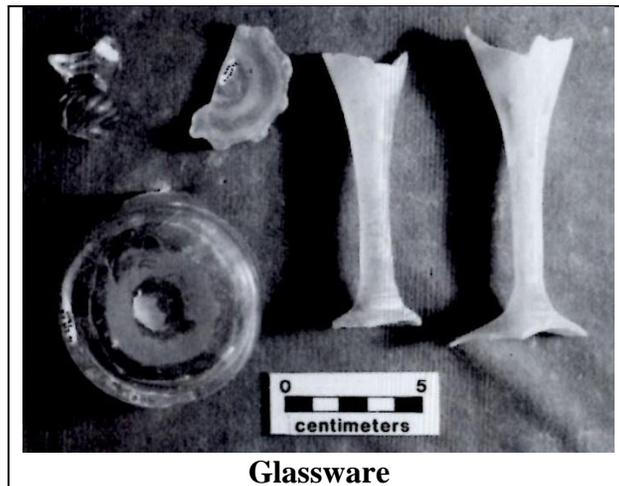
Tableware, Food, and Food Storage

Tableware from the wreck includes a pewter plate, pieces of wine glasses, and fragments of several other drinking glasses. They are all styles that were popular in Europe by 1750.



Pewter plate

Fragments of hand-painted blue and white oriental porcelain came from the wreck. These could have been export items. Pewter plate from the Philippines that had arrived in Mexico on the Manila galleon. However, *El Nuevo Constante's* shipping list mentions no porcelain as part of the cargo. So, it may have been table service. Several pieces of Mexican majolica pottery were found. Known as Puebla Blue on White, these also may have come from dishes used on the ship.



Glassware

Historical documents say that the ship carried a cook for the crew, a first cook, a second cook, a pastry cook, a pastry cook's boy, and a bread cook. A captain of chickens and a butcher also were on the ship. This group of people must have been aboard to prepare food for important passengers. Records do show that 11 passengers were traveling from Mexico to Spain.

Animal bones found on *El Nuevo Constante* provide some idea of what people ate aboard the ship. Bones include those of cow, pig, sheep (or goat), fish, turtle, and probably chicken. The bones show that live animals were on board, as well as dried or preserved cuts of meat. Spanish ships of the period commonly carried live pigs, cows, sheep, and hens on trips to and from the New World. The animals supplied fresh meat for the voyage.



Sheep or goat horns and chicken bones

Pieces of hand grinding stones suggest that the ship carried corn or other grain. Also, an olive pit found in a concretion shows that olives, familiar to Spanish sailors and citizens, were on board.

Records note that wine was a regular item on a sailor's daily menu. For example, in the sixteenth century, each sailor was given about one quart of wine per day. Archaeologists did not find any complete bottles. However, they did find several fragments of dark green wine bottle glass scattered throughout the ship. Several artifacts reveal how sailors stored food on the long trips to and from the New World. Broken wooden barrel staves and pieces of iron barrel hoops came from the wreck. Divers also found more than 100 olive jar fragments. These large, ceramic, storage jars could hold olive oil, water, wine, honey, olives, beans, spices, or lard. Archaeologists also identified pieces from several other types of ceramic cooking or storage vessels.



Fragments of green glazed olive jar

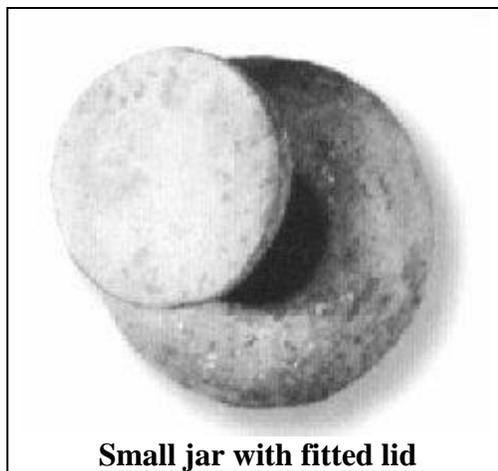


**Top: Olive jar cork
Bottom: Olive pit**

Cargo

A ship's manifest is available for *El Nuevo Constante's* voyage from Mexico. It lists the cargo that was shipped, the person who shipped it, and the person receiving it in Spain. Sometimes, it describes in detail how the goods were packed.

El Nuevo Constante carried ceramics made in Mexico for export. The manifest called these Guadalajara wares. There were two boxes of ceramic gift items and knickknacks, 10 boxes of small bowls or pots, and seven boxes of large vases or bowls. They all may have been from the village of Tonalá, near Guadalajara. People in that town had been making pottery for export since at least the early 1700s. Clay (274 pounds) from the area also was listed as cargo.



Small jar with fitted lid



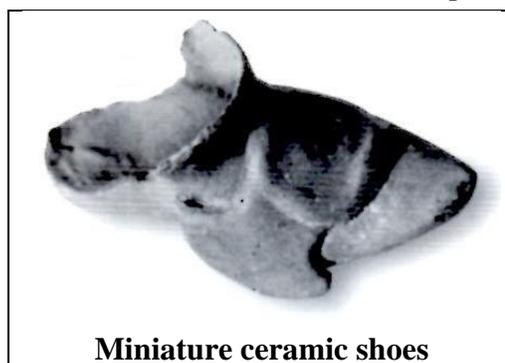
Miniature ceramic vase

Divers brought up hundreds of pieces of these ceramic vessels and several whole or nearly whole items. The shapes include miniature shoes, vases, animals, guitars, and a violin or cello. These unusual forms are probably the gift items and knick-knacks listed in the manifest.

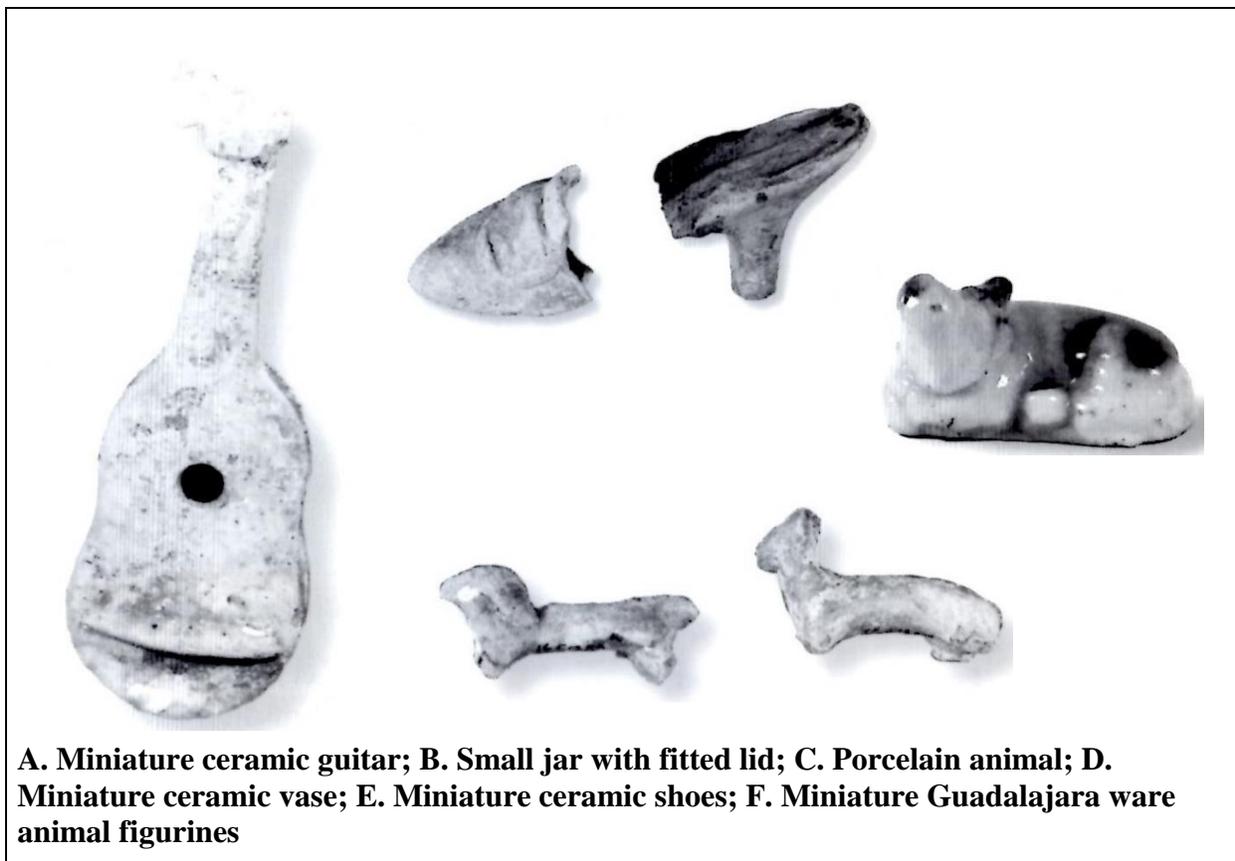
Both came in many sizes. They are similar to hand-painted porcelain slippers still on the market today. A few small clay animals, like dogs, llamas, and ducks, were recovered from the wreck. These items were popular in Europe, and women even carried them as charms. A small porcelain animal that looks like a pig or a water buffalo also came from the ship. It is white with blue hindquarters and

dark brown around its broken horns or ears. Porcelain from the Orient reached Mexico via the Manila galleon, but none is listed as cargo on *El Nuevo Constante*. So, this may be a personal item bought in Mexico.

Archaeologists also found small, rounded jars with fitted lids. The jars range from 1.7 to 2.7 inches in diameter and from 1 to 1.5 inches tall. These jars may have been the small bowls or pots listed in the manifest. Most of these pieces of Guadalajara ware are gray in color, although some were once hand painted. The faded paint shows that a variety of floral and geometric designs were used.



Miniature ceramic shoes



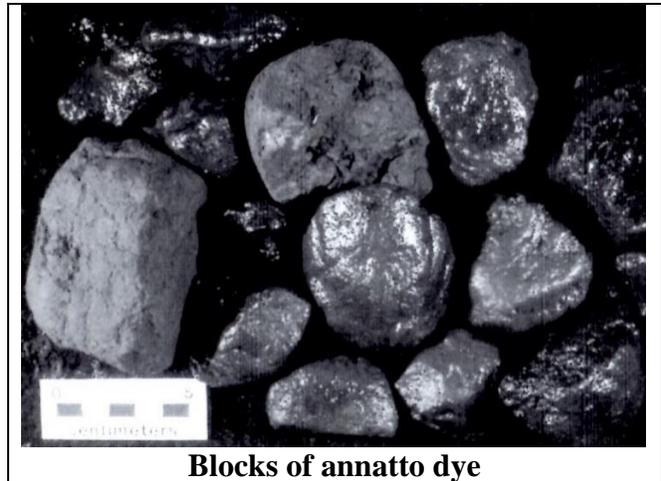
El Nuevo Constante carried a large quantity of New World plant and insect dyes. The cargo included cochineal, annatto, indigo, and dyewood. Archaeologists found pieces of all these, except cochineal.

Cochineal is a red dye made from the dried bodies of the female cochineal insects. They live only on the prickly pear cactus. The insects were collected in the wild and were grown on plantations. Cochineal insects also were native to the Old World, but the type found in New Spain gave deeper and better color. The dye was prized in Europe. Through much of the colonial period, high quality cochineal ranked next to gold and silver in export value.

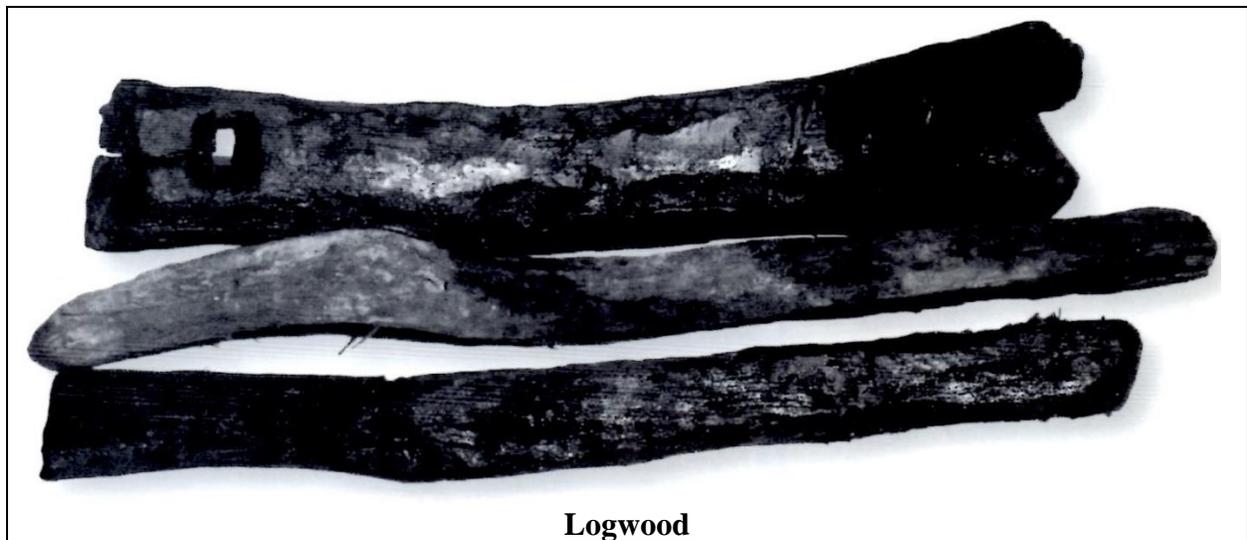
El Nuevo Constante's manifest lists powdered cochineal and wild cochineal, which would have been shipped as small blocks. The powdered cochineal apparently was of poor quality. It was worth only 7 pesos per arroba (1 arroba = 25 pounds). The ship's 1,698 pounds were packed in large leather pouches, each holding about 215 pounds. Four orders of wild cochineal totaled 8,886 pounds. This type also had a value of 7 pesos per arroba. High-quality, cultivated cochineal was loaded on other ships in the fleet. It was worth 70 pesos per arroba. Divers did not find any cochineal on the wreck. The Spanish salvaged some, and the rest must have dissolved in the sea water.

El Nuevo Constante also carried 5,415 pounds of annatto and 2,896 pounds of indigo. Annatto is an orange dye made from the seeds of a shrub. The manifest notes that the annatto was packed in boxes and small barrels. It was being shipped to several merchants.

Divers found 19.1 pounds of annatto at the shipwreck. It is in small, dark red blocks. A few are almost brick size, but most are smaller. Marks of straps or bands are on several pieces. Cloth impressions are on some. These marks suggest that the blocks may have been wrapped for transport. No preserved annatto seeds or pods were in the material from *El Nuevo Constante*. However, the impression and molds of many seeds were in several concretions.



Europeans had a great demand for blue dye. One source was indigo, a plant grown on colonial plantations. The Spanish first began raising it in the West Indies. Later, it also became an export item of Mexico, Honduras, and Louisiana. The 2,896 pounds of indigo on *El Nuevo Constante* were in pouches that weighed 200 pounds. Divers found only one small piece of indigo on the wreck.



Logwood was another European source of blue dye, and also of red. It provides a blue color when treated with alkali and an impermanent red when treated with acid. This blue is more violet, and more likely to fade, than indigo. Logwood is known both as dyewood and as Campeachy wood, after the port of Campeche. It comes from a hard, compact tree grown in Central and South America.

El Nuevo Constante carried 1,032 short logs of logwood, weighing 40,000 pounds. The complete shipment was for the Casa de Contratacion, the House of Trade. This was the government body that regulated trade with the New World.

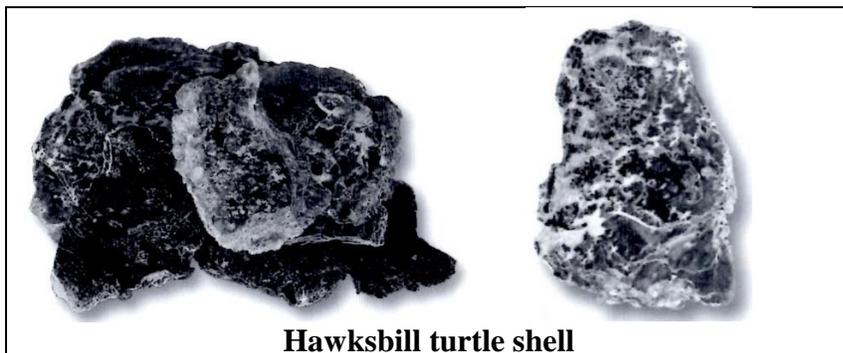
Archaeologists found 76 pieces of logwood on the shipwreck. They average 50 inches long and 5 inches in diameter. Several of the larger logs have small holes cut in one end, to help with lifting.

The manifest lists 2,659 pounds of cacao (chocolate beans) on the ship. It also notes one box of processed chocolate. Impressions and molds of cacao beans are in concretions from the wreck. Also in the cargo were 253,600 vanilla beans, which were used to flavor chocolate. These vanilla beans weighed about 4,900 pounds. Next to silver coins, vanilla beans were the most valuable cargo on board, The Spanish salvaged most of these after the hurricane. Archaeologists did not find any vanilla beans on the ship.

El Nuevo Constante carried 60,520 pounds of Ipomea purga, a plant used as medicine. This was the largest amount of any cargo item. The Ipomea was packed in boxes, bales, and flats wrapped in hides or canvas. Also on board were 6,959 pounds of zebadilla, a plant from Central and South America. It had many uses in Europe. It was a laxative, an insecticide, a treatment for arthritic rheumatism, and snuff. However, it caused extreme stomach irritation. So, by the 1820s, it was used mainly as an insecticide. No remains of either of these plants were found at the site of the wreck. The Spanish salvaged a small portion of them, and the rest probably decayed.

Four olive jars of balsam, which weighed a total of 192 pounds, were on *El Nuevo Constante*. Balsam was a tree resin used in medicines and perfumes. Copal, also a tree resin, was used in varnishes and incense. One box of copal, weighing 125 pounds, was on the ship. The Spanish saved the copal, which had one-quarter of its original value when it finally reached Spain. Neither the Spanish nor the archaeologists recovered any of the balsam.

Other cargo items were two pictures on canvas and two kimonos. The kimonos probably came from the Orient by way of the Manilla galleon. Spanish records say they salvaged the two kimonos, but not the two pictures. *El Nuevo Constante* also carried 900 pounds of gun powder and 60 bundles of flour for troops posted in Havana, Cuba.



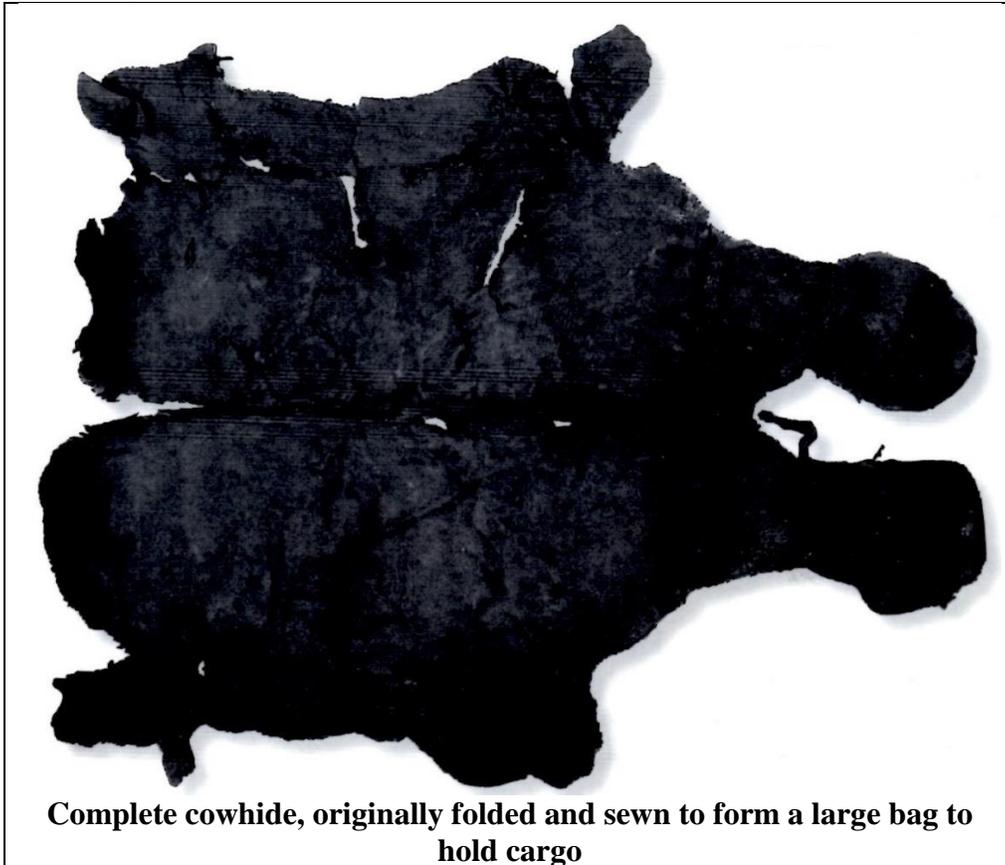
Hawksbill turtle shell

Hawksbill turtle shell

The ship's manifest lists four boxes of turtle shell, for a single merchant. European artisans would have crafted the shell into snuff boxes, combs, and other items. The Spanish saved about half of the shipment from the

grounded ship. Excavators found 11.3 pounds of Hawksbill turtle shell on the wreck. Cut edges are visible on many pieces, some of which are thin enough to see through.

Another of the organic cargo items that survived is leather. Although most of the pieces are tattered, one cowhide is complete, and several others are nearly whole. The complete hide had been stitched around its edges to form a large bag. Stitching holes are at intervals of about one-fourth inch. The threads have not survived, but their lashing marks are still evident.



Complete cowhide, originally folded and sewn to form a large bag to hold cargo

A slit is on either side of the neck near the shoulder region. Similar slits also are found in other, smaller fragments of hide. These hide bags probably were containers for cargo, with each one holding about 200 to 225 pounds. The slits in the hides probably served as hand holds for lifting. Brands are on the complete hide and several fragments, and a shipper's mark is cut into one piece of leather.

In Veracruz *El Nuevo Constante* was first loaded with a large amount of precious metals. At that time, the cargo included gold and silver coins, silver bars, and copper ingots. However, the gold coins, silver bars, and some of the silver coins and copper ingots were shifted to other ships during the delay between May and August. When it finally left Veracruz, *El Nuevo Constante* carried 22,000 pesos in silver coins for the crew's salaries. These coins were the most valuable cargo on board. The ship also held 143 ingots of copper weighing 12,471 pounds.

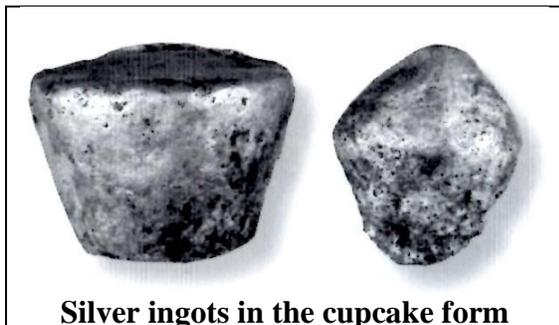
Records state that the Spanish recovered all of the silver coins after the shipwreck. During excavation of the *El Nuevo Constante*, divers found 30 pieces of silver. Together, these weigh more than 80 pounds. The silver is in two shapes: flat discs and cupcakes. There are also several

irregularly shaped pieces. The Spanish called the disc-shaped ingots "planchas." They were cast in simple, circular molds or in shallow holes in the ground. The six discs of silver weigh more than 62 pounds. Twelve pieces shaped like cupcakes weigh a total of about 10 pounds. Most of these have rounded or pointed tops, but one has a flat top. Nine ingots with irregular shapes weigh a total of 9.3 pounds.

Complete cowhide, originally folded and sewn to form a large bag to hold cargo. Nine ingots with irregular shapes weigh a total of 9.3 pounds.

None of the silver has tax stamps or owners marks. Furthermore, the historical records do not list silver ingots as cargo on *El Nuevo Constante*. Therefore, it is likely that all of the silver ingots found at the wreck were smuggled out of Mexico. These items probably were hidden in the lower part of the ship. After the wreck, the Spanish could not reach them, and their owners could not safely retrieve them. Spectrometric tests on one disc show it is 91.5% silver and 6.4% iron, mixed with small amounts of lead and copper.

Ten pieces of gold, weighing a total of 50.4 pounds, also were recovered from the wreck. Most are discs, or planchas, and one is an irregularly shaped piece. The disc-shaped ingots were cast the same way as the silver ones. Two discs bear the stamps of Roman numerals V and VII. These numbers probably are owner's tally or record marks, not related to weight or gold content. Three small, crescent-shaped indentations also are on the flat sides of two of the ingots.



Silver ingots in the cupcake form

Spanish officials had strict control of precious metals leaving the New World. They normally marked ingots with many insignia, tallies, and stamps. The absence of such markings on the gold pieces from *El Nuevo Constante* means that they were not shipped legally. Also, since no gold ingots are listed on the manifest, they, like the silver, are believed to be contraband.

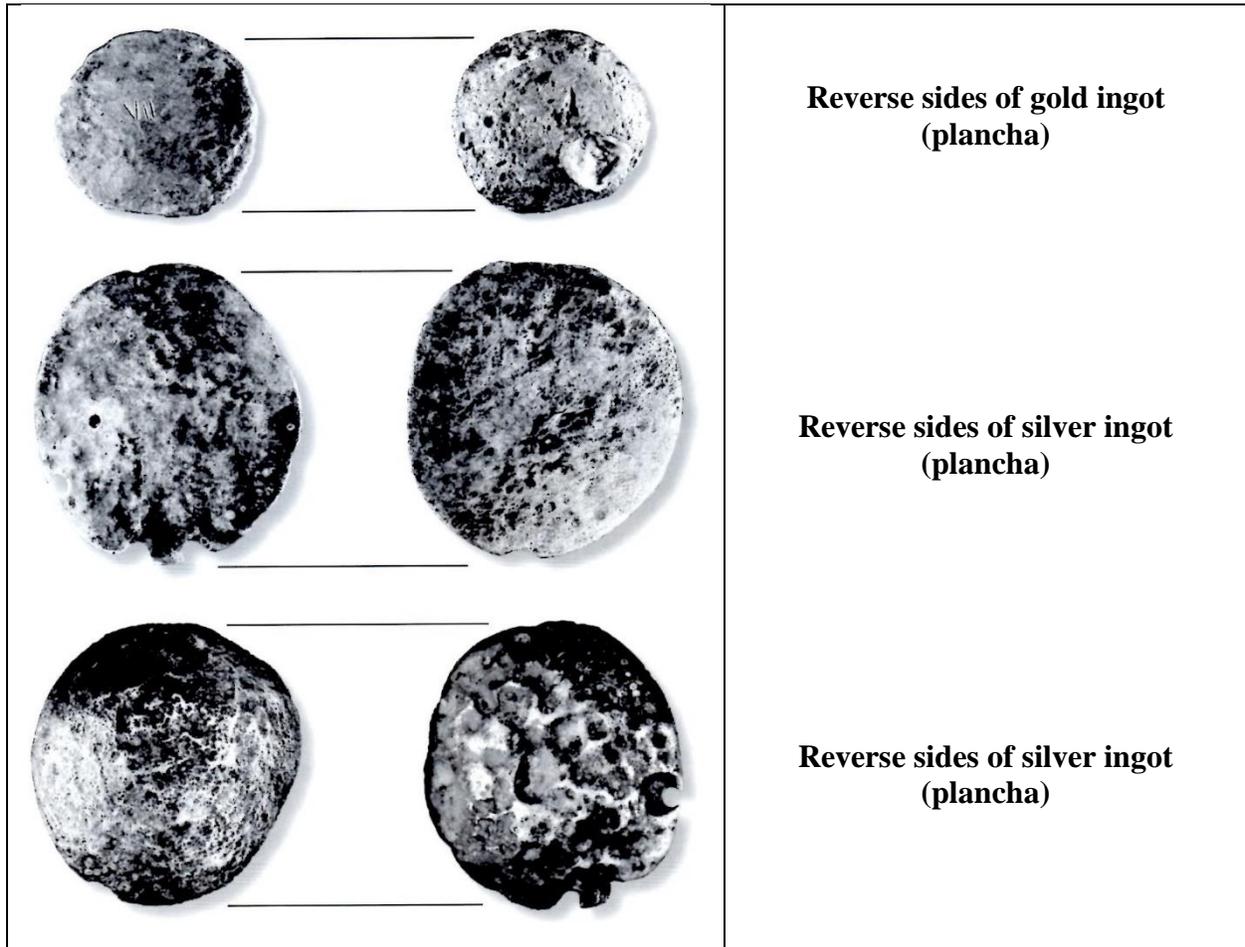
El Nuevo Constante also transported many copper ingots. In Spain, the copper would have been used to make cannons, bells, and other items. At first, the ship was loaded with 2,058 ingots of copper. Then, before sailing, the 1,915 ingots for the royal treasury were moved to another ship. This left 143 ingots of copper weighing 12,471 pounds. There is no record of the Spanish retrieving these after the storm.

At the wreck, 103 ingots were found. They weigh more than 7,000 pounds. These ingots, or planchas, are discs, flat on one side and slightly convex on the other. Recovered pieces vary in diameter from 12 to 24 inches. They range in weight from about 24 pounds up to 145 pounds.



Copper ingots

The ingots were cast in simple furnaces that allowed the molten copper to cool in depressions scooped out of the ground. The upper, flat surfaces show swirls and bubbles formed during pouring and cooling. Many ingots contain small pieces of charred wood from the fire used in processing the copper. Much of the copper probably was stored deep in the holds of the ship, where it served as ballast. Once the vessel grounded, the holds flooded, preventing recovery of the copper.



Personal Possessions

Only a few artifacts were found that came from clothes or personal belongings. This fact suggests that the passengers and crew removed most of their possessions after the ship grounded. Among the few items found are brass and pewter buckle parts and a leather shoe heel.

Based on their sizes and designs, two of the three buckles are from shoes. During the 1700s, shoe buckles reached their peak in popularity. Their style and quality showed the wealth of the wearer. The shoe buckles from the wreck are pewter and are simple in design, so it is possible that they belonged to crew members. The smallest buckle frame is probably a collar, knee, or hat buckle.

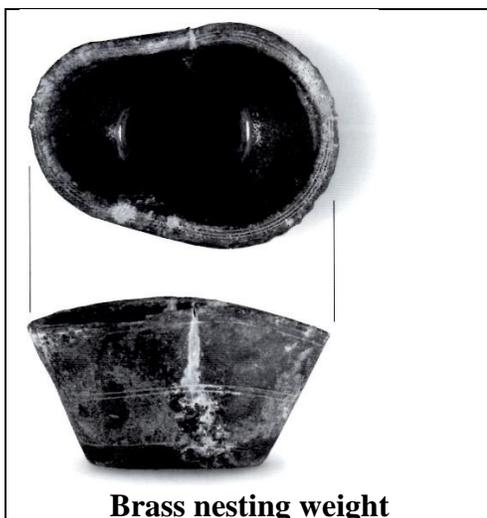


Other personal items from the wreck are a small brass hinge or clasp, half of a snap, a metal button, and part of a pipestem. The button has a hooped back and has the letters I and M (or W) stamped on the back.

Several fragments of cloth were brought up during the excavations. Three types of material have been identified: several pieces of black wool, probably from clothing, a piece of coarse cloth made from alpaca wool, and a single fragment of green and gold brocaded silk. The silk may have been upholstery or clothing.

Miscellaneous Artifacts

Other artifacts are one small brass ring and two large copper rings. These could have been curtain rings or part of the ship's hardware. A brass nesting scale, or weight, probably one of a set, also was found. One similar weight was found on a 1554 Spanish shipwreck at Padre Island, Texas. Two complete sets of this type came from a 1715 Spanish shipwreck in Florida.



Conclusions

El Nuevo Constante was not a treasure ship. It was a merchant ship carrying a wide range of common export items from Mexico. Ironically, the ordinary nature of the cargo made the ship especially interesting to archaeologists and historians.

Commercial treasure hunters focus on ships with valuable cargo. Then they search primarily for precious metals and other valuables, often disregarding small fragments of other cargo, ship's parts, and many items relating to ordinary life on the ship. Although at least one treasure hunter had researched *El Nuevo Constante*, he did not want to salvage it, because he knew he would find very little gold and silver.

Archaeologists and historians are interested in all the information they can recover about a site. The excellent preservation of the remains of *El Nuevo Constante*, and the careful excavation, provided much information about merchant ships of the 1700s. Many details about shipbuilding techniques and materials provided by *El Nuevo Constante* are particularly valuable because so few ordinary merchant ships of the period have been found and studied.

Some of the artifacts recovered from the wreck are not reported from other shipwrecks. The miniature Guadalajara ceramics show the range of Mexican ceramics exported during the 1700s. These are rarely described or pictured in historical documents or archaeological reports. The large, leather storage bags from *El Nuevo Constante* are unique, never having been reported from other shipwrecks. Many other artifacts also provide an exceptional opportunity to look at what was once commonplace.

The project as a whole gives insight into the danger, risks, and costs once associated with shipping New World plant and animal products to Spain. The investigation of *El Nuevo Constante* sheds new light on the ships and cargoes of the Spanish empire in the middle of the eighteenth century.

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