Southernmost *Atocha* Anchor Found

Report by James J. Sinclair, MA

On August 20, 2005, the survey vessel "*Huntress"* captained by Gary Randolph and diver and conservator John Corcoran were checking their mag hits (magnetometer anomalies) that had been located during one of their recent surveys. The area that they were searching is located between the outer reef line and the "Main Pile" or primary cultural deposit (PCD) of the ***Nuestra Senora de Atocha, 1622.*** This area is logically the area that the *Atocha* passed over while sinking on that fateful day in September of 1622 and the goal of the survey was to determine if any material from the sinking was present in this area.

Unfortunately, years of unrestricted dumping and military target practice have left iron fragments of aerial bombs strewn throughout most of this area. This with the presence of lobster traps and other modern debris makes the search for ancient shipwreck material more challenging. However, the crew of the *Huntress* came across what is considered one of the major site features one may expect on any historic period shipwreck – an anchor. More accurately a part of an anchor that included the shank, the ring and part of the wooden stock had all survived in the densely packed mud that constitutes the bottom sediment in that area.

A History of Anchors

The beginnings of the usage of anchors are lost in time. But most likely soon after our ancestors developed anything more than a log to float on, that provided some stability the need for or at least the desire to make that craft stay in one spot became operative. The first anchors were probably of a sort known as a dead weight, i.e., a weight that drops to the bottom of the water and stops the motion of a craft. Indeed, the earliest recognizable anchors that have been recovered are of this sort.

Earliest records of moorings come from Egyptian tomb furniture 2000 BC where ship models were equipped with conical stakes and papyrus ropes for mooring the vessels to the shore. Later tombs 1600 BC yielded ship models with grooved or perforated anchor stones. When the 1400 BC tomb of King Tut was opened anchor stones shaped in a T were found. Four hundred years later, about 1000 BC, Homeric poems still specify "anchors of stone."

Stone Anchor from Uluburun Wreck Stone Anchor from Uluburun Wreck

The stone Anchors pictured above were recovered from the Uluburun wreck by a team from the Institute of Nautical Archaeology headed by George Bass. The wreck has been dated to 1360 B. C. E.

Crooked sticks or wooden frames weighted with stone (Killicks] are known to have been in use in ancient times; and are still used in remote regions. Some of these crude anchors show the equivalent of rudimentary stocks. In 800 BC, two-armed hooks, without stocks, were cast in bronze on the island of Malta. A Sardinian scarab, 650 BC, shows a stockless two-armed anchor, which was probably the first anchor made of iron. Greek writers, 500 BC, mention "stone anchors with iron hooks". Herodotus relates that stone anchors were towed astern to steady ships coming down the Nile. A coin of 400 BC shows a two-armed stocked anchor apparently filled with lead.

Lead Stock Roman Anchor

Its form begins to approximate the "Admiralty" pattern of recent times. An anchor shown on a Greek coin of about 375 BC, includes the essentials of an Admiralty anchor, except palms. The anchor shown on a Syrian coin of about 312 BC, is even more modern in appearance.

By 300 BC vessels of the Athenian navy were equipped with iron anchors weighing up to 440 pounds.

Greek coins of 280 BC show anchors with rudimentary palms. An English anchor shaped from the fork of a yew-tree is ascribed to 100 BC. A Cyrene iron anchor without palms, and inscribed with the ship's name, is attributed to about 50 BC. Depictions of iron anchors of the time of King Herod, about 35 BC, show curious enlargements on the shanks believed to be carryovers from the times when cylindrical perforated stones were strung on wooden anchor-shanks, and also show palms on the arms. Sculptures on the Arch of Tiberius, about 20 AD, show similar enlargements on the shank, but no palms.

About 40 AD the ship of Emperor Caligua was equipped with a 16 foot iron tipped oaken anchor with a heavy leaden stock. This was discovered intact when Lake Nemi, near Rome was drained in 1929. At the same time there was discovered, after 1800 years submersion, a wood-sheathed iron anchor weighing about 1000 pounds. Distinguished by the fact that it had a portable stock, which was an invaluable convenience lost to the world until "invented" again some 1700 years later and finally adopted by the Admiralty in 1854. In 88-97 AD St. Clement the fourth Pope, is said to have been thrown into the sea, tied to an anchor a method of execution not uncommon in those days. From ancient times St. Clement has been the Patron Saint of Anchorsmiths, who formerly observed his Feast Day on the 23rd of November.

Iron anchors are said to have been first forged in England (East Anglia] in 573 AD The Danish "Oseburg Anchor," about 800 A.D., had very small palms, and was constructed for use with a wooden stock.

Oseberg Ship Anchor

The medieval anchor of 1066 AD as depicted in a Bayeux tapestry looks almost modern.

Bayeux tapestry circa 1066

The Statutes of Genoa of 1441 AD required a 1500-ton ship to carry 12 iron anchors of from 1600 to 1800 pounds each. A Florentine engraving of 1450 AD shows a two-piece wooden stock of the style popular for the following 400 years.

http://www.nvo.com/baldtus/po003data/

Spanish Anchors

Spanish anchors were made of iron those anchors found in association with the *Atocha* its sister ship the *Santa Margarita* are all iron. Unfortunately for the Spanish they possessed an inferior grade of iron ore that rendered the anchors more brittle, the English saying “as bad as a Spanish Anchor” became common and was applied to inferior products of the time.

“Even though the Spaniards possessed a good quality hematite ore, they produced poor quality iron guns, anchors and shot due to their lack of knowledge of the behavior of cast iron.
The historical evidence indicates that in the smelting and fluxing of the ore, the refining after smelting, and in the molding and casting techniques, the Spanish were years behind the English. Practically all of their iron castings contained slag. The inferior quality and brittle nature of the shot, coupled with the explosive force of the potent "black powder" caused the shot to crack and partially disintegrate prior to hitting its target. Similarly, many of the cast iron guns exploded during the firing, indicating poor strength and poor ability to absorb shock and vibration. For the same reasons Spanish anchors broke under the stresses of heavy seas and were the cause of many shipwrecks”.

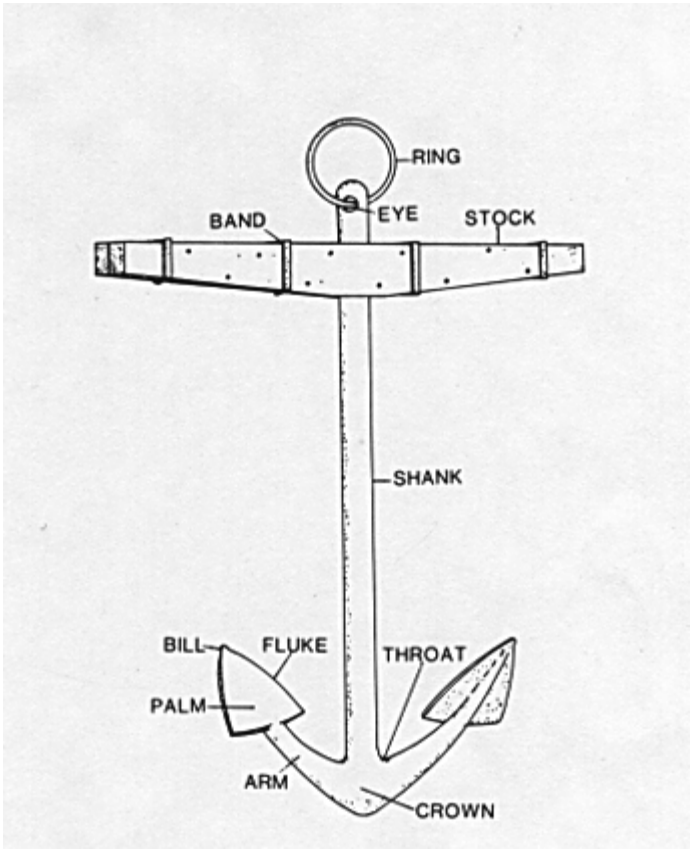
http://members.lycos.nl/cvdv/historycastiron.htm

and:

“Sixteenth-century Spanish anchors were noted for their structural weakness, perhaps due to a poor grade of iron or method of manufacture”.

http://www.flheritage.com/archaeology/projects/shipwrecks/emanuelpoint/bow.cfm

Anchor Terminology



Parts of an Anchor

Arm - Part of the anchor extending from the crown end of the shank and connecting to the palm.

Band - Metal loop securing the two sections of the wooden stock together and to the shank.

Bill - Very tip end of palm.

Crown - The pointed end of the anchor which attaches the shank to the arms.

Eye - Hole in the end of the shank through which the ring is attached.

Fluke - The spade shaped appendage of the arm used for digging into the sea bed in order to secure the vessel.

Palm - Flat upper most portion of the fluke.

Ring - The working end of the anchor which rope or chain was attached to connect the anchor to the vessel.

Shank - The vertical stem of the anchor.

Stock - Cross bar of the anchor which turns the anchor into an attitude that enables the fluke to dig in to the sea bed.

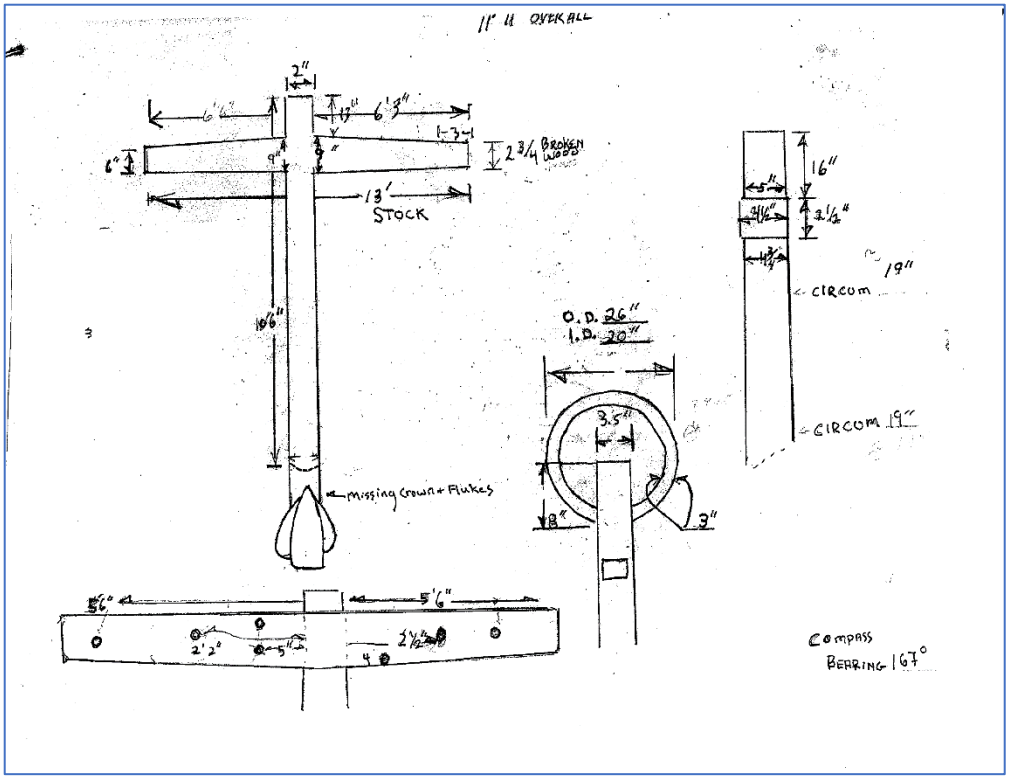
Throat - The curvature between the shank and the upward part of the arm.

http://www.indiana.edu/~scuba/spanchor/saterms.html

Southernmost *Atocha* Anchor

The anchor discovered by the crew of the *Huntress* is approximately ¾ of the shank, the ring and degraded stock of what would have otherwise been one of the major anchors aboard the *Atocha*, most likely this was one of the "Bower Anchors". Interestingly in 1984 during a search of the northern scatter trail of the *Atocha* a section of anchor was located that roughly corresponds to the missing piece of the southernmost anchor find. However, it seems physically impossible for these two pieces to be related.

The Southernmost anchor's shank points straight at the "motherload" or primary cultural deposit area of the *Nuestra Senora de Atocha*. The ring is extended and there are even traces of cordage that once attached the anchor to the vessel. This seems indicative that the anchor fragment when lost had been under stress, or if you will, was being dragged by the now sinking *Atocha* and was finally lost or cut leaving it in its current location. This in turn would indicate that the crown, arms, palms and remainder of the anchor shank are seaward of the current location perhaps even on the far side of the reef in deeper water.



Southernmost Anchor Specifications

The anchor had it been complete would have been nearly 13ft. long to the crown and arms and palms would have extended close to 8 feet on a perpendicular to the current position of the shank and stock.

One can only imagine the panic and terror during the last moments of the *Atocha*, but we must assume that the commanders ordered anchors deployed to try to keep off of the rapidly approaching reefs and shallows, the tremendous pressure exerted on the anchor caused it to snap, the *Atocha* continued onward, crashing into the shallow reef and staving in it's bow. Swiftly filling with water after the impact the *Atocha* sank sending 260 people to their fate.

All of the artifacts recovered from the *Nuestra Senora de Atocha*, with research and study have the ability to tell parts of the story of the people aboard, their culture, their economics and their society. Perhaps no other single object has the ability to impart, quite like this anchor, the emotions of those last moments.