



Stone Anchors of the Persian Gulf

By Sorna Khakzad and Ali Moosaie

Iran has more than 989 kilometers of shoreline along the Persian Gulf. Walking the northern coastline of the Gulf is an amazing experience for those who are interested in archaeology and history. There are remains of ancient cities, ports, buildings, and wide range of artifacts, from broken pottery to gravestones. Seeing this, one might wonder about the history of seafaring and sailing in the Persian Gulf, and the travels and trade between Iran and other countries that are connected to Iran through this waterway.

Present-day Iran was historically part of the larger empire of Persia (550 BC-AD 1925). According to historical sources and studies, Persian seafaring dates back at least to the Sassanid era (AD 224-651). Some background studies about Persian maritime history can be found in Greek literature, travelers' accounts, and artworks. Yet, despite its extensive maritime history, there have only been a few publications exclusively devoted to Persian naval history, among them *A History of Persian Navigation* (Hasan 1928) and *Daryanavardiye Iranian: Iranian Navigation* (Raeen 1971). This article will present one aspect of Iranian maritime history by examining an inventory of stone anchors that were observed and recorded in a number of historic ports and villages along the shoreline of the modern provinces of Bushehr and Hormozgan.

Stone anchors are known from many different parts of the world. They have been documented in a wide range of shapes and sizes. Some have flukes and some do not, while others have piercings for wooden or iron arms that dig into the seafloor. They have shanks in a



Stone anchor near the ancient port of Rishahr, Iran. Scale in 5-cm increments. All photos by the authors.

variety of shapes, as well as varying numbers and shapes of holes. The holes may penetrate the face of the anchor or occur at the shank, extending through the edge or profile of the artifact (these are referred to in this article as side-holes). Studying stone anchors is important for understanding ancient ship types, their sizes, and functions. Anchors may also aid in determining the

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origin of the ships that carried them, thus enabling a study of the history of navigation through the mapping of shipping routes and anchorages.

The collection of anchors reported herein was put together through on-site observation, documentation, and archival study. On-site findings were observed and recorded, in part, during ongoing construction and development in the case study areas. The documentation includes the locations of the objects, as recorded by Global Positioning System (GPS), their weights and sizes, and photos and drawings. The data resulted in the classification of the anchors as presented in this article. The study area covers the shoreline of Bushehr Province, where several important historical ports and traditional fishing villages are located. The research sites, listed below, were selected from among important archaeological and historical sites in danger of destruction or loss of archaeological artifacts.

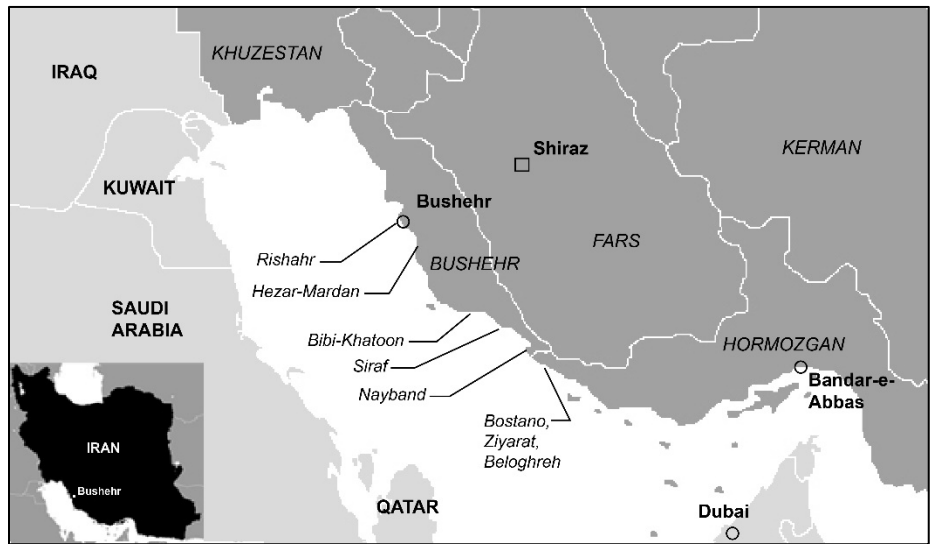
Rishahr

Rishahr, now located within the city of Bushehr, was one of the major ports in the Persian Gulf. Rishahr, historically known as Rev Ardeshir, was an Elamite city and an important port during the reign of King Ardeshir (180–242 AD). Currently, remains of Rishahr are located in and around a large extended cliff, which varies in height along the shoreline and in some locations reaches 10 meters (33 ft). The site includes remnants of a collapsed well, human remains, and several types of carved stones and stone blocks found within different layers of the cliff and on the shoreline. Previous archaeological studies recorded the ruins of an ancient pier or breakwater extending from the shoreline to the sea. Among the remains, several stone shanks and anchor types were documented. Some peculiar stone objects, whose functions have yet to be identified, also were noted.

Moving southeast from Rishahr towards the town of Siraf, local people reported several additional anchors. While composite three-holed anchors are very common in the Mediterranean, and examples have been found on the Arabian side of the Persian Gulf, the only three-holed composite anchor observed so far within our case study area came from the archaeological site of Bardu, to the south in Bardestan, near Siraf.

Siraf

Siraf is a coastal town, well-known by national and international archaeologists and was mentioned historically in many travelers' accounts as an important port. Extensive terrestrial archaeological excavations



Persian Gulf Coast of Iran. Image by the author.

and some underwater cultural heritage studies have been conducted near this town. Three Indo-Arabian anchors were reported by David Whitehouse in work for the British Institute for Persian Studies in 1970, and three single-holed anchors were observed (two fully documented) during 2012 studies by the author.

Nayband

Nayband is located about 60 km southeast of Siraf. Here, the remains of a breakwater, a deep water anchorage, and historic ruins can be seen. Nayband was mentioned in historical records, while travelers and contemporary historians such as Yaqout, Al Muqaddasi, and Ibn Hawqal described this city around the 9th to 11th centuries as a port with a good anchorage area for ships. Terrestrial archaeological studies of this site have documented its archaeological and maritime historical significance. Archaeologists have identified some of the buildings among the ruins along the coast as trade, storage, and customs buildings. More than 200 stone anchors and stone weights have been documented at the site. Most of these artifacts were observed in terrestrial areas among the rubble. Only one anchor was recorded in the tidal zone. Several stone artifacts that seem to represent incomplete anchors were also observed at this site. More extensive underwater studies need to be conducted on this site.

Bostano

Residents of Bostano, a village in Hormozgan Province, south of Bushehr Province, have been engaged in fishing for many generations. Although the present buildings are not historical, there are records of archaeological remains beneath and around the village, and the area has been identified as historically important by international scholars. Local people from Bostano reported finding stone anchors when digging wells or foundations for new buildings. These anchors are larger

in size in comparison with ones found in Nayband and Siraf (about 60-75 cm long *versus* a maximum 50 cm) and are similar to the *al-sinn* type (see below). Among them is one anchor that is slightly different from others, the only one that has been recorded with three holes on its face. The upper part of the anchor is broken, so it is not possible to determine anything about its side hole. It was donated to the Persian Gulf Maritime Trade Museum in Bushehr by a person who found it at a depth of about one meter while digging a well on his property.

Typology and Classification

Different criteria for stone anchor classification were utilized by the authors for this study. Characteristics of the artifacts that could be accurately and precisely recorded, such as weight, size and number of holes, were documented. Two additional considerations were the shape in outline and the type of material used in the manufacture of the anchors, the latter possibly providing further information on the artifact's origin. Of the stone anchors examined, local geologists identified the materials used as sandstone, limestone or coral, all of which exist locally in the mountains as well as along the rocky coastline. However, not all of the anchors could be specifically identified as to stone type, and thus the information was not used in the final categorization. Overall, the results of the classification indicate that several types of stone anchors could be distinguished. The types are presented in the following seven major groups.

Large Al-sinn Type

The first group of stone anchors is the large *al-sinn* type. They were reported by local residents in Bostano. They are roughly triangular in outline, with lengths that range from 50 cm to 70 cm, and weights between 45 and 75 kg. Most have one hole on the face and one hole on the side (the form of the side holes was not recorded, only the location was noted). As previously mentioned, one of these anchors is exceptional, with three holes on its face. We have called this one "Persian-Bostano Type." One triangular anchor from Nayband is similar to the *al-sinn* forms but is lighter in weight in comparison with the ones from Bostano. Therefore, it is classified under the category small *al-sinn* type.

Small Al-sinn Type

These anchors share the generally triangular outline of the large *al-sinn* type but vary in their sizes: lengths vary between ~15 cm and ~40 cm; thicknesses vary between 5.5 cm and 11.4 cm; weights vary between 2 kg and ~18 kg. Some of these anchors are badly damaged, broken or weathered, and therefore the exact location of the side hole and its form is unclear. Among this type, one was found uncompleted. Anchors of this type were recorded in Nayband.

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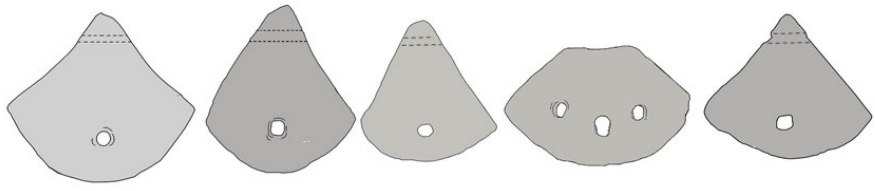
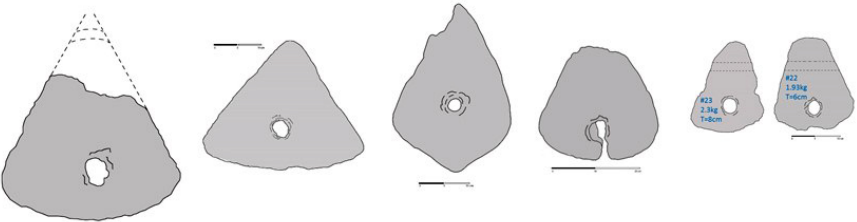
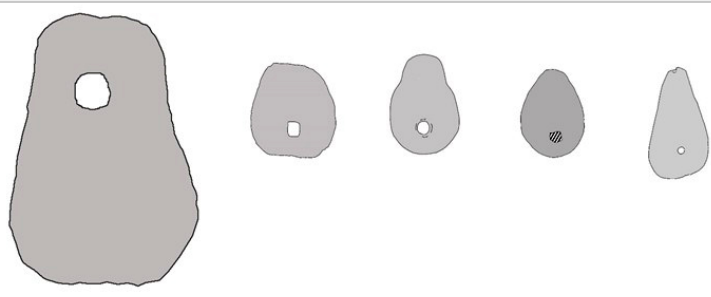
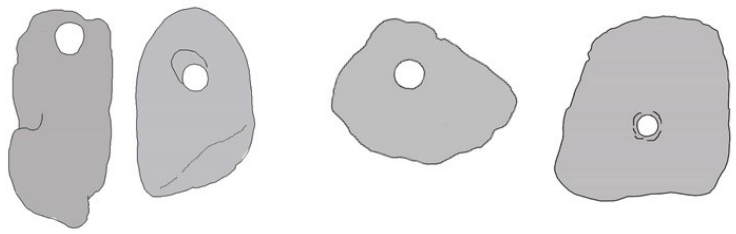
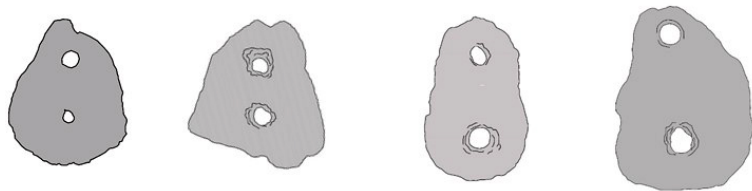

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Type	Drawings	Criteria
Large <i>al-sinn</i>	 <p>75.5kg T=13cm 61kg T=13cm 44.5kg T=12cm 44.5kg T=11cm 48kg T=10.5</p>	<ul style="list-style-type: none"> Different weights, more than 40kg. Different numbers and shapes of holes Same location: Bostano
Small <i>al-sinn</i>	 <p>15.6kg T=10.5cm 11.4kg T=11.4cm 4.7kg T=5.5cm 4.3kg T=7cm 2.33kg T=8cm 1.93kg T=6cm</p>	<ul style="list-style-type: none"> Triangular, with slight variation in carving Different weights, Different sizes Same location: Nayband
Pear-shape	 <p>Weight N/A 4.6Kg 3.37Kg 3.4Kg 4.2Kg</p>	<ul style="list-style-type: none"> Pear-shape Same weight category (except for the unknown weight of Siraf anchor) Different shapes of holes Different locations: Small ones in Nayband, and the large one from Siraf
Single-holed	 <p>4.5Kg Rishahr 4.5Kg Rishahr 13.1Kg T=12cm Nayban 36Kg T=14cm Nayban</p>	<ul style="list-style-type: none"> Single-holed Uncategorized shape Different sites
Two-holed	 <p>Weight N/A T=6cm 4Kg T=7.5cm 5.5Kg T=13cm 5.4Kg T=6cm</p>	<ul style="list-style-type: none"> Two-holed Same weight category Different shapes Same location: Nayband
Three-holed	 <p>21Kg Bardoo</p>	<ul style="list-style-type: none"> Three-holed composite anchor (Byzantine-Arab) Three holes on the surface Location: Bardu in Pardestan Port

Stone Anchor Types (T=thickness).

Pear-Shaped Type

A number of stone anchors with a pear shape in outline, with one hole on the side and one hole on the face, or only one hole on the face, were recorded from Nayband and Siraf. However, their forms vary to some extent, and the shapes of their surface holes are different as well. Their lengths vary between 20 cm and 50 cm, and they weigh between 2.5 kg and 5 kg. The largest anchor is from Siraf, and it is larger in comparison with the ones from Nayband. The latter can be considered big weights rather than anchors.

Single-Holed

Several single-holed anchors, in a variety of shapes, were recorded from Nayband and Rishahr. We put them in the single-holed group with uncategorized shape. Their sizes, weights, and thicknesses vary.

Two-Holed Type

Four two-hole anchors, different in form, were recorded in Nayband. The two holes are on the face. Their lengths are between 20 cm and ~30 cm, and weights between 4 kg and 5.5 kg. However, they are weathered and their original weights and shapes are not completely identifiable. Their thicknesses vary between 6 cm and 13 cm.

Three-Holed Type

Three-holed composite anchors, also known as Byzantine-Arab, are the triangular or trapezoidal-shaped stone anchors with three holes on the face that were used for sandy and rocky sea beds (Frost 1963). Only one of this type was recorded during our investigations, found by local residents at the archaeological site of Bardu in Bardestan Port, about 40 km northwest of Siraf. It weighs roughly 21 kg.

Stone Weights

The smaller stones documented in this study were classified as weights. We found a variety of weights, from a simple rock with evidence of a rope wrapped around it, to more sophisticated, carved stones that were either flat or bulky. Some had drilled holes, while others were notched or had evidence of wear from a tied rope, and with or without a hole in the middle. These stone weights were recorded at sites such as Nayband, Rishahr, Bostano, and at all the fishing villages. An in-depth study of fishing techniques and vessels could reveal a clearer use of these weights for fishing.

In addition, among our findings are at least three stone anchors identified as unfinished (incomplete). They appear to be of the *al-sinn* and pear-shape types. These unfinished artifacts are evidence that these types of anchors were made locally in these locations.

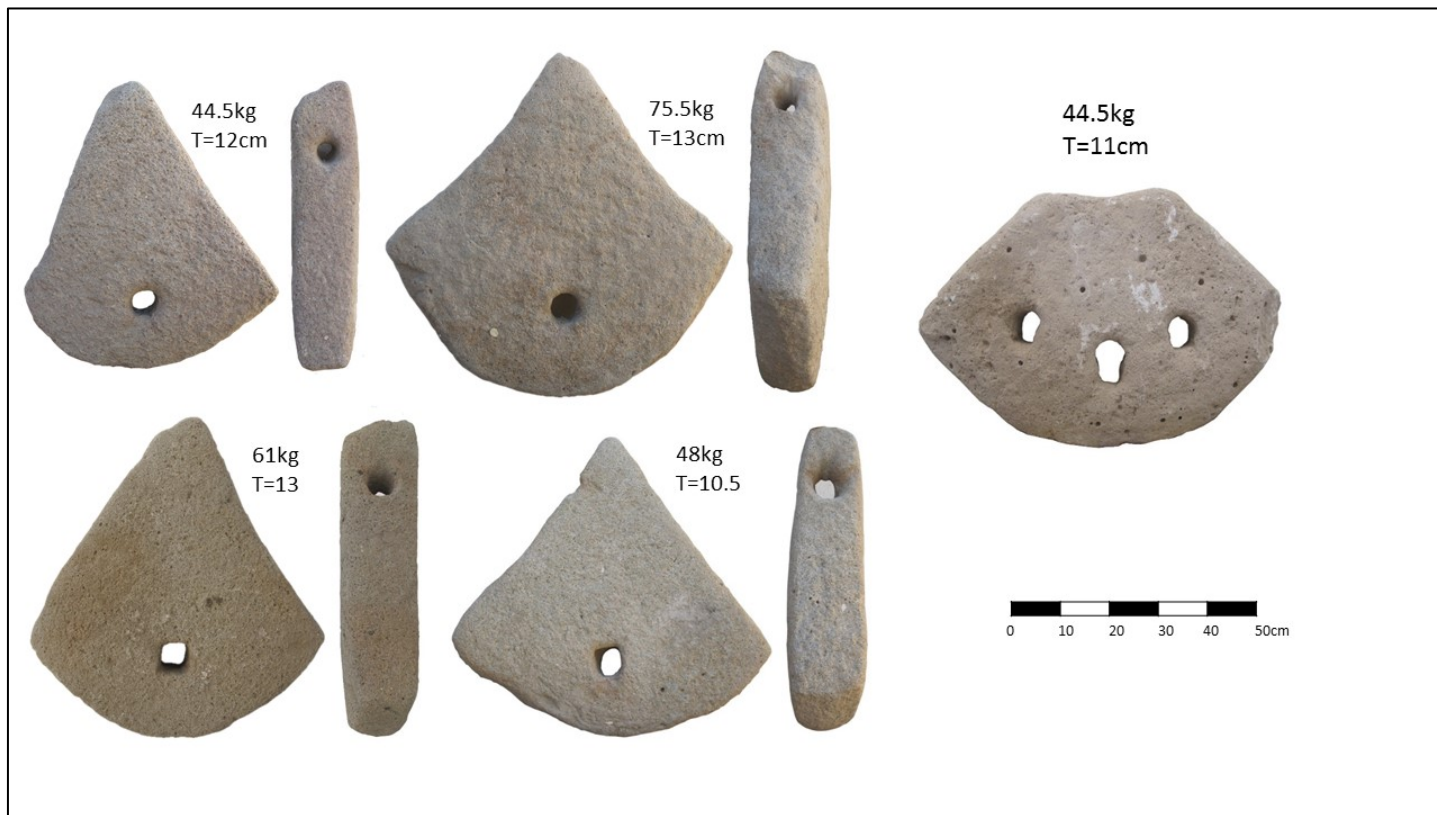


Stone Weight (length 13 cm, width 11 cm, thickness 4.5 cm, weight 960 grams).

Discussion

In the present study, more than 300 stone anchors and weights were recorded. We documented three anchors in Rishahr, 15 weights in Hezar Mardan (south of Rishahr), 32 weights and anchors in Bibi-Khatoon (near Siraf), more than 200 weights or anchors in Nayband (and still counting), and five anchors in Siraf. Six additional anchors were reported in Bostano by local residents. We also observed 19 weights in Javado'l Aemeh, 12 in Beloghreh, and 17 in Zyarat, small villages near Bostano. The stone anchors and weights in Bushehr Province, which were in danger of loss and destruction, in addition to those donated by local people, were transferred to the Maritime Trade Museum in Bushehr.

We classified these findings based on their shapes, weights, the number of holes, and their location of recovery. The stone types and materials were not used for this classification since we did not identify the material in all cases. Classification was not a simple task, because some types are exceptional, and several types are similar



Large al-sinn type anchors from Bostano (T=thickness).

in some ways and not in other ways. Our observations and analysis are presented below.

Anchor types and weights from certain towns and ports appear to be very specific to those areas: we have not observed many similar types in other ports, villages, or towns in our study areas. This may indicate that the production or use of some of these anchors was local, intended for limited, local fishing, pearl hunting, or for small-scale trade. For instance, we can hypothesize that the concentration of a specific type of stone weight in villages such as Bibi-Khatun or Hezar-Mardan might indicate different uses for stone weights. Or the large *al-sinn* type from Bostano might indicate the concentration of pearl hunting in this area. However, more archaeological evidence is needed to support any of these hypotheses.

Unfinished anchors of different types, possibly *al-sinn* and pear-shape, can be an indication that these types of anchors were made in those locations. In addition, the types of stone used for anchor and weight production are similar to the local stone from surrounding mountains, such as limestone and granite. Therefore, it can be concluded that at least some of the stone anchors in the collection were locally sourced. This is an important finding when it comes to the production of *al-sinn* anchors, since it indicates the Iranian side of the Persian Gulf was engaged in wider maritime activities and seafaring trading with other countries.

The concentration of stone anchors and weights in Nayband can shed light on the importance of this port. Its proximity to Siraf is notable in that it raises questions about its identification as a major port. Nayband has a deeper, more protected bay and thus was a better anchorage. Many more stone anchors and weights have been recorded there than in Siraf, suggesting that the two ports may have worked together and that Nayband was the primary anchorage for trade and sheltering ships. This is a question that needs further study.

In addition to scientific findings, this study helped raise awareness among local populations about the historical importance of these anchors and weights. This in turn resulted in additional site observation by local residents and more reports of stone anchors and weights. Therefore, the documentation of these artifacts has become an ongoing process. In addition, raising awareness helped encourage local NGOs and cultural heritage offices to organize exhibitions and set up local museum exhibits to show these artifacts.

Lastly, the inventory this study conducted provides opportunities for more research on stone anchors and stone artifacts observed in different historical ports and archaeological sites. This inventory can be used to start a database for future comparative analysis with similar artifacts from other locations around the world. Moreover, our findings from sites such as Rishahr and

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HM Schooner *Pickle*: A Little Vessel of Colossal Importance

by Rear Admiral Joseph Callo, USN (Ret.)

As a two-masted, topsail vessel, HM Schooner *Pickle*, was so small that it could not serve in the line of battle at Cape Trafalgar on the fateful 21st of October 1805. In fact, a single broadside from any ship of the line in that violent struggle between the Royal Navy and the combined fleets of France and Spain could have destroyed *Pickle*. As a result, during the Battle of Trafalgar *Pickle* served as a utility vessel, carrying out such lowly duties as picking up survivors from ships sunk during the fierce action.

Nevertheless, the schooner's special moment in history came shortly after the smoke of the Battle of Trafalgar dispersed and it became clear that Admiral Horatio Nelson had achieved a history-making victory. At that point, *Pickle*, under the command of the undistinguished Lieutenant John Lapenotière, was designated to bring the news of one of the greatest sea battles in the history of England.

Pickle was built in Bermuda and named *Sting* before being taken into the Royal Navy in 1800. The mini-warship was seventy-three feet in length, with a beam of a little less than twenty-one feet. *Pickle*'s copper bottom kept the small ship's below-the-waterline clear of barnacles and other marine growth, significantly adding to her speed.

Notwithstanding this speed, *Pickle* was exceptionally seaworthy. The latter feature was of particular importance for this mission, transiting the 1,000 miles of storm-laced ocean that Lapenotière and his crew faced in the race to get the news of the crucial Trafalgar victory to London.

The momentous message from Admiral Sir Cuthbert Collingwood, who had followed Nelson in command of the fleet after Nelson's death, began, "The ever to be lamented death of Vice Admiral Lord Viscount Nelson, who, in the late conflict with the enemy, fell in the hour of victory..."

Collingwood then went on to describe Nelson's stunning triumph over the combined French-Spanish fleet at Trafalgar. It was Collingwood's dispatch that

was entrusted to Captain Lapenotière and the little schooner for delivery to the British leaders at Whitehall, and indeed the entire British nation.

After an unusually stormy nine-day passage, *Pickle* and Lapenotière arrived at Falmouth on 4 November 1805. From Falmouth, the captain raced by horse-drawn coach to London, where he delivered the historic news in the early morning hours of 6 November. At the crucial moment, he burst into the Admiralty Board Room with his dispatch from Collingwood and proclaimed to the



HM Schooner *Pickle*. From the painting "I Have Urgent Dispatches" Gordon Frickers, 2005. (<https://www.frickers.co.uk/>)



From the painting "The Battle of Trafalgar, 21 October 1805: Beginning of the Action." Nicholas Pocock, ca. 1808. Royal Museums Greenwich. (Public domain)



Captain John Richards Lapenotière (1770-1834). The name 'Pickle' appears on the scabbard decoration of his sword. Unknown artist. Royal Museums Greenwich. (Public domain)



Rear Admiral Sir Horatio Nelson, 1758-1805. Portrait by Lemuel Frances Abbott. Royal Museums Greenwich. (Public domain)

First Secretary of the Admiralty Sir William Marsden, who was holding a candle aloft and on his way to bed: “Sir, we have gained a great victory, but we have lost Lord Nelson.”

In 1974, a group of warrant officers and chief petty officers in the Royal Navy, mindful of the wardroom’s annual “Trafalgar Night” dinners, decided that the officers “should not have all the fun.” The result was the establishment of a “Pickle Night” event in early November, approximately a week after the traditional October 21st Trafalgar Night dinners.

Then in 2004, an ad hoc group in New York decided to have a Pickle Night Dinner in the United States. The initiators of the New York City Pickle Night Dinner had two objectives in mind: to explore the relevance of Admiral Nelson’s career, and to reinforce

the importance of the special relationship between the US Navy and the Royal Navy. The venue each year—for what has become a tradition in its own right—has been the unique New York Yacht Club in mid-town Manhattan. The 2019 New York City Pickle Night Dinner is scheduled for 8 November.

This article appeared in slightly different format in the Summer 2018 issue of Sea History, the quarterly journal of the National Maritime Historical Society.

Joseph Callo’s latest book, The Sea Was Always There, is available in print and e-book form at a variety of book sellers. It was reviewed in the Fall 2012 issue of MAHSNEWS. ⚓

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Two Models for Volunteer-Driven Underwater Archaeology in Lake Erie

by Ben Ford and Carrie Sowden

The Maritime Archaeology Survey Team (MAST), associated with the National Museum of the Great Lakes in Toledo, Ohio, focuses on the Ohio waters of Lake Erie, while the Pennsylvania Archaeology Shipwreck Survey Team (PASST), based at the Regional Science Consortium in Erie, Pennsylvania, focuses on that state's Lake Erie waters. Both organizations rely heavily on amateur, volunteer archaeologists to record and disseminate information about Lake Erie shipwrecks. The two organizations, however, differ in terms of their structure and methods. This article describes the MAST and PASST models, evaluates these models, and discusses how their differences lead to varying outcomes for the recording and distribution of information about Lake Erie's submerged cultural heritage.

MAST was founded in 2000 as an independent entity to assume the legal liability of shipwreck buoys, and it is closely linked to the National Museum of the Great Lakes (NMGL) for their archaeological programs.

Carrie Sowden, the Museum's Archaeological Director, coordinates MAST activities and is the primary point of contact for MAST. In addition to supporting MAST with Sowden's time, the Museum provides financial support for their shared underwater archaeology activities. Over the past 18 years, NMGL and MAST have received support from Ohio Department of Natural Resources, National Oceanic and Atmospheric Administration, Ohio History Connection, Ohio Sea Grant, and the Cleveland Underwater Explorers (CLUE). The board of MAST is made up of members elected by the membership (membership is extended to every person who has taken MAST's training class). NMGL is the only organization with representation on the MAST Board, and that is as a non-voting member.

PASST was founded in 2013 as a collaboration between the Erie Regional Science Consortium, Pennsylvania Sea Grant, Pennsylvania Department of Environmental Protection (PA DEP), Indiana University of Pennsylvania, Flagship Niagara League, Pennsylvania Department of Conservation and Natural Resources (DCNR), Pennsylvania Historical and Museum Commission, S.O.N.S. of Lake Erie, Diver's World dive shop, and local constituents. PASST is based at the Tom Ridge Environmental Center, where the Regional Science Consortium also has their offices. All partner organizations send representatives to biannual PASST steering committee meetings. DCNR and DEP control most of the submerged lands where PASST works, and the Historical and Museum Commission is directly responsible for all archaeological sites on submerged Pennsylvania lands. Thus, all three organizations are regularly consulted, and PASST integrates their priorities into its decisions. Ben Ford, representing Indiana University of Pennsylvania, is the primary underwater archaeologist of the group, but the Flagship Niagara League contributes a maritime historian as well as a diving shipwright.



PASST course participants practice archaeological recording techniques on a lifeboat at the Erie Maritime Museum. All images are of the authors.

The PASST dive team is a separate entity based at Diver's World dive shop. To be a member of the team a diver must have completed a PASST training course. The PASST steering committee does not direct the dive team. Instead, the steering committee sets priorities that the dive team may decide to execute, and the dive team shares information with the steering committee to be used in education and outreach. There is substantial overlap between the dive team and the steering committee with dive team leadership and Ford serving on the steering committee.

One of the main activities of both PASST and MAST is to train divers in the basics of underwater archaeology, and, more importantly, archaeological ethics. Both organizations offer an introductory and advanced course. The introductory PASST course is

taught in one weekend and includes a NAUI certification card. The class starts with a Friday night lecture on the history of underwater archaeology, archaeological ethics, and an introduction to basic recording methods. Saturday begins at the Brig *Niagara* where participants are given a tour of the ship to highlight the construction features they might encounter underwater and then practice recording techniques using the small boats and timbers owned by the Flagship Niagara League and adjacent Erie Maritime Museum. The morning ends with students converting their measurements to plan maps. After lunch the participants take a written exam and practice similar skills in a local pool. The class concludes on Sunday with two open water dives where teams of students attempt to record a small boat, water intake, or similar manmade structure. The class has been taught each summer since 2015, reaching 60 students thus far.

MAST has taught 18 Basic classes since 2000, training approximately 450 students. The MAST class extends over two weekends with the first weekend consisting of lectures and dryland training and the second weekend comprising underwater practice at a dive quarry. Students can pay an additional fee for a

PADI certification. The class begins on Saturday with an opening lecture aimed to get the students interested and engaged. The rest of the day is followed with lectures on the basics of underwater archaeology, ethics, research, safety, ship parts, as well as a hands-on tutorial on trilateration – the measuring technique primarily used by MAST. All lectures are led by MAST members and Sowden. Saturday evening is the MAST annual banquet, a way to raise money, and has a keynote speaker highlighting a Great Lakes project. Sunday is spent documenting a created shipwreck on land. The “shipwreck” outline is created with rope and tape on the floor of a large empty room. The “shipwreck” is then populated with “artifacts,” which tend to be everyday items that are found in the museum’s storage. The students do at least two “dives” to measure and then plot their data. The class concludes with in-water practice in May at a local quarry that has two small recreational boats on the bottom for them to survey. The class size is limited to 30 people.

Once a diver has completed either the MAST or PASST training, they are eligible to participate in projects with that organization. But the training is more about building a constituency for underwater sites. Not all the participants are divers and not all the participants live near Lake Erie and can regularly join the dive teams. Of those who are local divers, not all decide to spend their valuable free time recording shipwrecks in the cold, dark Erie waters. However, the goal of both MAST and PASST training is for all participants to come away with a better understanding of the physical cultural heritage of Lake Erie and why it is important, making these individuals better able to advocate for the region’s archaeological sites and maritime history. For those who want to continue their education, both PASST and MAST teach an advanced course. The MAST course was conceived to encourage members to be more proactive and to lead their own project teams with guidance from Sowden. This class runs in conjunction with the Basic class. The students are given a lecture about project planning, participate in a research round table, and discuss possible projects. Their final piece of training is to be the team leaders for the practice work on Sunday at the workshop and at the quarry. They arrange their divers, give them tasks, and follow up with their notes and data. The Advanced class has been taught since 2006 and has had about 100 participants. Class size is limited to 15 people per year. This class has encouraged many people to stay involved with MAST, but of the 100 participants, only two have initiated and completed a project: recording the *Ivanhoe* and the *Sultan*.

The Advanced PASST course has been taught twice, with 10 graduates. It focuses on project



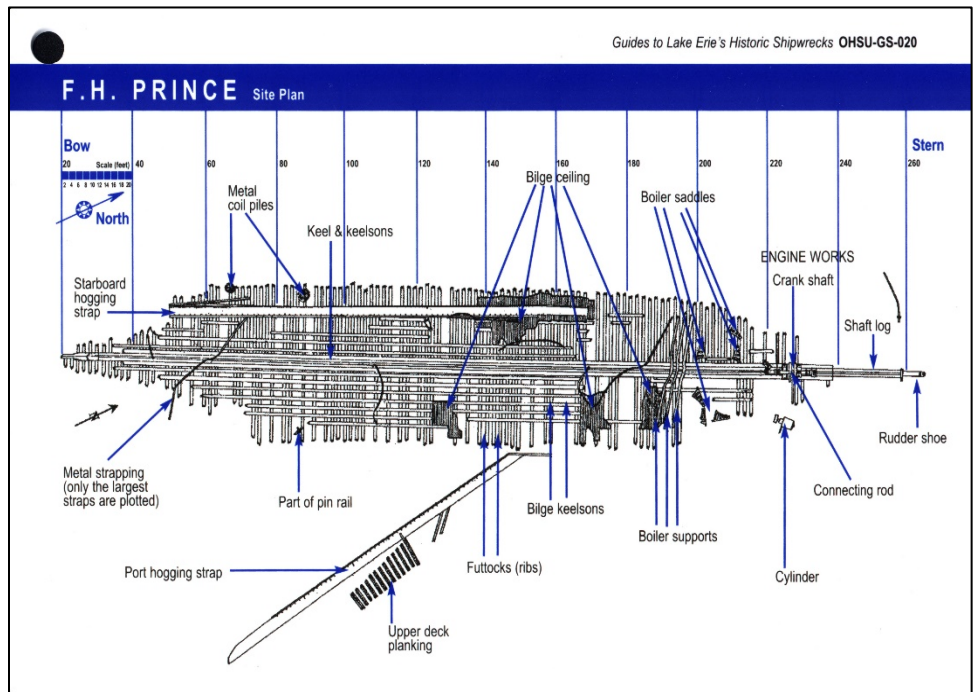
MAST Basic course participants recording a “shipwreck” of rope and artifacts.

management and planning to empower PASST divers to become team leaders. The class is taught in three evenings, focusing on dive planning, dive safety, and archaeological recording. In many ways the recording section is a review of the basic course, but since the divers have participated in several recording dives the information tends to be more relevant to them and considerable time is spent discussing specific situations based on Lake Erie conditions and the wrecks that teams are currently recording.

The PASST divers who have completed the Advanced course form much of the organization's core dive group. Of the 60 individuals who have completed the PASST basic course, about a dozen regularly participate in PASST archaeology dives, with eight as the most regular divers. Over the last 18 years, MAST has seen about 60 percent of Basic students involved in the summer survey work after their first year. The next year that percentage drops to 20 percent. If the student has taken the Advanced class, they tend to work with the organization for three to five years. Each year MAST has 15-25 active divers working on a project.

Both groups benefit from local and state financial support. MAST is funded through donations and fundraising at various SCUBA and shipwreck events. Most of the money that MAST raises goes into their buoy program, which has installed 11 buoys in Lake Erie. NMGL applies for grants and funds much of the field work the two groups do together from their operating budget. PASST has been able to cover the fuel and breathing gas costs of participants with grants from the S.O.N.S. of Lake Erie, Erie Community Foundation, PA DEP Coastal Zone Management, and Scotts Electric. One of the major threats to PASST is the lack of a sustained and consistent funding source.

With their different funding and organizational structures, PASST and MAST take different approaches to dive operations. MAST organizes three two-day dive weekends per year and focusses on one shipwreck at a time. The dives are conducted from a large charter with as many as 20 divers taking part in dives over two days. With input from the MAST Board, the site is chosen by Sowden, who is also responsible for planning and logistics, as well as synthesizing the data and producing final drawings and report. MAST has recorded nine



Dive slate based on MAST data.

shipwrecks, including the *Adventure*, *Hanna*, *F.H. Prince*, *The Craftsman*, and *Sultan*. Four of those sites have been completed with full reports. The other five are outstanding, with one being completed as a master's thesis by a MAST member at University of Malta. On average, two seasons are required to record a site. The original notes and raw data for these projects are stored with the Peachman Great Lakes Shipwreck Research Program of NMGL. Three dive slates have been developed based on MAST data and are available through Ohio Sea Grant. These slates include a site map, diving information, vessel data, and ship history. In addition to the slates, MAST facilitates responsible public access to Lake Erie shipwrecks through mooring buoys at 11 shipwrecks. The moorings are funded by the Ohio Lake Erie Commission, the Ohio Department of Natural Resources - Coastal Management Program, and private donations. MAST divers install the moorings each spring. MAST maintains a website that includes information about the training workshops and the status of the shipwreck buoys.

Because MAST has been in existence for so many years, has recorded so many wrecks, and trained so many volunteers, the organization is finding it difficult to identify wrecks that are appropriate for recording dives with 20+ participants. This is a good problem to have but adds to the logistical and planning difficulties for the organization's leadership as they attempt to make MAST inclusive and relevant.

Like MAST, PASST dive operations focus on producing site plans of shipwrecks. PASST is currently working on five shipwreck sites (*S.K. Martin*, *Armour*,

Indiana, Howard Gerken, and Albion). PASST schedules approximately six days of diving per year using a small charter or personal boat with space for five divers. Dive leaders who have completed the PASST Advanced course take responsibility for an individual shipwreck and organize dive logistics and recording priorities in coordination with Diver’s World. All data are stored at Diver’s World. The PASST organization created and maintains a website detailing regularly dived shipwrecks in Pennsylvania’s Lake Erie waters. The goal of this website is to expand the public’s knowledge of Pennsylvania’s submerged heritage and to provide divers with more information and context for what they see underwater. The website contains histories collected by PASST historians, side-scan sonar images from PA DEP, and photos, descriptions and videos by PASST divers. The website is hosted by the Regional Science Consortium and supported by the Erie Community Foundation.

As the more established group, MAST has influenced the structure of PASST, including input from Sowden on the planning of PASST. Both organizations provide an ethical way for the interested public to engage with maritime archaeology. Both are flexible enough to include participants with a variety of skills and interests. However, MAST and PASST provide two different models for organizing citizen scientists for underwater archaeology. The MAST model is more centralized, with responsibility largely resting on its Archaeological Director, Sowden, who includes MAST among her professional portfolio. As a result, MAST hosts events five weekends a year, two for training, and three recording dives, with other smaller events, such as setting and recovering buoys, spread throughout the diving season. MAST also tends to complete the recording of one project before starting the next. NMGL and MAST are making a concerted effort to complete previous projects by holding site plan drafting and research workshops. PASST rests more on the initiative of members to move recording projects forward. The result is that while the individual members feel a stronger sense of ownership of a given project, some projects advance more quickly than others. Additionally, it has been difficult to fill recording teams for sites that are perceived as less interesting or more difficult. Another problem the PASST team has encountered is finalizing site plans. Many of the volunteers join the team because they love diving and shipwrecks, but they are often less comfortable with drafting. The team is currently scheduling ‘drawing nights’ and other initiatives to move the data from tables and sketches to finished drawings and reports. The Diver’s World staff has been instrumental in organizing


recording dives, maintaining records, and encouraging divers to consistently record their findings. Both MAST and PASST struggle to complete final plans and reports soon after fieldwork. Both groups recognize this problem and are prioritizing final products and instituting procedures to incentivize completing projects. Both groups also struggle to include non-divers. There is a need for research, top-side support and other contributions, but diving remains the most visible aspect of both MAST and PASST, so that integrating non-divers remains a challenge.

	MAST	PASST
Founded	2000	2013
Structure	501(c)(3)	working group of Regional Science Consortium
Paid Maritime Archaeologist	Yes	no
Divers Trained	450	60
Wrecks Recorded	9	5 (in progress)
Dive days per year	6	6
Divers per day	20	5
Projects	one at a time	multiple concurrent

Comparison of MAST and PASST.

Both organizations benefit from diversity of abilities inherent in citizen science groups. The backbone of both dive teams is a pool of talented divers who have the skills and experience to not only dive in Lake Erie but to work underwater. Many of these divers come because they enjoy diving but have grown bored with diving the same locales; they want to see new sights/sites, learn more about known wrecks, and engage in new skills that challenge and engage them. Both organizations also attract new divers wanting to get involved in Great Lakes diving, and the occasional archaeologist interested in broadening their experience. For many of these divers, MAST and PASST mean that their diving has a purpose – the best thing that any volunteer organization can hear. Additionally, many of the volunteers have careers as educators, photographers, engineers, and other fields that offer valuable knowledge to recording and problem solving. Each member also has their own network, which brings in oral histories and new finds, but more importantly, sends out ripples of positive archaeological experiences all along the shores of Lake Erie.

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Carrie Sowden is the Archaeological Director at the National Museum of the Great Lakes, Toledo, Ohio. For more information about MAST she can be reached at shipwreck@inlandseas.org. 

Masters of the Boundless Seas: Archaeology in the Portuguese Colonial World

by Robert L. Hoover, Ph.D.

Of all the major colonial powers of the Early Modern Period, Portugal may have received the least attention from historical archaeologists. This is in spite of the fact that the Portuguese initiated the Age of Discovery with the exploration of the West African coast in the 15th century, pioneered nautical technology, and had interests that spanned five continents. These wide-ranging connections were maintained for over 500 years, until the end of the 20th century. Temporal depth alone should make the Portuguese of primary scholarly interest and provide ample and diverse opportunities for studies in a wide variety of subfields as an example of the earliest modern world economy.

By the early 15th century, Portugal had begun looking beyond its remote and isolated borders. In 1415, it captured the port of Ceuta in Morocco, an important terminus for the West African gold trade, and then began southward exploration along the coast past Cape Bojador to the Gold Coast, which was closest to the source of this precious metal, by the 1480s. By the end of the 15th century, the Portuguese were importing some 750 kilograms of gold and 10,000 slaves from this area. Angola was reached in 1484. Bartolomeu Dias finally rounded the southern tip



From the Cantino Planisphere, 1502. Unknown Portuguese cartographer. Biblioteca Estense Universitaria, Modena, Italy. (Public domain)

of Africa as far as Mossel Bay in 1488, naming it the Cape of Storms. On the fleet's return, Prince Henry the Navigator, sponsor and patron of much of Portugal's maritime expansion, renamed the point the Cape of Good Hope—essentially for marketing reasons. The name is preserved today in the motto of the University of Capetown: *Spes Bona*. The Cape was not settled until the Dutch arrived much later, however. The Portuguese preferred to establish posts in Mozambique, where they could capture the gold trade with the inland Kingdom of Monomatapa (Zimbabwe) and stop the southern expansion of Moslem trade in the Indian Ocean.



Prince Henry the Navigator. Polytriptych of St. Vincent in the National Museum of Ancient Art, Lisbon. (Public domain)

Portugal occupies the terminal point of Europe as it projects into the Atlantic Ocean, and it is close to the northwest corner of Africa. By the end of the 15th century, the Moors had been expelled from the Iberian Peninsula, and one of every fifty Portuguese lived by navigation and maritime pursuits. Drawing on Catalanian nautical charts, German astronomical tables, and Italian navigational instruments, the Portuguese created a package combining features of Mediterranean and North European shipbuilding technology at the School of Sagres, founded by Prince Henry. Thus began a planned program of exploration aimed at outflanking the Moslem powers, who blocked the direct trade for the luxuries of the Far East and South Asia. The design was to sail a course down the coast of West Africa and around the Cape of Good Hope into the Indian Ocean and beyond. The abundance of records, terrestrial archaeological sites,

and shipwrecks generated over the following centuries make this a fertile field for modern research.

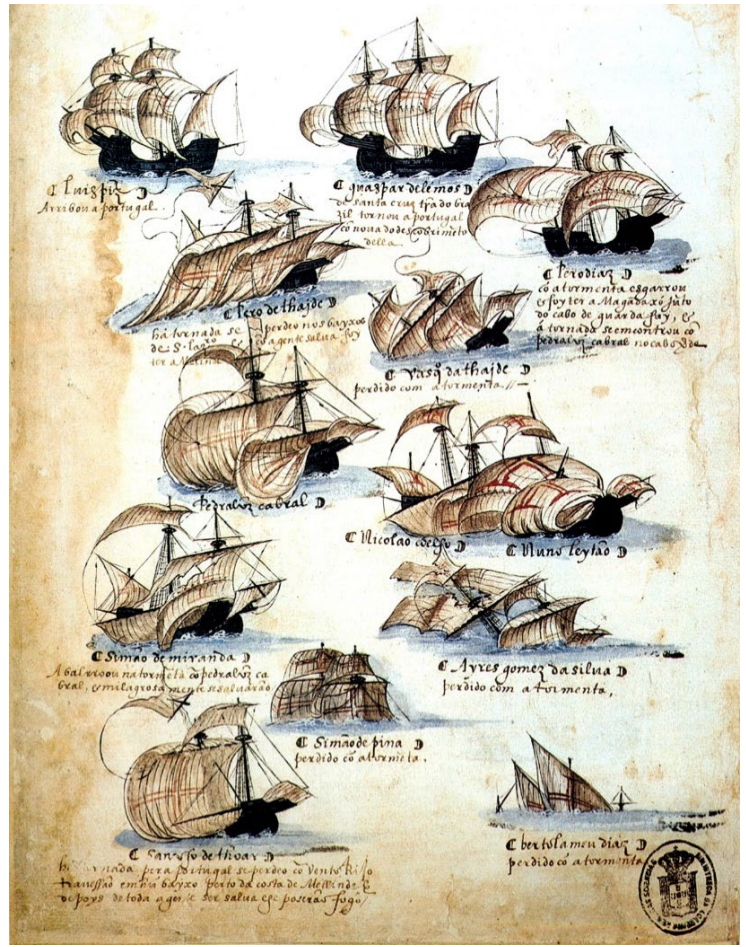
Inspired principally by trading opportunities in spices, silks, and other luxury products, Portuguese sailors had wrested control of the Indian Ocean trade from the Moslems by the 16th century. They established a network of *feitorias*, or fortified trading posts, in strategic locations from Mombasa to Macao, with headquarters in Goa, a center on the west coast of India. Goa provides excellent prospects for the study of race and gender relations. Portuguese trade extended into China and Japan, areas outside their direct control but allowing Asian luxury products to flow into Europe while introducing the gun and Christianity to Japan. Missionary efforts left numerous influences on India, China, and Japan. Until supplanted by the Dutch, the East Indies trade was monopolized by Portuguese merchants, initiating the modernization of several Asian nations.

Scholars of the African slave trade will find Portuguese activities on the coast of West Africa particularly interesting, especially at sites such as *São Jorge da Mina* (Elmina, in present-day Ghana) and farther south at Luanda, Angola. Founded originally for the gold trade, the African trading posts became much more than way-stations on the route to India. Portuguese ships engaged in the slave trade for longer and in greater volume than did vessels of any other European nation. They provided most of the human cargo bound for Brazil or the Spanish American colonies.



Shackles. Collectie Stichting Nationaal Museum van Wereldculturen. (Creative Commons license)

Portuguese explorer, Pedro Álvares Cabral, discovered Brazil in 1500 when, on the way to India, he sailed too far to the southwest attempting to catch favorable winds for the Cape of Good Hope. For 16 years, the Portuguese traded with the natives of the Brazilian coast for dyewood (*Caesalpinia echinata*) and ineffectively hindered French, English, and Dutch interlopers in this trade, before Cristóvão Jaques founded the first Portuguese *feitoria* in 1516 near Itamaracá, Pernambuco. This first European settlement in Brazil has been investigated by Professor Marcos Albuquerque, of the Federal University of Pernambuco, as an example of early acculturation.



A portion of Cabral's Fleet lost in a storm while crossing the Atlantic. Drawing from *Memória das Armadas*, c.1568, Academia de Ciencias de Lisboa. (Public domain)

With the disappearance of the native coastal population and the demise of the dyewood trade, the interior of Brazil was settled, and the country passed through a series of economic booms, including sugar production, diamond mining, and coffee growing. All of this development was based on the labor of enslaved Africans. Numerous plantations in northeastern and east-central Brazil remain as plentiful ground for research into social, economic, and technological aspects of this period.

The state of Minas Gerais contains several famous diamond mining centers of the 18th century, such as the World Heritage site of Ouro Preto. Professor Maria Beltrão, of the Federal University of Rio de Janeiro, has noted the presence of rock art in areas of *quilombos* (maroon settlements) in which symbols correlate with the brands used by slave holders to identify their workers. Stripped of their original cultural identities, these fugitive slaves used the symbols to maintain a sense of group identity after fleeing the plantations.

Portuguese shipwrecks have been found in many

(continued on page 18)

An Archaeological Analysis of the Salvage of *Nuestra Señora de la Concepción*

by Aleck Tan

Between 1565 and 1815, there were 400 recorded voyages between the Philippines and Mexico in Spain's Manila-Acapulco galleon trade network. Only a handful of Manila galleon shipwrecks have been identified and studied, including *Nuestra Señora de la Concepción*, which wrecked in 1638 in the U.S. Commonwealth of the Northern Mariana Islands (CNMI). Starting in the late 1980s, the CNMI issued contracts for commercial salvage companies to survey the wreck site and recover artifacts archaeologically. No comprehensive archaeological surveys, excavations, or reports of this shipwreck have yet been completed that were not driven by monetary gain.

Treasure salvage companies may use the guise of archaeology to excavate shipwrecks such as *Concepción* for their own profits, but they may have little incentive to abide by archaeological methods or ethical principles employed by professional associations and advocated by cultural heritage organizations such as UNESCO. Thus, there may be archaeological information on the shipwrecks that salvage companies do not recover. An examination and comparison of the salvage companies' projects to archaeological reports may reveal serious shortcomings in the salvage of *Nuestra Señora de la Concepción*.

Background. In June 1638, *Concepción* left Manila for Acapulco, Mexico with 400 individuals. Rations on board included wheat flour, dried beans, sugar, 566 live chickens, fresh pork, 159 heads of cattle, drugs, tobacco, and at least 1,900 earthenware and storage jars. It is



Shipwreck site at Agingan Beach, Saipan, CNMI
All photos by the author.



Saipan, CNMI (Aleck Tan 2019).

believed that *Concepción* was carrying illicit cargo for the Philippines Governor General, Sebastián Hurtado de Corcuera. To possibly hide his illicit goods and avoid export duties, Corcuera did not register the cargo, and, therefore, there is no complete list of *Concepción's* cargo. It is believed that the ship was carrying more than 800 tons of unregistered cargo. According to a historical report, most goods onboard *Concepción* belonged to Corcuera and his close friends in Manila. Other goods belonged to merchants who declared the value of their cargo at 800,000 pesos; however, royal inspector Pedro Quiroga y Moga valued the cargo at 4 million pesos, twice the value of cargos in similar-sized galleons.

To carry his own valuable, possibly illegal, goods across the Pacific, Corcuera assigned a trusted relative, his 22-year-old or 24-year-old nephew Juan Francisco Hurtado de Corcuera, as commander of *Concepción*. After *Concepción's* departure from Manila in June 1638, problems surfaced. The inexperienced Juan Francisco could not properly control the crew, which led to officers and crew members quarrelling with one another. With the crew in mutiny, the ship was not properly commanded.

On September 20, 1638, during severe weather, *Concepción* wrecked near Agingan Beach off the southern coast of modern-day Saipan in the CNMI. Most



*Spanish cannon similar those used on Concepción.
NMI Museum of History and Culture.*

of the crew died. About 40 people escaped and survived the shipwreck, 28 of them Spanish. The indigenous people of the Marianas, the Chamorros, killed many of these survivors. The cargo was scattered throughout the reef into crevices and depressions. While severe weather was one factor of the shipwreck, Juan Francisco de Corcuera's inexperience and his inability to command the ship were believed to be the principal causes of the shipwreck. Since the cargo was valued at 4 million pesos, *Concepción's* loss was exceptional.

Immediately after the wrecking, the indigenous Chamorro people salvaged iron and other metals, along with wood from the ship. In 1684, the Spanish successfully recovered 24 cannons. In the 1980s, treasure salvors from Pacific Sea Resources (PSR) located the site using historical documents and observations of porcelain artifacts that washed onto Agingan Beach. In 1987, PSR conducted fieldwork on *Concepción*, resulting in a report in 1990 that detailed their procedures and artifact findings. Among PSR's findings were more than 1,300 pieces of gold jewelry, over 150 intact storage jars, an anchor, wooden ship's structure, glass beads, lead and iron shot, lead sheathing, furniture fittings, porcelain, cannon parts, wood, hemp, resin, and personal items.

Eventually, the *Concepción* collection from PSR was auctioned through Christie's to a Japanese company, Apex Corporation, for approximately \$5 million. The CNMI government received 25 percent of the proceeds, which was then used by the islands' Historic Preservation Office (HPO) to construct the Northern Mariana Islands (NMI) Museum of History and Culture. Apex Corporation struggled financially and sold the *Concepción* collection to the NMI Museum for \$1 million. The *Concepción* collection remains at the museum today.

In 1992, local beachcomber Doug Rankin searched for and recovered artifacts from Agingan Beach. Rankin

eventually formed Proa, Inc., with lawyer and musician Ben Scales. Proa conducted an extended Phase I survey of Agingan Beach and produced a draft report of the work. Some of the artifacts that Rankin recovered included brass, silver artifacts, iron spikes, coins, and jewelry. These artifacts were sold to HPO. In the early 1990s, another salvage company, IOTA Partners, also conducted metal detector surveys on Agingan Beach but did not recover artifacts.



Storage jars at the NMI Museum of History and Culture.

Methods. When treasure salvage companies conducted surveys and excavations on *Concepción*, they disrupted or destroyed the archaeological context of the site, which affected the integrity of the archaeological remains and the availability of information contained in them. The analysis reported in this article focuses on how the commercial salvage activities on *Concepción* compare to archaeological ethics and standards, using information presented in the salvage publications. This textual analysis examines categories, procedures, and findings in salvage reports, and compares them to categories found in standard archaeological reports, as well as to ethical principles set by professional associations. The goal of this analysis is to determine how salvage company publications and the activity they document meet or fail to meet ethical and archaeological standards.

Results. The first part of the analysis focuses on the comparison of the commercial salvage activities to ethical principles. Various professional archaeological associations outline ethical principles, including Society

Ethical Principles	PSR	Proa
Not engaging in commercial exploitation/illegal activities	No	No
Appropriate qualifications and training to conduct work	Undetermined	No
Dissemination of research and results	Yes	No
Preservation, conservation and management	Yes	No
Public outreach, education	Yes	No

Table 1. Comparison of the two commercial salvage projects to common ethical principles. "Yes" indicates the principle was met, "No" indicates it was not.

of Historical Archaeology, Register of Professional Archaeologists, Society of American Archaeology, American Anthropological Association, and Archaeological Institute of America. Members are required to adhere to standards of ethics and practices set by these associations. Commonly shared ethical principles between these associations include not engaging in commercial exploitation or illegal activities; requiring appropriate qualifications and training to conduct work; disseminating research and results; priorities in preservation, conservation, and management; and conducting public outreach and education.

The first salvage company to conduct excavations on *Concepción* was PSR, which met 3 out of 5 ethical principles (Table 1). PSR disseminated research through publications and public outreach, including an archaeological report, a National Geographic article, and a book. During their operations, PSR conserved artifacts in an onboard laboratory. However, the company sold artifacts to a corporation for profit. In addition, there is limited information on the three project archaeologists' backgrounds and qualifications to determine if the company met this principle.

Proa, Inc., was the second company to conduct work on *Concepción*, starting in the early 1990s. Proa failed to meet all 5 ethical principles in their project. First, Rankin, who was the main surveyor for Proa, was a puka shell collector previously and did not have archaeological training or qualifications. In addition, there appears to be no evidence that Proa disseminated their research or participated in public outreach and education. Proa submitted a draft archaeological report but there is no official archaeological report available. While the draft report documents a tentative conservation plan, there is limited evidence of actual conservation. During fieldwork the company also sold artifacts to HPO, as per their salvage contract.

The second part of the textual analysis determines how PSR and Proa's reports compare to conventional archaeological reports. This method is based on the method developed and used by Melissa Price for her MA thesis at East Carolina University that analyzed treasure salvor publications from a range of Spanish colonial shipwreck sites (see *MAHSNews* Spring 2016). Like

Price's research, the current analysis examines the presence of a list of categories in the salvage reports and findings of treasure hunting companies and compares them to those in a standard archaeological publication.

As shown in Table 2, both PSR's and Proa's reports include 14 out of 17 standard archaeological categories (82 percent). Three categories were missing

in the PSR report: interpretations, recommendations, and scaled photos with north arrows. The missing categories from Proa's report included a discussion on site formation processes, recommendations, and a site map. Proa's report builds upon PSR's report by including an interpretation of their results. Proa's report also has photos of artifacts, some with a scale, some without. The PSR report, on the other hand, includes photos of the artifacts and has measurements of the artifacts, but not a scale on the photos themselves.

Conclusion. The textual analysis method presented in this study contributes to an objective means of determining whether commercial salvage projects and reports are archaeologically valid and reliable, while highlighting ethical and archaeological problems of the companies themselves. The reports written by PSR and Proa stand as the only non-archival documentation of the wreck of *Concepción*, yet they do not meet professional standards and they provide an incomplete record of the

Standard Archaeological Categories	PSR Report	Proa Report
Title Page	Yes	Yes
Table of Contents, Figure Lists, Table Lists	Yes	Yes
Introduction	Yes	Yes
Site Orientation and Location	Yes	Yes
Physical Environment	Yes	Yes
Site Formation Processes	Yes	No
Methodology	Yes	Yes
Results	Yes	Yes
Interpretations	No	Yes
Recommendations	No	No
Summary/Conclusion	Yes	Yes
Site Map	Yes	No
Scaled Photos, North Arrows	No	Yes
Sources for Maps/Historical Photos	Yes	Yes
Artifact Counts or Artifact Measurements	Yes	Yes
Bibliography/References Cited	Yes	Yes
Appendix	Yes	Yes

Table 2. Comparison of categories in the salvor reports to standard categories in archaeological reports.

work conducted there. The reports include some forms of archaeological information, such as site maps, photos, artifact counts, site orientation, and discussion of site formation processes that would have been unavailable otherwise. However, the bias toward profit and commercial intent above archaeological information is obvious.

In one example, the 553-page PSR report dedicates 335 detailed pages to description of jewelry and ceramics from *Concepción*, including photographs and measurements, as well as historical contexts for some pieces. In contrast, less than 30 pages is spent on other artifacts, such as bronze, iron, and copper artifacts, ship fittings and structure, ordnance, and slingstones, which are archaeologically important but seemingly not viewed as commercially valuable. So, while researchers may consult these reports to obtain data on jewelry and collectible ceramics, the remainder of the archaeological record pertaining to the ship's cargo is largely lost.

Examining these reports of salvors' work points to a potential dilemma for archaeologists. Archaeologists largely dismiss salvaged shipwrecks as commercial operations that negatively impact sites, artifacts and contexts, destroying valuable, even irreplaceable archaeological information. Salvage typically violates the terms of the 2001 UNESCO Convention by commercially exploiting wreck sites. Yet, if archaeologists spurn data collected by salvage companies and reports created by treasure hunters, we would know very little about *Concepción* except from historical documents. The question remains, does accepting information from salvage work in any form condone the activity?

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Nayband raised new questions about different artifacts, their functions, and the location of important ports and anchorage areas.

Future work should include preservation of the finds and presentation of the results to researchers and the public. More underwater studies, close to the historical ports, can reveal more stone anchors and additional underwater cultural heritage. These studies should be incorporated into the larger body of maritime history studies in Iran. Comparison studies of the relationship between anchor types and their geographic locations can help our understanding of seafaring and maritime trade among different ports inside and outside the Persian Gulf.

For further information the authors suggest:

Hadi Hasan, *A History of Persian Navigation*. Methuen, 1928.

Ismail Raeen, *Daryanavardiye Iranian [The seafaring Iranians]*, Vol. 1. Sekheh Publishing, Tehran, 1971.

Honor Frost, From Rope to Chain on the Development of Anchors in the Mediterranean. *The Mariner's Mirror* 49(1): 1-20, 1963.

Dr. Sorna Khakzad is a research associate and faculty member at the University of West Florida. She maintains an interest in conducting research on historic coastal towns, especially in her native Iran.

Ali Moosaie is an engineer at Mobin Petrochemical Company and a strong advocate for historic preservation in Iran. He collaborates with several museums to safeguard endangered cultural resources.

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parts of the world. Several are known in Portuguese waters near Lisbon, including *Nossa Senhora dos Mártires*, also known as the Pepper Wreck. A cargo vessel or *nau*, it carried a shipment of peppercorns, from which its common name is derived. The vessel was returning from Goa, the Portuguese trading center on the west coast of India, in 1606, when it sank in a storm at the mouth of the River Tagus.

More recently, a vessel believed to be a 400-year-old trader was discovered, also near Lisbon. The ship was returning from India laden with spices, Chinese ceramics, and cowry shells, a type of currency used in

the slave trade during the colonial era. Nine bronze cannons engraved with the Portuguese coat of arms were also discovered on the wreck site.

In 2021, the Society for Historical Archaeology and the Advisory Council on Underwater Archaeology will hold their annual conference in sunny Lisbon. The Portuguese capital contains a wealth of archives and historical sites. Among the well-known landmarks is the Tower of Belém, which guards the old harbor and lies adjacent to the modern monument of world discoveries by Portuguese navigators.

Robert L. Hoover is Professor Emeritus of Archaeology at California Polytechnic State University, San Luis Obispo. ⚓

MARITIME ARCHAEOLOGICAL AND HISTORICAL SOCIETY

Statement of Ethics

The Maritime Archaeological and Historical Society is organized for the purpose of enhancing public awareness and appreciation of the significance of submerged cultural resources and the science of maritime archaeology. In pursuit of this mandate, members may come into contact with unique information and cultural material associated with terrestrial and underwater sites containing evidence of the history of humankind. To protect these sites from destruction by commercial salvors and amateur souvenir hunters, the Society seeks to encourage its members to abide by the highest ethical standards. Therefore, as a condition of membership and pursuant to Article 2, Section 1 (A) of the bylaws, the undersigned executes this statement of ethics acknowledging adherence to the standards and policies of the Society, and further agrees as follows:

- 1. To regard all archaeological sites, artifacts and related information as potentially significant resources in accordance with federal, state, and international law and the principles and standards of contemporary archaeological science.
- 2. To maintain the confidentiality of the location of archaeological sites.
To excavate or otherwise disturb an archaeological site solely for the purpose of scientific research conducted under the supervision of a qualified archaeologist operating in accordance with the rules and regulations of federal or foreign governments. Artifacts shall not be removed until their context and provenience have been recorded
- 3. and only when the artifact and related data have been designated for research, public display or otherwise for the common good.
- 4. To conduct oneself in a manner that protects the ethical integrity of the member, the archaeological site and the Society and prevents involvement in criminal violations of applicable vandalism statutes.
- 5. To observe these standards and aid in securing observance of these standards by fellow members and non-members.
- 6. To recognize that any member who violates the standards and policies of the Society shall be subject to sanctions and possible expulsion in accordance with Article 2, Section 4 of the bylaws.

Signature _____ Date _____

**MARITIME ARCHAEOLOGICAL AND HISTORICAL SOCIETY
PO Box 44382, L'Enfant Plaza, Washington, D.C. 20026
Application for Membership**

Membership in the Maritime Archaeological and Historical Society is open to all persons interested in maritime history or archaeology whether or not they are divers. Members of MAHS have first preference for enrollment in all courses and other activities and projects of the Society. To join MAHS, please sign the Standards of Ethics above and send it to MAHS along with your check and this application form.

Name (print) _____

Address _____

City _____ State _____ Zip _____

Phone (H) _____ (O) _____ (FAX) _____

E-mail _____

DUES ENCLOSED	
___ \$30	Individual
___ \$35	Family
___ \$50	Sponsor
___ \$100	Patron

Skills (circle): research / dive / video / communications / writing / first aid / other:

Please mail this form along with your check to: MAHS at PO Box 44382, L'Enfant Plaza, Washington, D.C., 20026

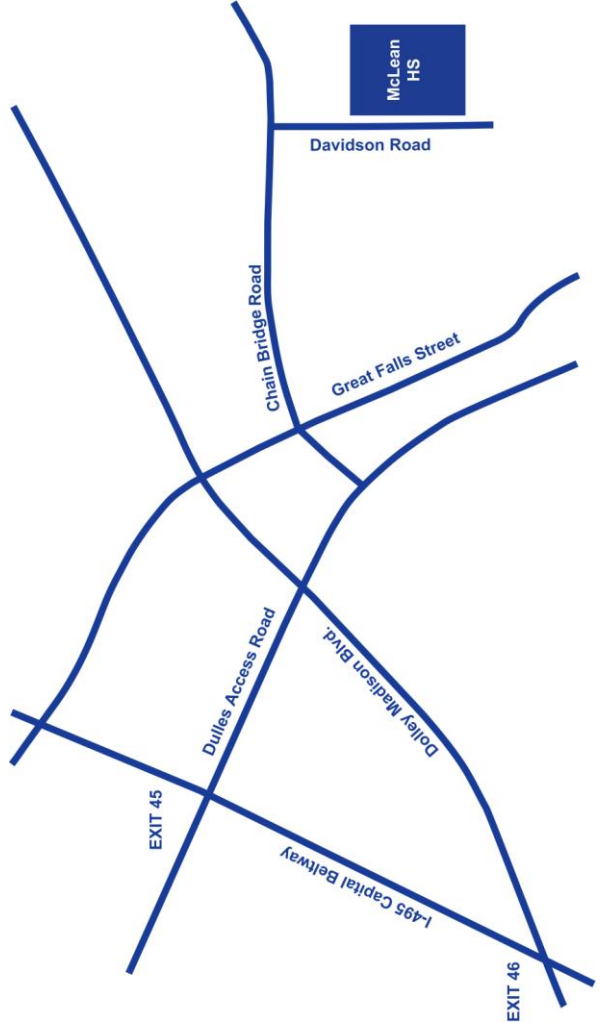
General membership meetings of the Maritime Archaeological and Historical Society are held on a bi-monthly basis, the second Tuesday of each month. Meetings are held at 7:30 p.m. at McLean High School, in McLean, Virginia, except in August and December. Meetings in August and December are held at other locations for special events and holiday parties

Please join us and bring a friend. The school is located on Davidson Road, just inside the Capital Beltway (I-495) - use Exit 45, coming from Maryland, or Exit 46, coming from Virginia.

Check the website www.MAHSNet.org for e-mail advisories about any schedule changes.

Renew Now!

It's time to renew your membership in MAHS. It's easy. Just complete the application form on the inside back cover and sign the Ethics Statement, enclose a check for your dues, and mail! Thank you!



**MARITIME ARCHAEOLOGICAL AND
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