The discovery of an isolated anchor in Monterey, California is puzzling because it is made entirely of bronze. Throughout history, iron and stone have been the typical material used in the manufacturing of ship anchors. The anchor was discovered in Monterey Bay, California in 1944 after becoming fouled in the anchor line of an oil tanker. Now permanently displayed outside the historic Customs House in Monterey State Historic Park, this bronze anchor continues to puzzle researchers. This paper will discuss the possible sources of the Monterey bronze anchor and hypothesize on geographical pressures and lack of industrial resources that could have produced a need for bronze anchors.

Iron anchors are a common artifact type displayed in the various seaports around the world. They are so common that most people give them little attention. These anchors usually lack provenience and are in poor condition from their exposure to salt water and, having never been conserved after being recovered, they are deteriorating.

It is disappointing because although they lack provenience, anchors can still provide useful data. Typology can provide details, such as age and nationality, and provide clues into the past trading patterns of seaports. The study of anchors might be neglected, but there is one anchor that deserves closer inspection. At Monterey State Historic Park (SHP) in Monterey, California, an unusual bronze anchor lies outside the Customs House, a historic structure that dates back to 1827 (Figure 1). A plaque placed next to it reads, "Old bronze anchor brought up from the bottom of Monterey Bay in July 1944. Origin unknown," (Figure 2).

HISTORICAL CONTEXT

It was in July of 1944 that the Monterey bronze anchor was brought to light after it became entangled in the anchor line of the Tidewater Associate's oil tanker Tydol No. 2 (Monterey Peninsula Heralds [MPH], 1946a). The site of the discovery is one and a half kilometers (1 mile) offshore in approximately 27 meters (89 feet) of water (Figure 3). Residents of Monterey immediately recognized the anchor as an important and rare piece of maritime history and arrangements were made for its purchase by the City of Monterey. A local sardine fishing crew brought the anchor aboard their vessel from the Tydol No. 2, and off-loaded it at the Municipal Wharf No. 2 on August 30, 1944 (MPH 1944d) (Figure 4).

Some local residents thought that it should be incorporated into a World War II memorial, honoring all the young men from Monterey who had died in the ongoing war, while others thought it should be more inland near Colton Hall, the building where the first California Constitution was written in 1849 (MPH 1944d). However, some felt that as it came from the sea, it should be displayed near the sea. One amusing resident even wrote, “Ladies and Gentlemen, I am what I am, and must have salt. So, prepare if you please a place by the sea and upon it my decrement enshrine. And there let me rest until all that is me has joined the eternal brine. Signed The Old Anchor” (MPH 1944b).

It was not until January 16, 1946 that the Monterey Historical and Art Association formally took possession of the anchor and established the Anchor Committee to decide the appropriate location for displaying the artifact. The committee eventually determined that the Customs House was the best site, given its local history and proximity to the sea (Figure 5). On Sunday, April 28, 1946, a ribbon cutting ceremony which included more than 100 guests, celebrate and dedicated the anchor to its new home (MPH 1946a). It has resided there ever since.
Figure 1. View of customs house at Monterey SHP. Photograph by the author.

Figure 2. View of Monterey bronze anchor and enlargement of plaque. Photograph by the author.
Figure 3. Location of discovery of Monterey bronze anchor. Background U.S. Coast and Geodetic Survey Chart # 5403 (1956 Edition).

Figure 4. Transferring the bronze anchor off Tydol No. 2 (from MPH 1944d).
PHYSICAL DATA

The bronze anchor stands much as it did in 1946, in an upright position on its side, tied to a wooden post with a thick iron stud-linked chain wrapped around for security. The anchor's shank is 2.60 meters (8.5 feet) long with a diameter varying between 20 centimeters (7.87 inches) and 11 centimeters (4.16 inches). The distance between flukes is 1.92 meters (6.3 feet), and the length of its arms is 1.24 meters (4.16 feet) (Figure 6). A large 42 centimeter (16.5 inch) bronze ring is threaded through the eye near the tip of the shank (Figure 7). The palms vary slightly in size, with the top measuring 43 by 49 centimeters (17 by 19 inches), and bottom measuring 46 by 47 centimeters (18 by 18.5 inches) (Figure 8). The anchor weighs an estimated 816 kilograms (1,800 pounds). On the backside of the anchor one will notice that part of the stock ridge is missing. This piece was most likely removed for a past metallurgical analysis.

Located on the back of the shank, near the eye, are what appear to be scratches incised into the bronze (Figure 9). Some have said these are Chinese numeral signs representing the numbers 166 or possibly 162 in counting rods (Jobling 1989). Alternatively, these markings could be damage that was done to the anchor during its recovery and transportation in the mid-1940s.

Some have commented on the crude casting of the anchor, writing that it was probably a sand casting scooped out by hands (MPH 1970). The palms are asymmetrical and do not line-up with the arms. The surface is very rough and pitted with a significant number of air bubbles being contained within the bronze.
Figure 6. Dimensions of the bronze anchor.

Figure 7. Dimensions of bronze ring.
Figure 8. Dimensions of the palms. Note the asymmetry of the palms and arms.

Figure 9. Backside of the bronze anchor, with enlargement of possible Chinese inscription. Photograph by the author.
ANCHOR'S ORIGINS

Since its discovery, there has been a range of ideas on where this anchor came from. Some thought that it was cast in China and lost by an early Japanese trading vessel, others have thought it was probably cast by the Russians, who were casting bronze church bells and small cannons in Sitka, Alaska. Other have even gone further and suggested that it’s not made of bronze at all, but gold and silver, having been cast by pirates who were trying to conceal their loot (MPH 1944a).

For an anchor as unique as this one, typology is difficult. Bronze is a softer metal than iron and would have required a slightly different shape, which is probably why the throat of the anchor is so thick, compared to other anchors. Furthermore, a search of the historical record shows that examples of bronze anchors are extremely rare.

Philippines Bronze Anchor

There may be another bronze anchor located in the Philippines. Situated in the town square of Masbate, this anchor is thought to have originated from the Spanish wreck Santo Christo de Burgos, which was lost in 1726 (Robert Marx, personal communication 2011). Detailed photographs of this anchor are nonexistent, but it appears to have a thin, long shank with a narrow distance between flukes. While it appears to be made of bronze, it would be premature to say they are related without more information.

Cabo San Lucas "Copper" Anchor

There is record of there being a “copper” anchor at Cabo San Lucas, Mexico in 1850. Lieutenant George Derby of the U.S. Navy recorded this anchor in 1850, writing:

> Returning to the vessel I noticed upon the beach a large copper anchor weighing probably eighteen hundred weight; it was evidently a vestige of antiquity being singularly shaped, with a remarkable long shank and narrow flukes. I was informed by an American resident of the place that it was fished up in the harbor three or four years ago. It was probably lost here by some of the early Spanish explorers of California [Derby and Farquhar 1932:368]

Areas where the tarnish has rubbed off the Monterey anchor show a very high content of copper and an anchor of similar construction could have been called “copper.” However, Derby's description of this copper anchor having a "remarkable long shank and narrow flukes," differs from the Monterey anchor's smaller shank and wider flukes. Derby’s description would better match the Philippines anchor.

Bronze Anchor and San Blas, Mexico

A critical clue into the possible origins of the Monterey bronze anchor came from a Spanish ship log. A log entry on August 24-25, 1779 in Monterey, California for the Santiago reads:

> It dawned the same way, and at daybreak I ordered the anchor raised because having fears it would become entangled with the cable. In fact, it was put into practice at 7 in the morning, previously clinching the large bronze anchor, which had served before as the anchor of hope, with the end of the line that had been serving on the anchor, which was in the water. [Martinez 2002 [1779]:109]

The "anchor of hope" was probably a direct translation of what we would call a sheet anchor. A sheet anchor is the largest anchor onboard a vessel and is typically used in emergencies. The Santiago was a 225 1/2 ton Spanish frigate constructed in San Blas, Mexico and launched in 1773. San Blas, Mexico was used for 42 years, from 1768 to 1810, as the headquarters of the Spanish navy in the north Pacific (Thurman 1967). It appears this isolated outpost was outfitting vessels with bronze anchors. In his dissertation about the Naval Department of San Blas, Michael Thurman (1963:294) wrote "The comisario even requested an additional shipment of copper (used for casting sea-anchors and
kedge-anchors), since the first allotment was already used up in the manufacture of anchors for the new expedition.” A single quintal was equivalent to slightly more than 45 kilograms (100 pounds), meaning that the Department of San Blas requested 9,072 kilograms (20,000 pounds) of copper. However, Thurman (1963:256) goes on to write "... it seems unlikely that large equipment such as anchors and large-caliber cannon, were ever smelted at San Blas,” but mentions trips to Peru to obtain "large supply of iron, plus cannon and sea anchors, for use in the Department of San Blas” (1963:253).

DISCUSSION

The anchor is most likely not older than the first recorded European visit in 1542. The only recorded vessels to anchor in Monterey before a permanent European settlement in the eighteenth-century were those of the Vizcaíno Expedition in 1602. Unless some wayward Manila galleon took shelter there, the anchor was most likely deposited on the seabed sometime after 1770 (Figure 10). While there is historical evidence of copper being sent to San Blas for the manufacturing of anchors (see Thurman 1963:294), it is unclear if these anchors were cast in San Blas, or perhaps the ore was sent to Peru where the anchors were cast.

With the exception of the Spanish, there is no evidence for a cast bronze anchor tradition anywhere. The Philippine bronze anchor would seem to suggest that the Monterey variety is associated with the Manila galleon trade, but this conclusion would be premature because there is not enough information yet.

Related to Larger Site

It is unknown if the Monterey anchor is an isolate or associated with a larger site. There is the possibility that it is related to a nearby shipwreck. After the anchor was found, some local residents speculated that perhaps it was related to the Natalia, a vessel driven ashore during a storm in 1834. Local legend has it that this was the same vessel that took Napoleon from the Isle of Elba in 1815 (MPH 1944b). An area for further research might be a survey of the surrounding seabed where the anchor was recovered. If it were part of a larger site, this would be an interesting development that would help determine the anchor's origins. However, anchors were commonly lost for a variety of reasons. When Alessandro Malaspina tried to anchor into Monterey Bay in 1791 during his voyage around the world, his vessels alone lost three anchors, one because of a rotten cable (Cutter 1960:27).

Portable X-ray Florescence (PXRF) Analysis

A promising area of future research might be a portable X-ray Fluorescence (PXRF) analysis. PXRF is a non-destructive test that can be conducted in the field to obtain the material composition of an artifact. Here in California we have a nice comparative collection of large bronze artifacts, bronze cannons and mission bells. Bronze cannons can be found anywhere from the San Francisco Presidio, Fort Ross, or even outside the Mission Inn Hotel and Spa in Riverside. Some of these Spanish cannons were cast in Peru or the Philippines. PXRF comparisons might be useful in determining if the anchor was cast in Peru, Philippines, or even in Sitka, Alaska by the Russians, as some have said.

CONCLUSION

I hypothesize that the reason for using bronze to cast ships anchors could be related to the industrial development of an area and be a symptom of geographical barriers. Some might see the use of bronze as indicating the area was iron deficient, but this, I think, would be an error. Manufacturing large wrought iron sea anchors is a fairly complex industrial feat, and it is possible that the Spanish in the Pacific did not have this capability until the mid-nineteenth century. Isolated outposts, such as San Blas, probably did not have the capability to make wrought iron anchors. Bronze can melt at a lower
temperature and would have been easier to cast. While it is too early to say where the Monterey bronze anchor originated from, I feel that given the historical data, San Blas would be a good candidate. This bronze anchor could be evidence of the conditions early Spaniards in the Pacific faced. The area was so remote that even replacing shipboard anchors was a problem. However, more data is needed to either prove (or disprove) this hypothesis. Perhaps someday other bronze anchors will be discovered. These discoveries will help us further understand why bronze anchors exist, and what they are telling us about the lives of the people that cast them.

REFERENCES CITED

Cutter, Donald C.

Derby, George H. and Francis P. Farquhar

Jobling, Jim

Martínez, Esteban José

Monterey Peninsula Herald (MPH) [Monterey, California]
1944a Bronze Anchor May be Relic of Early Days. 9 August: 7. Monterey, California.
1944d Anchors Aweigh, My Lads! Heave Ho! 31 August: 5. Monterey, California.
1970 History of Huge Anchor Unknown. 1 June: 18B. Monterey, California.
Thurman, Michael E.
