

A Manila Galleon in Oregon:

Results of the “Beeswax Wreck” Research Project

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Abstract

The results of a seven-year, multi-disciplinary investigation into the identity and origin of the “Beeswax Wreck” are discussed. The “Beeswax Wreck” is the name historically given to a 17th century source of marked beeswax blocks and candles found along beaches of the north Oregon coast. Artifact analysis, remote sensing, geoarchaeological investigations, and archival research indicate the Beeswax Wreck was an Acapulco-bound galleon that wrecked near Nehalem Bay prior to AD 1700, and is most likely the remains of the galleon Santo Cristo de Burgos. The Santo Cristo de Burgos sailed from the Philippines on July 1st, 1693 and disappeared. No trace of the vessel was ever found despite years of searching by the Spanish in the islands of the west Pacific and along the Mexican coast.

Keywords: Manila, Acapulco, Philippines, Beeswax, Porcelain, Geoarchaeology

Introduction

At the turn of the 19th century, the first Euro-American settlers in the Oregon Territory of the Pacific Northwest coast noted wreckage on the beach of the Nehalem Bay sandspit in what is now Tillamook County, Oregon (Fig. 1). The unknown ship was constructed of teak and carried a large cargo of beeswax in the form of large blocks and candles, which were strewn for miles over the spit and shores of the lower Nehalem Valley. The amount of beeswax scattered over the beach and lower valley was so great that mining the beeswax became a source of income for early settlers in the area. Both the “Beeswax Wreck” as it was called and its cargo were the topic of much speculation in the scientific and popular press throughout 19th and 20th centuries, because the ship

other, smaller coves and natural rock arches (Fig. 2). Today, Nehalem spit is vegetated with introduced non-native beach grass, shrubs and trees. The fore dune along the beach reaches 10-15 m in elevation. Prior to the mid 20th century, however, the Nehalem Spit was an active dune field with little to no vegetation and dune heights of 5-8 m (Cooper, 1958). Starting in the 1950's, Oregon State Parks undertook an intensive program of planting non-native beach grass to stabilize the dunes for park development. Between the fore dune and a large sand ridge known as Cronins Point to the east lies a low-lying deflation basin. Prior to revegetation efforts and construction of the Nehalem Airstrip, this deflation basin often became a lake in winter and portions of it still pond water to this day. Historically, much of the wreck debris and beeswax was found in this area as windblown dunes migrated over the spit, alternately exposing and covering wreck materials. The introduced beach grass and other non-native vegetation has since stabilized the dunes, and wreck materials are now only found through chance excavations associated with development in the area (Peterson et al., 2011).

Historical Accounts

The Lewis and Clark expedition noted that the local Clatsop Indians brought beeswax to trade with the explorers when they were camped on the Columbia River in the winter of 1805-1806 (Moulton, 2003). The wreck itself was first recorded in 1813 by the fur trader Alexander Henry (Coues, 1897). Local Indians told Henry the wreckage and beeswax were from a large ship that had wrecked many years before the fur traders settled the area in 1811 (Coues, 1897: 768). The origin of the ship was a mystery,



Fig. 2 Shoreline cliffs and offshore pinnacles, Neahkanie Mountain. Short Sands Beach is the large sandy beach in the left background; Neahkanie Mountain rises out of the picture to the right. View to northeast. (Richard Rogers, Beeswax Wreck Project).

although Henry referred to the wreck as that of “the Spanish ship... cast away some years ago, and the crew all murdered by the natives” (Coues, 1897: 841). The wreck and the mystery of its beeswax cargo were written about extensively in newspapers and regional journals as settlement of the region increased in the latter half of the 19th century (cf. Giesecke, 2007; Williams, 2007, 2008). Popular novels were even written describing the supposed adventures of the wreck survivors (Rogers, 1898; 1929). When conditions were right and wreckage was exposed or beeswax was found, newspapers in Oregon and across the country carried stories about the wreck, speculating whether the beeswax was truly the cargo of a ship or a natural deposit of mineral wax (Cotton, 1915). Arguments over whether the material was beeswax cargo from a wrecked ship or petroleum wax seeping from underground continued through the early decades of the 20th century, and exploratory wells were drilled to locate the presumed vast fields of oil thought responsible for the wax. In the latter half of the 20th century archaeologists and historians became interested in the wreck (Gibbs, 1971; Marshall, 1984). Its origin and identity were the focus of several archaeological investigations (Woodward, 1986; Scheans and Stenger, 1990). Some investigators suggested the vessel may have been an Asian junk, a Portuguese merchant, or a Dutch or English pirate rather than a Manila galleon (Stenger, 2005; Woodward, 1986). Much of the accessible wreck material was collected by local residents and souvenir hunters in the late 19th and early 20th centuries, and only small pieces of beeswax and sherds of late 17th century Chinese export porcelain and earthenware are rarely collected by beachcombers in the area today.

The Beeswax Wreck Project

The Beeswax Wreck Project is as an all-volunteer organization bringing together various professionals and community members interested in the Beeswax Wreck. The first phase of the project synthesized known historical and archaeological information pertaining to the wreck and prepared a research design to guide the project (Williams, 2007). Information on the wreck includes 19th and 20th centuries newspaper and journal articles; physical remains such as beeswax blocks and candles, ceramic sherds, and wooden artifacts in museums and private collections; and reports of previous

archaeological and geotechnical investigations in the area. Evidence indicates that the Beeswax Wreck carried goods typically transported by Manila galleons, including Chinese export porcelain, earthenware dragon jars, and Philippine beeswax in large blocks marked with Spanish shipping symbols, material not normally transported on Asian junks. The quantity of the beeswax is a significant clue to the nationality of the vessel that wrecked. Historic accounts indicate that during the 19th century anywhere from 5 to 20 or more tons of beeswax was shipped from Nehalem to markets in Oregon, California, and Hawaii (Cotton, 1915). The volume of beeswax was so large that several 19th century observers assumed the source was natural petroleum wax, as they could not conceive of any “ancient” ship carrying so much beeswax, despite the shipping symbols carved into the beeswax blocks, the presence of candles with wicks, and even bees preserved in the wax. Radiocarbon dating of the beeswax and diagnostic Chinese porcelain associated with the wreck indicate the vessel sailed during the mid to late 17th century (Erlandson et al., 2001; Lally, 2008). In the comprehensive and detailed Spanish records of galleon sailings and losses, only two Acapulco-bound galleons went missing during that time: the *Santo Cristo de Burgos*, which disappeared in 1693, and the *San Francisco Xavier*, lost in 1705 (Blair and Robertson, 1909; Dahlgren, 1916; Levesque, 2002; Schurz, 1939). The *San Francisco Xavier* has been identified as the likely candidate for the Beeswax Wreck by previous researchers (Giesecke, 2007; Marshall, 1984).

Our initial research focused on the *San Francisco Xavier* as the most likely vessel for the Beeswax Wreck for two reasons: 1) Schurz’s (1939) statement that the *Santo Cristo de Burgos* burned and wrecked near the Marianas Islands, citing Hill’s (1928) account; and 2) a large tsunami struck the Oregon coast in 1700 AD, and we expected such an event would have obliterated evidence of a vessel that wrecked prior to that year.



Fig. 3 Remote sensing survey areas on Nehalem Spit and offshore. (Scott Williams, Beeswax Wreck Project)

Fieldwork began in 2007 with terrestrial magnetometer survey of the Nehalem spit, from the town of Manzanita to the river mouth during the lowest tide of the year. This survey covered the length of the spit, from the fore dune crest to the low tide level (Fig. 3), to determine if any ferrous objects such as cannons or anchors were present from a ship wrecked on the tsunami-eroded beach and covered by sand redeposited on the spit after the tsunami. Additional survey was done in the deflation basin near the airstrip, in areas reported to have contained wreckage into the 20th century (Giesecke, 2007).

With no magnetic anomalies detected either along the shore or in the deflation basin, a limited marine survey was conducted just offshore and parallel to the spit, using a Zodiac and magnetometer. Several potential anomalies were located (Fig. 3), but deteriorating weather conditions prevented accurately locating the sites. Ground penetrating radar surveys were started in 2007 as well, to characterize the geomorphology of the spit and the effects of the tsunami (Peterson et al., 2011). Also in 2007 analysis was started on a large collection of porcelain sherds collected over the previous fifteen years by a resident beachcomber who recognized the sherds as potentially associated with the wreck. The dispersed pattern of these sherds in terrestrial sites suggests an offshore source is “feeding” a beach deposit at Neahkanie (Fig. 1), perhaps off the wreck. Further evidence of an offshore source is suggested by an area of the spit with tsunami deposits incorporating the porcelain sherds (Peterson et al., 2011), which limits the date of their arrival in the bay.

Based on these factors, our focus shifted to the possibility of a pre-tsunami wreck, with lower hull deposits offshore and the historically described distribution of terrestrial wreck materials being the result of tsunami deposition. In 2008, a second magnetometer survey was conducted from the river mouth to Arch Cape, north of Neahkanie Mountain (Fig. 3). Weather and ocean conditions prevented diving on the magnetic anomalies identified during that survey. Analysis of the porcelain was completed that same year, confirming that the cargo represented Chinese export ware intended for the markets in New Spain, and dated to the period between 1670-1700 with 1690 AD as the mean manufacturing date (Lally, 2008; In Press). Geotechnical surveys continued through the summers of 2008 and 2009 (Peterson et al., 2011). A terrestrial magnetometer survey was conducted of Short Sands Beach in 2010 to determine if anchors or other large

metallic artifacts might be present there (Fig. 4). None were found. Continued mapping of porcelain finds resulted in the identification of a likely search area for the offshore source (Fig. 4). In late 2011, a multi-beam sonar survey identified two potential wreck sites in the area. Dive surveys to examine the two sites were undertaken in the summer of 2012, but were limited due to adverse weather conditions. No wreck materials were found. Additional magnetometer and side scan sonar surveys were undertaken on the offshore anomalies in the summer of 2013.

The surveys produced promising signals, but poor visibility, rough ocean conditions, and equipment issues limited our ability to finish the systematic survey and dive on the sites.

No offshore wreck deposits were located before bad weather forced an end to the dive season.

Discussion

The Pacific Northwest is a tectonically active area that has undergone repeated mega-earthquakes and associated subsidence-generated tsunamis, with the last major rupture in 1700 (Atwater, 2005; Peterson et al., 2011). Based on our analysis of the historical record along with recovered ceramic types and their association with dated tsunami deposits, we know that the Spanish vessel carrying these ceramics wrecked before the last sailing of the *San Francisco Xavier*. We now believe that the Beeswax Wreck is instead the remains of the galleon *Santo Cristo de Burgos*, lost in 1693. Reports of its demise in the Marianas Islands are based on a fictional story first offered by Hill (1925; 1928) and then repeated by Schurz (1939) as fact. We propose that the

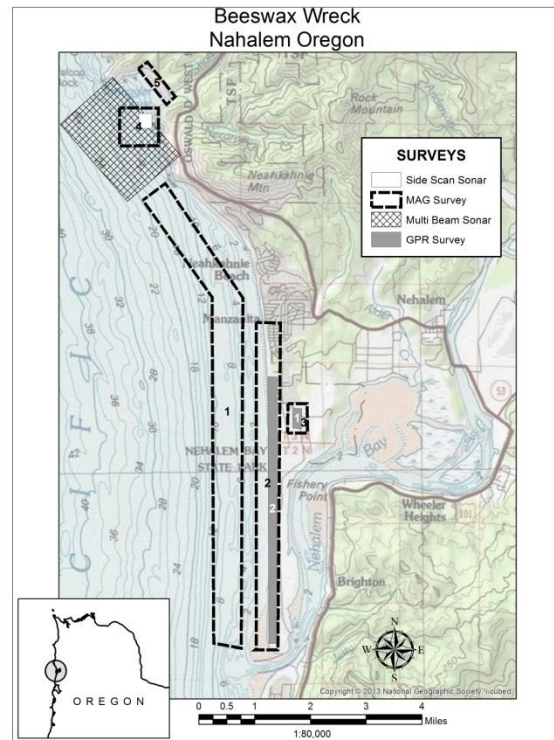


Fig. 4 USGS 7.5 minute quad maps showing the Beeswax Wreck Project Area showing areas of remote sensing surveys by type. (Beeswax Wreck Project)

following sequence of events distributed and then buried debris from a single galleon, which wrecked on pinnacle rocks or in shallow water offshore of Neahkanie Mountain prior to 1700 AD. After the vessel wrecked, the Cascadia earthquake of 1700 produced a large tsunami that swept onshore wreck debris over the spit and into Nehalem Bay and the river channel, depositing material on inflow strandlines (Peterson et al., 2011). Heavy materials such as ballast, cannons and porcelain likely remained offshore where the galleon sank, while lighter materials such as timbers and beeswax floated south onto

the spit. The returning tsunami wave deposited more material on the outflow strandlines, including debris described as the inland wreck and porcelain sherds found in the tsunami drape deposit. One section of superstructure, historically described as the offshore river-mouth wreck, lodged in the bar at the river mouth. Following inter-seismic rebound and uplift, the beach began recovery and sand washed into the ocean by the tsunami was redeposited on the beach, eventually burying wreck debris by the mid-1900s.

The study by Peterson et al., (2011) showed that the spit did not subside or erode enough for a post-tsunami wreck (e.g., the *San Francisco Xavier*) to have been washed over the spit by normal ocean processes. Therefore, historical accounts of wreck materials in the back-dune basin of the spit and the lower reaches of the Nehalem valley indicate those materials had either washed into the back-dune area through now-buried channels, or were carried over the fore-dune by the tsunami wave. The GPR survey revealed that there were no relic river channels through the spit, and that the spit has been stable for at least the last 1000 years in terms of size, elevation, and river mouth location (Peterson et al., 2011). The only viable mechanism for ship timbers and beeswax to get over the fore dune and up the river valley is a tsunami cresting over the spit. To explain Schurz's (1939) account that the *Santo Cristo de Burgos* burned and sank near the Marianas Islands, we note that other sources (Blair and Robertson, 1909; Dahlgren, 1916) make no mention of any known wreckage or survivors from the *Santo Cristo de Burgos*, only that the ship disappeared without any knowledge of its fate. Schurz cited Hill (1928) as the source for his assertion the *Santo Cristo de Burgos* burned, yet Hill's account is clearly apocryphal. Additional archival work in Seville in

2012 located documents (Archivo de Indies, 1699) confirming that as of 1699 the *Santo Cristo de Burgos* was still missing, with no survivors and no wreckage having been found up to that date.

In conclusion, the multi-year, multi-disciplinary research conducted on the Beeswax Wreck has resulted in the development of a working hypothesis on the identity of the vessel and potential locations where underwater wreck deposits are likely to be found. Archival research for the project has confirmed the total loss of the *Santo Cristo de Burgos* in 1693, and refutes the claims by Hill (1925; 1928) and Schurz (1939) that the *Santo Cristo de Burgos* burned in the west Pacific. The research also revealed a number of sources that can be used to correlate future finds with archival records, including 998 pages of documents detailing the crew and construction details of the *Santo Cristo de Burgos*, and accounts of the 1692 aborted voyage and the refitting for the 1693 voyage. In the near future, as weather and funding allow, we plan to expand the survey area and conduct additional dive surveys on the targets identified in 2013. If we can confirm the identity of the Beeswax Wreck, we will likely solve the mystery of the fate of the *Santo Cristo de Burgos*, as well.

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Biography

Scott Williams received his Bachelor's in Anthropology from the University of Hawaii in 1985 and his Master's in Anthropology from Washington State University in 1989. He has conducted archaeological research throughout the Pacific Basin and in various Pacific Rim nations for government agencies, private consultants, and the Bishop Museum, Honolulu. He currently resides in Olympia, Washington, and is the Cultural Resources Program Manager for the Washington State Department of Transportation,

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