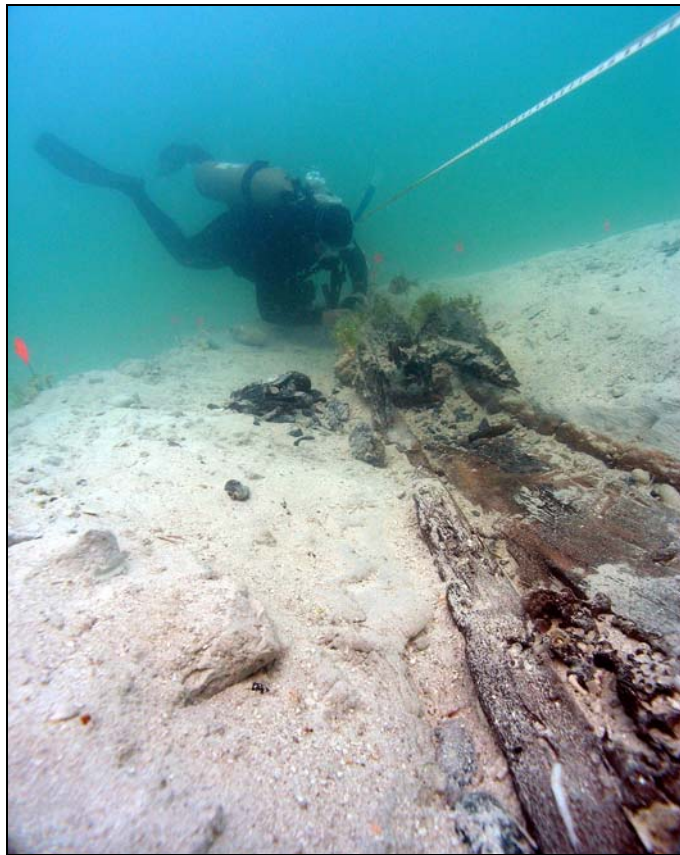


Archaeological and Biological Examination of
the Brick Wreck (8MO1881)
off Vaca Key, Monroe County, Florida

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and Brian J. Adams, with Contributions by Brenda S. Altmeier,
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Principal participants included Dr. Roger Smith, Jeffrey Moates, and Debra Shefi of the Florida Bureau of Archaeological Research; Brian Adams of the University of West Florida; Brenda Altmeier, John Halas, Cheva Heck, and Amy Massey of the Florida Keys National Marine Sanctuary; Bruce Terrell, Senior Archaeologist of the NOAA National Marine Sanctuaries Program; and Dr. John Broadwater, Director of the NOAA Maritime Heritage Program. Other participants included KC Smith of the Museum of Florida History; Harry DeLashmutt, Ports Manager, and Richard Tanner, Dockmaster of the City of Marathon Marina; George Garrett, Director of the Monroe County Marine Resources Department; and Bruce Reingoudt, David Becker, and Sean Meehan of the Florida Keys National Marine Sanctuary.



Figure 1. Brick Wreck team (from left to right): Brenda Altmeier, Richard Tanner, Brian Adams, Jeff Moates, Roger Smith, Debra Shefi

Table of Contents

Introduction.....	1
Research Design and Proposal.....	3
Brick Wreck Project.....	5
Fieldwork	5
Environment.....	7
Historical Context	8
Results.....	11
Ship Architecture	12
Scantlings List.....	18
Wood Identification	19
Site Plan	21
Photomosaic	22
Artifacts.....	23
Interpretation of the Brick Wreck.....	30
Recommendations.....	32
References Cited	33
Artifact Appendix	35

List of Figures

<i>Figure</i>	<i>Page</i>
1. Brick Wreck team (from left to right): Brenda Altmeier, Richard Tanner, Brian Adams, Jeff Moates, Roger Smith, Debra Shefi	ii
2. Location of Brick Wreck 8MO1881 (Nautical Chart 11452, "Alligator Reef to Sombrero Key," U.S. Dept. of Commerce, NOAA, National Ocean Service Coast Survey, Dec. 4, 1999)	1
3. Blue transfer-print sherd	2
4. Ceramics recovered during 2004 investigation	2
5. The Brick Wreck.....	4
6. Vessels on site.....	5
7. Measuring room-and-space.....	6
8. Caribbean spiny lobster - <i>Panulirus argus</i>	7
9. Triggerfish - <i>Balistes capriscus</i>	8
10. Goldentail moray - <i>Gymnothorax miliaris</i>	8
11. Wreckers at work (Courtesy of State Library and Archives of Florida, Florida Photographic Collection)	11
12. Tagging starboard frame 66 in the stern; note visible portion of keel obscured by sand	12
13. Location of scarp; note eroded upper remains of keelson	13
14. Recording room-and-space near after terminus of keelson	13
15. After terminus of keelson and notch in keel.....	13
16. Port elevation of stem and garboard: hull planking in foreground.....	14
17. Stern assembly (from right to left): inner sternpost, sternpost, and iron strapping or lower gudgeon.....	14
18. Starboard floors and half-frames; wronghead in center is starboard Frame 19.....	15
19. Starboard frames 47, 48, and 49 looking aft; note large space aft of Frame 47 (at right)	15
20. Ceiling near bow looking forward; note eroded remains of keelson.....	16
21. Shell-edged pearlware.....	23
22. Pressed cup plate fragment	24

23. So-called <i>Cadmus</i> cup plate offered on eBay	25
24. Example of recovered brick	26
25. Rodman gun casemate at Fort Taylor, showing earlier and later bricks used in construction (Courtesy of Jim Miller).....	27
26. Example of ballast; round river rock and pieces of slate	29

List of Tables

<i>Table</i>		<i>Page</i>
I. Hull scantling measurements from the Brick Wreck.....		18
II. Brick Wreck (8MO1881) ceramic types		23

Introduction

During the summer and fall of 2004, the Florida Bureau of Archaeological Research (BAR) Underwater Archaeology team in conjunction with National Oceanic and Atmospheric Administration (NOAA) conducted a project to relocate, assess, and record thirteen shipwrecks of the 1733 Spanish Plate Fleet in the Florida Keys. During the field survey several sites not associated with the Plate Fleet disaster also were investigated. Archaeologists examined the Brick Wreck and two other sites – the Bronze Pin Wreck and the Rib Wreck, both located off Marathon. Because of the Brick Wreck’s fairly complete, recently exposed, and well-preserved archaeological remains, it was decided that this site should be recorded systematically and that its study would be an excellent topic for a master’s thesis. The Brick Wreck, believed to be the remains of a mid-nineteenth century schooner, presented an excellent opportunity for further research.

Fixed in the sand and silt bottom, the shipwreck site lies in 12 feet of water at the edge of a sand bank. The visible remains of the vessel include wooden hull elements, ballast stones, and a large iron concretion. The centerline is oriented in a 120 degree heading with the bow pointing east-southeastward. A variety of marine life, supported by rich tidal currents, inhabits the exposed remains of the Brick Wreck. The investigations resulted in an extensive documentation of the shipwreck site, located approximately three-quarters of a nautical mile seaward of Vaca Key on the shoreward edge of Hawk Channel.

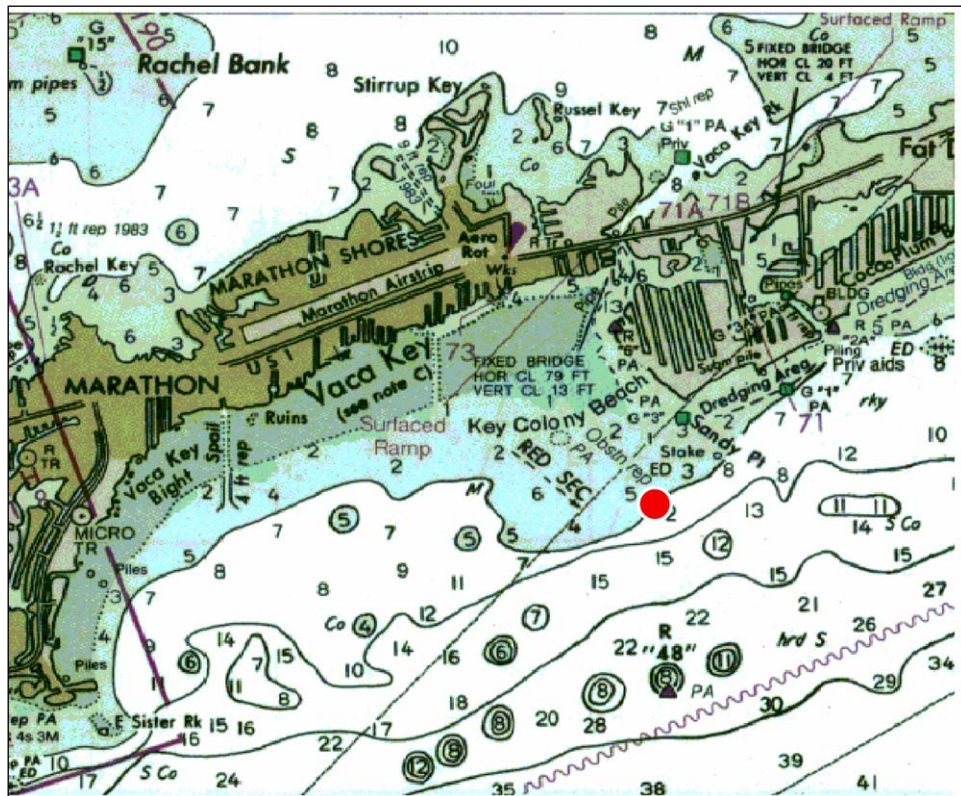


Figure 2. Location of Brick Wreck, 8MO1881 (Nautical Chart 11452, “Alligator Reef to Sombrero Key,” U.S. Dept. of Commerce, NOAA, National Ocean Service Coast Survey, Dec. 4, 1999)

Lack of substantial hard and soft coral growth, in addition to the remaining well-preserved wooden hull elements, suggests that the ship's remains may have become exposed within the last ten years by recent storm activity. However the site's existence has long been known to local divers and was reported to the Florida Keys National Marine Sanctuary (FKNMS) in 2002 by Robert Weller, who referred to it as the "Brick Wreck." Weller stated that "thousands" of bricks had been removed from the site by Bobby Jordan, local salvor, who sold them in the 1960s or 70s.

Further information was brought to the attention of BAR archaeologists during an interview with Robert Weller prior to the start of the 2004 project. Mr. Weller mentioned a particular ceramic sherd that had been removed from the site and that presently is in the possession of a close friend. Later, a photograph of the sherd forwarded to BAR showed a blue transfer-print pearl or whiteware sherd depicting a Chinoiserie pattern. The photograph then was forwarded to members of the Transferware Collector Club, who kindly identified a date range of 1810–1835.¹



Figure 3. Blue transfer-print sherd



Figure 4. Ceramics recovered during 2004 investigation

In October 2004 BAR archaeologists conducted a preliminary investigation of the vessel remains. They reported that the entire outline of the wreck is exposed with the bow pointing eastward. They noted visible frame ends on both sides of the hull as well as small river rock and pea gravel comprising the vessel's ballast. The ballast appeared to be compressed and flattened, perhaps the consequence of heavy cargo. The archaeologists also recovered a limited number of artifacts. These consisted of a ballast stone and three ceramic sherds, including two pearlware banded annular transfer-printed rim sherds (one brown, blue, and orange design; one brown, blue, and green design), and one plain whiteware rim sherd.

¹ Personal correspondence with Judie Siddal of Merlin Antiques, Transferware Collectors Club, 19 August 2005

The archaeologists documented the preservation of significant hull remains and *in situ* artifacts, including bricks and ceramic sherds. The “Brick Wreck” was designated 8MO1881 with the completion of a Florida Master Site File form.

In November 2005, BAR and FKNMS applied for a mini-grant through NOAA’s Maritime Heritage Program; the grant subsequently was awarded for work in summer 2006. In addition, BAR underwater archaeologist Della Scott-Ireton contacted University of West Florida (UWF) professor Greg Cook to inquire about a graduate student who might like to study the site for a master’s thesis. Cook suggested Brian Adams. With funds and a working agreement with FKNMS in place, BAR made plans for a field season from May 16 to June 2, 2006.

Research Design and Proposal

Given the cooperative relationship between staffs of FKNMS and BAR, resulting from a 1988 Programmatic Agreement (between NOAA and the State of Florida for Historical Resource Management in the FKNMS), it was proposed that the two staffs continue to work together to record and assess known shipwrecks within the Sanctuary. A call for proposals by the National Marine Sanctuary’s Maritime Heritage Program for projects that would be funded in 2006 prompted Dr. Roger Smith of BAR to prepare an application for a Maritime Heritage Mini-grant. These annual grants, which are awarded to National Marine Sanctuaries and partnering agencies, are aimed at creating new, and broadening existing, programs in the exploration, discovery, interpretation, long-term protection, and preservation of maritime heritage resources within the National Marine Sanctuary Program.

A grant proposal submitted to NOAA in November 2005 briefly described the Brick Wreck and its current status. Photographs of the ship’s surviving structure, site features, and recovered artifacts were included. Funding (\$5,480) was requested by Smith to assemble staff from both agencies, consisting of a team of archaeologists to investigate, document, and study the remains of the shipwreck. Smith created a plan that included methods and materials that would be used in the investigation.

Updated documentation (site plans, cultural and natural inventories, underwater photographs, and videos) would be utilized to assess the shipwreck and its management needs. Historical research both in the Florida Keys and the State Library of Florida would be conducted. Assessment data would be assembled to produce a report detailing the ship’s history, overall condition, and suggestions for future research and minimizing visitor impact on cultural and natural features. In addition to the report, a master’s thesis would be produced by a graduate student in anthropology from UWF. Funds from the grant would be matched in part by BAR and FKNMS, and all funds would be controlled and disseminated by the Sanctuary.

The following timeline of objectives and tasks was proposed:

Objective 1: Initiate project, first quarter (October – December)

Task 1: Assemble team members including visiting NOAA archaeologists

Task 2: Secure field accommodations and travel arrangements

Objective 2: Conduct historical research, second quarter (January – March)

Task 1: Conduct oral interviews with local informants

Task 2: Document the history of the Brick Wreck

Objective 3: Inspect and assess the Brick Wreck, third quarter (April – June)

Task 1: Relocate the vessel and establish a temporary mooring system onsite

Task 2: Survey and document features of the sunken ship

Objective 4: Assemble historical and archaeological data, third quarter (April – June.)

Task 1: Create a site plan from data collected in field

Task 2: Assemble historical information

Task 3: Discuss management strategies for protecting site

Objective 5: Prepare and print report on findings, fourth quarter (July – September)

Task 1: Write final report

Task 2: Print final report

Task 3: Update Florida State Master Site File

Objective 6: Disseminate report, fourth quarter (July – September)

Task 1: Deliver copies of report to interested parties



Figure 5. The Brick Wreck

Brick Wreck Project

The Maritime Heritage Mini-grant proposal was received favorably and funding was approved to proceed with the project. A Plan of Action for 16 days of fieldwork from May 16 to June 2, 2006 called for assembling a team of researchers consisting of Roger Smith, Jeff Moates, and Debra Shefi of BAR; Brenda Altmeier of FKNMS; Brian Adams of the UWF Anthropology Department; Bruce Terrell of the NOAA National Marine Sanctuaries Program, John Broadwater of NOAA's Maritime Heritage Program, and KC Smith of the Museum of Florida History. The team gathered at Boot Key Harbor Marina in Marathon, where NOAA R/V *Odyssey* was docked to serve as the field headquarters. Survey equipment, including two state boats (R/V *Workhorse*, R/V *Scout*), accompanied the state team, and diving gear was supplied by both agencies. FKNMS staff utilized R/V *Mako* as a dive platform and site escort. Food, emergency supplies, and air fills were provided by the Sanctuary.

Fieldwork

Diving operations:



Figure 6. Vessels on site

Each day R/V *Mako* (25-ft. Mako), R/V *Workhorse* (21-ft. Offshore), and R/V *Scout* (18-ft. Angler) traveled in company to the location of the Brick Wreck site and moored to a temporary buoy attached to a Danforth anchor installed for the project. Diving operations consisting of buddy teams using open-circuit SCUBA proceeded from the three vessels. Safety equipment, including first aid and oxygen, was carried by all boats. A single dive log was maintained throughout the project for all divers. Because the depth of the site is less than 30 feet, decompression limits were not applicable. Archaeological divers worked approximately 100 hours of total bottom time during ten full days of fieldwork. A full day of fieldwork included two dives on site.

Mapping



Figure 7. Measuring room-and-space

Archaeologists laid a baseline along the centerline of the vessel remains as the primary tool for documenting structural elements and orienting archaeological divers to certain areas of the shipwreck site. The baseline, laid with 3/8 in. nylon line, measured 78 ft. in length and was tied to iron rebar stakes placed directly forward of the bow and aft of the stern. The stakes established two datums: 'A' in the bow and 'B' in the stern. A 90-ft. reel tape was secured to it with zip-ties. The zero point of the baseline tape was established at the forward most point of the bow remains. Measurements using 90° offsets were taken from 5-ft. intervals along the baseline to reconstruct the outermost edges of the site in plan view. Archaeologists recorded room-and-space measurements of the vessel's framing timbers for their exact location in relation to the baseline. Exposed remains of the site were drawn by hand on mylar and recorded in relation to each other. An overall site plan depicting the extent of the surviving timbers, ballast, and large iron objects

was produced. Detailed feature drawings of the exposed timbers of the bow and stern areas also were made.

Metal detector survey

A metal detector survey was conducted around the periphery of the hull remains and ballast to search for wreck scatter. Pin flags were used to mark locations of targets registered during the metal detector survey. Archaeologists measured the immediate location of the pin flags using distance and bearing from one of the two datums. Minimal hand fanning of selected targets revealed encrusted objects that likely represent ship fasteners.

Photographic recording

The site was recorded using extensive digital still, digital video, and 35-mm print photography. Plan view photos, profile photos, work shots both above and below water, and marine life photos were taken. Still and video photographers included State and Sanctuary staff, volunteers, and journalists. A photomosaic of the shipwreck also was created using digital still photography.

Environment

The site has an average depth of 12 ft. and is located in the intermediate shallows between Hawk Channel and inshore tidal flats off Marathon. Visibility is influenced by tidal currents running between Florida Bay through Vaca Cut and the Seven Mile Bridge to the Florida Straits. The site is exposed only to the weather from the south; sheltered by the island, it is a relatively low energy environment. The substrate surrounding the wreck is composed of coral cobbles, shell hash and carbonate sand.

Linear survey from the shipwreck with the GPS coordinates referenced above to 25 yds. of the shipwreck running 80 ft. on a course of 120 degrees east resulted in a list of species located on or around the shipwreck. The resource survey was conducted using SCUBA. Benthic composition and species inhabitants were recorded. The area surrounding the shipwreck, within an average of 3 to 5 meters, is a halo of clean carbonate sand. The outside of this halo is colonized predominantly by turtle grass, *Thalassia testudinum*.

Marine Life Survey

Brenda S. Altmeier of FKNMS examined the wrecksite to create a list of observed marine life inhabiting the exposed remains, ballast pile, and immediate area. Her list includes the following species:

CRUSTACEANS

Caribbean Spiny Lobster—*Panulirus argus*

MARINE PLANTS

Turtle Grass—*Thalassia testudinum*

Manatee Grass—*Syringodium filiforme*

Shoal grass—*Halodule wrightii*

Green Mermaid's Wineglass—*Acetabularia calyculus*

Flat-Top Bristle Brush—*Penicillus pyriformis*

Green Feather Alga—*Caulerpa sertularioides*

Fuzzy Finger Alga—*Dasycladus vermicularis*

Three-Finger Leaf Alga—

Halimeda incrassate

Paddle Blade Alga—*Avrainillea longicaulis*

Oval-Blade Alga—*Caulerpa prolifera*



Figure 8. Caribbean spiny lobster—*Panulirus argus*

CNIDARIANS

Anemones

Giant Anemone—*Condylactus gigantean*
Stony Corals
Mustard Hill Coral—*Porites astreoides*
Lesser Starlet Coral—*Siderastrea radians*
Smooth Starlet Coral—*Siderastrea siderea*

FISH

Hogfish—*Lachnolaimus maximus*
Two-spot Cardinalfish—*Apogon pseudomaculatus*
White Grouper—*Mycteroperca cidi*
Porkfish—*Anisotremus virginicus* (mature and juvenile)
Tomtate—*Haemulon aurolineatum*
Bluestriped Grunt—*Haemulon sciurus*
White Grunt—*Haemulon plumieri*
Great Barracuda—*Sphyraena barracuda*
Spotted Drum (juvenile) —*Equetus punctatus*
Spotted Burfish— *Chilomycterus antinga*
Triggerfish—*Balistes caprisus*



Figure 9. Triggerfish—*Balistes caprisus*

SHARKS & RAYS

Nurse Shark—*Ginglymostoma cirratum*

EELS

Goldentail Moray—*Gymnothorax miliaris*



Figure 10. Goldentail moray—*Gymnothorax miliaris*

Historical Context

The Florida Keys in the Nineteenth Century

Before permanent U.S. settlement, the Florida Keys were used by fishermen and wreckers of various nationalities and descent. The majority were Bahamians, who for many years recognized the favorable conditions for turtling and salvage on the American side of the Florida Straits. Bahamians made use of anchorages at Key Tavernier, Indian Key, Key Biscayne, Bahia Honda, Key Vaca, Big Pine Key, and Key West where turtle kraals and temporary storage facilities most likely were constructed.² In addition, Bahamians developed a distinctive boat type built for and used exclusively in the Keys fisheries and known throughout the northern Gulf of Mexico. The design of the Key West smack, reputedly Bahamian in origin, was characterized by its open cockpit, internal live well, and its full and fixed keel.³

New England fisherman also began to realize the rich grounds that lay south and extended their winter fisheries to the Carolina and Florida coasts.⁴ Catches in the Florida Straits proved to be a cost-effective commodity in Southern U.S., Atlantic, and Caribbean markets. The advantage of a day's sail to markets at Havana and the Bahamas—closer to the Keys than Savannah and Charleston—left time for extra fishing and other gainful endeavors. The opportunity to salvage wrecks in the Keys supplemented incomes as well as provided lucrative careers for many fishing boat captains and their crews. These fishing/wrecking smacks tended to be from Connecticut, particularly the New London-Mystic area.⁵

As Florida was being transferred to the United States, increasing American encroachment and prevailing sentiments that the wrecking trade be secured for U.S. citizens encouraged settlement of the Keys. Complaints were issued and letters were written “that the Keys had become the resort of wreckers [Bahamians] and pirates.”⁶ Thus, in 1821 an official United States wrecking station and customs house were established in Key West. Soon thereafter, a mandate to counter pirates prompted Commodore David Porter, under congressional order, to establish a naval base on the island. By that time several American settlers had come to the area to invest and participate in the wrecking trade. Due mainly to its wrecking industry and its excellent harbor, the proximity to the Cuban markets, and the abundant fishing grounds Key West developed as the site of the first permanent settlement. Through competitive response, Americans began to extend development to the Upper Keys.

In an effort to rival the Key West salvage business, wreckers settled on the islands closer to where a great majority of shipwrecks occurred. Captains Joshua Appleby and John Fiveash established a wrecking station at Knight Key, located off the western tip of

² John Viele, *The Florida Keys Volume 3: The Wreckers*, Sarasota, Fla.: Pineapple Press, 2001, 17.

³ Gordon Watts, “Cultural Resource Assessment of MV *Wellwood* Grounding Site Restoration Anchoring Area,” Tidewater Atlantic Research, August 2001, 17.

⁴ Viele, *The Wreckers*, 25.

⁵ *Ibid.*, 17.

⁶ *Ibid.*, 25. Also see Edwin C. Bearss, “Shipwreck Study – the Dry Tortugas,” Washington, D.C., National Park Service; April 1971, 31–34.

Key Vaca, in November 1822.⁷ The two men named the settlement Port Monroe and advertised Key Vaca's great harbor and tremendous farming capacity. However, Appleby's arrest for his involvement in a scheme concocted with a Colombian captain led to the wrecking station's quick demise.⁸ Not long after, residents of Knight Key moved their settlement to the eastern side of Key Vaca.

Although the first wrecking station to rival Key West quickly faded from existence, by the mid-1830s a population of nearly 200 inhabited Key Vaca. While Bahamian fisherman and farmers comprised most of the residents there, a few families of wreckers also established residence. However, in 1836 most of these inhabitants fled to Key West as news spread south of a plantation raid by Seminoles in Fort Lauderdale.⁹ Later, as a result of the Seminole attack and destruction of the settlement and wrecking station on Indian Key, the few remaining settlers left Key Vaca. It was only with the inception of a naval garrison stationed on Key Vaca on 7 August 1840 that the population would become stable, although remain small.¹⁰ The island never again assumed any importance as a wrecking station.

Residents of the Florida Keys in the two decades preceding the Civil War witnessed success in various economic pursuits, especially in Key West. Maritime industries such as fishing, turtling, harvesting of natural sponges, cigar making, and military construction projects, plus supplies and services for personnel, added to the prevailing businesses of the day. The sponge industry, which made headway beginning in 1849, eventually would supplant wrecking in economic value in the Keys.¹¹ The construction of lighthouses assisted the sponge industry in this takeover as the days of sailing wrecking vessels patrolling the reef, a profession that peaked in the 1850s, slowly faded from view.¹² Construction of the two forts would provide further advances.

As part of the Third System of fortifications, construction began on Fort Taylor in 1845 and started at Fort Jefferson a year later. This system came about following the War of 1812 and, once Florida became a part of the U.S., was extended around the peninsula to cover areas along the Gulf coast.¹³ Fort Taylor's location guards the main entrance channel to the port of Key West. Engineers completed construction of Fort Taylor in 1860. Even though Florida seceded from the Union in 1861, the fort remained in the possession of the Union for the duration of the Civil War. During the war, officers located at the fort administered the Eastern Gulf Blockading Squadron, which was responsible for the Union blockade from Pensacola to Cape Canaveral. On Garden Key in the Dry Tortugas, at the western entrance to the Straits of Florida, the footers for Fort Jefferson were laid. Construction here lasted through the Civil War years.

⁷ Ibid., 38.

⁸ Ibid.

⁹ Janus Research, "A Cultural Resource Assessment Survey of US 1/SR 5 Corridor Turn Lanes and Intersection Improvements on Little Duck Key, Knight Key/Marathon, Long Key, and the City of Layton," St. Petersburg, Fla., May 2002, 26.

¹⁰ Ibid.

¹¹ Ibid., 153.

¹² Viele, *The Wreckers*, 154.

¹³ "History of Ft. Taylor," accessed 15 August 2006, available from <http://www.forttaylor.org/history.html>.

In the years following the Civil War, the Key West economy suffered less than the rest of the South. Sponging, fishing, and cigar making continued to flourish. Outside of Key West, the population of the Keys in 1870 stood at 300, which can be attributed largely to Bahamian immigration.¹⁴ More than half of the settlers located in the Lower Keys farmed fruits and vegetables for the Key West market. Between 1870 and 1900, the Middle Keys were the least populated area, with a total of 34 settlers in 1870; that number dwindled to 10 by 1900.¹⁵

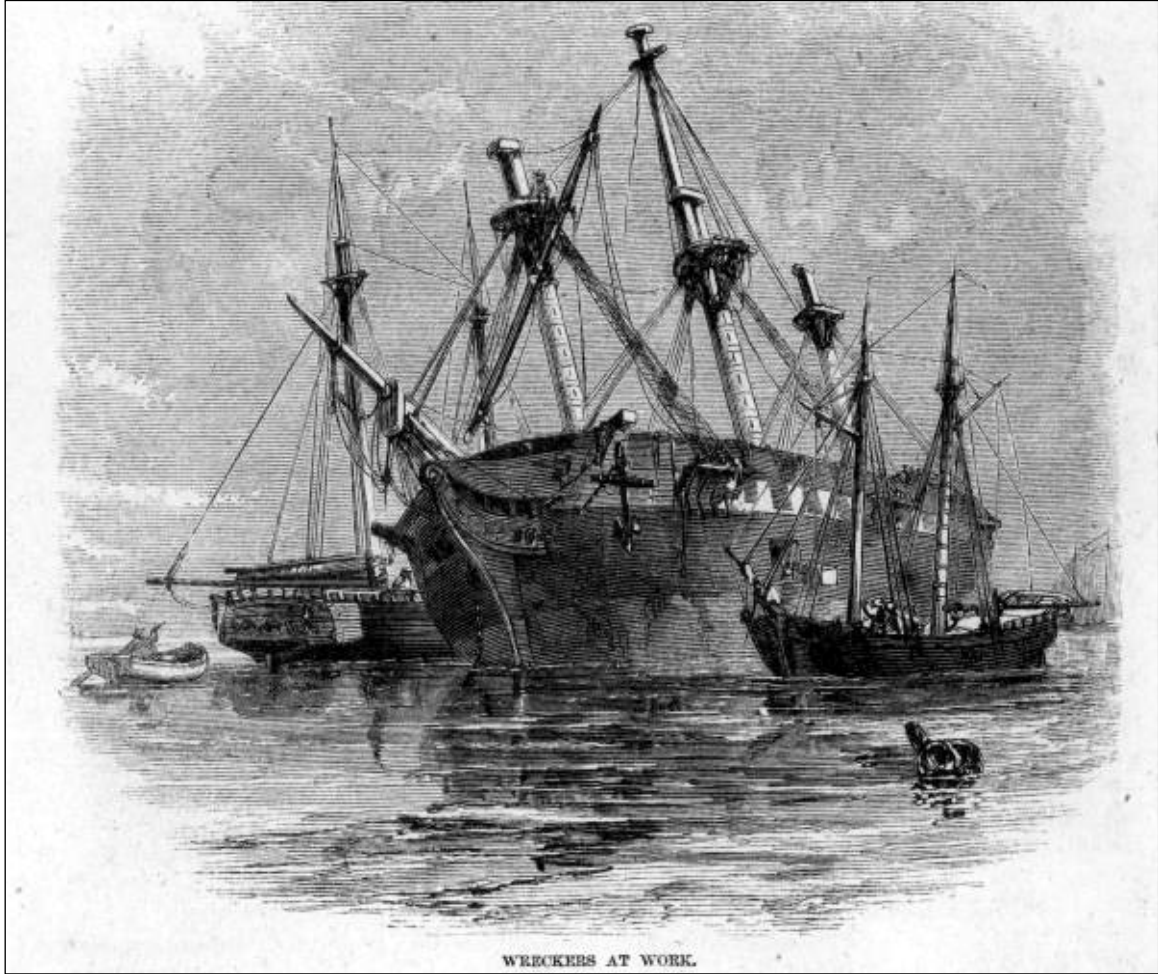


Figure 11. Wreckers at work. (Courtesy of State Library and Archives of Florida, Florida Photographic Collection)

Results

Archaeology

¹⁴ John Viele *The Florida Keys Volume 1: A History of the Pioneers*. Sarasota, Fla.: Pineapple Press, 1996, 81.

¹⁵ *Ibid.*

The Brick Wreck is oriented east-southeast to west-northwest with the bow pointing to the east-southeastward (120 degrees magnetic north). The site lies in a sandy bottom that is underlain by depositional layers comprised of fine silt and decaying organic matter, mostly buried sea grass. When dispersed, the silty layers cloud the immediate area and lessen visibility. Visibility averages between 15 to 30 feet. The bottom terrain is flat and interspersed with grass beds. The nearest grass beds to the shipwreck remains lie a few feet off port and starboard runs.

The lower portion of the ship's hull is exposed and measures approximately 76 feet 8 inches in length, with a beam of at least 15 feet at the widest part. Archaeologists documented several remaining timbers and features of the site including: a portion of the keel; eroded remains of the keelson; stem and sternposts; floor and half frames; canted half frames in the bow section; scant remains of first futtocks; remains of half frames in the stern; ceiling; hull planking; a large concretion amidships on port; and small ballast stones in the after portion of the hull. Each timber was given an alpha-numeric designation to facilitate the overall documentation and creation of a scantlings list.



Figure 12. Tagging starboard Frame 66 in the stern; note visible portion of keel obscured by sand

Ship Architecture

Keel

The keel is exposed only in the stern, aft of where the keelson terminates (Figure 11). Estimated overall length of the keel is 69 ½ feet. Molded height of the keel could not be determined. Sided thickness is 12 inches. Concreted remnants of iron drift bolts were noted along the forward portion of the vessel remains. Treenails were observed fastening the garboard strakes in the stern, on both starboard and port sides. A wood sample of the keel was retrieved just forward of the sternpost assembly. Below the after terminus of the keelson, the keel was found to be notched to accept the aftermost half frame (see Figures 13 and 14). Dimensions of the notch were not determined.

Keelson

The keelson is a primary feature of the hull remains. Although badly eroded and worm-eaten, the keelson runs 62 feet in length from the portion in the bow that sits above the stem to its after terminus. Sided thickness is 12 inches, same as the keel, and the approximate molded height is 14 inches. The keelson was fastened to the frames and keel with iron drift bolts, as evidenced by the iron-oxide impregnated upper remains of the keelson. The keelson is scarphed together (with a 2 feet 9 inch scarph), situated 24 feet 8 inches aft its forward end (Figure 12). An iron drift bolt was observed just forward of the scarph, but none in the scarph itself. The eroded and worm-eaten remains of what appears to be a longitudinal bulkhead on the after section of the keelson begins at 44 feet 7 inches and ends at 60 feet 9 inches along the baseline for a total length of 16 feet 2 inches.



Figure 13. Location of scarph; note eroded upper remains of keelson



Figure 14. Recording room-and-space near after terminus of keelson

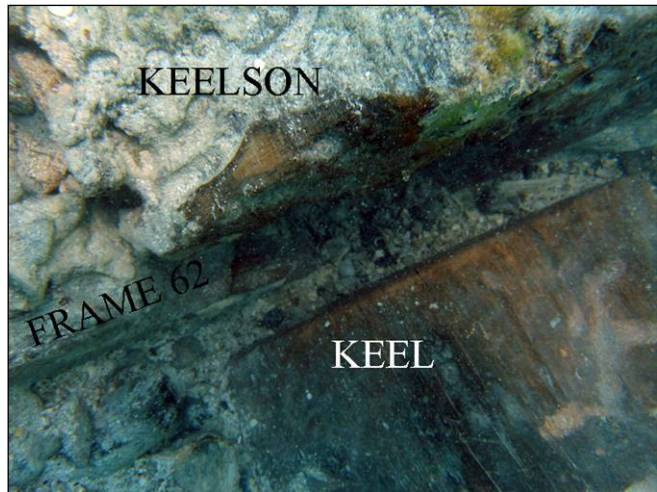


Figure 15. After terminus of keelson and notch in keel

Stem



Figure 16. Port elevation of stem and garboard; hull planking in foreground

The stem is 6 feet 7 inches in length. Although the vertically rising forward portion of the stem has eroded away, the intact portion abuts the first full frame or floor timber (designated Frame 1). The stem most likely is scarphed to the keel aft of the canted half-frames in the bow and below this abutment. Molded height of the stem to the top of the garboard rabbet is 9 ½ inches. Given the 2 ½ inches thickness of the garboard strake, this would make the molded height at least 12 inches. Sided thickness of the stem is 18 inches. Concreted remains of an iron fastener were noted just forward of where the keelson begins.

Stern Assembly

Remains of a sternpost and inner sternpost comprise a discreet assembly at the after end of the hull. Where these timbers were stepped into the keel, they are 8 inches sided thickness and 14 inches molded height. There appears to be evidence of an iron strap, or lower gudgeon, wrapped around the after end of the assembly. No evidence of deadwood was observed.



Figure 17. Stern assembly (from right to left): inner sternpost, sternpost, and iron strapping or lower gudgeon

Framing:

The vessel's lower hull is heavily framed with floors, half-frames, and the eroded remains of first futtocks. On the starboard side, there are three canted bow frames, 60 framing timbers (floors and half-frames), and six half-frames in the stern. On the port side, only two cant frames in the bow and three half-frames in the stern are extant. Worm-eaten remains of chocks are present between cant frames 2 and 3 on each side of the stem. Average sided dimension of the frames, taken from room-and-space measurements, was determined to be 10 ½ inches throughout. Molded height of frames averaged 9 inches.

On average, space between floors and half frames throughout the extent of the hull measured 1 inch. However, archaeologists noted larger than average spaces between discernable frame pairs starting aft of Frame 47 on both sides of the hull. Room-and-space data reveal that in the after portion of the hull, starting at Frame 47, the space between frame pairs is 1 ¾ inches wide. Forward of this point in the hull the space between floors and half frames, where distinct frame pairs are not discernible, averages three-quarters of an inch.



Figure 18. Starboard floors and half-frames; wronghead in center is starboard Frame 19



Figure 19. Starboard frames 47, 48, and 49 looking aft; note large space aft of frame 47 (at right)

Framing in the bow consists of three cant frames on the starboard side and two cant frames on the port side. In general, the canted frames exhibited a 9 ½ inches sided dimension and molded height of 8 ½ inches. Two chocks were inserted between the second and third cant frame on each side of the stem. At their widest point, the eroded chocks were 3 ½ inches and tapered inboard to a point. The sided dimension of port cant frame 3 was tapered to 5 inches where it meets the stem. It was noted that these cant frames were inserted so that they abut each side of the stem (see site plan for bow assembly).

Archaeologists tagged the floors and half-frames with consecutive numbers starting with Frame 1 aft of the canted frames in the bow. Here, they identified the timber as the first full frame or floor. Aft of Frame 1, ceiling planking on each side of the keelson prevented an exact determination of the arrangement of floors and half-frames. However, it is believed that the framing timbers alternate from bow to stern. Thus, the floors received odd numbered designations and the half frames received even numbered designations. Furthermore, archaeologists recorded the scant remains of fourteen first futtocks abutting floor timbers along the starboard side. Also, Frame 62 in the stern is comprised of two half frames situated starboard and port at the after side of Frame 61. The half frames measure 5 inches molded and 5 inches sided. Their location on the aft side of Frame 61 provides further evidence of alternating floors and half-frames throughout the hull without a shift in the arrangement.

Ceiling

Only a few strakes of ceiling planking remain on the lower hull. Ceiling planks are 3 inches in thickness and vary in width from 8 ½ to 12 inches. However, the forward-most ceiling planking adjacent to the keelson measure 5 inches thick and terminated at Frame 5. The reason why these forward planks are heavier than the rest is unclear, but they may have been intended to reinforce the portion of the hull where the stem joined the keel.



Figure 20. Ceiling near bow looking forward; note eroded remains of keelson

Ceiling appears to have been fastened primarily with iron planking nails. In certain areas of the hull, where ceiling has disappeared, there remain spots of a mortar-like substance that retains the impression of the planking at each fastening point. This substance may have supplemented the grip of the fastening point as well as serving as a water deterrent for the iron planking nail. In the after portion of the hull, ballast stones and sediments obscured the remaining ceiling planking.

Hull Planking

Hull planking appears to be treenail fastened to the floors and half frames. Garboard strakes are evident in the bow and in the stern where they were rabbeted into the stem and keel. Visible dimensions of garboard strakes in the bow are at least 7 inches wide and 2 ½ inches thick. Forward of midships, planking appeared on both sides of the hull, below the frames. They vary between 10 ½ and 12 inches in width, and are 3 inches in thickness.

Non-features

Mast step: Due to the badly eroded remains of the keelson, researchers were unable to document the location of a mast step. A measurement, taken at the remains of the scarph in the keelson, estimates the timber to be at least 14 inches in molded height.

Unfortunately, the badly eroded keelson exhibits less than half of this approximate height.

Limbers: Archaeologists did not observe limbers during investigations. It is probable that limbers, or watercourses alongside the keel, were not included during construction of this particular vessel. The planking that runs beside the remains of the keelson was fastened to the frames below. Usually these planks, or limber boards, were not fastened and could be removed easily to clean the limbers. However, the small space between frames affords no access to the ship's bilge.

Pump: Researchers also noted the lack of a ship's pump well or assembly. This non-feature may also be a result of the tightly spaced framework. Pump wells are compartments in the bottom of the hull where bilgewater collected and from which it was pumped out. Usually located near amidships, researchers found no indication of items associated with a pump or the remains of a water-tight compartment atop the frames or ceiling.

Other Features

Large iron object: A large unidentifiable iron object is located near amidships resting on the port side of the hull remains. The object measures roughly six feet wide by eight feet long by two feet in height lying flat on the hull. It appears to be comprised of at least three sheets of iron that are fixed together by several lateral beams or frames also of iron. The object is heavily encrusted and is inhabited by a variety of marine life. Archaeologists recorded the object in plan view in relation to the hull remains. Due to time constraints, the object was not fully examined.

Concreted area on starboard side: Archaeologists noted an area of concreted material, mostly obscured by the ballast, near amidships on top of and affixed to the starboard hull remains. Individual features within the concreted remains were not delineated. Opposite the large iron object, this feature is possibly associated with that object.

Disarticulated timbers: Researchers discovered the remains of a large timber and planking disarticulated from the hull under the starboard extent or seaward side of the vessel remains near Frame 30. Comprised of one large timber and several planks, the feature is likely the cause of natural erosion. The large timber, underlain by the detached planking, possibly is an upper futtock. Lodged between the lower hull remains and the sandy bottom and assuming the planking is part of the outer hull, it would naturally fall first and be buried below the framing piece. However, it is possible that the placement of these timbers could have been a result of salvage activities. The large timber and planking run fore and aft.

Outboard metal objects: Archaeologists conducted a metal detector survey outboard from the shipwreck remains. More than seventy anomalies were located and subsequently mapped during the survey. The majority of which consisted of a single

target. Four consisted of two or more targets denoted by a close proximity of pin flags. Due to time constraints, the targets were not investigated.

Scantlings List

Table I. Hull scantling measurements from the Brick Wreck

<p><u>Hull Overall</u></p> <p>length (estimated): undetermined beam (estimated): undetermined depth of hold (estimated): undetermined length to beam ratio (estimated): undetermined capacity (estimated): undetermined</p>	<p><u>Stem</u></p> <p>molded height: 12 inches molded height to rabbet: 9 ½ inches sided thickness: 18 inches</p>
<p><u>Preserved Hull Measurements</u></p> <p>length (estimated): 76 feet port side breadth amidships (estimated): 9 feet starboard side breadth amidships (estimated): 9 ½ feet</p>	<p><u>Sternpost</u></p> <p>molded height: 14 inches sided thickness: 8 inches</p>
<p><u>Keel</u></p> <p>length (estimated): 68 feet molded height: undetermined sided thickness: 12 inches</p>	<p><u>Inner sternpost</u></p> <p>molded height: 14 inches sided thickness: 8 inches</p>
<p><u>Keelson</u></p> <p>length: 59 feet molded height: approximately 14 inches sided thickness: 12 inches</p>	<p><u>Hull planking</u></p> <p>thickness: 3 inches width: 10 ½ to 12 inches</p>
<p><u>Floors and Half Frames</u></p> <p>molded height: 9 inches sided thickness: 10 ½ inches average on center spacing: 6 ½ inches</p>	<p><u>Ceiling</u></p> <p>thickness: 3 inches width: 8 ½ to 12 inches</p>
<p><u>Cant Frames</u></p> <p>molded height: 8 ½ inches sided thickness inboard: 5 inches sided thickness outboard: 9 ½ inches</p>	<p><u>Garboard (in bow)</u></p> <p>thickness: 2 ½ inches width: 7 inches</p>

Wood Identification

Lee Newsom and Colleen Reese of the Pennsylvania State University Department of Anthropology examined the wood specimens from the Brick Wreck in August and September 2006. The wood specimens and their anatomical assignments are listed individually below, followed by a brief synopsis of the identifications from the wreck assemblage.

Brick Wreck

1. treenail – *Quercus* sp., oak, white oak anatomical group (specimen exhibits very narrow growth rings indicative of slow or stressed growth; from a wood products perspective, this would translate to relatively dense, hard wood)
2. futtock (under hull) – *Quercus* sp., red oak anatomical group
3. futtock (SF 25) – *Acer* sp., maple, hard anatomical group
4. ceiling plank – *Fagus* sp., beech
5. cant frame – *Betula* sp., birch
6. tail frame – *Acer* sp., maple, hard anatomical group
7. garboard strake – *Quercus* sp., red oak anatomical group
8. keelson – *Acer* sp., maple, hard anatomical group
9. keel – *Acer* sp., maple, hard anatomical group
10. hull planking – *Acer* sp., maple, hard anatomical group
11. stem – *Betula* sp., birch
12. floor frame – *Acer* sp., maple, hard anatomical group

Synopsis

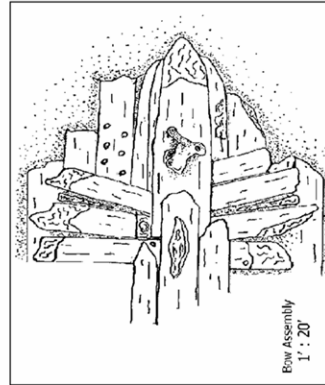
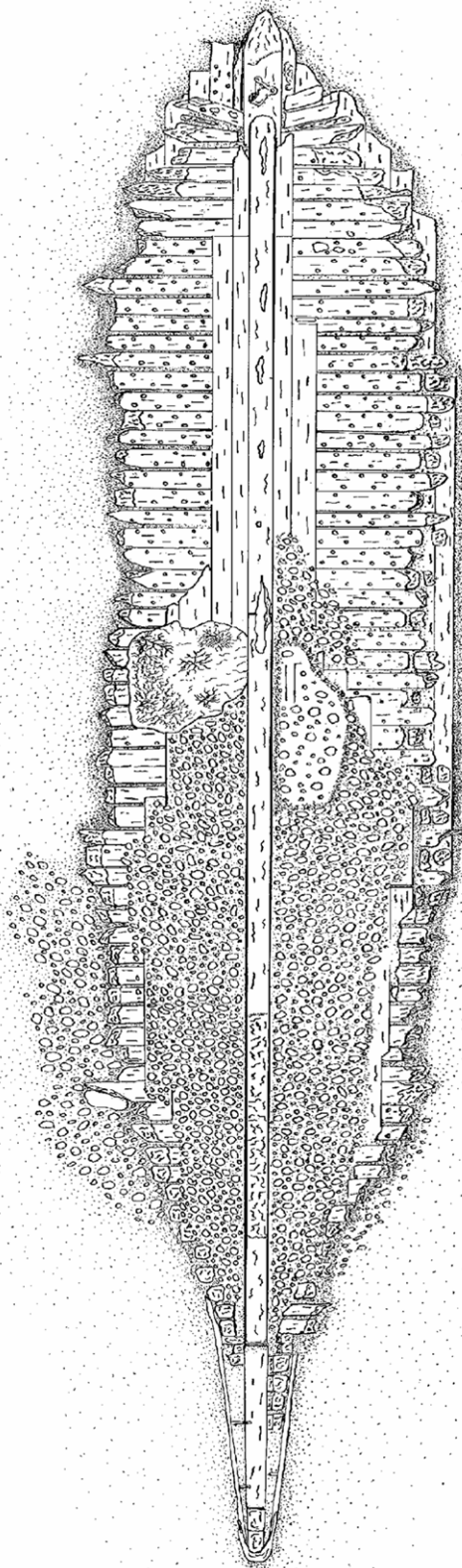
Five separate temperate hardwoods are represented among the samples from the Brick Wreck, including two anatomical groups (hence two species) of oak, and one type of maple, beech, and birch. All of these woods have a lengthy history of use in ship construction.

Additional notes

- Species of oak within the two anatomical groups specified occur on both sides of the Atlantic and are not generally separable by wood anatomy.
- The maple genus, *Acer*, is widely distributed over the northern hemisphere (about 70 species total). Of the three European species, *A. pseudoplatanus* or “sycamore” is the main timber source. A dozen or so American species exist, and their wood is divisible by anatomy into two groups: the hard versus soft maples. The wood found on this wreck conforms to the former. The American hard maple group (specific gravity, a relative measure of density [scale of 0 to about 1], = 0.57–0.63) consists of two species: sugar maple (*A. saccharum*) and black maple (*A. nigrum*). “Hard maple is by far the most important of the maples commercially as well as the most abundant . . . the timber is denser, stronger, and more resistant to wear than soft maple and accordingly is preferred for flooring in residences, bowling alleys, dance halls, and shops, and for the frames of implements, machinery, and vehicles where

strength is essential” (Record and Hess 1943:34). The range includes most of the eastern hardwood region of North America, but particularly the Great Lakes and northern New England, including the St. Lawrence valley. Although the specimens from the wreck fit the American hard maple group quite well, without further research we cannot absolutely preclude from consideration any of the European (or other) species (some anatomical characters may possibly separate the American hard maple group from European *A. pseudoplatanus*, at least, but a cursory comparison of diagnostic elements between the two indicates this is unlikely).

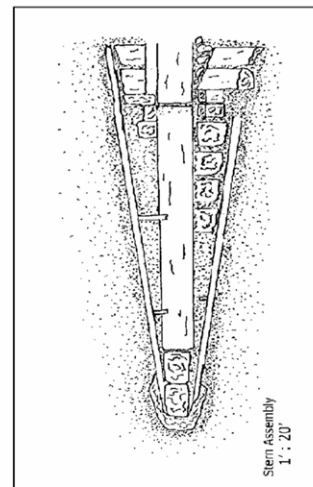
- *Betula*, birch: another widespread genus of the North Temperate Zone. The woods of different species, Old or New World, cannot be separated with certainty on the basis of wood anatomy. The wood has multiple uses, including railroad ties, furniture, cabinets, boxes, turnery, and more.
- *Fagus*, beech: eight to nine species, including five in eastern Asia, one (*F. sylvatica*) in Europe, one (*F. grandifolia*, American beech) in North America (eastern region, including eastern Canada), and one in Mexico (*F. mexicana* [or *F. grandifolia* ssp. *Mexicana*]). Like birch, the individual species cannot or are not readily separated by wood anatomy. Specifically in terms of American beech, the wood is described as moderately to quite heavy, hard, tough, and strong; the specific gravity ranges from 0.65 to 0.90 (moderate to relatively high density). Multiple uses have been recorded including boxes, furniture, flooring, turnery, railroad ties, and so on.



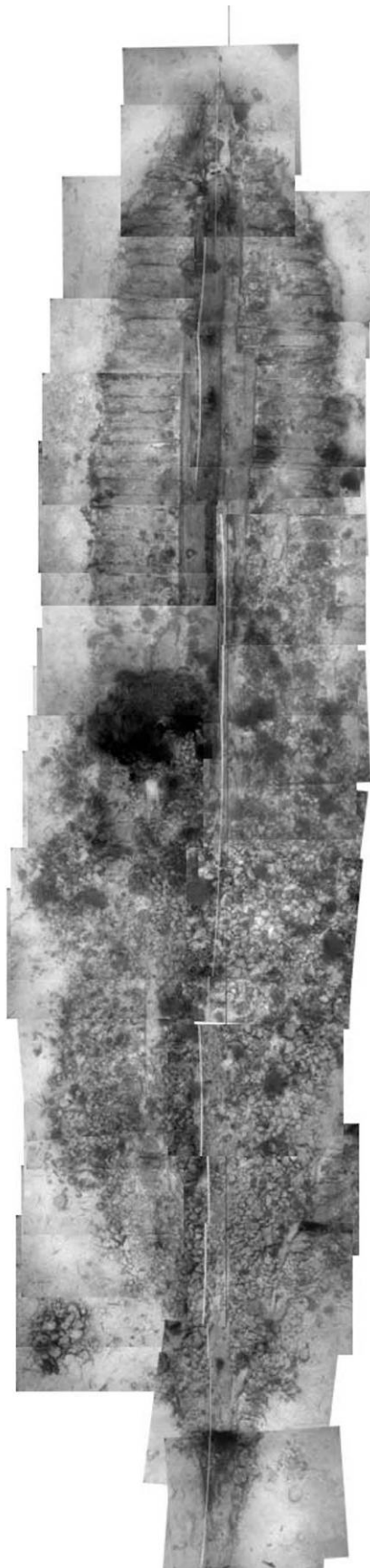
Bow Assembly
1" : 20'



Brick Wreck
SMO1881
Florida Bureau of Archaeological Research
Site Plan by Brian Adams
May 2006



Stern Assembly
1" : 20'



Brick Wreck
SMO1881
Florida Bureau of Archaeological Research
Photomosaic by Brenda Altrmeier
May 2006

Artifacts

During investigations of the Brick Wreck, researchers recovered a total of 30 artifacts and nearly 20 samples of ballast and slate. The artifact assemblage consists of two types of ceramic wares, bottle base fragments, cup plate and lantern glass shards, and two whole bricks. Artifacts and ballast were photographed during investigations and subsequently were turned over to Brian Adams of the University of West Florida for further identification and conservation under the direction of Dr. John Bratten at the UWF Conservation Laboratory. Artifact types recovered during the Brick Wreck investigations are described below.

Ceramics



Figure 21. Shell-edged pearlware

During the preliminary 2004 and formal 2006 investigations of the site, researchers recovered 21 ceramic sherds. Fourteen are pearlware sherds that can be classified into seven distinct categories based on decoration. The remaining six ceramics are whiteware sherds that represent two categories. Due to the high frequency in which they are recovered from historic sites, ceramics are often the best indicators of the date in which a site was occupied. In the case of shipwrecks, ceramics usually offer good indications of when a vessel was in operation.

Table II. Brick Wreck (8MO1881) ceramic types

Ceramic Type	Count
Pearlware	15
plain	3
hand-painted blue and orange on white	1
hand-painted blue on white	2
transferprint blue on white geometric pattern	1
transferprint blue on white floral pattern	1
transferprint blue on white chinoiserie pattern	1
transferprint annular brown, blue, and orange	3
shell-edged green	3
Whiteware	6
plain	4
transferprint blue on white	2
Total	21

In general, the date range for pearlware manufacture is 1780 to 1830. Whiteware is attributed to a period of manufacture beginning in 1813 and lasting to present times. However, without an indication of factory marks whiteware can be extremely difficult to date precisely.¹⁶ Yet, based on decoration more refined ranges for the two earthenwares do exist.

Case in point, the ceramic mentioned in the introduction that exhibits a particular dark blue chinoiserie pattern is a transferprint earthenware made for the American market by either Ralph Stevenson between 1810–1835 or James & Ralph Clews between 1815–1834.¹⁷ Ivor Noel-Hume writes in *If These Pots Could Talk* that blue-printed pearlware with chinoiserie pattern characterized by the ground and water areas being depicted by laterally engraved straight lines points to an earlier period of manufacture.¹⁸ “By 1830 or thereabouts,” Hume writes, “these areas were stippled.”¹⁹ The date range of annular wares also suggests that the Brick Wreck vessel was in operation sometime after 1835.²⁰

Glass

Recovered glass artifacts consist of two aqua-colored, free-blown bottle base fragments; several shards of thin, flat, and clear lantern or window glass; and one shard of an early glass cup plate. Similar to ceramics, glass artifacts also can be excellent indicators of when a vessel was in operation but are less durable in archaeological settings, especially those discovered in marine environments. Fortunately for researchers of the Brick Wreck, the particular recovered glass artifact pictured to the right offers valuable information relating to when the vessel was most likely in operation and provides clues to an area of the United States that this vessel may have called home.

The delicately designed cup plate fragment is pressed glass and consists of a ship motif with decoration encircling the center of the plate. The recovered piece is part of the inner portion of the plate. This particular fragment is part of a classification of historical American Cup Plates succinctly labeled as the Ship Group by authors Lee and Rose, who assembled an extensive catalog of these glass plates. According to their research, this cup plate was pressed



Figure 22. Pressed cup plate fragment

¹⁶Ivor Noel-Hume, *A Guide to Artifacts of Colonial America*. Philadelphia: University of Pennsylvania Press, 1969, 131.

¹⁷ Personal correspondence with Judie Siddal, 19 August, 2005.

¹⁸ Noel-Hume, *If These Pots Could Talk: Collecting 2,000 Years of British Household Pottery*. Hanover and London: University Press of New England, 2001, 250.

¹⁹ *Ibid.*

²⁰Noel-Hume, *A Guide to Artifacts of Colonial America*, 131.

around 1840 by the Boston and Sandwich Glass Works of Cape Cod, Massachusetts.²¹ Dorothy G. Hogan-Schofield, present curator of the Sandwich Glass Museum, confirmed this identification.²²

The Boston and Sandwich Glass Company (1825–88) was established by Deming Jarvis, a Boston businessman, and produced glass of different types, including blown, molded, cut, and engraved.²³ Sandwich became famous for its pressed glass (glass pressed in a mold), for which the first American machinery was developed by Jarvis around 1827. Quickly shaped and decorated using metal molds in conjunction with lever-operated presses, pressed glass was less expensive to produce than mold-blown glass. Labor costs were reduced since press operators could be trained more easily than glass blowers.²⁴

Cup plates, used to hold teacups after very hot tea was poured into saucers to cool, were a popular American fashion statement between 1825 and 1860.²⁵ In addition to serving as coasters, the plates kept the table linen from being stained by hot tea. Glass cup plates probably were among the first items to be produced by machine pressing. Lee and Rose identified more than 700 cup plate molds in use during the early 19th century, attesting to the popularity of these cheaply made items.²⁶

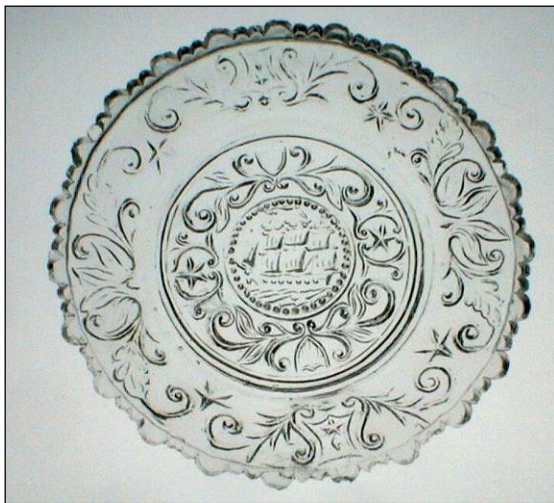


Figure 23. So-called *Cadmus* cup plate offered on eBay.

The cup plate pattern in question, with a three-masted ship encircled by scallops and stars, has been referred to as the *Cadmus* design, after the ship that brought the Marquis de Lafayette to the United States in 1824, but this assertion is questionable, since *Cadmus* employed steam and sails.²⁷ Alternately, the frigate *Constitution* has been suggested.²⁸ The ship probably just represented American trade and maritime commerce. More importantly, the manufacture date of the cup plate provides a *terminus post quem* (1840) for the sinking of the Brick Wreck.

²¹ Ruth Webb Lee and James H. Rose, *American Glass Cup Plate: The First Classified Check List and Historical Treatise on the Subject*. New York: Ferris Printing Company, 1948, 6, 45.

²² Personal correspondence with Dorothy G. Hogan-Schofield, Curator of the Sandwich Glass Museum, 29 July, 2006.

²³ Kirk J. Nelson, *A Century of Sandwich Glass*. Sandwich, Mass.: Sandwich Glass Museum, 1992, 4.

²⁴ *Ibid.*, p. 8.

²⁵ Jane Shadel Spillman, *American and European Pressed Glass in the Corning Museum of Glass*. Corning, New York, 1981, 111; Lee and Rose, *American Glass Cup Plates*, 14.

²⁶ *Ibid.*

²⁷ Kenneth M. Wilson, *American Glass 1760–1930*. New York: Hudson Hills Press, 1995, 355.

²⁸ Lee and Rose, *American Glass Cup Plates*, 45.

Brick

Ten whole bricks and fragments were observed by archaeologists on the site. Researchers recovered two whole bricks. All of the bricks appear to be uniform in size, sharp-sided, and are a distinctive red-orange in color. The brick pictured below measures $8\frac{1}{8}$ inches in length by $4\frac{1}{16}$ inches in width by $2\frac{3}{8}$ inches thick (approximately 77 cubic inches). It exhibits little surface erosion, a testament to its durability, although this condition most likely is the result of the object only recently being uncovered. Crushed brick, sand, and a few small granite pebbles were included with the clay for tempering during manufacture and are visible on the brick surfaces. It is unclear whether these bricks were machine-made or molded. Machine manufacturing of bricks began in the 1860s. It is often hard to identify the manufacturing technique used even when examining a brick's color, measurements, and hardness.



Figure 24. Example of recovered brick

Dating bricks without factory marks also is difficult. An 18th-century *Builder's Dictionary* explains, “neither color nor hardness are consistent through firing at a single clamp or kiln.”²⁹ Therefore, the fact that this vessel most likely was carrying a cargo of brick sometime after 1840 is more relevant to the interpretation of the site than the bricks themselves.

²⁹ Richard Neve, *The City and County Purchaser's and Builder's Dictionary*. 3rd edition, London, 1736. In Noel-Hume, *A Guide to Artifacts of Colonial America*, 80–81.

Brick studies conducted by William Lazarus and Stanley South relate brick size with some accuracy to ethnic and regional identifiers.³⁰ It goes without saying that a large sample size is always best when comparing archaeological data. Nonetheless, the information obtained from comparison using a small sample, while never definitive, still can provide value for further research. Using South's Index Number method,³¹ which differentiates between brick sizes and changes in manufacturing standards, the bricks recovered during the Brick Wreck investigation have an average Index Value of 117. In comparison, this number correlates with bricks identified by Lazarus and South as being manufactured in various sites throughout the Eastern U.S. in the 19th century.³² Thus, the contribution here is that, with some degree of certainty, these bricks were manufactured in America in the 19th century.

Local lore about the Brick Wreck associates the vessel with the importation of bricks for the construction of Forts Taylor or Jefferson, which occurred during the middle of the 19th century. Today at Fort Taylor, one can see that there are at least two different types of bricks used in the construction of the fort. Early on, bricks were imported from northern brickmakers and used for masonry in the first tier only, stopping at the base of the gun embrasures. They have a distinctive red color, fine grain, sharp edges, and a uniform size. The bricks are so well made that the mortar joints are very narrow, closer to $\frac{1}{8}$ than $\frac{1}{4}$ inches.³³ Due to difficulties in obtaining a sufficient quantity of materials, bricks later were imported from southern sources, mainly Mobile and Pensacola. A photograph of the casemate at the restored Rodman gun at Fort Taylor shows the difference between the earlier and later bricks.



Figure 25. Rodman gun casemate at Fort Taylor, showing earlier and later bricks used in construction (Courtesy of Jim Miller)

³⁰ William C. Lazarus, "A Study of Dated Bricks in the Vicinity of Pensacola, Florida," *Florida Anthropologist*, 18(2), Part 2, 69–84, 1965; and Stanley South, "Some Notes on Bricks," *Florida Anthropologist*, 17(2): 67–74, 1964.

³¹ South, 68.

³² South, 70, 71.

³³ Personal correspondence with Jim Miller, former Florida State Archaeologist, 7 August, 2006.

Preliminary research has turned up some of the sources of bricks used to build Forts Taylor and Jefferson. An 1844 survey by U. S. Army Captain John G. Bernard of the future site of Fort Jefferson on Garden Key in the Dry Tortugas suggested that bricks could be purchased from New York City.³⁴ In 1852, Lieutenant Horatio G. Wright made a trip to Mobile and Pensacola to examine the bricks that had been used to construct Forts Morgan and Pickens and to enquire about the sources of these bricks. He found the bricks at Fort Morgan to be weathered and decayed, but bricks at Fort Pickens were in excellent condition. For Fort Jefferson, Wright suggested that Pensacola bricks might be reliable, as well as bricks from Maine, but observed that his experience with New York bricks used thus far for the officer's quarters showed that they could not be depended upon.³⁵ He recommended that Pensacola bricks be employed for the fort's exposed surfaces, and that northern bricks be used for the rear, unexposed masonry courses near the concrete core of the structure.

In 1852, bricks for the "Florida Reef defenses" were acquired from John Page of North Danvers, Massachusetts. In mid-June of that year, Lieutenant Wright made a trip to New England brickyards to examine the quality of their bricks to determine which were best "suited to resist the action of the air at Key West and the Tortugas."³⁶ At the Fresh Pond Brick Company (the largest in Boston), he was assured the firm could supply all the bricks needed for the two forts. At several nearby Charleston brickyards, the outputs were smaller and more expensive but of higher quality than Fresh Pond bricks. The yards of Holt and Spaulding quoted the highest prices for their bricks. At Danvers, Wright found the industry slack, and only a few bricks were on hand at John Page's yard. At Portland, Maine, the major brick maker was Frederick W. Clark, who had several yards that produced bricks equal to or better than those kilned at Danvers. At Yarmouth, Maine, Wright visited a Mr. Killings, who said that he could supply the Army's demand at a cheaper price, but had never shipped farther than Boston.³⁷

After a visit by U. S. Senator Jackson Morton of Pensacola to the chief engineer of the forts, Lieutenant Wright returned to the Gulf coast brickyards in 1853, resulting in a contract the following year with Anderson Abercrombie and Philip H. Raiford for the purchase of 3,000,000 bricks for construction of Fort Jefferson and an equal number for Fort Taylor.³⁸ Bricks shipped from Pensacola were to be of Escambia clay, each one measuring at least 90 cubic inches (northeastern bricks measured less than 60 cubic inches). Despite the Army's purchase of large quantities of Gulf coast bricks, northern bricks continued to be imported for the forts. In 1864, a large shipment of Maine bricks ordered for Fort Jefferson was diverted to Fort Taylor, and bricks were imported from the New River brickyards in Massachusetts.³⁹

³⁴ Edwin C. Bearss, "Historic Structure Report, Historical Data Section, Fort Jefferson: 1846-1898," Washington, D.C.: National Park Service, Fort Jefferson National Monument, 1983, 16.

³⁵ *Ibid.*, 67

³⁶ *Ibid.*

³⁷ *Ibid.*, 68, 69.

³⁸ *Ibid.*, 73, 74. See also Lucius F. Ellsworth, "Raiford and Abercrombie: Pensacola's Premier Antebellum Manufacturer," *Florida Historical Quarterly* 52(3), 1974, 247-261.

³⁹ *Ibid.*, 287.

Ballast



Figure 26. Example of ballast; round river rock and pieces of slate.

Ballast from the Brick Wreck included round river rock, consisting mostly of small pea ballast and pieces of slate. Most of the ballast observed on site was not bigger than an average adult's fist. However, a few larger rocks were present but scarce throughout the noticeably flattened and relatively sparse ballast pile. Researchers twenty samples for analysis and possible identification. BAR researchers transported the ballast samples to the Florida Geological Survey offices located at the Florida State University in Tallahassee. Harley Means and Dr. Thomas Scott of the Florida Geological Survey suggested that the samples, river rock and slate, likely originated from North

America. More concisely, Means and Scott sourced the samples, metamorphic phyllites (slate) with igneous quartz, feldspar inclusions and sedimentary siliceous siltstone, as endemic to the New England (perhaps Maine or Massachusetts) region of the United States.⁴⁰

⁴⁰ Personal correspondence with Harley Means and Dr. Thomas Scott of the Florida Geological Survey, Tallahassee, Florida, 14 July, 2006.

Interpretation of the Brick Wreck

Sometime during the middle years of the 19th century, a heavily laden wooden sailing vessel went aground, either in foul weather or at night, along the inner edge of Hawk Channel, less than a mile offshore of Vaca Key in the Middle Florida Keys. Sailing a southerly course in the north-south countercurrent that runs between the Gulf Stream and the Florida Reef, the ship passed through the shoals and entered the unmarked channel between the reef and the islands. Such groundings were not uncommon along this portion of the Florida coastline, since lighthouses had yet to mark the treacherous passage, and the low-lying islands offered no landmarks for mariners to gauge their progress.

On a clear day, a grounded sailing vessel was a conspicuous sight on the horizon. From anchorages and harbors along the keys, fishermen had long supplemented their income with salvage and wrecking of distressed ships. This activity was regulated from Key West, where an official customs house had been established. Wrecking licenses supported a growing industry of salvage and auction of lost cargoes. Key Vaca, Knight Key, Bahia Honda Key to the west, and Indian Key to the north all became wrecking stations during Florida's territorial period. Word of a stranded vessel passed quickly along the islands, and a cargo of bricks would have been offloaded into wreckers' boats when the grounded ship could not be refloated. Certainly, valuable portions of the ship's rigging, machinery, and stores also were salvaged, leaving a bare hull with only cargo that could not be easily recovered below the waterline to the elements.

Like many abandoned wrecks in the warm, shallow Florida waters, the superstructure and upper works disintegrated quickly while shipworms ate portions of the lower hull that were exposed and accessible. Storms may have shifted the wreckage shoreward before it sank into the sand and began to stabilize over time. More than a century passed before a new generation of scuba-diving wreckers began to work long-forgotten shipwrecks along the Florida Keys. Bricks left behind on this site were recovered and sold; the lower hull became exposed again and marine life sought shelter among the timbers.

Based on measurements of the hull's architectural dimensions, as well as analysis of wood samples, the Brick Wreck appears to represent a heavily built cargo carrier from New England that was loaded with a large shipment of bricks that required little ballast to stabilize the vessel. How she was rigged is not yet known, since no mast steps were found and no standing or running rigging components, such as chainplates, eyebolts, or deadeyes, were observed. They may be buried in the surrounding sediments, as suggested by a number of metal detector readings around the periphery of the hull.

The New England origin of the Brick Wreck is confirmed by preliminary analysis of ballast stone samples and supported by the remnants of its cargo of bricks that appear to have been manufactured in the Northeast. Diagnostic ceramic sherds were found to be English pottery made for the American market, and a distinctive glass cup plate shard,

made in Massachusetts in 1840, provides a firm *terminus post quem* (date after which) for the grounding of the brick carrier.

As for the identity of the Brick Wreck, a database recently compiled by Dr. Jim Miller from existing historical sources of ship groundings and losses in the Florida Keys was consulted.⁴¹ It contains ten listings for vessels that grounded or were wrecked at Key Vaca:

<i>Santa Ana</i> (schooner)	1837
<i>Pequot</i> (schooner)	1842
<i>Anson</i> (unknown)	1843
<i>Louisa</i> (schooner)	1874
<i>Concordia</i> (ship)	1855
<i>Warsaw</i> (unknown)	1846
<i>Eliza Catherina</i> (unknown)	1846
<i>Lincadero</i> (unknown)	1846
<i>Mersey</i> (schooner)	1846
<i>Nordkyn</i> (bark)	1875

The first, schooner *Santa Ana*, may be too early to be a candidate for the Brick Wreck, and the last, bark *Nordkyn*, may be too late. Close consultation of archival records from admiralty legal proceedings, wreck registers, and customs court cases will be necessary to determine whether the particulars of any of the vessels listed above coincide with the archaeological features of the Brick Wreck.

⁴¹ Personal correspondence with Jim Miller, former Florida State Archaeologist, 7 August, 2006.

Recommendations

This report provides the results of an archaeological and biological examination of the Brick Wreck. Further research and analysis is being conducted by Brian Adams as the basis for his master's thesis at the University of West Florida. His research will include examination of archival documents in an attempt to determine the identity of the shipwreck, discover the particulars of the vessel's history prior to its grounding, and learn what happened to its cargo afterwards. Additional analysis of brick samples hopefully will determine their source and intended destination.

The Brick Wreck represents one of the more well-preserved wooden shipwrecks in the Florida Keys, but it remains exposed to the elements in an active, shallow-water environment. It is recommended that the site be visited periodically by staff of the Florida Keys National Marine Sanctuary to monitor its condition and record any changes to its situation. Should a significant degree of wood degradation or disarticulation become apparent, planning for mitigation activities to prevent further damage should be undertaken immediately. Without appropriate measures for resource management, this site could become lost to time and nature.

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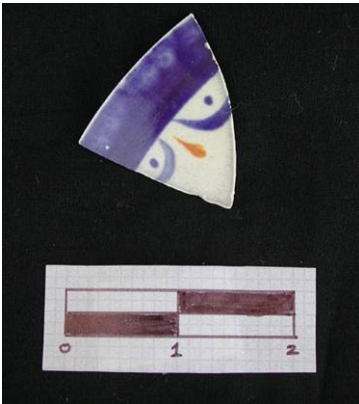
Artifact Appendix

Biological Remains



Twelve calcareous tubes from *teredo navalis*. Shipworm activity collected from areas of the port-stern ranging from $\frac{1}{4}$ inch O.D. to $\frac{11}{16}$ inch O.D. and in length from $1\frac{1}{2}$ inches to 8 inches. These samples were recovered from the ballast pile in an area where ships timbers were completely absent and are remnants of shipworm activity probably post-deposition when the lower hull was exposed.

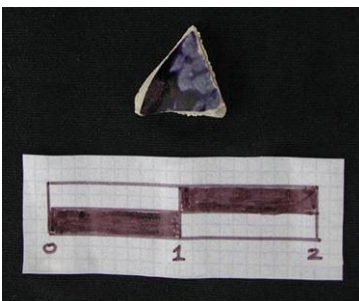
Ceramics



One hand-painted blue and orange on white pearlware rim sherd, possible tea cup



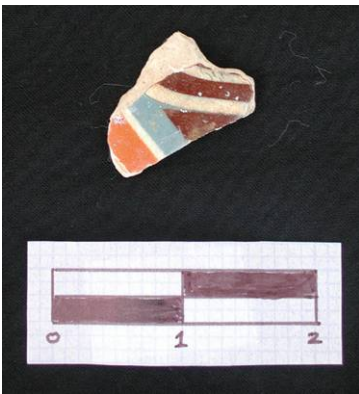
Two blue transferprint whiteware sherds



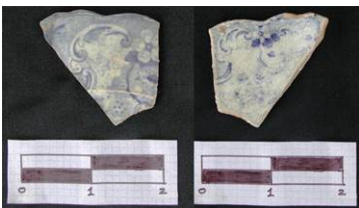
One hand painted blue on white pearlware sherd, possibly a tea cup



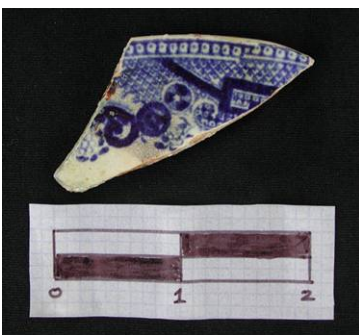
Three green shell-edged pearlware rim sherds



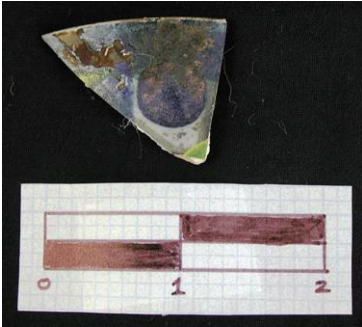
One "annularware" sherd; brown, blue and orange design



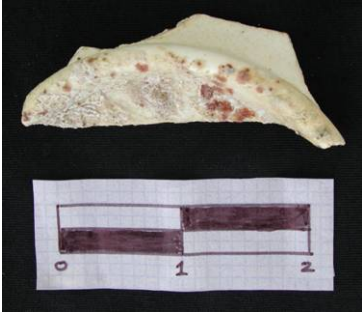
One blue on white transferprint pearlware rim sherd; floral print on interior and exterior sides of sherd, possible tea cup



One blue on white transferprint pearlware rim sherd, geometric pattern, possible cup saucer



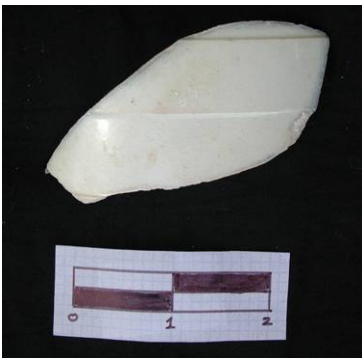
One blue on white hand-painted pearlware sherd



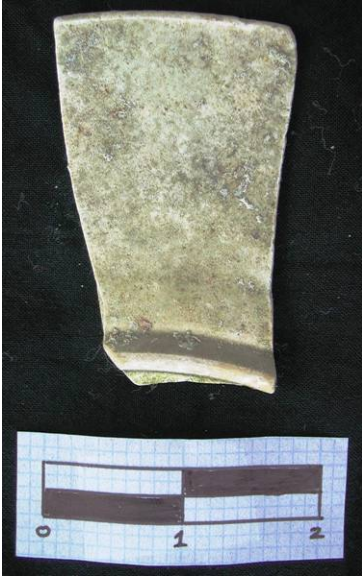
One plain pearlware base sherd



One plain pearlware rim sherd, possible cup saucer



One plain pearlware body sherd with external raised band



One plain whiteware base, body, and rim sherd, possible small bowl

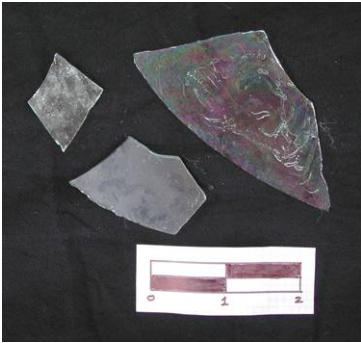


One plain whiteware base sherd

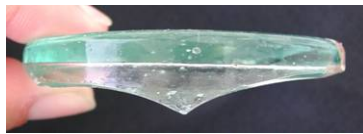
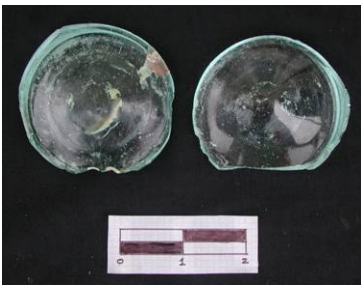


One plain whiteware rim sherd

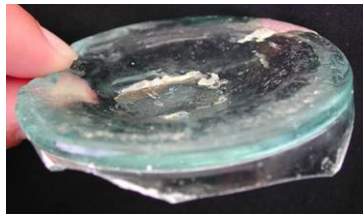
Glass



Several fragments of thin, flat, and clear lantern or window glass



Two aqua-colored, free-blown bottle base fragments



Pressed glass cup plate fragment. The image consists of a ship motif with decoration encircling the center of the plate, simple foliage, shields, and stars.