

The Ashley River Survey: Assessing Nineteenth-Century Inland Workboats*

By Lynn B. Harris

During the winter months of 1995 to 1996 the staff of the Underwater Archaeology Division of the South Carolina Institute of Archaeology and Anthropology (SCIAA) recorded three partially submerged nineteenth century vessels embedded in the banks of the Ashley River. These vernacular vessels had the potential to provide further insights into the construction and utility of inland water craft on this riverine system and within the larger context of South Carolina's transportation and economic setting. In addition to the three vessels documented during this project, six other sites were discovered in the five-mile upper reaches of the river revealing riverine hulk disposal patterns.

The Ashley River: Historical Background

Navigation

The Ashley River was an important inland economic artery. The navigable waters of the river facilitated travel inland to conduct trade, to visit plantations, to reach the town of Fort Dorchester, to mine phosphate along the riverbanks and even to seek safety in times of seasonal hurricanes. In 1774 an English traveler described Dorchester as "a pretty good sized town, upon Ashley River about 20 miles above Charles Town, and navigable all the way up to it...for vessels of 100 tons burthen" (Matthew 1992:97). Bacons Bridge represented the "head of sloop navigation" and steamboats traveled up Cedar Grove which was situated opposite Middleton Place downriver. It was eight to ten miles by water to Bacons Bridge from Cedar Grove (Charleston Courier, April 21, 1857). The other function of the river was as a "hurricane hole" for smaller vessels. Before an oncoming storm small pleasure craft would seek shelter in the Ashley River, while the crews of larger vessels would batten down their hatches, secure anchors and hope to ride out the storm in Charleston Harbor.

Rice Cultivation

From 1674 to the 1680s the town of St. Giles in the upper reaches of the Ashley was the headquarters for all English-Native American trade west of Charleston (Crane 1929:16-17). In the latter part of the 17th-century the introduction of rice cultivation to the Ashley River was initially successful. The Ashley River was not as favorable as other South Carolina rivers for rice crops because brackish water was present almost to the head of tidal influence. This created an irrigation problem because salt was detrimental to rice crops. Instead, embanked rice fields had inland streams which formed ponds of fresh water. These reservoirs of fresh water had to be manually operated by the Ashley River plantations and planters could not rely on the more efficient method of natural tidal irrigation utilized on other river systems. Furthermore, when these ponds were empty they became an active breeding ground for mosquitoes. A plantation visitor remarks in his diary on the low sales of land with access to navigable waters only 7 to 12 miles from Charleston being sold for \$3 to \$7 per acre. Even crops such as cotton and corn could not be easily cultivated. Along the riverbanks, a light layer of soil lay above a clay layer which the locals claimed was impervious to water and difficult to plow (Matthew's 1992: 80,97). This suggests that navigable land was only prime real estate if it had agricultural potential.

The Town of Dorchester and the American Revolution

The most notable colonial settlement, because of its trade, shipbuilding and high number of inhabitants along the upper reaches of Ashley was the town of Dorchester. The site of the town lay on a neck or peninsula of land between the Ashley River and Dorchester creek. Situated at the head of navigation on the Ashley River, Dorchester was initially ideal as a trading place and point of distribution. It was strategically located for defense and transportation by water to Charles Town. The town was founded by a group of Congregationalists in 1695 and flourished until the 1750s. Roads were extended into the surrounding country and public bridges, like Bacon Bridge were built over the Ashley River. After the American Revolution the town was deserted. With the growing development of the middle and upper country and thereby the extension of the frontier, Dorchester no longer played a defensive role. The increase in roads meant that Dorchester also ceased to be a town of any commercial importance. The land around Dorchester was not fertile enough to be attractive to planters and the location was unhealthy. As there were no reasons based on health, business or defense, the town rapidly declined. Today only a part of the town site including Fort Dorchester and the

ruins of St. George's Parish Church, are preserved as old Dorchester State Park (Smith 1905:62-95, Carrillo 1973).

Although several towns smaller than Dorchester were established along the Ashley River during the colonial period, most failed to maintain economic viability through the eighteenth or nineteenth-centuries. One of the few towns that did was Ashley Ferry, currently a suburb of Charleston, which continued operations through the mid-1800s. In general, the Ashley River represented to the visitor " a melancholy scene of desolation and abandonment" (Barr 1995: 88-93, Smith: 198-203).

In the 1840s, the former plantations -- Magnolia and Drayton Hall -- became the homesteads of country gentlemen like the Draytons. The majority of vessels traveling up the river in the 1800s were likely to be pleasure or transportation craft, rather than working boats. This would include both steam and sail vessels.

The Civil War and Postbellum Phosphate Mining

The Ashley River plantations were again devastated during the Civil War. An estimated forty main houses along both sides of the River were burned by Union forces -- and the survival of Drayton Hall was the exception rather than the norm (Smith 1919:3-5). During the postbellum years the rise of a new phosphate fertilizer industry for agricultural purposes temporarily boosted the economy and created mining opportunities in the upper reaches of the Ashley River.

Subterranean and subaqueous deposits were also found in the Wando, Cooper, Coosaw Rivers. Major concentrations occurred along the Ashley River. A variety of methods were used to obtain river rock. In shallow waters, the miners waded into the streams at low tide to pick up the rock or divers brought it to the surface. Dredges were employed in the deeper waters. The rocks were first washed and initially shipped North to be made into fertilizer.

Some of the most successful mines were located along this riverside. The first mines were established in 1867, and by the 1880s several large operations were underway due mainly to South Carolina's virtual monopoly of phosphate in the early years. By the 1890s, financial problems, natural disasters, and competition from mines

and mills in other Southern states sent the Ashley River and other Charleston-area industry into a slump (Ruffin 1843: 10-16, Chazal 1904).

Shipwrecks and Deposition Patterns

There are a number of possible reasons for the demise of the vessels littering these riverbanks. The headwaters of the river was a convenient location to abandon boats that were unserviceable. The location of specific sites suggests that this may have been a hulk scuttling pattern associated with navigation headwater boundaries for certain vessel types. Similar headwater disposal patterns and vessel graveyards have been observed in the riverine environments of North Carolina and Louisiana (Babitz 1996 & 1997, Saltus 1992).

Another possibility is the gradual abandonment of vessels than were no longer useful due to changing economic conditions and cessation of certain activities along the Ashley River. For example, the failing economic viability of Dorchester town, decreasing agricultural potential of lands adjacent to the river, and finally the slump of the phosphate industry.

Documentation of Watercraft

Three sites--a motorized wooden vessel, a steam tug boat and wooden oared vessel- were chosen for an initial season of research. Selection was based upon how vulnerable a particular area was to boat wake, the practical consideration involved in recording important architectural features without removing large quantities of overburden, and how these sites could contribute towards filling in gaps of our historical knowledge of the construction and utility of vernacular boats.

Fieldwork on these riverbank sites required careful planning since all operations had to be conducted within tidal windows. The two sites in the upper reaches of the Ashley (38DR171 and 172) were the most exposed sites only requiring the washing off of a shallow layer of silt from the timbers. The main structural components were tagged and recorded using conventional archaeological measurement photography procedures. Wood samples were taken and sent to the Center for Archaeological Investigation at Southern Illinois University for identification and analysis. One of these sites (38DR172)

required minimal stabilization. Loose frames and the disarticulated slotted keelson, which served to lock floors down, were re-attached into place with stainless steel wire.

The steam tugboat (38DR166) did not require any sediment removal for this preliminary operation, but was heavily vegetated with marsh grass which needed some trimming to take accurate measurements of the hull. The basic scantlings and arrangement of bulkheads, boiler and towing bitts were documented. The boiler riveting and tubing system were also recorded. Three sets of exterior waterlines were taken of the hull in the exposed stern section.

Site No. 8 (38DR166)

The steam tug boat was of composite construction with an iron hull sheathed with wood and sealed along the interior hull with cement. The iron hull is comprised of sections riveted together. The boiler and the iron propeller are still extant, but the engines have been removed. Many of the boiler tubes are plugged with cement indicating that the tubes were dysfunctional and that the demise of the vessel could possibly be attributed to deliberate abandonment. The overall length of the vessel was 20.62 meters with a midship beam of 6.45. The boiler was located 4.84 meters from the bow. The vessel is comprised of six bulkheads situated approximately 2 meters apart. Two large bitts located at 6.45 meters from the stern were used for towing. An iron propeller is still attached to the hull.

Site No. 3 (38DR171)

Vessel timbers of a motorized flat-bottomed water craft with an overall length of around 13 meters and beam of 2.85 meters. The bow is oriented in a downstream direction. The site lies parallel to the river bank beneath large overhanging tree branches. Floor timbers are spaced 50 centimeters apart. The engine shaft and propeller had been removed. Diagnostic timbers include engine mounting beams which straddle the keel and a shaft log used to support the propeller shaft which was 9 centimeters in diameter. The hull of this vessel is heavily planked, with three layers of planking in the aft section (the inner outer hull layer at this section runs at right angles to the keel in contrast to the parallel planking covering the remainder of the hull) and two planking layers elsewhere. Numerous small chunks of marl in the bilges might indicate that this vessel was used for

phosphate mining. The stern section of the vessel has collapsed behind the rudder post, but lies buried under the mud

All the wood sample specimens from this wreck (frames, keel, keelson, all planking, and engine mounts are identified as southern hard pine (*Pinus Diploxylon*, *Taeda group*). The *Taeda* or "pitch pine group" includes nearly all of the pines native to south-eastern North America. Among those are species that have long been important to the lumber industry, e.g. longleaf pine, slash, loblolly (*Pinus palustris*, *P. elliotti*, *p. Taeda*, respectively) among others. The specimens from this wreck, with the exception of the engine mount which is in a state of cellular degradation, are exceptionally well preserved.

Site No. 2 (38DR172)

The remaining vessel timbers included the stempost, keel, frames, outer hull and ceiling planking. The bow faces downstream with the stempost lying flat on the starboard side. The vessel is fastened together with spikes and treenails. A disarticulated keelson with slots to hold the floor timbers lay a short distance from the wreck. During site stabilization operations this timber was re-fastened with wire to hold loose timbers in place. The length of vessel is 17 meters and the beam is 2.82 meters. This is probably a sailing or an oared vessel. There is no evidence of a mast step or any other rigging facility. The framing arrangement on this vessel is comprised of a floor timber and two sets of L-shaped first futtocks attached laterally to the floor timber on either side with two sets of bolts.

Wood identification based on samples from the wreck reveal that with the exception of the stem and the sternpost made from Live oak (*Quercus Virginiana*) the remainder of the structure was built from southern hard pine (*Pinus Diploxylon*, *Taeda group*) (Pers. Correspondence, July 1996, Lee Newsome, South Illinois University). The anatomical structure of the two live oak specimens is so similar as to suggest that the wood of both the stem and the sternpost were derived from the same tree, or almost certainly from the same stand of trees. The specimens from this wreck are exceptionally well preserved.

Discussion and Conclusions

The architecture of the three vessels (38DR171, 38DR172, and 38DR166) suggest that these shallow-draft, beamy boats were more practically utilized in an inland tidal context. It is probable that the tug (38DR166) was also used in the harbors, estuaries, and sounds of South Carolina.

Machine-cut nails and the presence of structural accommodations for a propeller on one vessel indicate that the two wooden vessels (38DR 171, 38DR172) date to the mid-19th century or onwards into the early 20th century. As this part of the Ashley River was a rich phosphate field during this time period, it is very likely that the vessels had some association with this industry. The wooden vessel (38DR172) has similarities with another 19th-century vessel, Robert's barge, excavated in the Back River near Savannah, Georgia. Both vessels have in common the curved L-shaped futtocks and keel/keelson members (US Army Corps of Engineers 1994:106-107). To date, no other similar vessels have been recorded in this state.

Analysis of wood samples reveal that both of these vessels were probably built locally. In contrast to other earlier 18th and early 19th-century vessels recorded in South Carolina such as the Malcolm Boat (38CH803), Browns Ferry Vessel (38GE57) and Mepkin Abbey Boat (38BK48) these later vessels display minimal use of live oak (*Quercus Virginiana*). Both were built primarily with pine (*Pinus Diploxylon*, *Taeda* group). This might be attributed to the gradual depletion of South Carolina's live oaks stocks later in this century and to an increased use of pine for shipbuilding. Alternatively, it is likely that these boats were built exclusively for riverine usage which did not necessitate the use of the sturdier live oak timber that was required for vessels employed in offshore voyaging during colonial times. It is interesting to note that the wood from the sites is still in an excellent state of preservation despite tidal submersions and exposures.

The steam tug (38DR166) falls within the into the same general date range as the two wooden vessels. A tug's primary function was to help boats maneuver in strong river and harbor currents. Tugboats were also used to tow barges to support local coastal and riverine commerce. A newspaper report in the 1849 *Charleston Mercury* describes the debut of new steam tug, the *Pilot*. This tug made 22 miles in two hours with the engine making 57 revolutions per minute. The vessel was described as "one of the most welcome of the many and valuable recent additions to our commercial marine."

The unusual composite construction of the steam tug, the first of this kind recorded in South Carolina, is fairly commonly found in Louisiana. These vessels were used well into the 20th-century in the waters around this state. Possible reasons for this construction method include reticence by early South Carolina iron boat builders to rely on iron as a shipbuilding material or simply a sheathing method to ensure adequate protection of the hull or even the hulls of the boats that were being towed. Cemented dysfunctional boiler tubes indicate that the demise of the vessel could possibly be attributed to deliberate abandonment in the marsh.

This project yielded useful archaeological information about the construction of three very diverse vernacular water craft and extending the existing South Carolina typology into the 19th-century. More examples obviously need to be added to the database to substantiate this data. It would also be useful to investigate and compare shipwrecks in proximity to other phosphate fields along the Edisto, Coosaw and Wando rivers or to determine if phosphate mining-era vessel or alternatively, river-specific shipbuilding industries are identifiable. Comparisons and inclusion in a regional typology for the southeast is also a desirable future goal.

The high density of shipwrecks, or more appropriately abandoned hulks, along this historical waterway could be utilized for a preliminary attempt at predictive modeling. Using historical and archaeological information several hypothesis can be developed regarding the types and locations of sites types. This cultural pattern is likely to influenced by factors such as the historically known locations of headwaters for steam and sail navigation, phosphate mining areas, agricultural activities, settlement dynamics, and even hulk disposal trends.

Cultural Resource Management

Urban Development

Well-known historic structures currently line the river banks, such as: Fort Dorchester State Historical Park, Magnolia Gardens, Drayton Hall and Middleton Place. These resources, as well as a portion of the Ashley River, have been recognized by programs such as the National Register of Historic Places. The story of the river as a

dynamic historic waterway and the associated riverine traffic need to be included this historic preservation effort.

The scenic beauty of the Ashley River and the unique blend of historic and natural resources attract high numbers of boaters and housing developments. Both Drayton Hall and Magnolia Gardens have expressed concern over increasing numbers of private docks within their view corridors. Recreational boat traffic have exacerbated bank erosion, including erosion at historic properties and vessel sites.(Townsend and Brock 1992:1, 50, 51).

Heritage Tourism

To date, a great deal of scholarly and management attention has been paid to the plantations along the Ashley River. Thus, the tourism industry has also focused primarily on the historic house architecture and garden components of this southern waterway. Little has been done to manage or effectively utilize the many shipwreck sites as an integral part of the areas history. Inclusion of several of these sites in the South Carolina Heritage Corridor, a program co-ordinated by the National Park Service, as an educational public/tourism canoeing and kayaking trail is underway. The information generated by this project is being used to establish historic riverine trails to view shipwrecks and other cultural waterfront features like wharves. This heritage tourism effort will hopefully serve to introduce a new brand of recreational tourism by adding underwater sites to mainstream tourism. A range of possibilities exist to make maritime site information available to various interest groups, such as: brochures showing site location and thematic affiliation, heritage canoeing routes to view sites on riverbanks, underwater trail maps for divers, underwater on-site information plaques, and land-based story boards. The SCIAA-trained public workforce will assist in providing baseline information for signage and trail maps, on-site maintenance and monitoring, or act as heritage tour-guides.

Public Education

This project provided the ideal terrestrial shipwreck recording opportunity for training College of Charleston internship students working through our Charleston field office. Avocational archaeology volunteers who had already acquired basic field training skills through the SCIAA Sport Diver Archaeology Management Program provided

valuable assistance and used the experience for additional credit towards a more advanced certification level.

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