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The Malcolm Boat: A Preliminary Report

Introduction

During the late Colonial Period the Ashley River, born in the swamps of South Carolina's Low Country and emptying some 30 miles to the southeast into Charleston Harbor, was a busy highway of transportation and communication. All manner of craft plied its waters ferrying goods, supplies and people between the thriving plantations situated along its banks and the busy harbor port. Rice, indigo and agricultural products as well as lumber were exported, while luxury goods, domestic necessities, and building supplies, such as bricks and Welsh slate for constructing and roofing the plantation houses, were imported to the growing colony. It was within this cultural milieu that one of the hundreds of vessels owned and locally built, having outlived its usefulness and suffered more than its share of repairs, was dragged out of the main thoroughfare and abandoned in a slough on a tract of land known as Whitehouse (Figure 1).

However, before being left to the destructive influences of the river, exposure and biological degradation, the hull was no doubt stripped of all that was useful. Over time the vessel's upperworks were reduced by manmade and natural influences, suffering the cyclical drying and submergence of the lunar tides and bioturbation. The marsh encroached and closed in over the vessel, filling in the slough and hiding it under a lush growth of *Spartina* so prevalent along the wetlands of the South.

Nearly 200 years later the hulk, hidden for so long, began to become exposed to the light of day. The Ashley River had become a popular waterway for recreational power boaters who every year arrived with newer and more powerful craft. The shoreline of the historic plantations began to change, to be washed away by the wake of these recreational boats. So, too, the timbers in the stern of this small unobtrusive

vessel began, at first to appear, then to disappear so they too succumbed to the powerboat wake.

In 1974, while searching along the bank of the river, a fossil collector looking for sharks' teeth, a prevalent and collectable commodity in the lower reaches of South Carolina rivers, noticed timbers exposed on the mud. He reported the find to underwater archaeologists at the South Carolina Institute of Archaeology and Anthropology (SCIAA). After visiting the site and determining the potential significance of the boat, staff archaeologists immediately took steps to stabilize the remains. Within a climate of preservation plans to protect this historic corridor of the Ashley River with its historic plantation shorelines disappearing (South Carolina Coastal Council and South Carolina Department of Archives and History 1992), the Underwater Archaeology Division of SCIAA, using Institute



FIGURE 1. Plan of the Settlements on the Ashley River to accompany an Article on the Ashley River its seats and settlements. Compiled from old maps and deeds, by Henry A.M. Smith (Smith 1988:107).

funds as a match, applied for and received, in 1991, a matching grant from the South Carolina Department of Archives and History to assess, record, and stabilize the vessel known as the Malcolm Boat, after its discoverer, James Malcolm.

Site Description

The Malcolm Boat site is situated on the north bank of the Ashley River approximately 12 miles from Charleston, South Carolina. The property on which the vessel lies first appears in South Carolina records in 1677, as a warrant issued to John Jefford (Printed Warrants 1672-1679:149). The 720-acre tract, known as Whitehouse, was acquired in about 1716 and added to the original land grant (M.C.O. Charleston, BkZ, No. 5:236). Now the property of Charleston County Parks, the area where the site is located had previously been the location of a Boy Scout camp.

The upland portions of the site contain well drained soils and a mixture of pines and hardwood trees. The low areas, including the slough in which the boat is situated, is made up of clayey, organic Handsboro mucks and salt resistant flora (Eppinette 1990:138-39, 72). The site is inundated twice daily with salt water.

Excavation

The site was excavated during three weeks in March/April 1992. Probing revealed that the starboard side of the hull was better preserved and had a greater integrity than the portside which faced the current of the river and had apparently collapsed inward. Plans were made to totally excavate the starboard side of the vessel. Using this strategy the boat's shape could be reconstructed by mirroring the starboard side to port. This strategy also left half the site for further research and allowed us to evaluate the effectiveness of site stabilization using the unexcavated portside as a control.

Working against time and tides the 14 m long site was excavated by Division personnel

and a host of eager volunteers including students from a community college and local dive club members. During the initial excavation phase horizontal and vertical control on loose finds was maintained by reference to extant hull structure and with a transit. Hull components were tagged with sequentially numbered cattle tags oriented to grid north and loose timbers and artifacts were recorded in situ, removed, photographed and drawn to scale.

Once the entire starboard side of the vessel was exposed, a grid consisting of 2-m-square units was erected and leveled over the site. Using the grid, the field crew recorded the hull, making plan (Figure 2), profile, and section drawings and taking numerous photographs and photo montages, using a photo tower, to aid in the reconstruction of the vessel.

After the site was recorded the hull was reburied and stabilized using hundreds of bags filled with "backmud" and seven cubic yards of sand donated by the county. The exposed slope was held in place with polyethylene Geoweb confinement fabric to protect the sediments and serve as an anchorage for the returning flora.

Artifacts recovered from within the hull and bilges suggest a provenience of the latter half of the 18th century for use and abandonment of the boat. Artifacts included bottle fragments, pipe stems, ceramics, slate, a pewter spoon, and a small cask containing an unidentified resin, possibly Cypress. Fragments of a small block were also recovered from within the starboard side of the hull.

Construction

The hull remains have suffered significant distortion through waterlogging and bioturbation which caused the wood structure to relax and the bottom timbers to conform to the contours of the slough. The situation was exacerbated by burning of the keelson and timbers near the bow and fracturing of the floor timbers in the stern along the area of greatest keel and keelson distortion.

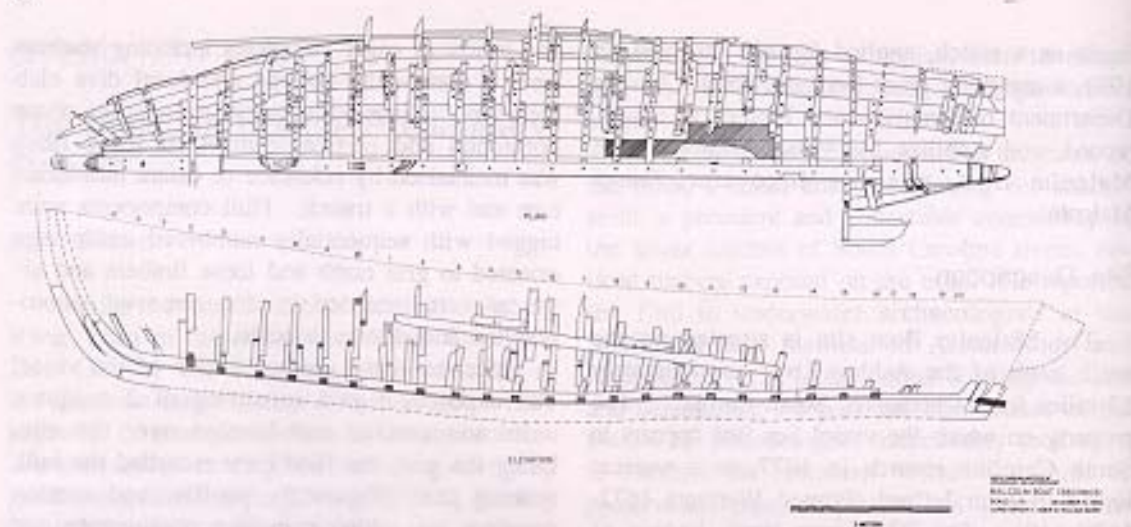


FIGURE 2. Plan view of hull remains excavated in the 1991 field season (Drawing by Christopher Amer and William Barr, SCIAA).

Keel

The 11 m long keel was cut from a single piece of Southern Yellow Pine (*Pinus* spp.) and finished to approximately 23 cm on a side. Its upper edges were chamfered to accept the garboards and its upper surface was dubbed flat for floor timber attachment. The forward end of the keel terminates in a flat scarp to facilitate stem attachment while its aft end is notched to accept the lower end of the post.

Stem

The stem assembly survives to a height of approximately 1 m, or half its estimated original height. Both stem and apron were cut from naturally curved live oak (*Quercus virginiana*), and describe a gracefully curving stem. The rabbet in the bow is formed by the angled surfaces of the apron and stem. These timbers are fastened to each other and to the keel with 2.5 cm treenails and iron bolts.

Stern

The stern assembly is composed of the post, stern knee, and transom. The post, cut from

straight-grained white oak (*Quercus alba*), is mortised into the notched upper surface of the keel and rakes aft at a 25 degree angle from vertical. The oxidized remains of a gudgeon were recorded affixed to the post. A 1.5 m long stern knee, also cut from white oak, is fastened along the top of the keel with 2.5 cm treenails. Like the apron, the moulded surfaces of the knee are beveled, and along with the chamfered edge of the keel, form the rabbet in the stern.

Three transom planks all, Southern Yellow Pine, were recovered aft of the hull. When assembled these planks describe a narrow transom which was once fitted high on the stern structure.

Framing

Twenty-nine frames or frame locations were recorded along the hull; 3 cant frames in the bow, 22 square frames along the keel, and 4 V-shaped floor timbers atop the stern knee. Each square frame was made up of a floor timber and three futlocks.

The floor timbers of the square frames were set along the keel on approximately 40 cm centers and fastened to that timber and the keelson

with a single treenail each. Cut from both white oak and live oak stocks, these timbers varied in dimension from 8-9 cm sided and moulded 7-8 cm. Limber holes cut to either side of the keel allowed passage of bilgewater along the length of the vessel.

Futtocks were cut from similar wood stocks and approximated the dimensions of the floor timbers. Frames were built up with first futtocks consistently placed against the forward side of the floor timber and alternating second and third futtocks. The sixth floor timber aft of the stem was the amidship frame and would have been the first frame to be erected during construction. It also represents the point of maximum breadth of the boat and served as a guide for framing fore and aft of that location. The components of the amidship frame are fastened to each other laterally with 2.5 cm treenails, as are components of frames at alternate locations fore and aft. Elsewhere frame components are fastened only to the hull planks and keel. Additionally, frame nine has been so fastened giving a sequence of three, fore-and-aft fastened frames in a row. This may have been done to help define the shape of the hull during construction and would have strengthened this load bearing location in the boat. To further strengthen the hull along its cargo carrying area the shipwright inserted additional futtocks. These were installed late in the construction sequence or added to the vessel during her career.

Frames in the bow and stern were canted to follow the line of planking but were neither attached to the apron in the bow nor the V-timbers in the stern.

Planks

While seven complete strakes were recorded running from stem to stern, the evidence suggests that the boat had up to 14 strakes per side. Hull planks ranged in width from 11-22 cm and were 2.5-3 cm thick. The one wale noted had a thickness of 5 cm. The Cypress (*Taxodium* spp.) garboards and Southern Yellow Pine planks were fastened to each frame with

2.5 cm wedged treenails and 6-8 mm square iron nails. Plank ends were fastened with from two to three nails.

Keelson

The keelson is a single Southern Yellow Pine timber 8.35 m long, 10 cm moulded and sided 17 cm. The timber's lower surface is notched to receive the floor timbers to which it is fastened at each frame location with a single wedged treenail placed along the centerline of the timber. The shipwright evidently was not concerned about the potential for splitting the line of treenails.

Two rectangular mortises at frame 3 and the amidship frame, evidently mast steps, were cut into the upper surface of the keelson. The forward of the two was partially filled wooden blocks suggesting a change in the position of the mast at some point in the vessel's career. Both mortises were cut completely through the keelson exposing the floor timbers beneath and allowing for drainage. A rectangular cutout between frames 13 and 14 on the portside of the keelson allowed placement of a pump to remove bilgewater.

Ceiling

Ceiling was recorded forward of the amidship frame although evidence suggests that the boat was fitted with ceiling farther aft. Cut from Cypress and Southern Yellow Pine these 1.5 cm thick planks retain the marks of the saw that cut them. Most ceiling planks exhibited burning on their inboard surfaces and at least one plank appears to have been reused.

Shelf Clamp, Knees, and Beams

A length of shelf clamp, two lodging knees, and part of a beam provide the only evidence for decking on the vessel. Knees were of white oak and Southern Yellow Pine and were notched over frames and fastened with nails, treenails and iron bolts. The athwartships arms of each knee had been broken, probably as a result of

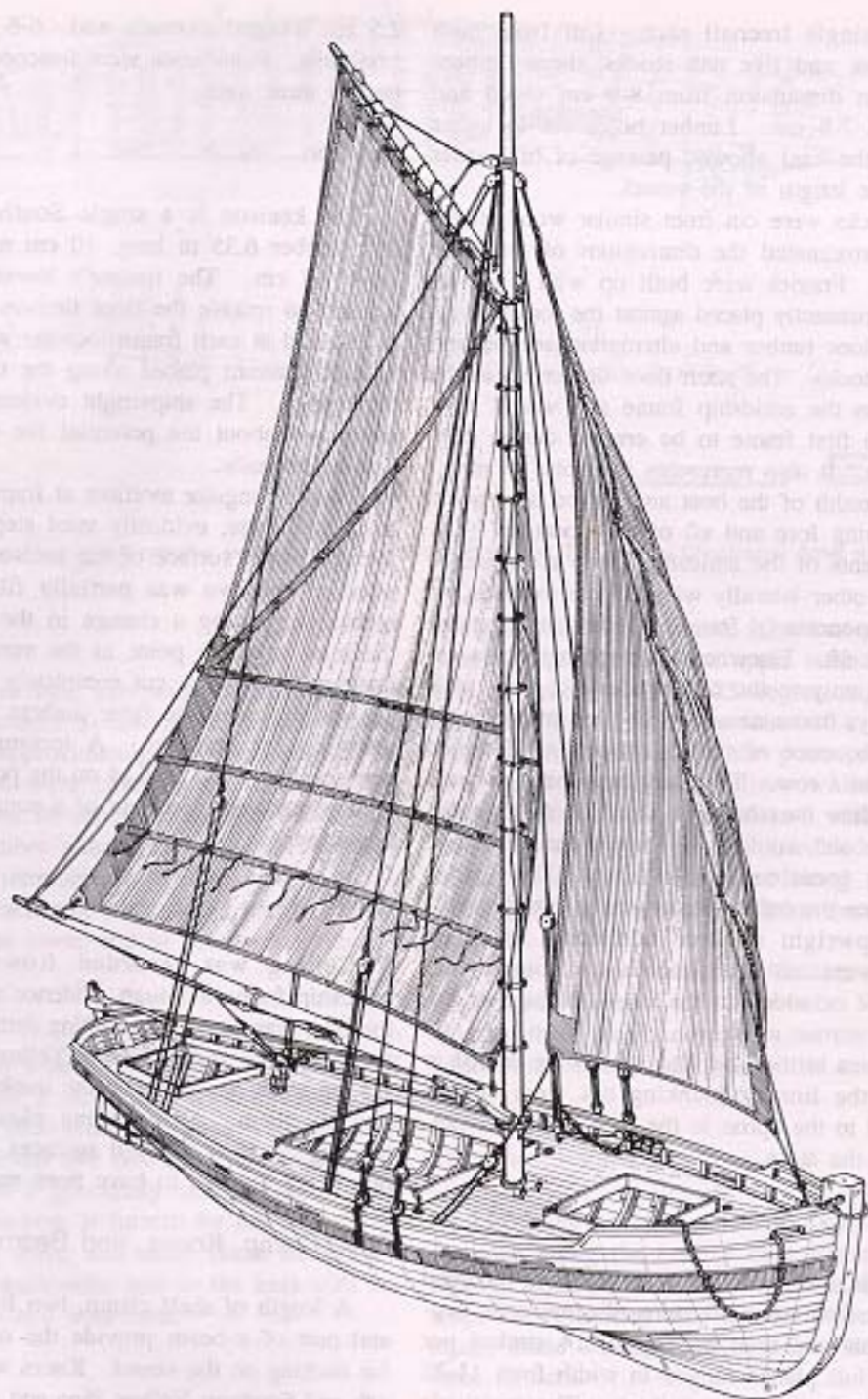


FIGURE 3. Preliminary reconstruction of the Malcolm Boat. Drawing by William Judd.

the beams that were once fastened to them tearing away.

Analysis of the Hull

The sequence in which the Malcolm Boat was constructed can be deduced from the preliminary analysis of the preserved remains. After the backbone (keel, stem, and stern assemblies) of the hull was laid, the amidship frame was erected approximately one-third of the vessel's length from the bow. The shape of the other made-frames was determined, and these were erected. The garboards, wales, and possibly planks at the turn of the bilge could then be installed and the remaining frames finished off and the planking hung.

Analysis of the remains reveals a round hulled, keeled vessel with a transom stern (Figure 3). The reconstructed hull is 12 m long has a beam of approximately 4 m and an estimated depth of hold of 1.7 m. A displacement of approximately 23 tons is suggested. The vessel had a fairly sharp entry below the waterline. She had a full bodied midsection that carried aft to the transom. The construction features observed on the hull, numerous made frames along the cargo area of the hull and flexible end timbers, additional futtocks installed and a keelson notched over and fastened to each frame, suggest a boat designed with the ability to carry heavy loads. Yet the hull would have had a graceful shape and was no doubt pleasing to the eye.

We have given her a sloop rig as this type of rigging is consistent with the scant evidence found on the hull and with historical accounts of boatbuilding in South Carolina during the latter half of the 18th century. During that period many European shipwrights and artisans came to Charles Town from Europe bringing with them their boatbuilding traditions and practices of construction. From the 1740s to the time of the Revolution the four active Charles

Town shipyards built many sloops and schooners in the 20 ton range, which were able to ply the coastal waters of the colonies and to enter into the West Indies trade (Coker 1987:47-49). A transom stern would have enhanced the vessel's cargo carrying capacity and seaworthiness for offshore voyages and appears to have been the stern of choice of colonial shipwrights in South Carolina.

At some point in the vessel's career the owner appears to have changed the mast location, possibly converting the rig configuration to that of a schooner to take advantage of this more economical rig which, with its ease of handling and smaller crew requirements, was the most popular rig for locally-built craft (Coker 1987:48).

The Malcolm Boat is significant on a number of levels. Its abandonment and location is helping to confirm an emerging pattern of small craft disposal in the many small creeks and sloughs of the state's Low Country when those craft's usefulness was at an end (Amer 1989:75-77; Beard 1991:4; Judd 1989:81; Newell 1992:136-37). The boat's construction is consistent with contemporary boatbuilding practices that were imported to the New World from Europe and developed during the Colonial Period while utilizing the abundant colonial woods ideally suited for shipbuilding. The boat also tends to confirm, along with other vessels investigated in South Carolina, to the extensive use of transoms noted in historical sources. Also historically documented is the practice, after 1760, of plantation owners having their own vessels built that were capable of going beyond the colonial confines and conducting trade as far away as the Caribbean and South America (Coker 1987:49). The Malcolm Boat is one of the first vessels studied in South Carolina that architecturally demonstrates this capability and, as such, is opening a new chapter in the study of South Carolina's maritime tradition.

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