The Construction and Function of a Chinese River Vessel

This model displays several interesting and telling construction techniques. The construction details and features used for this model can help us diagnose the origin and function of the boat it represents. Based on the construction techniques found on this model, including a relatively shallow draft hull with low gunwales and a blunt bow, oar-based propulsion, and the luxurious features of the deck superstructure, it is likely that this model represents an upper middle class river passenger barge, used to transport people and possibly some cargo through the extensive river systems of central China.

Shape and Structure of the Boat

The overall structure of the model provides a lot of information for us about the function of the boat it represents. The keel is a primary fixture on any boat; a keel is the long piece of wood that forms the “backbone” of a boat. Found at the bottom of the hull, the keel runs from the front of the boat (bow) to the back of the boat (stern) and serves as the spine of the vessel. The keel on our model turns upwards at the stern of the boat, which makes the stern higher than the bow. Near the bow of the ship, a large peg-like feature protrudes from the keel (Fig. 1). Initially, I thought this may be a large mortise and tenon joint, which is essentially a peg-and-hole fastener used to connect two pieces of wood. However, further research indicated that this could be a feature used to attach the barge to a tow boat, in order to be pulled upstream.

The hull of the boat is made of individual wooden planks, which are long pieces of wood that form the sides of the boat. The hull is carvel-built, which means that the planks form a
smooth surface and do not overlap one another. The planks on the model also have light vertical lines painted down the length of the hull, which likely represent caulking applied over fasteners and the seams between planks (Fig. 1). There are also several jagged lines painted on the model’s exterior planks. These lines could represent scarf joints, where two pieces of wood have been connected by cutting the pieces separately and attaching them together like puzzle pieces (Fig. 2). The hull of this vessel is relatively shallow draft, meaning that it will sit fairly high in the water as it travels. This makes shallow draft vessels ideal for shallow water navigation, such as through rivers or canals. This vessel does not have a typical stempost, which is the most frontward timber on the boat that helps a vessel cut through the water. In our model, the vessel has a blunt and flat bow that protrudes slightly over the water. The gunwales, which are the highest planks on either side of the boat, are also very flat and look like walkways on the vessel, possibly for use by the oarsmen. The blunt bow, low sides, and walkway-like features would have made embarking and disembarking on this vessel very easy, which supports our hypothesis that this boat was used to transport people and perhaps some goods along China’s inland waterways.

Propulsion and Movement

Our model was accompanied by several long oars, which could have been used to propel the boat in shallow water or used as a pole to push the boat off of a riverbank. As this boat has no sails or rigging, it was dependent on the currents of the river for movement. To direct the boat through the river, a rudder was attached to the stern of the boat, as seen in this model of a similar vessel (Figure 3). Although the rudder for our model has unfortunately been damaged and broken off, we can still observe the detached rudder’s features. The rudder is fenestrated, which means that the rudder has holes in it to allow water to flow through it. Putting holes in rudders
also made the rudders easier to turn, which enhanced the maneuverability of boats. Fenestrated rudders were common in Chinese ships by the 13th century, a fact that could help us date our vessel.

Deck Structure and Decoration

A final consideration for the construction of this vessel its deck superstructure. The deck house features ornate decoration, detailed painting, and colorful paneling. The enclosed wooden structure over the stern appears to be a large cabin, most likely used by passengers on long river journeys. These relatively luxurious decorations and accommodations indicate that this boat was used for long-distance travel on waterways by relatively wealthy individuals. However, near the bow of the ship, some of the planks that comprise the deck appear to be removable. This indicates that this boat contains a cargo hold possibly intended for trade goods. Upper middle class leisure boats contained cargo holds, but a boat used by a very elite person, such as a government official, would not have contained such a hold (Spencer 1976, 46). This finding contradicts my hypothesis from my last post, in which I put forth that this boat could have been used by an elite official. It is more likely that this boat was used by an upper-middle class owner, perhaps with some ties to the inland waterway trade system. Small details in construction can lead to large discoveries about the vessel and those who operated it; I enjoyed learning more about this vessel and ship construction for this project.
Figure 2

(Photo by author)

Figure 3

(Photo by author)

(National Maritime Museum, Greenwich,
Passenger/Cargo Vessel; Junk AAE0132)

Works Cited

