An Example of Adaptive Ship Construction: Examining the *Vinta* in Its Geographic Context

To analyze the construction of the Peabody Museum’s model of a *vinta*, it is necessary to place this type of vessel in its larger context: the waters of the southern Philippines. This outrigger sailing canoe—also referred to as a *pilang* by several local ethnic groups—is native to the Zamboanga peninsula and the Sulu Archipelago, an area roughly 220 nautical miles across that consists of more than 300 islands (Nimmo, 1990). Most commonly used as a fishing vessel, the *vinta’s* defining structural features are what make this particular type of sailing canoe so uniquely suited to the waters of the Sulu Sea. What are these features? A cursory glance at the model of this type of vessel in Figure 1 reveals several key characteristics regarding its design and construction that shed light on its use in this area. Its lightness, stability and ease of handling make the *vinta* a prime example of adaptive ship construction, where the conception behind and processes used in its construction make it the ideal vessel for its primary area of use.

When I first inspected this artifact catalogued as “model of sailing boat” that dates back to the early nineteenth century, the design features that were most readily apparent were its narrow hull and double outriggers. Much like full-sized *vintas*, the model is made from a single, hollowed out piece of wood that extends from stem to stern. The lack of internal frames or other support structures and the use of wooden dowels—a type of fastener—for the attachment of the gunwale and upper planks make the hull of the *vinta* relatively light (Spoehr, 1971: 117). As is clear in Figure 2, the bottom of the *vinta’s* hull is flat. What purpose does this particular hull construction serve? The flat keel, shallow draft and light hull construction make it easier for operators to pull the vessel up onto a beach, a common mooring practice in this area given the
prevalence of sandy shorelines and small beachside communities (Nimmo, 1990: 54). This hull construction also allows the vinta to sail almost anywhere in the shallow waters of the Sulu Sea.

The model’s double outriggers each run parallel to the narrow dugout hull and provide much needed stability to the vessel. On both the model and most full-sized vinta, these structures are constructed of lightweight bamboo to help minimize the weight of the vessel. You might wonder why the vinta has such a narrow hull if the outriggers are necessary to stay afloat. In addition to being lightweight and allowing for a shallow draft, the narrow hull helps to improve the overall sailing performance of the vinta. With a “nearly ideal length to beam ratio for minimum drag,” the vinta is a fast vessel, which is an important characteristic in this area given local weather patterns (Doran, 1972: 157). The Sulu Sea is characterized by a relatively high frequency of light and variable winds, making speed an important characteristic of the vinta. Furthermore, this region of the Philippines lies to the south of the typhoon belt and, though storms occur periodically, large gales are infrequent (Spoehr, 1971: 116). Thus, the narrow hull and low freeboard are suitable to the relatively calm waters of this area.

The outriggers are connected to the hull using booms that run perpendicular to both the outriggers and the hull itself. These booms consist of two components, a lower primary boom and an upper secondary boom, which can be seen in the model in Figure 3. The number of outrigger booms gives an indication of the size of the boat: smaller canoes have two outrigger booms, medium-sized canoes have three outrigger booms and large canoes have two outrigger booms. Given that the model has three outrigger booms and that vinta ranged in length from 4.5 to 10 meters, the vessel on which the model is based was likely somewhere around 7 to 8 meters in length, a medium-sized vinta (Spoehr, 1971: 117). The curved upper boom component has two fork-shaped wood structures attached to each end, which are used as cradles to store the
mast, sale boom, spar and mooring pole when they are not in use (Spoehr, 1971: 119). These cradles can be seen in the model in Figure 3. This feature also highlights the need for versatility when operating the *vinta* as it allows for easy stowage when mooring the vessel or while fishing in addition to smooth transitions to new wind directions in this variable setting.

The *vinta* uses a single, square sail for propulsion. The sail, which is made of lightweight cotton—often an amalgam of used, colorful cotton products stitched together in patterns, such as the one seen in the model—is attached to the mast, boom and upper spar, all of which are made of lightweight bamboo. This allows a single operator to step the mast. To adjust the angle of the sail, two lines are rigged back to the stern, one from the top of the mast and one from the boom. This allows the steersmen to adjust the length of these two lines according to the wind direction and the course. When tacking, only one adjustment is necessary (Spoehr, 1971: 120). This ease of handling affords is helpful in this area in particular given the characteristic variable wind patterns. This also means that a minimum of two sailors is required to sail even the largest *vinta*, allowing for more space to carry fishing equipment or other cargo (Nimmo, 1990: 54).

The design and construction of the *vinta* make it an ideal vessel for the region extending from the Zamboanga peninsula to the Sulu Archipelago. Many of these qualities, however, also make the *vinta* unsuited for the less protected waters that are common outside of this area. Why, then, is this particular vessel used so frequently amongst the ethnic groups of the southern Philippines? A possible answer might lie in the common heritage of the peoples of this area: linked through their common Islamic faith, the Muslim ethnic groups of the southern Philippines have become increasingly insular over time (Majul, 1973). Thus, perhaps the prime factor influencing the conception of the *vinta* is not the atypical climate of this area, but rather, the unique cultural and historical commonalities connecting the ethnic groups using this vessel.
Figures

Figure 1. Model of a vinta. Note the narrow hull and double outriggers. The presence of three outrigger booms suggests that this model is based off of a medium size vinta (Photo by author).

Figure 2. A view of the model from below. Note the flat bottom (Photo by author).
Figure 3. A close up image of an outrigger boom. Note the upper boom and cradles for the storage of the mast, boom, spar and mooring pole when not in use (Photo by author).
References


