

Japanese Wooden Boatbuilding

History and Traditions

By Douglas Brooks

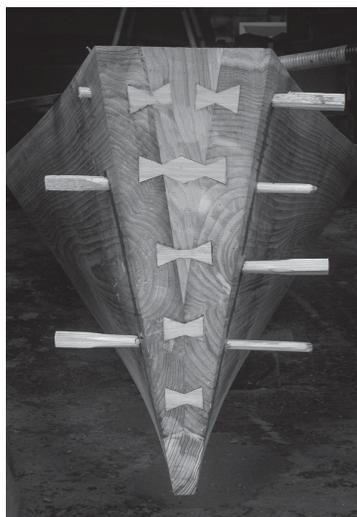
In Western maritime histories, Japan is not generally viewed as a major maritime power. The usual standards for preeminence in this regard have been measured by the reach of a country's exploration and trade or naval might. Japan's problem is largely one of timing. It did not become a naval power until the twentieth century, and most Western scholars have interpreted Japan's maritime importance in light of its reclusiveness—a perception magnified by the timing of European contact. The West's great era of exploration encircled the globe just as Japan entered its famous 250-year period of exclusion—known as the Edo era—in which foreign travel by Japanese was banned, and contact with most foreigners, especially Europeans (except for the Dutch), was strictly controlled. It has often been written that to enforce these restrictions, Japanese shipwrights were required to build vessels that were inherently unseaworthy, yet another blow to Japan's maritime reputation. They were never intended to sail out of sight of Japan's shores. Instead, they sailed through a political and maritime era that looked primarily inward, ignoring the horizon.¹

Japan was an important maritime power in Asia before the Edo era, and even after the era began, for the first few decades of the seventeenth century as a major exporter of silver and copper. Although the Tokugawa shogunate did begin to adopt laws restricting sailing vessels from foreign voyages, there were no actual shipbuilding restrictions. Japanese vessels had, before that time, carried on extensive trade with the Ryūkyū Kingdom (modern-day Okinawa and other islands in the chain) and kingdoms in present-day Korea, China, Thailand, and Việt Nam. The ships that carried out this trade reflected technological influences from Japan's Asian neighbors, as well as the influence of the Portuguese and Dutch, who had been sailing to Japan since 1543.

A series of edicts restricting trade, Catholic missionaries, and merchants known collectively as *Sakoku* between 1635 and 1639 eventually resulted in an official



The replica Edo-era sailing ship *Naniwa Maru* under full sail in Osaka Bay. This vessel was the third of four such replica ships built in Japan, all by one shipwright, in the last twenty years. *Naniwa Maru* represents the type of coastal trading vessel known variously as *bezaisen*, *sengokubune*, or *kitamaebune* that dominated Japanese shipbuilding during the Edo Period (1603-1868). Photo by Dr. Yutaka Masuyama.



The bow of a *sabani*, the traditional fishing boat of Okinawa. At the time of publication there is now just one boatbuilder left building *sabani*. Photo by Douglas Brooks.

ban on all foreign travel by Japanese. Strictly controlled trade contacts with the Dutch, Koreans, Chinese, and Ainu (Japan's aboriginal population, living mainly in Hokkaidō) were established, but Japan's own European maritime trade with powers other than the Dutch was banned, and its Southeast Asian trade was only rarely allowed.

Japan's geography, however, would ensure that the country would necessarily maintain and develop its ship and boatbuilding traditions. The Japanese archipelago is essentially a line of mountains with a relatively limited amount of arable land around the margins. Traveling through the country was difficult, but a few major rivers and Japan's inland waters offered alternative trade routes to the steep slopes and thick forests of the interior. Furthermore, in seeking to limit the military power of its vassals, the shogunate placed restrictions on the use of carriages and the construction of large bridges. The seas surrounding Japan were the most viable highway for goods,

and therefore, the maritime history of the Edo era is largely represented by the thousands of coastal traders that moved goods around the country and the tens of thousands of small boats involved in coastal fisheries.

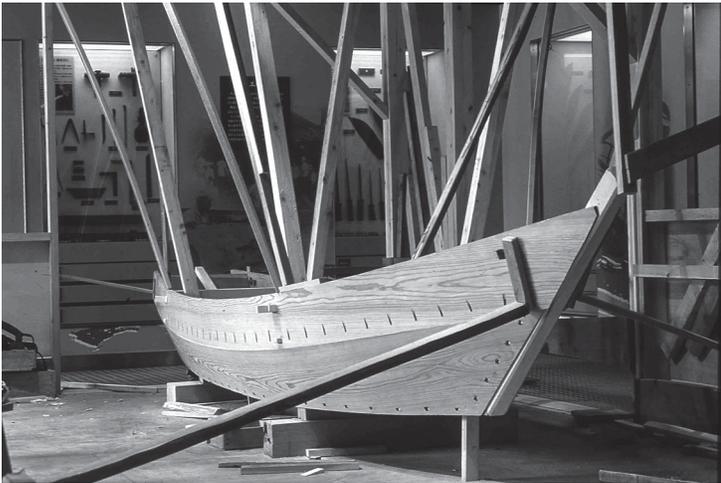
The larger coastal sailing vessels were called *bezaisen*, the term seamen and shipowners tended to use. The literal origins of the name are vague but probably refer to vessel type—*sen* as a word ending means “ship”—and sometimes, the word is romanized as *benzaisen*. More specific terms for the coastal traders include *kitamaesen*, best translated as “northern coastal trader,” the type that sailed along the Sea of Japan coast to Hokkaidō. From the north, the most common cargo was herring, salmon, and kelp in trade for rice, salt, cotton, cloth, and sake from the mainland. The general public tended to refer to these vessels as *sengokubune*, literally “one thousand *koku* ship.” A *koku*, or about 330 US pounds, is a traditional Japanese unit of measure; one *koku* was considered to be the amount of rice it took to feed one person for one year.



Mr. Seizo Ando of Aomori, Japan building an inshore fishing boat. Ando was the author's fourth teacher, and together they built this boat in the summer of 2003. Ando is fitting the keel and the first plank by running a series of saw cuts through the seam, an essential technique in Japanese boatbuilding. Photo by Douglas Brooks.



The author and Mr. Ando fitting the seam with handsaws. This technique is called *suriawase*. Photo by Catherine Wood Brooks.



A *bekabune*, or seaweed gathering boat from Urayasu, a famous fishing community on Tokyo Bay. Note the extensive use of props to hold parts of the boat in place while building. Japanese boatbuilders rely on props rather than clamps when working. Photo by Douglas Brooks.



Mr. Ryujin Shimojo looks at the completed hull of the *sabani*, just prior to turning it over. The wooden dovetail fastening is clearly visible. Photo by Douglas Brooks.



The author painting some of the carvings on the *shimaihagi*, an inshore fishing boat from Aomori. The boats of this region feature extensive carving, and the author is painting the *yago*, or name of the boat's owner. Photo by Douglas Brooks.



The launching ceremony for the *sabani*. Okinawan religion is a matriarchal shamanism, and the ninety-two-year-old woman conducting the ceremony is a *yuta*, or shaman. To the right is Mr. Ryujin Shimojo, the author's teacher. In the rest of Japan, such ceremonies are Shinto-based. Photo by Sgt. Emery Ruffin, USMC.

While the design and construction of traditional Japanese boats and ships, collectively known as *wasen* (Japanese-style boats), reflect influences from mainland Asia, the Edo period's isolation did allow boatbuilders and shipwrights to refine tools, designs, and techniques, creating some unique qualities found in Japanese boats.



The beam ends are either tenoned through the hull and wedged from the outside or lock to the hull planking with a half-dovetail joint. Photo by Catherine Wood Brooks.

Throughout the world, one can find a clear progression of boat development, from the dugout canoe of prehistory to semidugout construction (a dugout lower hull with planks added to the sides) to full plank construction. The same can be found in Japan's interesting variants of small boats. Semidugout fishing boats can still be found today in the Tōhoku region of northern Japan, and in the 1990s, I interviewed perhaps Japan's last professional builder of dugouts, a boatbuilder in Akita who last built three for fishermen in the 1960s. The Okinawan archipelago features an iconic boat called the *sabani*, a type of semidugout, and during my first apprenticeship in Japan in 1996, I studied with the last builder of the distinct *tarai-bune*, or tub boat, literally a large barrel used for inshore fishing on Sado Island.

The majority of *wasen* feature a horizontal plank keel generally twice as thick as the planking with a pair of wide bottom planks rising from the keel at a shallow angle. A pair of top planks run nearly vertical their entire length, meeting the bottom planking at a *chine*, or hard corner. Where wide planking is built up of several planks, the pieces are edge fastened to each other. In some parts of Japan, sawn frames are installed, but largely the strength of this type of construction rests in the hull itself. In lieu of frames, horizontal beams cross the hull at the chine and the sheer. The beam ends are either tenoned through the hull and wedged from the outside or locked in place with shouldered keys.² Another feature of Japanese boats is the side planking aft, which often runs past the transom to form a chamber protecting the rudder.

Boatbuilders' use of edge nails is not unique to Japan, but the technique is definitely highly refined there. Boat nails are made of flat steel, and the holes are cut with a special set of chisels. Today, there is only a single supplier of boat nails in business. This has put a strain on some craftsmen and shows how an important symbiosis exists between craftsmen and attendant crafts that supply their materials.

Another interesting feature of boatbuilding is the process of creating planking with a watertight fit. Using a series of saws, boatbuilders make multiple passes through the seams, a process called *suriawase* (the term combines the verbs "to rub" and "to assemble"). With each pass, the fit between planks become progressively tighter. Boatbuilders pride themselves on their ability to produce watertight boats without any use of caulking. Only older boats are caulked when they begin to leak.

In my apprenticeships, my teachers stressed the absolute need for me to master the techniques of edge nailing and *suriawase*. I spent long hours practicing both of these techniques, adhering slavishly to my masters' instruction. For all five of my teachers, I was their sole apprentice, and each man in his own way communicated his desire to have me carry on his techniques and traditions. One of my teachers was a fourth-generation boatbuilder.

The apprentice system itself represents a major holdover of tradition within the craft of boatbuilding. Learning a craft via apprenticeship with

a master is largely forgotten in the West, but in Japan, the notion is well understood and accepted. Unfortunately, Japan's last generation of boatbuilders today is extremely old. A 2001 survey by the Nippon Foundation in Tokyo found that the average age of Japan's wooden boatbuilders was sixty-nine. Most never taught apprentices since their careers took place against the backdrop of Japan's meteoric emergence as one of the world's largest economies. Furthermore, like practitioners of many crafts, boatbuilders protected their knowledge with an intense secrecy. Many boatbuilders worked entirely from memory, while those that made drawings of their boats left them intentionally incomplete. Even apprentices, unless they were their master's sons, were kept in the dark, and the phrase *nusumi geiko* (stolen lessons) is well-known among craftsmen. Apprentices were forced to connive ways to learn crucial dimensions and ratios. One of my teachers told me he slipped back into the workshop at night with a candle and studied his master's layout of lines.

The traditional apprenticeship was six years with little or no pay. There was no talking in the boat shop and almost no direct instruction. The apprentice was expected to observe the master and learn entirely through observation. A student might spend years just sweeping the shop and caring for the tools, but at the same time, he was expected to watch his master because when the day came for him to actually work on the boat, he was expected to know how to do it. I experienced this pressure with my teachers, and I can say that it certainly focused my attention!

While this type of instruction can seem bizarre or inefficient to the reader, the apprentice's early months and years in the workshop are hardly wasted in the Japanese context. In order to succeed, the apprentice must learn patience and perseverance and hone his powers of observation. It is a values-based education, something understood to be absolutely necessary before the apprentice can begin to learn the craft. As arduous and inefficient as it may seem, this system produced craftsmen of remarkable skill.

With almost no written record, the craft of boatbuilding today is in real danger of being lost, along with many other traditional skills that have depended on the master-apprentice relationship for sustenance. My research has involved working alongside boatbuilders and recording their designs and techniques. I produce measured drawings of the boats I have built, and I hope to find venues in the future to teach these skills. I have also published the results of my research in magazines and two books. While my efforts to disseminate this information are an obvious break with tradition, the potential loss of a such a unique and refined craft culture strikes me as tragic. ■

NOTES

1. See Dr. Hiroyuki Adachi's book *Nihon no Fune—Wasen Hen (Ships of Japan—Indigenous Designs)* (Tokyo: Museum of Maritime Science, 1998).
2. A tenon is a square or rectangular pin cut into the ends of a beam, which fit into a corresponding mortise, or hole, cut into the face of the planking.

DOUGLAS BROOKS is a boatbuilder, writer, and researcher. He teaches and lectures widely about his research. In addition to building replicas of North American boats, Brooks has apprenticed with five boatbuilders throughout Japan. In 2003, his first book, *The Tub Boats of Sado Island: A Japanese Craftsman's Methods*, was published in English and Japanese. He has just finished a book, supported by a grant from the United States-Japan Foundation, on all five of his apprenticeships, due to be published later this year. In 2014, Brooks received the American Craft Council's Rare Craft Fellowship Award for his work in Japan. He lives with his wife, Catherine, in Vergennes, Vermont. Brooks is currently raising funds to return to Japan to document the work of the last surviving boatbuilder in the region struck by the 2011 tsunami. To see pictures of his work and learn more about his research, please visit www.douglasbrooksboatbuilding.com.