Building the *Higaki Kaisen*

A Japanese Edo Period Coastal Transport

(Part 1)

By Clare Hess

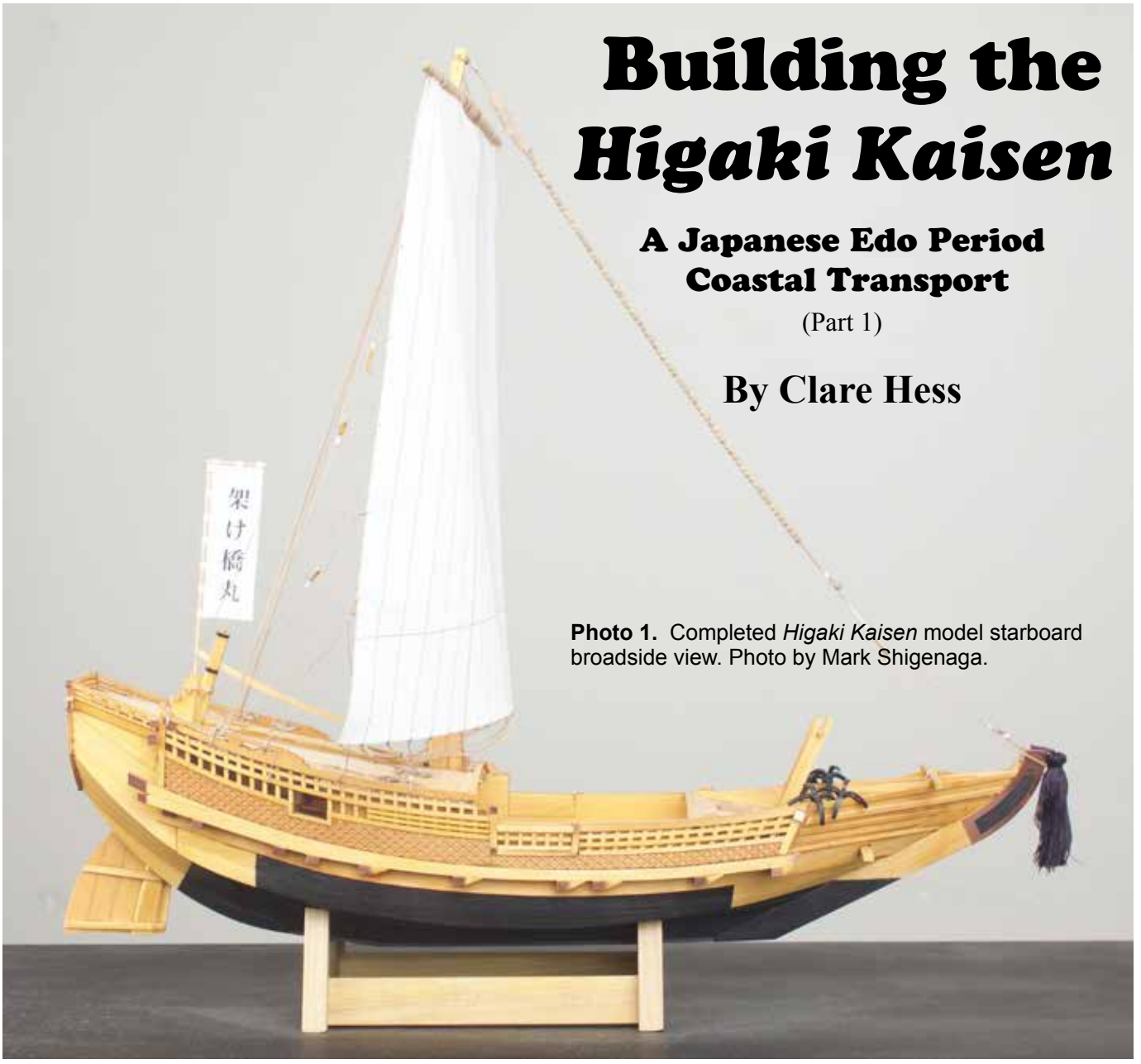

Photo 1. Completed *Higaki Kaisen* model starboard broadside view. Photo by Mark Shigenaga.

Introduction

As a ship modeler, like many others, I've always favored subjects of the period from about the time of the American War of Independence up through the clipper ship era of the 1850s. My focus has always been the common subjects of American and British ships, and I'd never given much thought to ships from other time periods or regions.

At the same time, I'm half Japanese and grew up with the knowledge of this cultural heritage, and even looked at it with a certain amount of pride, but I never really had much interest in it until much later on in life. It was only about ten years ago, when I moved to the San Francisco Bay Area, where there is a local hub of Japanese culture, that I started to get in touch with that side of my family background.

Looking back now, it was quite natural for my ship modeling interests and my Japanese background to come together. So, when I came across ship model kits from the Japanese kit manufacturer Woody Joe, I couldn't help but take notice.

Like most wooden ship model manufacturers, Woody Joe's products include an array of subjects that includes many that are familiar to ship modelers, such as the *Cutty Sark*, *Santa Maria*, *Golden Hind*, *Half Moon* and others. But, the company also produces several model kits of wasen, a Japanese term for ships and boats of traditional Japanese style.

In particular, a kit released in the first part of

2013 caught my interest. The ship was a *Higaki Kaisen* — a type of coastal transport used to carry consumer goods between Osaka and Edo (what is now Tokyo), during the Edo period, which was from about 1603 to 1868. This new kit with its internal features and laser-cut parts seemed like a good choice, and it became the bridge between my love of ship modeling and my interest in Japanese culture.

The *Higaki Kaisen* kit

Woody Joe's *Higaki Kaisen* kit is a 1/72-scale wooden model that measures roughly 16" long and 16" tall when completed. The kit sells for ¥28,000, which at the time of this writing is about $280. I ordered mine from a Japanese online seller called Zootoyz (www.zootoyz.jp), which the manufacturer recommended to me. It's not the only seller of the kit, but I did find the service to be great and shipping was very quick. When I was initially shopping around, sellers on Amazon and Ebay were consistently marking the products up by $100 or more. The premium pricing seems to have mostly been replaced by prices that are reasonably competitive. But, at the time of this writing, I still found a seller listing this kit at over $1000, not including shipping.

Higaki Kaisen kit by Woody Joe
- Scale: 1/72
- Length: 16.4"
- Height: 16.3"
- Width: 10.5"
- Price: $280 to $420

Photo 2. Woody Joe kit contents.

The standard Woody Joe kit has instructions written solely in Japanese, but the 32-page booklet is heavily illustrated, and I will discuss some translation issues later in this article. An importer in the U.S. did work with Woody Joe to sell the kit through Amazon Prime, and they created a set of instructions in English. That kit sells for over $400. But, if you're willing to work with the illustrated instructions and maybe use some of the hints you'll find in this article, you should be able to save yourself the extra cost.

In a previous issue of *Ships in Scale*, I wrote a review that went into a lot of the kit's details so that I won't rehash too much here. But, I do want to emphasize that this is a very well engineered kit that makes very heavy use of laser-cut parts. It is unlike any wooden ship model kit I've built before, not just because of the unique subject, but because there is so little cutting and shaping of material required.

There is nothing here even remotely close to the old days of "Here's a block of wood and a few sticks. Now make a deckhouse that looks like the one in the drawing." With so much of the kit made up of laser-cut pieces, it goes together a bit more like a plastic kit, except that there are no handy alignment pins as there are in most plastic kits.

In addition to the illustrated instructions, the kit includes three small sheets of plans providing full top and side views.

The provided wood is almost exclusively a very aromatic wood called Hinoki, or Japanese cypress. It is a very light-colored wood, stiff and brittle when dry, but when dampened, bends quite nicely. Most of the wood is made up of laser-cut sheets, but various sizes of strip woods are also provided for some of the ship's features.

Parts in the kit are numbered and sorted into small groups and provided in plastic bags with part identifier cards attached, making them easily locatable. This particular kit has very few metal parts except for the anchors and a sheet of photo-etched copper-colored metal. Pre-printed cloth material is provided for the sail and a banner at the stern.

Researching the subject

Researching a subject when you are building a kit isn't necessary. Ostensibly, that's what the manufacturers have done for you. But it has always appealed to me, as I enjoy learning about the things I build. It not only adds life to the build but also motivates me to move ahead.

When I began looking at the *Higaki Kaisen* kit, I knew absolutely nothing about traditional Japanese watercraft, and being unable to read much Japanese made researching them extremely difficult. However, there are bits and pieces of information on the subject in English on the Internet, and we

Figure 1. Image of a "Japanese Junk" from Perry expedition report.

are fortunate to have the digital tools of Google and Bing Translators that can help with foreign language sources. Translators are certainly far from perfect, often generating odd and often poetic phrases, but they can be extremely helpful at times.

Having a network of people to draw on for assistance proved extremely useful. The first are the kind people at *Woody Joe* who were happy to help with my various questions about their kit and its design. The owner of the online store in Japan where I bought my kits, Zootoyz.jp, was also very helpful, and even sent me a DVD and book about the *Michinoku Maru*, a replica ship that operates in Northern Japan, and is of similar design to the *Higaki Kaisen*.

Meanwhile, the best English language resource I found was in the works of the American boat

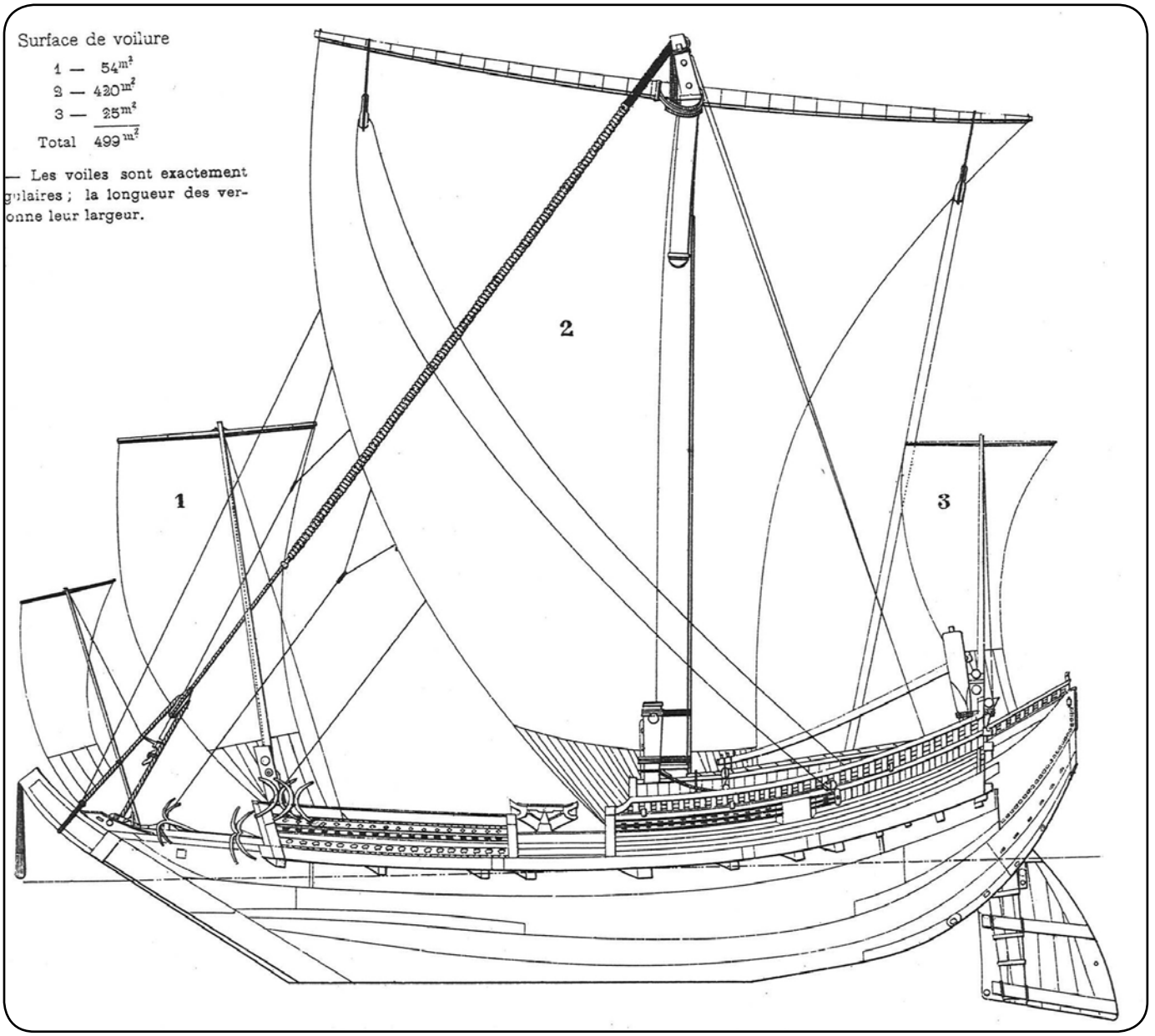

Figure 2. Bezaisen from *Souvenirs de Marine*, courtesy of the San Francisco Maritime Research Center.

builder Douglas Brooks. Brooks spent much time in Japan studying traditional Japanese boat building since he first visited there in 1996. In his travels, he met and interviewed the builder of the four existing replica coastal transports, and visited the *Michinoku Maru* during construction. He has written several articles on the subject, including one that appeared in the 2011 issue of *The Shipwright*.

Brooks's book *Japanese Wooden Boatbuilding* was published in 2015 and contains a final chapter about the four modern replica ships and their builder, Mr. Tomenoshin Niinuma. I highly recommend this book to anyone interested in Japanese traditional boats and ships. Signed copies are available directly from the author at www.douglasbrooksboatbuilding.com.

As I discovered quite by accident, there are a couple of western historical resources that provide some insight into the construction of these and similar vessels. One of the earliest glimpses of the Japanese transports that I'm aware of comes from the 1853 Perry Expedition, the American mission to open Japan to outside trade. The report that was made included many illustrations of the scenery and of events that took place during the expedition and includes several that show native boats and sailing craft.

Another western source of drawings (**Figure 2**) that I discovered is in a French set of books called *Souveniers de Marine*, which is a collection of drawings and notes on modern and ancient ships and boats from around the world. This 3-volume work by Vice-Admiral François Edmond Paris was first published in 1882 and among other things, contains many detailed drawings of early Japanese watercraft, including coastal transports very similar to the *Higaki Kaisen*.

A little historical background

During a time known as the Edo Period, Japan was in a self-imposed seclusion, keeping out all foreign influences that might undermine the authority of the Shogun, the military ruler of the country.

Aside from a Dutch trading post restricted to a small island in Nagasaki Harbor and limited contact with the Chinese, foreign contact was forbidden. Even Japanese nationals who left the country and were exposed to foreign cultures, either voluntarily or by the hand of fate, were usually forbidden to return.

During this time, all commerce was carried out by native transportation. Japan's road networks were limited for political and military reasons. And, being a mountainous island nation, coastal ocean transport was the only sensible means for the large-scale movement of goods.

Japan's native boat-building traditions scaled up from small watercraft to produce the large coastal transports called bezaisen, more commonly known by the term Sengokubune. The latter term translates to "1000 Koku ship," where a Koku is an old unit of measurement that is said to be equal to the amount of rice necessary to feed one person for one year, or about 150 kilograms.

During the relative peace and stability of the Edo Period, the Japanese economy grew, and port cities such as Osaka began to prosper as major economic hubs. Coastal trade increased, and hundreds of bezaisen sailed up and down the coasts delivering goods between ports. In the process, they spread cultural influences between the Japanese islands, homogenizing and unifying the country, including its music, art, and language.

To understand the important role of these ships, it's helpful to realize that Japan, although late to modernize, had one of the most urbanized populations in the world in the 18th and 19th centuries. Edo, the city we now call Tokyo, and Japan's capital city after the Shogun Tokugawa Ieyasu came to power, reached a population of 1.4 million by the start of the 19th century, making it one of the largest cities in the world even then. These large populations centers needed to be supplied with goods, and the role of the coastal transports was instrumental.

Bezaisen design

Bezaisen were coastal transports that featured keel-less, frame-less hulls, commonly around 100 feet long. They were considered single-masted

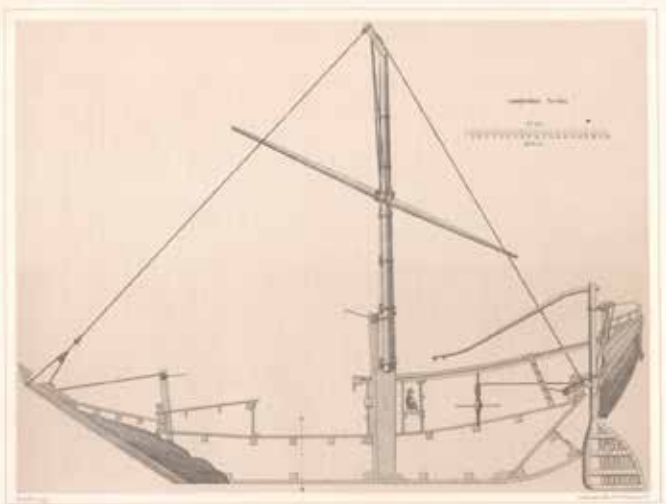

Figure 3. Cutaway drawing of a bezaisen from Perry expedition report.

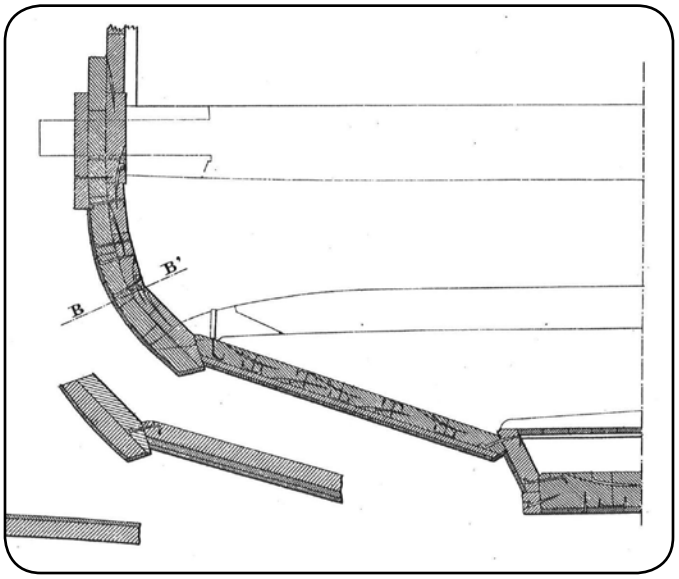

Figure 4. Bezaisen cross section from *Souvenirs de Marine*, courtesy of the San Francisco Maritime Research Center.

sailing ships, though they often carried sails on one or more additional auxiliary masts that were raised as needed. The ships had large raiseable rudders that allowed them to be easily beached or to operate in shallow water. Their decks were made up of short, removable planks and beams, allowing easy access for the loading and unloading of cargo. On the after half of the main deck was an integral main cabin that served as the living space for the dozen or more crew. Also inside the cabin was the windlass for raising the rudder and the capstans used for raising the sail and anchors.

The roof of the cabin served as the deck from which the ship was steered, and the mainsail handled. The upward-sweeping poop deck served to provide the pilot with maximum visibility over the top of the cargo, which was often stacked high on the deck.

These ships were designed specifically for coastal operation, never built for the dark waters of the open sea. With no frames, hull rigidity was maintained through the use of heavy beams tenoned into thick, wide hull planks. These planks were edge fastened using large iron nails and fasteners that resemble staples. Though they had no keel in the Western sense, the box-like structure at the base of the hull and the large rudder allowed the ship to make a little headway to windward. Data collected from the sailing of the replica ship *Naniwa Maru* showed that even with its single large square sail, the ship could still sail within 75 degrees of the wind.

There were different types and regional variations of bezaisen. The name, *Higaki Kaisen*, refers to a type of ship whose name comes from the diamond-shaped latticework that decorated their sides, a symbol of the trade guilds of Osaka that operated these ships between Osaka and Edo. These ships were primarily chartered for carrying bulk cargo.

Tarukaisen were bezaisen used to transport barrels of sake or miso (soybean paste). These ships were specially reinforced internally to support the extra weight of the heavy cargo.

Kitamaebune was the name given to the bezaisen that operated from the northern ports of the islands of Honshu and Hokkaido, traveling south along the Japan Sea coast. Unlike their southern cousins, which carried bulk cargoes between specific ports, many of these bezaisen were run by single owner/operators that used spare space aboard the ship for speculative trading at ports along their journeys.

American boat builder Douglas Brooks has spent many years working and studying Japanese boatbuilding. In addition to working through five apprenticeships in Japan, he also spent much time studying and interviewing academic experts regarding bezaisen.

In his work, Mr. Brooks suggests that there are some deep-rooted misconceptions concerning bezaisen. Among them is a popular idea that because of edicts by the Shogun, these ships were purposefully made so that they couldn't sail in deep water. A related idea is that because these ships did not have keels or frames, they were somehow inferior to Western vessels in construction.

The fact is that these ships were strictly designed for operation in protected waters, relatively close to shore. Their design is a large-scale extension of native small-boat designs and were never intended for deep-water operation.

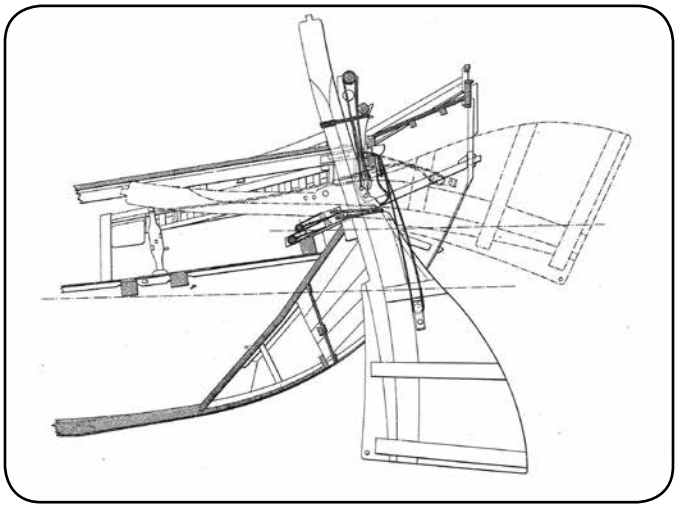

Figure 5. Bezaisen rudder diagram from Souvenirs de Marine, courtesy of the San Francisco Maritime Research Center.

It's often suggested that laws were put in place to purposely make the ships fragile, but this is something I'm told that Japanese scholars appear to disagree on. It may be that the laws simply restricted the building of ships to the general design and size of the existing coastal transports – restrictions that were apparently lifted shortly after Perry's arrival in Japan.

Drifting bezaisen

It's true that the large rudders and tall masts did make bezaisen susceptible to storm damage, and Japan is no stranger to storms. Hit directly by several typhoons every year, the peak of the storm season is in August and September, right about the time when ships were loaded down with the season's harvests. When storms hit, many of those that were unable to reach safety capsized from shifting cargoes and strong winds. Ships heavily loaded down could have been easily swamped under rough seas unless their crews were able to quickly jettison their cargo. Some of those that survived suffered rudder damage or were dismasted, or both, and were set helplessly adrift.

Interestingly enough, many of these sturdy ships survived, only to be carried into the Kuroshio, or "Black Current," of the Pacific Ocean. This current travels north along the Japan coast, eastward in the North Pacific, and southward along the North American continent.

This current carried many hapless ships and crews across the Pacific, and it has been suggested that the rise in the number of bezaisen operating off the coast of Japan in the 1800s was responsible for a general increase in the number of Japanese derelicts showing up in Hawaii and the Americas.

One case is that of the Tokujomaru, a coastal transport that was carrying rice to Edo when it was damaged in a storm. The ship appeared near Santa Barbara, California in 1813, and its three surviving crew members were rescued after 17 months at sea by the American fur trading ship Forrester. While one of the survivors later died en route, the remaining two eventually made it back to Japan by way of Alaska and then Russia.

Another example is the story of "The Three Kichis." In this case, the Japanese transport *Hojunmaru* was damage in a storm off the coast of Japan in 1833 and drifted into the Kuroshio. After being carried by the currents for 15 months, three surviving sailors, Iwakichi, Kyukichi, and Otokichi, landed on the coast of what is now the state of Washington. The three were temporarily captives of Makah Indians. Their release was secured when word of the castaways reached representatives of the Hudson's Bay Company at Fort Vancouver. Afterwards, attempts were made to repatriate the castaways, but Japanese officials refused to allow them back into the country.

There are other documented cases as well, and some very interesting books on the subject.

A bezaisen is not a junk

One thing that I run across frequently in western writing is the referencing of Japanese ships as Junks. The documents from the Perry Expedition, as well as later works, often generically referred to the Japanese vessels as Junks. However, I find the use of the term is confusing, at best. In the early days, all Asian sailing ships seem to have been lumped under the term because of their exotic appearance. There are certain characteristics that Japanese bezaisen and Chinese junks shared in common, such as edge-fastened planks and large rudders. But a junk is a specific type of sailing ship developed by the Chinese, that is characterized by the use of fully battened sails and built with a compartmentalized hull, with other features that are very different from

Photo 3. *Naniwa Maru* during sea trials. Photo courtesy of Professor Yutaka Masuyama.

Photo 4. Bow of the *Michinoku Maru*. Photo courtesy of Douglas Brooks.

Photo 5. Bow of the *Hakusan Maru* at the Ogi Folk Museum on Sado Island. Photo by the author.

Photo 6. Stern of the *Hakusan Maru*. Photo by the author.

the Japanese coastal transports.

Ocean-going junks did appear in Japan for a time. But, during Japan's period of seclusion, this class of vessel mostly disappeared. Unfortunately, Japanese watercraft are still relatively unknown to the western world, and many modern writers continue to use the term Junk in referring to them. I suppose it is somewhat akin to people using the term "Clipper Ship" when referring to any long and narrow, fast North American or European sailing ship.

Modern replicas

Over the past few decades, four replica bezaisen have been built in Japan:

- *Kesen Maru* in 1992

- *Hakusan Maru* in 1997
- *Naniwa Maru* in 1999
- *Michinoku Maru* in 2005

Financial difficulties shut down the Osaka Maritime Museum, where the *Naniwa Maru* was on display, and the Michinoku Maru Boat Museum, which was the home of the *Michinoku Maru*, so neither of these ships is currently open to visitors. The remaining two replicas can still be viewed by the public: the *Hakusan Maru* in the Ogi Folk Museum on Sado Island, and the *Kesen Maru* in Ofunato, on the northern Pacific coast of Honshu. Remarkably, the *Kesen Maru* was one of only three boats out of 53 in a harbor of Ofunato that survived the 2011 Tohoku earthquake and tsunami that devastated the town and other coastal areas in 2011.

Next issue

In the next issue, we'll start the actual construction of the model.