

THE 12-METER HETI • CHARLES D. MOWER • CAMDEN CLASS SLOOP

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ALISON LANGLEY

Building a Camden Class Knockabout Sloop

An ambitious project for a basement shop

by Paul Koch

When I was in my late 50s, many of my retirement-aged friends told me they kept working because they felt they would have nothing else to do if they stopped. Others retired but said they felt lost without someplace to go in the morning. Determined to avoid that and to spark a new chapter in life, I started

planning for my retirement about 10 years in advance by making annual trips to WoodenBoat School in Brooklin, Maine. Each year, I learned a new skill, starting with stitch-and-glue hull construction and later moving on to cold-molding and strip-planking. Once I was comfortable with hull construction, I took courses

Above—In the basement of his home in East Greenwich, Rhode Island, the author built his strip-planked version of B.B. Crowninshield's early-20th-century classic, the Camden Class knockabout.

in finishing out hulls and reconstructing tired ones. Eventually, my yard was half-filled with boats I had built or repaired. If I didn't change course, I soon would have no yard at all.

I decided to take on a larger project: the largest sailboat that I could fit in my shop, knowing it would take years to build. I turned to several B.B. Crowninshield designs available through The WoodenBoat Store, especially the Dark Harbor 17 and the Camden Class knockabouts. Of the two, the Camden had longer overhangs. It also had a deeper cockpit, where a pair of old-timers could sit comfortably. In a 1980 article

comparing the two (see WB No. 37), Maynard Bray wrote that he thought the Camden was the prettier one. That did it for me: a Camden Class knockabout it would be.

I studied the plans carefully and repeatedly before gathering the necessary materials. The catalog description noted that a builder contemplating the construction should have advanced skills, which I did not. But I was up for a challenge. At worst, I would have an ugly, leaky boat, but one that I had actually built by myself. Or I could hire someone to finish it. Or I could break it up. Whatever the outcome, it was time to get started.

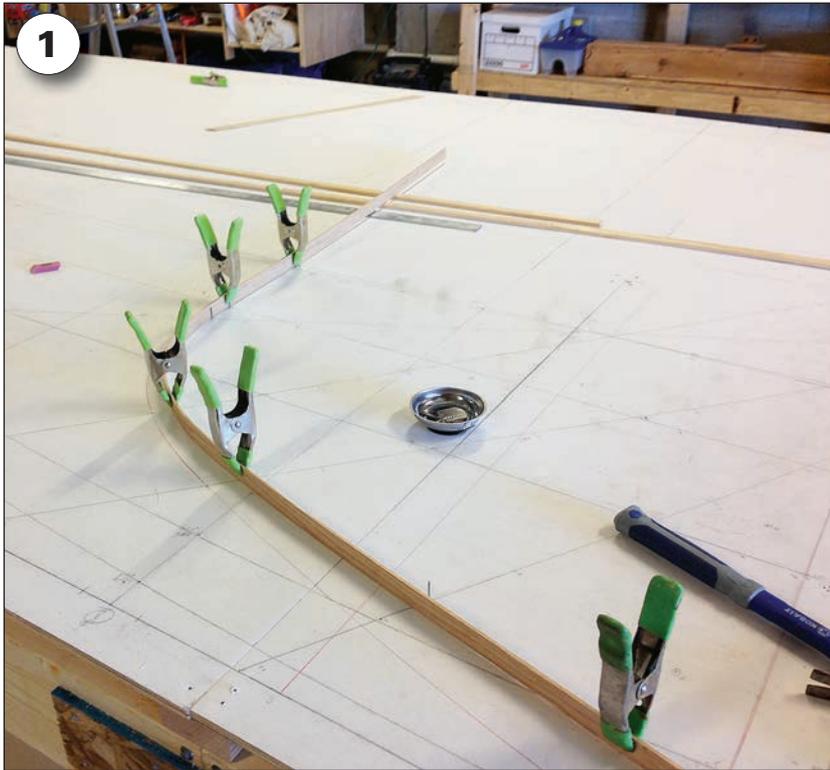
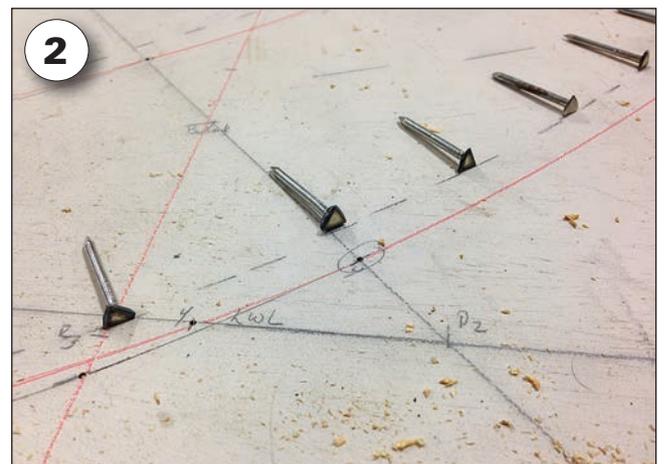


Photo 1. My first challenge was lofting, which, stated simply, involves expanding the lines plan to full size. When reading book chapters and articles on the subject, my eyes glazed over after the first page or two. I decided to purchase the heavily illustrated book *Lofting a Boat: A Step-by-Step Manual* (Adlard Coles Nautical; see review, WB No. 241) from The WoodenBoat Store. The “step-by-step” is what sold me, and I took the book at its word. With the help of straightedges, a tape measure, a few pencils, and battens of various sizes, I worked my way through the instructions, page by page. When I was done, I was confident that I understood the boat's shape and had analyzed many details that would help me during construction. It took me about a month to loft PONYO, as I named her. I found the process to be pleasant and relaxing. I would not hesitate to loft again if I needed to, and now I would actually look forward to it.

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Photo 2. The red line in this photograph of my lofting board shows one of the hull's sectional shapes, as specified in the plans, with measurements to the outside of planking. The dashed pencil line just above it shows the shape after subtracting the thickness of the planking, and this is the shape to which the molds had to be cut. A common method of transferring the shape to the mold stock is to place nails with their heads on edge and aligned on the curve, as shown, then press the mold stock over them. I took it one step further by grinding each nail's head to a triangular shape, which meant the nails would not roll around and their sharpened points would most accurately mark the mold stock. Happily, it worked just as I had hoped; every nail penetrated into the soft pine mold stock, leaving a point along the curve.



N^o443
 SAIL PLAN
 Scale 1/2"=1'
 B.B. CROWNINSHIELD
 TRUMBURGH
 NAVAL ARCHITECTS
 Drawing N^o3765 - Feb 8, 1915.

In 1915, yacht designer
 B.B. Crowninshield completed
 the plans for the Camden Class
 boats, giving them a waterline
 length of 17', overall length of
 28'3", beam of 6'9", draft of 4'3",
 and sail area of 350 sq ft. The first
 four were built for yachtsmen in
 Camden, Maine.

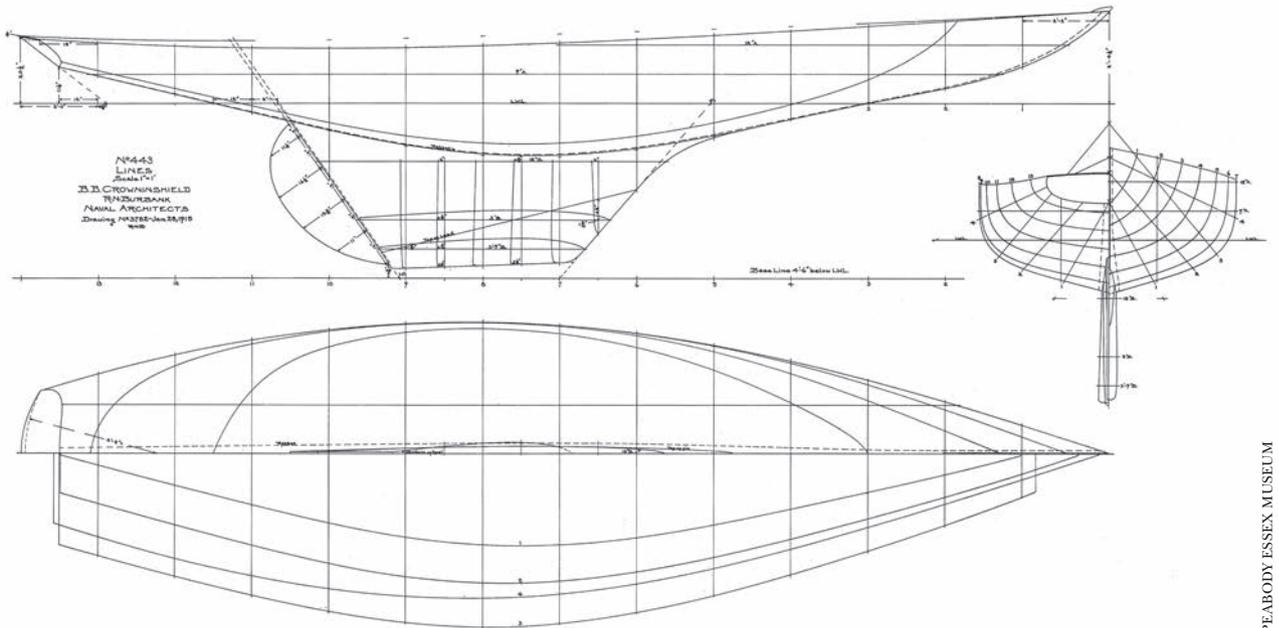
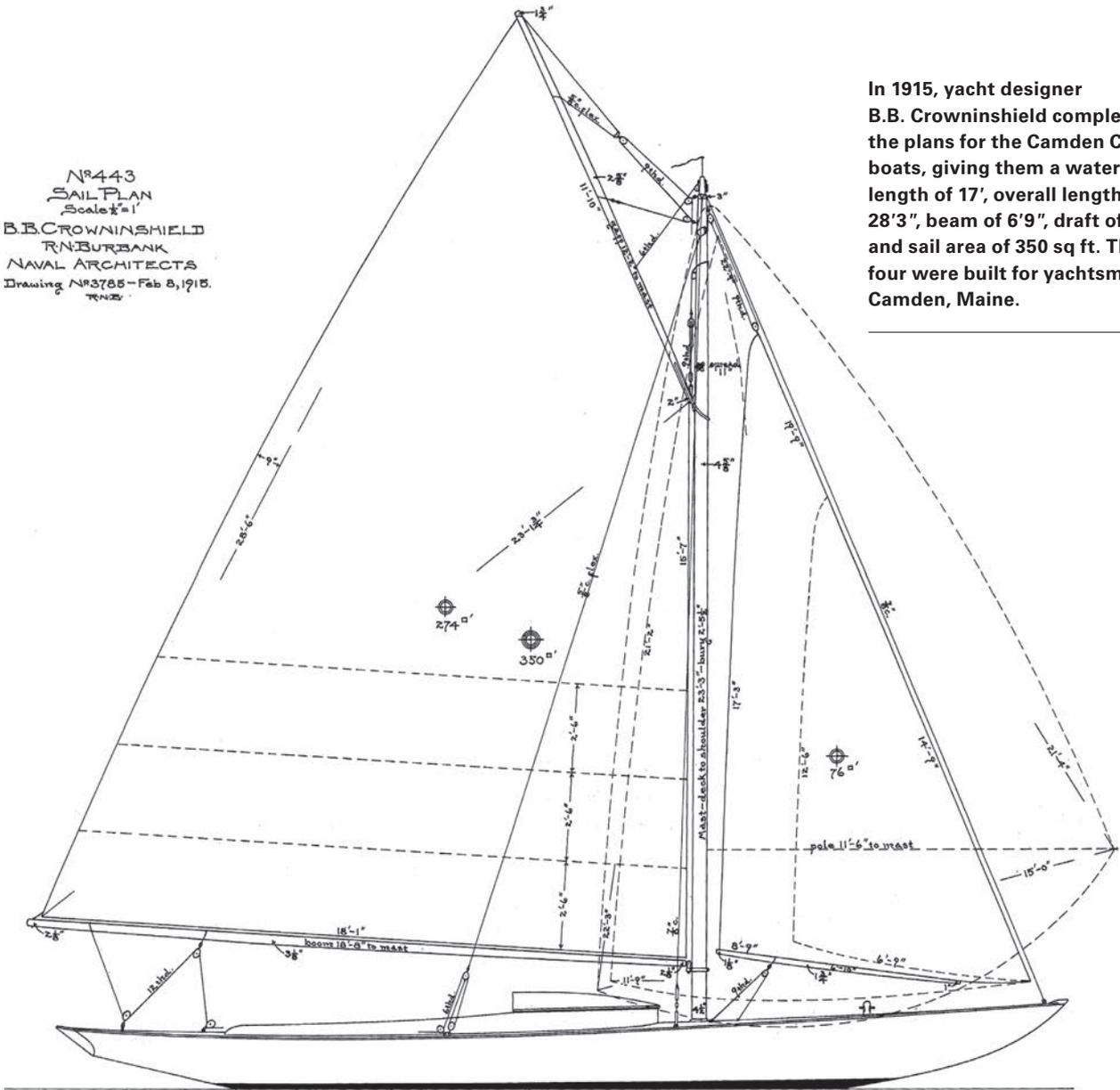




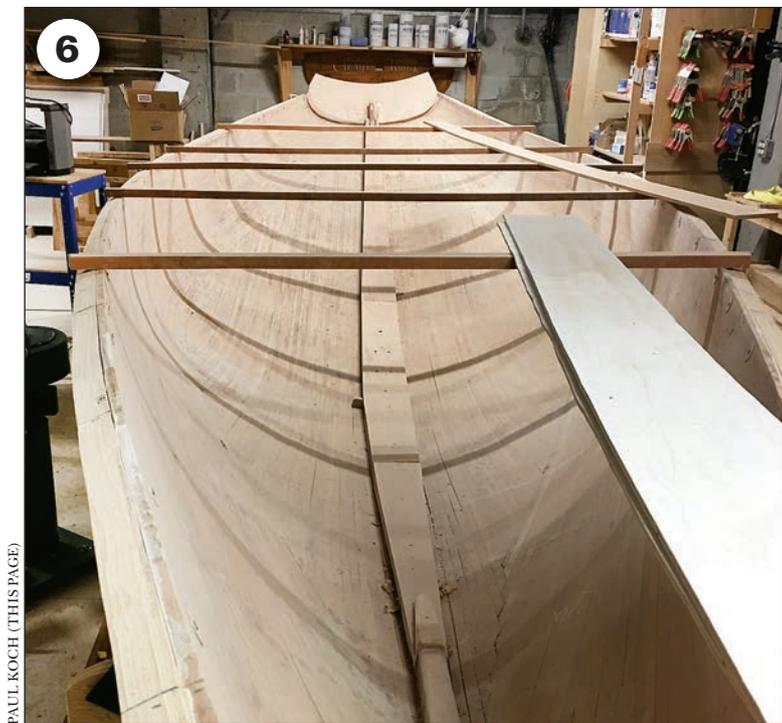
Photo 3. While I was lofting and preparing the molds, I secured most of the wood I needed for the project from regional lumberyards, including stock for the strip planking. Rather than deal with the dust hazard of milling the dozens of Spanish cedar planking strips myself, I had them commercially machined for tongue-and-groove joints. I installed them with the grooved edges up so that the cavities would hold the epoxy as the tongue of the next strip was pressed into place. Temporary nails—roughly one in every-other-strip at each mold—held the strips firmly in place while the epoxy cured. The most challenging fitting came, as expected, at the stern and also along the centerline at the bottom and the stem. I did my best, knowing that wood is forgiving and that any mistakes could be repaired with filler, sandpaper, and paint.



Photo 4. Finally, the hull's exterior is sheathed in fiberglass cloth set in epoxy to stiffen, protect, and waterproof it. I used 1708 biaxial cloth, which has a combined weight rating of 25 oz per square yard, with 17 oz in the cloth and 8 oz in a mat backing. With a helper, we placed the sections of cloth and saturated them with epoxy. After the epoxy work was completed, we faired the surfaces using power tools and longboards, but we later learned from Eric Blake at Brooklin Boat Yard in Maine that we could have saved some of the time spent in sanding the toxic and rock-hard epoxy by putting on a few coats of high-build primer or fairing compound and sanding that instead. Another lesson learned.

Photo 5. When the time came to turn the hull over in the confines of the basement, I could have slung harnesses from the ceiling but decided instead to use the same method favored when enlisting friends to move college kids from one apartment to another—the very effective reward of pizza and beer. I put the word out in my neighborhood about a week in advance, and the response was enthusiastic. About 30 people showed up on the appointed day, some of them old friends and others new ones. Those who were too young or old for lifting were appointed supervisors. That left us with about 20 people to lift the hull and turn it over in place, with the molds left inside to stabilize the shape. Turning the hull over took about two minutes. Finishing the beer took a few hours.





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Photo 6. I took the molds out only after installing several cross spalls, as shown. The next job was to thoroughly scrape and sand the interior to remove all the epoxy squeeze-out from the plank seams. This was uncomfortable and tedious work, undoubtedly my least-favorite part of the entire project. The interior is also sheathed, using the same type of fiberglass cloth used for the hull, but wetting it out with epoxy was much more of a challenge, with one of us working from the outside and the other from the inside. Whoever drew the short straw and worked inside had to stay balanced, while squatting down, to avoid falling into wet epoxy. We swapped places frequently.



Photo 7. Before I could start installing the deck, I beveled the top edges of the sheerstrakes to match the camber of the deckbeams. I made a pattern shaped to the camber and wider than the widest beam, and moved it along the sheer to determine the bevels. After installing the sheer clamps and deckbeams, I installed blocking between the deckbeams and on top of the sheer clamps to lock the structure in place. Every piece had a different shape, so rather than risking expensive wood I created a full series of plywood patterns, as shown. The final pieces were cut to the shapes of the patterns but left proud of the deckbeams so they could be planed to their final heights. The decking panels were all dry-fitted so that sections could be removed whenever I needed access, such as when I worked on the interior. Later they were permanently fastened (as described in photo 9), covered with 'glass cloth set in epoxy, and painted with nonskid texture in the next-to-last coat.



Photo 8. The cabin interior was originally designed for two narrow benches, but I preferred to have room to organize and store bags and gear. I built a frame on my shop floor and laminated marine plywood into the curved bulkhead shown here, which is capped with Honduras mahogany. The ceiling planks in way of the cabin were made of Alaska yellow cedar, each one tapered $\frac{1}{4}$ " to compensate for the lesser girth forward and then milled again for a ship-lapped seam, which helped to disguise my mistakes. The sole was also made of Alaska yellow cedar. The round opening visible near the bulkhead on the port side provides access to the through-hull fitting for the bilge pumps. PONYO has an automatic pump and a manual backup. Both were later mounted on the companionway bulkhead. The after end of the maststep is visible at the lower left in this photo (and the forward end at the lower left of Photo 7); it was shaped from one large piece of mahogany that straddled a frame and was epoxied and lag-bolted into the keelson.



Photo 9. After I was completely done with the interior and the cockpit, and after the deckbeams and blocking were finally installed, I ran a bead of thickened epoxy

along each deckbeam and attached the ½"-thick okoume marine plywood deck panels using temporary screws and fender washers to hold them down until the glue cured. Some fairing filler was needed in low spots, and I tended to this after removing the screws. Then I masked off the cockpit coamings and deckhouse sides and sheathed the deck with fiberglass cloth set in epoxy, which overlapped onto the topsides a bit to cover the end-grain of the plywood and reinforce the sheer. For the low-profile deckhouse, I strip-planked the roof with Spanish cedar and chose Dynel cloth instead of fiberglass sheathing because it settles over curved surfaces better. The sheathing overlapped the cabin sides a bit for strength and watertightness. I trimmed and sanded the edges and

applied enough filler coats of epoxy to fill the weave. The deck and coach roof are shown here after two coats of primer paint.

Photo 10. A laser level was helpful for planning the cockpit seats. Once I decided on the heights, the laser let me mark them on both sides and the ends. The first task was to build the shelves behind the seats, and for these I used marine plywood painted with a polyurethane gloss for durability and ease of cleaning. The plans called for each seat to be a single board, but I preferred the aesthetics of several parallel planks. I made a plywood pattern, and once I was fully confident in it, I cut the half-dozen seat planks out of mahogany and rounded their edges with a router. Only a little touch-up planing was needed for the final fit before varnishing.



Photo 11. Here the hull is essentially finished. The cockpit coamings were originally designed to run out on the afterdeck past the end of the cockpit. I changed

that because I preferred the look of an oval coaming aft. The oval coamings, like the deckhouse sides, were laminated from marine plywood. After installing them,



I covered them with a veneer of meranti and trimmed them with Honduras mahogany. All the other trim, including the toerails and the covering boards, is also of mahogany. I patterned the chocks in wood and had them cast at Mystic Foundry in Connecticut. After final-sanding the hull, I applied two coats of epoxy primer and two-part polyurethane paint.

Photo 12. My basement has access to the water but not to a road. We needed to launch PONYO without her ballast keel, tow her to a launching ramp, and then haul her out and load her onto a trailer before we could complete the keel and attach the rudder. We got our hands on a lot of heavy-duty Rhode Island pine and spent two days working during low tides to build a sort-of marine railway from our yard into Narragansett Bay. When we were done, we had a solid trestle that sat in 4' of water at high tide. When we were ready, we put out the word in the neighborhood that we were having a launching party that involved more pizza and beer, and about 30 people showed up, including a few very talented builders with invaluable expertise. We laid down a runway of lofting boards to ease



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rolling the cradle from the shop to the head of the ways and set up tag lines to prevent the boat from escaping. All seemed well.

Photo 13. The structure of the ways had a secure attachment to a strong seawall near land, but beyond that it was built on wide plywood feet sitting on sand and mud. Unfortunately, while we were slowly and carefully setting up for the launching, nature was hell-bent on exposing the design flaws of my ways. The current washed sand from under the trestle, and the structure started to float. Just as PONYO cleared the seawall, the ways suddenly shifted north while PONYO stayed south. She turned sideways and splashed on her side. A friend who was handling the lines on deck took a sudden and precipitous ride into the bay. There was a loud gasp, then silence, and then nervous laughter as we realized that he was safe and the hull was fine except for some scratches.



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Photo 14. In the original plans, the Camden Class has a full keel, but I wanted to modernize the boat below the waterline. David Pedrick of Pedrick Yacht Designs in Newport, Rhode Island, designed new appendages. I was able to use his templates to construct the timber keel, the deadwood, and a mold for the ballast keel. I attached the deadwood to 1,805 lbs of lead, faired the joint, and installed bolts. The ballast keel was united with the hull with the help of wooden boat builder George Zachorne of Wickford. I cannot weld stainless steel, so Moore Brothers Company of Bristol fabricated the rudder.



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Photo 15. For PONYO's first season, I hanked the jib to the forestay, but I found that at 70 years old I had trouble picking up my mooring while wrestling with the jib while it was either luffing or spread all over the foredeck, so this year I plan to switch to roller furling. I had PONYO's spars built at Artisan Boatworks in Rockport, Maine; my judgment was that if I made a mistake on the hull, the worst that would happen is that we would don life jackets, float, and wait to be rescued, but a mistake on the spars could cause a failure that might injure someone.



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Photo 16. I had concerns before sea trials about weather helm, but PONYO's underbody paired so well with the rig that the boat balanced readily. A belowdeck traveler-control system keeps the helm near neutral with very little effort. Although her running backstays are designed for use when the breeze pipes up over 13 knots, I find it easiest to keep them rigged all the time. The gaff rig suggests she is a traditional yacht, but her unseen underbody allows her to be more spirited than anticipated. After almost 60 years of searching for crew to race with, I am enjoying sailing double-handed in friendly classic-yacht races. In 2021, we took her by trailer to Maine for the Camden Classics Cup and then home to Rhode Island for the Herreshoff and Newport classic yacht regattas. This year we plan to add the Eggmoggin Reach Regatta and the Tiedemann Classics Regatta to our roster.

Fifteen years passed from the time I took my first course at WoodenBoat School until I launched PONYO, and the last six of them were spent building her. I did most of the work alone, but I had help and advice from many experienced wooden boat builders in my area, and at crucial times I had help from family and friends, some of whom joined me in taking classes at WoodenBoat School. PONYO was named by my three young granddaughters after an Anime goldfish princess who longs to live out of the sea. The name proved to be completely appropriate for this boat. Below the waterline she is a fish, with graceful fins, and above the waterline she is beautiful.

With her shapely hull, lovely overhangs, and the just-right sheer of a gorgeous gaff-rigged sloop with impeccable lines, she still astounds me. 🏠

Paul Koch is a retired ophthalmologist who started racing sailboats when he was 11 years old. Now he enjoys the slower pace and camaraderie of classic yachting events.