



messing about in **BOATS**

Volume 34 – Number 11

March 2017

Special Features This Issue
Canoeing Scotland's Great Glen Canoe Trail
Journey of the *Tryall* - Bringing It All Home
Nine Logs Picked - Lily 2016 - Launching the Shantyboat
Boats at Beale - A Houseboat That Sails



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29 BURLEY ST., WENHAM, MA 01984 (978) 774-0906

Volume 34 – Number 11
March 2017



US subscription price is \$32 for one year. Canadian / overseas subscription prices are available upon request

Address is 29 Burley St
Wenham, MA 01984-1043
Telephone is 978-774-0906

There is no machine

Editor and Publisher: Bob Hicks
Magazine production: Roberta Freeman
For subscription or circulation inquiries or problems, contact:

Jane Hicks at
maib.office@gmail.com

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Commentary...

Bob Hicks, Editor

How about that square rigged 24 Gun Frigate, *HMS Rose*, on the cover? Susanne Altenburger paid a surprise visit to her in January in San Diego where she is undergoing restoration in anticipation of celebrating her 50th birthday in 2020. See Susanne's report on pages 5-7. Phil Bolger designed her in 1969-70, she is his largest design at 115', 450 tons, 13,000sf of sail and by far his most famous, having starred in the 2003 movie, *Master and Commander*. Susanne discussed her in a June 2016 "Phil Bolger & Friends" feature. Susanne says this was the first time she has seen her in 17-18 years.

While Susanne was wrapping up her feature on *HMS Rose* for this issue, I forwarded to her an advanced look at Tom Hruby's dissertation (see pages 38-41) on his 20 years building and using three electric boats on Puget Sound during which he has resolved most of the shortcomings of the silent power. Those of you who are really into electric powered boating on a more ambitious level than just popping a car battery and a trolling motor into a canoe will find much of interest. Be forewarned, there's lotsa electrical engineering theory, practice and jargon to wade through. To do it right to get an electrical powered boat that will take you somewhere on all day outings or longer is not a simple task.

Tom was prompted to share all his experience and knowhow of electric powered boating with us in response to Susanne's update in the September 2016 issue of Phil's and hers electric launch, Lily. His article in this issue undertakes to offer his detailed suggestions for bringing the now 20-year-old Lily up to today's new technology level in what can be done to electrically power a small boat.

In response to her advanced look at Tom's effort, Susanne immediately came back with her views on what Tom had to offer, her response follows his article on pages 42 and 43. She is still stoked about the prospects of Lily 20 years later and open to new upgrades enabled by lithium ion batteries and 36volt trolling motors. She has included the complete electrical circuit diagram for Lily for those familiar with reading such. In her collaboration with Phil in 1997 designing Lily, Susanne did all the electrical design and complete installation, Phil wanted no part of it.

She is not only a skilled boat designer in her own right but also a competent electrical engineer and all you motorheads will

be impressed to learn about her project overhauling and restoring a big V-8 powered '70s era muscle car, a project now set aside for many years in the face of her ever expanding other commitments.

Since Phil suddenly left us in 2009, Susanne has soldiered on as keeper of Phil's design archives while also moving ahead with her own interpretations of Phil's and hers basic outlook on sensible small boat designs. I am particularly attracted to her series of alternative concepts based on some of Phil's basic hulls such as the Chebacco Boat, Windemere, etc.

She has plans to publish two more books of Phil's as yet unpublished designs. She has carried on the, at times discouraging, campaign initiated by Phil and her to alert her local Gloucester fishing industry to the folly of continuing to use their huge, fuel greedy vessels to fish out an ever shrinking natural resource. She labored on to complete the pilot model of the LCP Landing Craft Personnel for the US Marine Corps which Phil had initiated just before he left us, doing all the major design work and ultimately much of the building of the prototype after the government money went away. Ultimately left with the unfinished boat as settlement for outstanding bills, she has found an owner for it, now Gadabout, as a family shallow water cruiser.

All the while she has continued the monthly "Bolger in Design" column on our pages begun by Phil in the June 1, 1999 issue, and carried on after their marriage and design partnership as "Phil Bolger & Friends on Design" never missing an issue with now over 500 published.

I first met Susanne at a Mystic Small Craft Workshop in the late 1980s. Bob LaVertue (now owner of Springfield Fan Centerboard Co) had been sailing his 1880s racing sailing canoe rail down in strong winds when a young woman approached him asking if she might try it. Since it was a tricky craft to keep on its feet, Bob initially had some doubts but decided, what the heck, she could only dump it in the warm river water at worst. He was hard pressed to get it back for the next two hours as she flew back and forth past the workshop beach, flying low. "I guess she knows what she's doing," he allowed.

Now 35 plus years later all of us who have come to know Susanne Altenburger can agree that, indeed she does "know what she's doing."

On the Cover...

Susanne Altenburger travelled to San Diego in January to view the restoration of Phil Bolger's 24 Gun Frigate, *HMS Rose*, in preparation for its 50th birthday in 2020. She shares some interesting photos with us on pages 5-7 of this complex square rigger Phil designed in 1970 based on a 1752 vessel.



From the Journals of Constant Waterman

By Matthew Goldman
Constantwaterman.com

Well, I have to write something, don't you know? Today I figured would be a good day to go out and wet a paddle. It was crowding 60°, at least at NOAA. It wasn't nearly that on Hopeville Pond, but it was quite mild. I had on my wetsuit and a wooly hat knitted by some thoughtful person in Nepal. I understand the winters can get quite brisk in the Himalayas.

I took my camera, extra gloves, a length of line (I'll explain about this in the next paragraph, don't go away) and a bag of organic trail mix sent to me by my organic son who lives organically in San Francisco. What more could you possibly need save a water bottle, which I forgot, and a two piece double paddle, which I didn't. Fortunately I was out on the water only for an hour. My patient wife was in our van reading her book and hoping I wouldn't drown. Well, I paddled down to the modern dam that spans the Pachaug River in Griswold, Connecticut, and messed about watching a hawk whom I disturbed, and who circled several times while I ineffectually tried to extricate my camera from the bottom of my kit bag.

This is the next paragraph. For those of you not in the know, or maybe, not in the no, a length of line is a handy thing for walking your kayak, or even your canoe, either up or downstream where it isn't practical to paddle it. If you tie a long length of line, maybe 30', between your bow and your stern, you can walk your canoe along the bank. Depending how you hold this bridle, you can guide your boat either with or against the current. To walk upstream, keep the bow away from the bank; downstream, keep the stern away from the bank. This is a handy maneuver when the water is too shallow or stony to allow you to stay inside your boat. If the bank is littered with fallen trees, boulders, ravines, or ravenous beasts, you may have to wade in the water to lead your canoe. If you get your feet wet you can tell your mother it was solely my idea.

I'd actually scouted out this dam yesterday afternoon. I'd driven up Edmund Road 'til I crossed the river. Just across the bridge, on the upstream side, lay a most respectable farmhouse on the river bank with two responsible, elderly canoes basking on the riverbank in the pale sunshine. I parked in the drive, knocked at the door, and explained to the amiable lady there my concerns about the dam, just down river two hundred yards. She called her husband in from the barn and he patiently explained to me the way to portage the dam.

"Why don't you drive down the access road as though you were inspecting the dam, and park up against the barrier? The folks in the yellor house won't give you any trouble." So I did, and, of course, they didn't. I walked down the sward beyond the dam and checked out possible put-ins. This dam is constructed with two separate falls with an earthwork in between. There's a sturdy bridge below the near dam by which one can access the farther dam and the stream proceeding below it. This seemed far friendlier and far less lumpy than the nearer spillway. The two streams merged a few hundred feet down stream. On consideration, I didn't think I could buck the current to return to where I would need to park.

A mile downstream the Pachaug spreads to fill up Ashland Pond. Until a mere century ago, Ashland Pond provided the power for Ashland woolen mill, a concern that employed some 400 souls engaged in producing cloth to clothe our people. Hopeville Mills, Ashland Mills, and Slater Mills below the Ashland dam kept this town productive into the early twentieth century. Ashland Mills and Hopeville Mills have long since burned to the ground. Slater mills now houses a huge flea market. Hopeville Pond is now a state park with a lovely camping area and a pristine beach. You can read about it in *Quiet Water* by Alex Wilsson and John Hayes, a guide for paddle boaters in Connecticut, Massachusetts, and Rhode Island.

Around this part of the world we haven't 100' waterfalls to tempt the daredevil kayakers you may know. We take a leisurely jaunt with our binoculars and our cameras, then stop into local diners and swill coffee and regale one another with our lies. Those of us who can't get a word in edgeways go home and write these stories for magazines.

Matthew Goldman aka Constant Waterman - Author and Illustrator
860-912-5886

To view and purchase my books and cards please visit
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You write to us about...

Activities & Events...

Spring Lecture Series at Whaling Museum

The 2017 Sailors' Series lectures at the New Bedford (Massachusetts) Whaling Museum promise to keep audiences at the edge of their seats as mariners tell their first hand, gripping stories of adventure and travel, from sailboat racing to navigating Iceberg Alley and from exploring the North Atlantic Ocean to America's Great Loop. Themed "Adventures at Sea: Local Mariners Take to the Water," the Sailors' Series runs through April. This 27th annual lecture series is dedicated to sailing and other related maritime topics and supported by the Northeast Maritime Institute Foundation.

March 2: Labrador and Beyond: John N. Garfield, Jr shares his adventures sailing up the rugged coastline, deep fiords, hanging glaciers and drifting ice of Labrador, Canada.

March 23: Once around the North Atlantic: Sail with Victor Pinheiro aboard his Hanse 43', *Maravilha*, from Padanaram Harbor on a 9,000-mile loop around the North Atlantic Ocean, making stops on the islands of Madeira, Gran Canaria, Saint Lucia and Fayal.

April 6: The Great American Loop: Relive the six week journey of Sham and Josh Hunt, who traveled 3,370 miles on their Ray Hunt designed, 26' Black Watch, sailing up and down the country's most well known waterways.

Lectures begin at 7pm with a reception at 6pm. Individual lecture tickets can be

purchased for \$15 for members (\$20 for non members). Series tickets are \$54 for members (\$72 for non members). Series tickets include all four lectures as well as a VIP invitation to a May book launch and lecture for *A Man for all Oceans: Captain Joshua Slocum and the First Solo Voyage Around the World* by Stan Grayson. Go to www.whalingmuseum.org or call (508) 997-0046 for tickets.

Adventures & Experiences...

Enjoyed Bay of Quinte Article

I just wanted to say that I really enjoyed the article by Peter Jepson that was mostly about the Bay of Quinte, although he managed to include many other topics in his writings. I have always had that body of water on my bucket list. I have cruised both the Rideau and Trent-Severn canals and hope to get to steaming on the Bay of Quinte soon. This photo shows my steam launch *Golden Eagle* that I build last winter, steaming on Otter Creek, Vermont, last July.

Kent Lacey, Captain, commanding steam launch *Golden Eagle*, Old Lyme, CT



Paynes Still Building

Still enjoy every issue of *MAIB*. Photo is of our Caledonia Yawl *Kathleen* and a 13.8" Melonseed we built for Ray Bauman from Michigan, taken back in November at Cedar Key.

Rex and Kathie Payne, Spring Hill, FL



Information of Interest...

Leaves and Drain Holes

Mr Depew rang a bell in his column (Lee Rail) in the January issue. I think we've all suffered from leaves blocking drain holes. I found a simple solution, placing a scrub brush over the hole. This keeps the leaves, but not the water, away from the drain hole. I imagine it is possible for leaves to still stop the water from draining but it has never happened in my experience.

John S. Smith, Hamilton, NJ



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Dan's Adventure Cruise #3

May 6-7, 2017

"Take Mom Sailing"

By Dan Rogers

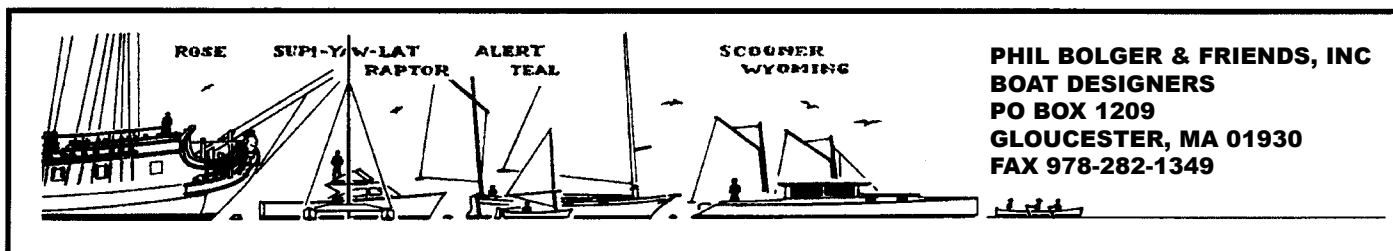
The May event will be back to the rustic format. This time we will base out of Buttonhook Bay in the extreme southwest corner of immense Lake Pend Oreille, Idaho.

There is an extensive dock set up in this completely sheltered and landlocked bay. There is also a great deal of prime anchoring opportunity in moderate depths with good holding.

Our launch point will be about a mile up the lake to the east. This time there are no restaurants, stores or really any civilization at all. Not hard to get to and it's easy to find. This is the week prior to Mothers' Day. Still, this early in the season we just might have the place all to ourselves.

Sailing inside the bay can be delightful. Out on the lake can be quite spectacular. Let's take Mom sailing!





PHIL BOLGER & FRIENDS, INC
BOAT DESIGNERS
PO BOX 1209
GLOUCESTER, MA 01930
FAX 978-282-1349

Phil Bolger & Friends on Design

Design Column #509: Eye Candy of the 20 Gun Frigate *HMS Rose* of 1752/1970

Plus a Few Glimpses of Types from 1945 (CV-41), 1992 (LHD-2), 2009 (DDG 106) and 2016 (DDG-1000)

Over 260 Years of Naval Design All on One San Diego Waterfront

This came together rather suddenly and before I knew it I had travelled 2,600 miles from mid January northeast winter weather to far southwest balminess, with palm trees at the airport to prove the point. Because of its favorable weather San Diego must be one of the more attractive Naval postings, with Marines just an hour north at Camp Pendleton, just by itself the size of Rhode Island and with its own mostly rotary wing airfield, then their Air Station Miramar with the Marines' own airforce from four prop transports to Mach-2 fighters and, of course, North Island Naval Air Station Halsey Field right across from downtown. Lots of flat, straight and long concrete and tarmac. And seemingly never a moment without a rotor/propeller/turbine blade laying down a background soundtrack.

Ardent peaceniks attempting to sit down in a city park or on a beach to listen to nature may be driven to unbridled aggression by the steady training, testing and, of course, regular air commerce. Ironically, amidst all this remarkable civil engineering of runways this way and that, the San Diego International Airport has only one runway, making chang-

ing wind direction with, on occasion, a 40 knot crosswind (at 80° to the passenger jet taking off) exciting and just skirting the edge of FAA regulations. But driving there was out of the question.

After serious work I lucked out between two heavy rain/wind storm fronts and caught drying off streets, people, boats and ships with enough sunlight between the racing clouds to capture these pictures and many more.

Of course, visiting Phil's *HMS Rose* is to be counted as work as well after not seeing her for well over 17-18 years it seems. Back then she had dropped anchor in Gloucester's outer harbor and we had taken Design #518 *Shivaree* to see her. We were even allowed aboard to see her up close. Alas, beyond taking Phil's word for his connection to her, nobody of her skeleton crew left aboard knew who Bolger was. One could sharply quip, "why come to Gloucester then?" but that might sound almost self centered.

At any rate, the folks at the Maritime Museum of San Diego knew who Phil was, had time to meet with me at short notice and outlined a significant structural and cosmetic

refreshment effort of her for the near future. The intention is to be able to sail her again with full canvas as she heads for her 50th birthday in 2020. They keep several hundred volunteers fit and able to man a square rigger smaller and bigger than her, such as even the 1,200-ton three masted iron ship *Star of India* next to her, built over 150 years ago. It would take more of it by weight over steel to get the structure wanted and thus lose some carrying capacity, but the right kind of iron can make for a very durable hull indeed. Good thing for *Rose* that trees keep growing to swap dubious pieces out of her.

As those with stellar memory will recall, *MAIB* Vol 26 No 4 of August 2008 had featured Phil's most recent discussion of how the Project *HMS Rose* had emerged for him starting in January of 1969 and how, in collaboration with the owner, he drew her to more modern safety, ergonomic and economic parameters while retaining her traditional silhouette and construction method of her time of design, construction and launch in 1752. Forty-eight years after January '69, I was aboard her this January '17 to study her with the camera in her range of geometries reflecting naval thinking of indeed 260+ years ago.

Beyond our feasting on *Rose*, whether on a map, or courtesy of satellite photography-based Google Earth at home or at the public library, one can see how closely together the ships in these photos are. Rich pickings for boat and ship freaks. Lots of folks, messing about on just about every conceivable scale to any conceivable (and black) budget in just about every type of boat/ship/sub and more. The Maritime Museum by itself is a treat already. *USS Midway* would take a fair bit of time. And even the most advanced 21st century grey ships can have visiting hours.

However, unlike those steps up *Rose's* tumblehome midsection though, I am not sure how we'd get up the tumblehome sides of DDG-1000, permission granted or not?!

The ship's original name *HMS Rose* still on her ship's bell, with *Surprise* just a stage name.



Phil's Design #225 *HMS Rose* on January 19, 2017 at the Maritime Museum of San Diego.



The standing rigging to keep fore and mainmasts standing, a complex system of tendons and bones.



In the late '90s we had come alongside here with our 16' *Shivaree*, asked for permission to come aboard and took those steps up.



Stepping aboard over her portside, facing aft over central capstan, helm and stern.



Towards the bow, with the lower end of her foremast, standing and running rigging, lots of lines, all human powered, here on deck, with more high aloft in scary places.

My nautical lingo evades me on the right term, but today we'd refer to it as the cat head from whence the anchor is suspended in storage. As Phil pointed out, an anchor not as heavy and of period correct geometry she would have had.

From the base of her foremast towards the upper half of her mainmast and back just capturing her mizzenmast. Lots of details a modeler would be happy to go nuts with.

The all wooden bowsprit assembly, no steel sticks here.





Three square yards on her foremast.



Yes, that is a weld, she carries steel lower masts.



Same seas in 1752 as now, but a very different approach to designing bows.

Down on her gundeck which, in the original, would have been with a higher sole at gun carriage level and with no spardeck overhead. Here these changes are to allow a 90° knockdown, gunports closed tight without losing her suddenly.



Steel pipe core and a fiberglass mask to look like a nine pounder for the movie, but aging ungracefully.



Her hawsehole, here with what seems a modest anchor chain, usually powered by the central capstan.



The captain's quarters, with Aubrey's violin and other personal effects according to Patrick O'Brien's narrative.



That lower deck level with untypically generous headroom to allow possible conversion of her to a restaurant, so the bank insisted. Notice the live animal cages for fresh non vegan protein. In profile though HMS Rose retains her original sheerline and silhouette.



CV-41 *USS Midway*, a WWII designed aircraft carrier, the 41st carrier of the US Navy, eventually growing to 64,000 tons, in service for 47 years, now a museum with jets, helos, etc.



LHD-2 *USS Essex*, one of the eight ship Wasp Class, at 40,000 tons carrying US Marine Corps helos and jump jets with a well deck below the hangar deck to carry landing craft hauling USMC 70ton tanks etc.

State of the art stealth destroyer 14,500 ton DDG *USS Zumwalt*, with 9,500 ton DDG 106 *USS Stockdale* to her left and 26,000 ton LPD-23 *USS Anchorage* on her right.





To win the battle we must overcome the elements. The real Loch Ness Monster is the fog, rain, and wind which frequently creates havoc for canoeists.

Canoeing Scotland's Great Glen Canoe Trail

The Loch Ness Monster Mystery Unraveled

By Richard E. Winslow II

This article is dedicated to the memory of Alexander Mackenzie (1764-1820), the pioneering Scottish explorer who canoed throughout the Canadian Arctic. Paying homage to his spirit, I made a pilgrimage to his grave in a churchyard cemetery in Avoch, Scotland, overlooking Moray Firth.

"Dick, are you up for this trip?" asked Jon, the amiable van driver of the Boots N Paddles outfitter of Inverness, Scotland. Jon was helping me unload my gear at our put in on the Caledonian Canal, a 60-mile waterway between Fort William and Inverness across the breadth of Scotland.

"I certainly hope I am," I said. "I've come thousands of miles and spent thousands of dollars to join this expedition." From the moment I had first set foot on Scottish soil a few days earlier, I was gripped with rising excitement about this forthcoming trip. It was mid September 2016 with a tinge of autumn chill in the air.

Our party was seven strong, all men, consisting of Dan, the Scottish guide, and six guests, including five Englishmen (Julian, brothers Paul and Steve, Ray and Stephen) along with myself, an American. Ahead of us was a five day, four night watery passageway through Scotland.

Dan was the right guide for the trip, having been a veteran of earlier Great Glen expeditions. He was in his 30s, his long hair in a bun, and was possessed with a wonderful carefree "what, me worry?" approach to life. During winters he is a ski instructor in the Swiss Alps, close to Zermatt near the Matterhorn. He had climbed Ben Nevis, a nearby mountain. I felt safe knowing that Dan would be my stern man in the canoe.

Satori found! If canoeing can be considered a religion, guide Dan, always happy and cheerful, has found salvation.



The five Englishmen were likewise all middle aged, strong, cheerful and buoyed at times with Scotland's national drink, "the water of life," as whisky is called throughout the land.

I was the old timer on the trip and on my first canoeing trip in this great island nation. Being a historian, I was happy to be in a country which had produced so many canoeing greats, among them Alexander Mackenzie, Sir John Franklin, Sir John Richardson, John Rae, David Thompson, George Back, Samuel Hearne, John Muir and John MacGregor. As explorers, sportsmen, writers and naturalists, these men had advanced, promoted and publicized the use of canoes. Their names are forever linked with the exploration of the Canadian Arctic and Alaska.

Our party was proudly carrying on the traditions these legendary pioneers had established years before. Along with Dan, the Englishmen were all exceptional paddlers. Stephen, in fact, was exceptionally strong with a brute strength for any task. He had been a rugby player in his youth. Dan and I were paired in the first canoe, Steve and Paul in the second, with Stephen and Ray in the third. Julian paddled solo in his kayak.

I sought to familiarize myself with some new to me brands of equipment. Our canoes carried the Venture label name, an English boat firm with 40 years of building experience. To me, the craft looked like a close replica of an Old Town canoe. The kayak was also of Venture manufacture. All handled beautifully. Our tents were Vango Banshee 200 models with flysheet and ground cloth interior layers, again made in England. The tents afforded plenty of room and never leaked despite frequent rain.

Our route would follow the Caledonian Canal, connecting four lochs or lakes, with 29 locks, four aqueducts and ten bridges along the way. This passageway had been naturally created millions of years ago by the presence of the Great Glen, a geological fault in the earth's crust. The Canal, linking the lakes, was built between 1803 and 1822, a magnificent engineering feat for its day.

On April 30, 2002, Prince Andrew, Earl of Inverness (one of the Prince's given titles), officially opened the Great Glen Way which was originally for hikers, mountain bikers and horseback riders. Less than a decade later, on March 23, 2012, the Great Glen Canoe Trail was officially added to this recreational route. Even before this date, an esti-

mated 2,500 canoeists were already using the waterway annually. With this royal blessing I knew I was in good hands, backed to the hilt by the British Crown.

So much for geography, geology, history and ceremony, we were off on Loch Lochy! It was late morning with relatively calm water and overcast skies. "Where's Ben Nevis?" I asked.

"It's in the clouds," Dan answered as he pointed south. I saw a long gray black base of a mountain range and a few lesser peaks in profile, but the summit ridge was lopped off in a layer of mist. "The Ben," as the locals call it, is 4,413' high, the highest in the United Kingdom. Some 100,000 people annually attempt to climb the mountain. I doubted very few were on the trails today with such pea soup fog visibility and no view whatsoever if they ever summited. As a local saying goes, "If you can see Ben Nevis, it is going to rain. If you can't see Ben Nevis, it is raining."

I was pleasantly surprised with the overall rural setting as we paddled north, just a few houses here and there along the bank and back in the coves. The shore was generally forested. Our party encountered very few motorized barges, sailboats and yachts in this less populated section of the trail during the off season time of year.

At our first campsite in a forest, without signs or facilities ("wild camping" as it is known in Scotland), Dan and his friends pitched a huge teepee shaped tent with spacious room for a kitchen and dining area with canvas fold chairs. After supper the boys celebrated the auspicious beginning of the expedition with the water of life.

Come on in for friendship and hospitality! The peaked teepee tent served as our headquarters at campsites for food, drink, shelter and conversation.



A heavy rain fell all night. The next morning Stephen took a quick dip, chilly but not cold. My excuse for not joining him was that I had left my swimming trunks at home, deliberately on purpose.

The second day also went easily, no wind and with minor boat traffic. We pitched our tents in a designated campsite on Loch Oich on a large field all to ourselves. Down a hill, in a grove of trees, we met up with a solo kayaker, an athletic man in his 30s. He was roughing it with a plastic fly tied to the limbs for shelter. Our newfound friend was planning on paddling the entire length of Loch Ness.

By noontime on the third day we arrived at Laggan Lock. The Scottish flag, a white crossbar on a sky blue background, was on a tall pole, fluttering in the breeze.



The symbol of Scotland flutters free in the wind. The white and blue Scottish national flag, also known as St Andrew's Cross, flies at full staff at almost every lock along the canal.

Every lock meant an automatic portage. After mounting a set of wheels under the canoes, we rolled them in two shifts to the put in on the hand dug straight as an arrow Canal.



The invention of the wheel makes portaging a lot easier. Mounting the canoes, loaded with gear, on rollers, speeds up the misery of portaging, as well as eliminating thrown out backs and sore muscles.

We ambled back for an unexpected treat. Tied up and anchored to a dock was a derelict looking barge boat, the *Eagle*, now enjoying its second career as a pub and restaurant. Once on board, I descended down the stairs into the boat's cuddy and turned hard right to enter the bar. A bartender was on duty. The scene looked as if it were a movie set out of an Ernest Hemingway or Jack London tale with Errol Flynn, Humphrey Bogart and Jack Kerouac expected to arrive momentarily. Among the many photos, paintings and posters on the wall, along with a clutter of



Even a skeleton key cannot open this lock. The locks on the Caledonian Canal, every time we approached them, necessitated portages for our canoes and kayak.

memorabilia, I noticed a photo of Admiral Richard E. Byrd of polar flight and Antarctica solo residency fame, posing with some local celebrities in 1930.



The derelict barge *Eagle*, now a pub afloat, is a gathering place at Laggan Lock. Scottish canoeing trips frequently provide such convenient stop by amenities rarely, if ever, encountered on American or Canadian expeditions.

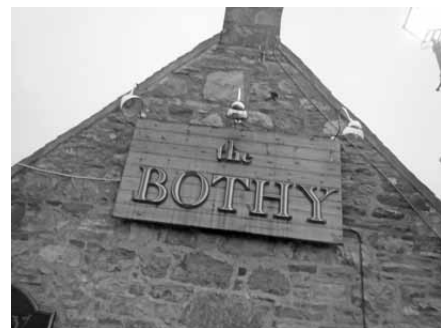
Our party lunched on deck with our own prepared sandwiches, washed down with pints of ale the boys had brought up from the bar. A Scottish lassie served other guests at nearby tables. The *Eagle* generated an atmosphere that something momentous was about to happen in one's life, perhaps encountering someone in a chance meeting which would completely change our future. Who knows, we might even be shanghaied.

By late afternoon we arrived at the town of Fort Augustus at the southern end of Loch Ness. The place is a tourist oriented community in the best sense of the word, yachts, restaurants, inns and souvenir shops along both sides of the canal. "We can't push on with this wind," Dan said, "so we'll stop here." We had found our home for the night at a municipal campground. Otherwise, given ideal conditions, we might have paddled up the loch for a few miles and found a campsite there.



For resupply of food, drink, equipment and rest, the town of Fort Augustus at the southern end of Loch Ness, roughly halfway through the trip, is a popular layover haven.

Perhaps the wind actually worked in our favor as we were now free to enjoy a night on the town. We strolled back and entered "The Bothy," a pub and restaurant located just before the bridge over the canal. "Bothy" was a new word to me, a Scottish word. "It means a hut or lean to shelter," Dan explained. The pub was just like that, packed to the hilt with every seat taken. Some people stood. Two tattooed and bearded bartenders hustled non-stop in a brave effort to keep up with a frenzy of orders.



Canoeists, after a hard day's work, head for the pub. The bar scene at Bothy pub in Fort Augustus is lively.

So much for revelry and a good time. We broke camp at 7am the next day for the long day's paddle ahead on Loch Ness, the most arduous of the expedition, some 23 miles up the lake. At the put in the boys affixed cross-over poles, lashed down the ropes and tightened straps to convert two canoes into a catamaran, a much safer craft in rough water. The six canoes thus evolved into three catamarans while Justin would remain in his single kayak.

The loch stretched north to an infinite void, a gray blur of fog at the far end. The mountain ridges along the loch were hidden in mist. The one consolation was that

we would not be paddling in broiling sun and extreme heat, just as marathon runners greatly prefer overcast cool days, otherwise being subject to sunstroke.



Safety first, daredevilry last. For the 23-mile paddle up Loch Ness, converting the canoes into catamarans for safety was a wise decision.

I was elated just to be there, no matter what the weather conditions might be, knowing I would soon embark upon one of the most famous lakes in the world, famous along with North America's Great Lakes, South America's Lake Titicaca, Asia's Lake Baikal and Africa's Lake Victoria. With so much at stake we all ignored any flippant excuse to delay. There was a very slight ruffled headwind, nothing serious, so only a hurricane could stop us. We launched.

"We'll hug the right shoreline for calmer water," Dan said, "and stay close together for safety. We'll avoid all the motorboats coming down the center." Only a fool would attempt going up the middle of the lake, now a mile or more across, widening at times to three. Our strategy worked well. Fifteen minutes into our excursion we spotted our kayaker friend's camp on a pull off the loch at once emergency site. When we encountered him again later on, he related his ordeal the previous afternoon to save himself. "The wind was brutal," he said, "and I had to get off the water as soon as possible."

Our catamarans handled well, save for one handicap. These locked together canoes, without any space in the middle for alternating one's stroke, meant each man was committed to paddle constantly on one side. Unable to switch, we felt minor tightness on one over exercised shoulder instead of being able to distribute the soreness equally to the other.

Our buffet lunch on shore was most leisurely without any sense of a press of time. The boys resorted to acting like little kids, flipping flat stones across the water in three or four skips to determine the winner of the Loch Ness Olympic Championship.



Once back on the water I wondered if the Loch Ness Monster might soon be vigorously shaking his tail to create waves rolling back to thwart our progress. But any potential wake from his wagging tail never materialized.

"Back in the 1930s," Dan explained, "some guys in a local pub began talking about expanding tourism. They wanted more visitors to make money. So they concocted and publicized a story about a sea monster who lived here, his ancestors being trapped when an arm of land locked off the ocean." Dan's story was as good as any of the many I had heard or read. The monster, the photographs and the sightings are all myth or hoax. This fabrication, ridiculous as it is, nevertheless has achieved its purpose by attracting more visitors. Dan himself was well pleased with the spread of these wild stories and fanfare as it has aided the guiding profession. "People come here and want to paddle the loch, day trippers who can then say they have been on the water. My bread and butter trips are two hour paddles. I much prefer and enjoy these five day trips."

Dan was forthright relating to more truthful history. "At the Battle of Culloden in April 1746, the Scots were soundly defeated by the English. The Scottish bid for independence was dashed," he said. "British soldiers then scoured the nearby ridges and lakeshore to kill the few Scots who were able to escape."

Before the expedition I had toured the Culloden battlefield a few miles east of Inverness. I compare this terrible slaughter to Pickett's Charge at Gettysburg in the American Civil War. In the aftermath of the Battle of Culloden the British pursuers hunted down the hapless survivors fleeing for their lives and shot them like rabbits. Today, 270 years later, the scene was so peaceful and restful to the eyes that it was difficult to imagine such violence had once afflicted this beautiful land.



Solving the energy crisis, we let the wind give us a free ride. A welcome tailwind lifts our morale and prompts the raising of sails to propel our catamarans.

Ahead was a long curve of a sandy beach, a perfect landing site without boulders or driftwood clogging the approach. We beached. The 23-mile run was over. I was very happy. The catamarans had most successfully served their purpose, whereupon the boys quickly dismantled them on the high beach. These three makeshift boats now reverted back to six canoes, ready for the last day's paddle the next morning. Our wild camp area was in a deep forest so vast it could easily accommodate 50 tents with spacious privacy. Dinner was in camp. We were tired. None of us felt the urge to walk along the beach to a village pub two miles away. We slept well.



As Napoleon once said, "An army travels on its stomach." Canoeists readily agree with this axiom as ample food is essential to any successful expedition.



The mountains rising up as long ridges beside the lakes appear so peaceful and restful. This same scene, however, was rocked with violence during the aftermath of the Battle of Culloden 270 years ago.

By late afternoon the skies were rapidly clearing with the sun poking through the clouds. We could see the end of the loch and Urquhart Castle came into sight. We were on the homestretch to victory. A slight tailwind began blowing. "Raise the sails," Dan exclaimed. Each of us was perfectly willing to let the wind do the work. The bow seat crewmembers dropped their paddles and held up poles with attached spread out canvas to pick up the wind. We were sailors now, the increasingly stiff wind pushing the catamarans ahead. Those in the stern continued paddling.

The next morning dawn was bright and sunny as the waves rolled toward the beach. Back in our boats, we headed around a point to leave the lake, with the connecting canal well marked with a lighthouse. As we approached Inverness, the locks were busy with numerous craft, especially excursion boats. All too soon we docked at Muirtown, an industrial section of Inverness with commercial buildings lining the canal, parking lots and noisy traffic on a major highway. The trip was over. Everyone promised to keep in touch, and to return next year for another trip.



Just like a mini Panama Canal without the tolls. Lighthouses on the Caledonian Canal provide directional aid for a safe journey along the 60-mile passageway.



The tribulations of civilization are left far behind as our party of free sportsmen is only concerned with the next headwind or portage.

During our five days together Dan and I often mused about future expeditions. "I want to paddle the River Spey," I said. I was intrigued with this whitewater river racing down from the Scottish Highlands to the North Sea, usually a three to four day paddle. The local people and the tourist brochures call the Spey "the Whisky River" as many distilleries line its banks. Most canoeing outfitters invariably schedule a stop to visit one of them, a commercial tour with on the spot sampling. Who knows, perhaps some people look upon the trip as a mere sideshow and are more interested in the free samples!

"The Spey is a completely different paddle compared to the Great Glen," Dan said. "There are Class Three rapids, requiring great skill."

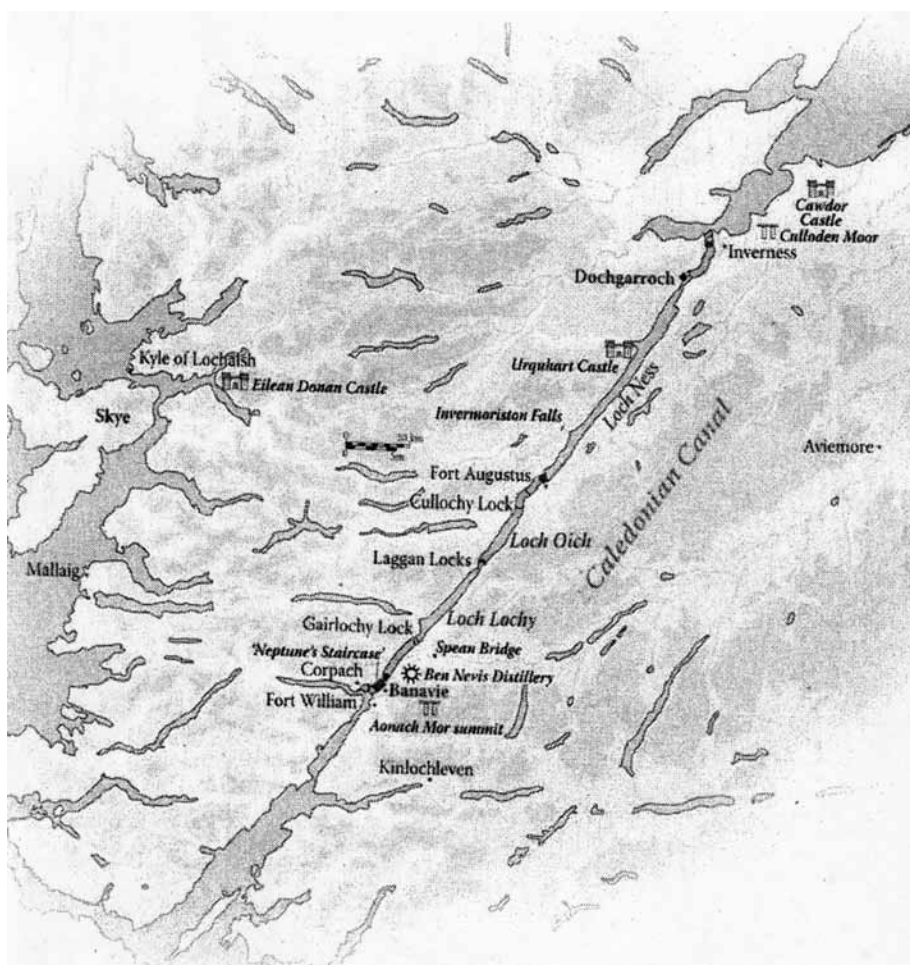
"I would jump out and walk alongside," I said. I did not want to lose out on this great opportunity, even if it might take a little of my pride.

"There is a mellow section toward the end, with many bends," Dan said, "as the river slows down and levels off to flat water on the coastal plain. That is my favorite stretch." We made a gentleman's agreement that we would go paddling next year. No canoeist can ever savor enough of Scotland's lakes and rivers.

Practical Information

The Great Glen Canoe Trail is an excellent trip for all classes of canoeists. Prudent beginners with common sense should have but limited difficulty, given the fact that it is basically a flat water trip. The Trail is well marked with signs and maps at the locks and at most camping areas. A party ready to buck if need be, portages, stiff wind and rain, should be able to navigate and to enjoy this well traveled route. For Guide Service, contact:

Boots N Paddles
14 Cabrich (office only)
Inverness Highland, Scotland
IV5 7PH United Kingdom
Tel: +44 (0) 333-660-6008



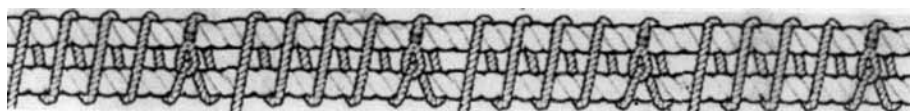
Barge Cruises in Scotland

Editor Comments: Barges also do the trail with this come on to potential customers:

"For a magical barge cruise, Scotland is hard to surpass. We cruise sedately through the Great Glen between Inverness and Fort William, navigating beautiful lochs and the scenic, absorbing Caledonian Canal. Ancient castles perched on the water's edge, heather clad hillsides and arguably the finest inland cruising in the world offer our clients unforgettable experiences on a handpicked barge cruise. Scotland's legends of the past, the taste of single malt and the mythical inhabitant of Loch Ness all contribute to a special magic only experienced in the dramatic Highlands."



Excursion boats, commercial vessels, yachts and sailboats ply the waters of the Caledonian Canal, a working waterway for 174 years and paid for many times over.



Moving On

Although I really like the Hurley Silhouette, all 17'3" of her, I must let her go. This little jewel, and I do mean jewel, is a really good pocket cruiser. Twin keel, built in England about a half century ago, she's set to go. Drawing a mere 25" for the thin water here along the Texas coast where I like to sail, she may be a bit too deep. Out in California she would do fine. Down Panama way she'd fit right in, the Sea of Cortez would be right up her alley. Inside she's fitted out with nooks and crannies, plenty of storage with shut tight doors, P&S book shields, sitting head room. Nice berth. The usual anchor locker up under the bow, she's built strong, very strong.

When I got her she needed some repairs and now that's done there's nothing to do but sail her, and I have. One thing or two I'd add, a cockpit tent of some sort and a built in strong backrest across the aft end of the cockpit directly aft of the traveler. A simple job really and for old backs it would do wonders for comfort.

I'll be keeping three after the Silhouette goes. It was a toss up, her or Paradox #2, the second one I built. After finishing the hard top on the Paradox, making great headway on a roll top canvas in lieu of the sliding hard top and spending more time on her, including overnighing in thin water, the thin water won out over the Silhouette.

One of the other two keepers will be the revamped Lightning. She will be sporting a cabin after all, with leeboards, the centerboard and trunk are now gone. A reduced rig will also be used. Soon I'll be doing a self righting test with a model I made of her.

I did the test on a model of the *Summer Breeze*, which was promising. I added small pieces of lead to sink her to her waterline, secured the lead, filled the sink and watched the little *Summer Breeze* model flip right side up time after time. Scientific? Not hardly! Near enough? I hope so. Promising, yes sir!

With the cabin top on the Lightning model I'm pretty sure she'll do the same. What's promising about this Lightning deal is its resemblance to a bigger Paradox. On the Paradox builders' site there's given a single page instruction of blowing up the Paradox by 12% if memory serves me well. Doing such will give the builder a stretched version of 16'6". The designer even has a 21' look alike, on paper anyway.

How will this Lightning sail, leeboards and all? In a few months I'm hoping to find out. Then I'll be able to uncross my fingers. Meanwhile the full size *Summer Breeze* is about ready for the water. I bent on the sail yesterday, set the rudder blade, as soon as I fit the leeboards and secure a tiller it will be time for the splash. I was hoping for this past week, now I'm hoping for next year. 'Tis New Years Eve.



Meanderings Along the Texas Coast

By Michael Beebe

Hard Top Lightning

Well, I went ahead and did it, I added a hard top on the old Lightning. Removed the centerboard and trunk a few weeks ago, going to be adding leeboards. The inside berth top is now 4'7" wide by a bit over 6' long, can be more if so desired. The top will be lifting, giving that needed height for comfortable seating inside out of the weather. The open cockpit will have a small footwell with a self draining outflow gizmo. The rig can, and will, be interchangeable from the original sloop to lug to junk to junk and jib as per the Great Pelican. Four rigs to play around with to my heart's content.

There's no turning back now, the damage has already been done. The Pelican sail is about already done, I've been given a good set of sails, sloop rig, which the main's foot will have to be raised a foot or so. I can even throw on a cat ketch or cat yawl. With the leeboards being adjustable fore and aft, and mast placement as well, figuring the balance should keep me busy as can be.

The whole reason for this mish mash is actually my wife's fault, she suggested I start with a boat hull as near as what I was trying to do and save some work. Well, I have to buy that gal some flowers and a dinner out for such encouragement. How can I go wrong?

Another aspect of this Lightning is that, while doing research on the net, I've found today's recommendations are for a crew of two when racing or maybe four or five day sailing. Well, searching further and reading the advertisements from 1938, those fellows were saying up to ten day sailing. I'm not planning on ever going with near that many but what I saw between the lines was the carrying capabilities, weight wise, of ten bodies. That makes for an easy payload of 1250lbs.

That's cruising the Texas coast non stop for a month for two. That whole month of maintaining house goes into the pocket. Turn out the lights in the spring, turn 'em back on in the fall. All doable. Of course, just who am I fooling to think the wife would go for such an idea, but one never knows so might as well be ready if she changes her mind.

Reading books as I do so often, this Lightning should be able to go places where time is the only hold back, other than a whole slew of other things that could go wrong but let's not go there.



Angels...

Angels watching over me. I'll share with you just three, no make that four experiences in which I should have left behind some body parts. I would make a good OSHA example of what not to do. The first mentions goes back to my very early 20s, maybe 22 at the time. On the big island of Hawaii working construction we were felling some small trees to build horse stalls, I think it was. Carelessness got the better of me, that and plenty of non experience. Well, the chainsaw got a mite too close to my leg, up around the pockets area. Ouch. It happened so fast I could not say how it happened. The chain, running mind you, caught my Levi's just at the right pocket cutting through the outer layer and both layers of pocket to just kiss the thigh leaving a reminder to ponder the rest of my life. A scar, yes, but no stitches. I think I was done chainsawing for the day.

Years later, while nailing off joist hangers 25' up, the plank I'm standing on starts to go. Letting go the hammer and nails I step off the plank to the cross braces, saying "thank you, Jesus," while the falling plank hits the one below it and crashes to the ground. I hollered for the helper to get me up another plank. By this time he was kind of excited and going in several directions at the same time. That Saturday a couple came by to visit, and during the visit says they heard I almost died. When was this, my wife wanted to know. I hadn't even told her.

After retiring, with still all my digits on both hands, I almost donated my left thumb to the cause. I guess other things were on my mind and a new table saw don't help matters much. The working conditions were not ideal to begin with, no excuses though. I was ripping wood on the table saw and for some reason wasn't using a push stick. Yep! Left thumb pointing down to the table top. Dead center through the blade.

Bummer! Linda's in town, both neighbors I saw left early that morning and weren't back yet. Gonna have to drive myself. A stiff one ton dually, a mile plus of a rough dirt rutted road to the pavement, then 12 miles into town. It was a slow go. I stopped by a friends briefly looking for my wife. At the ER, the nurse said have a seat, then asked to see. "Oh!" She says, "Follow me." No waiting. It didn't look so good. A retired fire captain told me it'd be a year before I could use it again. It was.

This last honorable mention I seemed to stop short of open heart surgery. The picture shows the slice in my pullover at my left breast. A friend in the area stopped by a few months back with his thumb in a bad way. Said he was changing the line on a weed eater with the bugger still plugged in and he stepped on the trigger. Sliced it right open. Chills up the spine.

Well, this morning the angle grinder needed to be switched over from a grinding to a metal cutting blade, one of those thin carborundum blades. It was cradled in my left arm as I plugged it in. Zing! That was quick! It was cold this morning or I would not be typing this just yet. I don't like to write about this stuff, but to think I'm exempt from the foolishness of life, or to act like it never happens, is worse. I'm reminded of my realizing years ago I may be doing stupid things from time to time and, while they're new to me, I've got no corner on the market, it's been done before. Welcome to humanity.



First Date

Took her out the other day, first time with the little *Summer Breeze*. She wasn't quite ready last October or I would have introduced her to some friends there at the Port Aransas plyWooden boat show. She was placed on hold while the Paradox took her place. She lingered, my fault. All my fault actually. Her slowness of build was my procrastination. But now she was splashed a few days ago, just before this 25° weather settled down upon us. In just a day or so the warmth will be back and we will go again. She behaved nicely, lifted up her skirts she did, and scooted right along in the light airs. A few places the buildings and or parked tugs create small wind canyons is the best I can explain it.

Over in Ventura Harbour in California the summer afternoon breeze, when we were coming in to the guest dock, at times seemed to increase by about four or five knots just when we didn't want it to, coming in over the port quarter with the dock to starboard. The solution was to shoot past our desired tie up, come about and come into the dock with the wind now over the starboard bow, allowing an easy drop of the mainsail.

Well, that's the kind of wind I had on this first date. Fickle at times, then depending on the relationship of buildings and such, we got to see a bit of speed. Very promising. She's light and, although she's no Fox, she'll be dancing to her own music. Her leeboards worked fine and I'll be adding a secondary line up forward to help with setting them, port and starboard. The tiller I may switch over to a half yoke, push pull type of thing, with a long tiller that'll put me mid ships. I do believe she'll need some drinking water up forward, maybe 60+lbs, unless, of course, there's another vying for her attention as well, along for the ride.

I've already done most of the Texas 200 in her, if only in my mind. Oh the plans, the plans, or dreams as some may call them. She's decked over up forward and has a small enclosed after deck with flotation as well, both to be used as storage. The pictures show what seems to be her self steering in the light airs and I guess she is. I think, though, she was headed for the beach. She'll be a fun little boat. She can carry three times what a back packer could, so she'll also be earning her keep.

I've a niece coming to sail this coast with me in a couple months, I'll make the

introductions, I'm sure they'll get along fine. The niece is crew on big boat racing up in the Seattle area. I'm liable to ruin her with these small boats of mine. She'll never look at a micro cruiser the same. After all, that's what the *Summer Breeze* is, all 11'8" of her. Can you imagine two of these in the next Texas 200? Why there'd be a real danger of the two of them just sailing on east, never mind turning left at Port O'Conner. Call the wife, will ya. Pick us up in Florida.

Fire Ants

I can't figure out why they bite. I asked my Linda, "Why don't they go pick on someone their own size?" And so it begins. The fire ant saga. Here in Texas we are blessed with the little buggers. Blessed because that's the way it is here.

I'm coming to find out, however so slowly, the many facets of life on the coast. They have a yearly June small sailboat get together that runs from the border town of Port Isabel which, although it is not right on the Mexican border, it's close enough, the come one, come all group leaves Port Isabel and heads north to Magnolia Beach, about five days of sunburn and sleepless nights. About January it becomes fun. And just like the fire ants it'll bite good and leave its mark. A good number never make it to the other end. The Texas heat is another obstacle, that coupled with the high humidity and relentless wind, blowing a mite hard at times.

There's sharks in the bays, swimming cottonmouth snakes and a few alligators thrown in for good measure. Oh! Then there are the rays with stinging barbs on their tails that'll send one to the hospital. Oysters there as well in the shallows, waiting to cut our feet when we get out of our boat to push off the groundings without our shoes.

Welcome to Texas! Don't forget sunblock, as well as Deet mosquito spray. The blackflies, yeah, they're here as well and they bite. Also, don't forget a good repair kit for the sailboat. There are no Home Depots, Lowes, 7-11s nor ice. If we lose our sunglasses, hopefully we brought a couple of extra pairs.

You're beginning to see why fire ants are really a blessing. Those pesky buggers in the backyard are easy to deal with. But why would anybody in their right mind want to sail a small boats along the coast of Texas with all the above mentioned available waiting. Don't forget the jellyfish, they're part of the mix as well. But come on down any time, we'll go sailing, it'll be fun.

Hay There Girl

Hay there girl, so tell me, how much experience do you have sailing? I ask because today I was thinking about you. I sailed my newly built 11'8" flatiron type of skiff. It sports a lugsail, leeboards, a double reef main if need be. And it can be a handful. It can also go into the shallows and be a very wet ride and will dump its occupants into the bay without a second thought.

Dinghies like this are good sailers and good trainers as well. Reason being, everything happens so fast, kind of like a skateboard without the gravel, a motorcycle on ice. I've a 19' Lightning that I've been reworking, I'm hoping it will be ready, no promises on that. I tore out the centerboard and trunk and converted it to leeboards. Sloop to a junk rig with

a jib. The sail, I'm almost done sewing, it's a good chance she'll be ready for the dance.

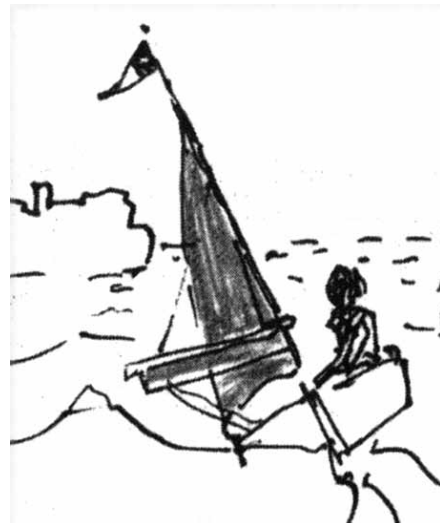
What's nice about the Lightning is her shallow water ability. She'll scoot along in water the egrets walk in. She will teach me a thing or two. So tell me, niece, what should I have ready and raring to go?

I've also a Hurly Silhouette, a real pocket cruiser, all 17'3" of her. She has a small cabin, warm and cozy, a bit more subdued than the other two. She draws 25" with twin keels. Sloop rigged, boom furling. A very good boat. One which might surprise you, she can travel the world on her own two feet if the captain is up to it, she's that strong. Carries enough stores and is small enough to be able to travel the world on the proverbial shoestring. You'll see when ya get here. If you want to sail and go places, big is not required. Small can go most everywhere the big boys can with the right amount of prudence.

Like the old saying goes, a Cadillac will get you to New York from California and so will a host of other rides. How bad do you want to go off on your own sailing? I figure we can do some anchoring as well and, as well, sailing off the anchor. Sounds intimidating but it's not, just think ahead. MOB as well we'll try, with you being the skipper. We'll keep it safe and we'll have fun, enjoy one another's company.

We can be on the water early, cook aboard if you like, you just may quit your job and head south to Panama. One never knows. I'm reminded by my Linda that moms don't like this kind of encouragement. A few years back cousin Mary asked if son Zack could live with us for a spell. I got a call from her after a few months informing me son Zack had a hair brained idea of working the summer on a fishing boat for tips. Asked if I'd talk to Zack about it, dissuade him if possible. Later that same day Zack comes in all fired up and excited about a new job prospect. Yep! On a sport fisher. He told me all about it, asked what I thought.

Go for it Zack, opportunities like this don't come often. The following Christmas we were all sitting and visiting, talking. Zack's sister started doing some figuring in her head, asking her brother a few questions, then says, "Zack, you worked all those hours, made that much money, do you realize it worked out to about \$3.50 an hour?" Minimum wage at the time, I think, was about \$8 an hour. Zack didn't mind, he worked his fish boat for the summer, he never did go back for another go at it.



25 Years Ago
in **MAIB**



Journey of the "Tryall"

"Tryall" is a 35' steam powered cabin launch I built and launched in 1989. Her engine is a two-cylinder open column 15hp steam engine with an oil fired boiler. This summer I decided it was time to attend the 1991 International Steamboat Flotilla at Oswego, New York in "Tryall". I had developed a passion for steamboat cruising ever since our 1982 cruise on the Rideau Canal from Kingston to Ottawa in Ontario in my previous, and first-built, steamboat, "Lisa Ann". I have steamed in "Lisa Ann" also on the Trent Severn Canal, up the Peterborough, Ontario hydraulic lift lock and through the Thousand Islands on the St. Lawrence River. For some time I had wanted to steam on some U.S. canals.

I wanted to go the whole way to Oswego by steamboat: Up the Hudson River and out the Erie Canal to the Three Rivers Junction, then down the Oswego Canal to Lake Ontario. But I keep "Tryall" on the Taunton River in southeastern Massachusetts just off Narragansett Bay, and I had some sleepless nights contemplating steaming her down Long Island Sound. Nathaniel Greene Herreshoff most likely brought "Lightning" (1876, 57'x6') or "Kelpie" (1878, 47'x6'10") or "Kittatinny" (1878, the "Giant Bathtub", 60'x6') out on the Sound, but his courage was more than mine. "Tryall" is 35'x6' on the waterline and not a rough water boat. So instead I spent three weeks building a 38' trailer to haul her to the Hudson River.

I hired a hauler to tow "Tryall" on her trailer to Tarrytown Marine at the Tappan Zee Bridge on the Hudson, and come for her wherever my two week vacation ended. On Friday, June 14th, I had "Tryall" hauled at Somerset, Massachusetts and set on her new trailer. Frank, the hauler, met me at 5:30 a.m. Saturday morning and I gave him instructions on where to take her, and made arrangements for her to be unloaded there and in the Hudson River when we got there.

My number one, and only, crew member, my 26 year old

daughter Lisa, could not leave with me until late Saturday afternoon. Lisa has been steaming with me on and off for the last ten years. No one could ask for better crew, Lisa has sea legs, can pilot as good as anyone and is at her best house-keeping for us. She tends the fenders and has a good eye to keep us from marking up the hull in the locks. She had already been through over 50 locks and would add 40 more on this trip.

Late Saturday afternoon my wife drove us to Boston to catch the Greyhound bus to White Plains, New York. From White Plains we took a cab to Tarrytown Marine, and at midnight found "Tryall" at the dock there. Lisa had ridden in a 26 mile bicycle race that day and I had met Frank way back at 5:30 a.m. so after that six hour Greyhound ride, we both had no trouble dropping off to sleep.

The incoming tide on the Hudson, with its 3-4 knot current, was not until 9 a.m. next morning, so we had time for a leisurely breakfast. At 9 we headed off up the river, June 16th, Lisa's 26th birthday, on a new journey for both of us. About an hour out the oil burner began going on and off from fuel starvation. With plenty of reserve steam in the boiler, we went into Peekskill Bay where I cleaned the filter. I had bought two spare filters for the trip but had forgotten to put them on board in all the excitement of our departure. In an hour we were underway again.

We ran into a solid 20 minute downpour and could not see much in front of us. This presented a good opportunity for me to show Lisa the advantages of radar, my little 16 mile range Furuno lit up and everything was right there on the screen. The rain didn't last long enough for us to really navigate and locate navigation aids with the radar, but we did play

with it some after the rain stopped.

We passed West Point, really beautiful from the river, and went on past Beacon and Newburgh. As the hours passed by, the beautiful river was always ahead. I planned to tie up for our first night at the Hudson Maritime Museum on Rondout Creek in Kingston, 65 miles upriver, and even with the time lost at Peekskill, we made good time and arrived there at 4:45, picking up the Creek on our radar as we approached the cans marking its entrance, just like on the chart. With this first day under our belts, the tension eased for me and I began to relax and enjoy my time with Lisa and "Tryall" and the serenity of this river. For the first time in years of steaming together, Lisa and I went out to a nice air conditioned restaurant for dinner. Afterwards, back at the dock, we washed "Tryall" down, there was a lot of road dirt on her from her trip to Tarrytown.

In the morning we went downriver for diesel fuel, not really needing it, but I feel more comfortable with a full fuel tank. Here, to our surprise, we met the crew of "Patience" a 32' trawler tug from Bristol, Rhode Island. They recognized "Tryall" from Narragansett Bay. We learned over coffee that our destination was the same, Oswego, but from there "Patience" would head to Kingston, Ontario and down the St. Lawrence Seaway to the Champlain Canal, then back down the Hudson and home to Narragansett Bay by way of Long Island Sound. Boy, would I like to take "Tryall" on such a trip! But for now it appeared we would have company on our trip. "Patience" cruised at about the same speed as "Tryall" and we cruised and over-nighted together much of the way to Oswego.

We departed Kingston at 8:30 a.m. Monday. "Patience" had left earlier but we stayed in touch over the radio. I had set my tide clock at Tarrytown, but now 65 miles upriver, we were at least six hours behind the tide and it was till going out. That whole day we fought the current, and ten hours later, at 6:30 p.m., we locked through

Lock #1 at Troy with "Patience", having caught up to her again.

The upper Hudson continued to be a beautiful river, and we tied up for the night at Waterford by Lock #2. In the morning we would start our climb up through the six locks at Waterford to climb 169' further from the 14' already climbed in Lock #1, leaving Waterford 183' above the Hudson. The locks would open at 9 a.m., they close nightly at 7 p.m.

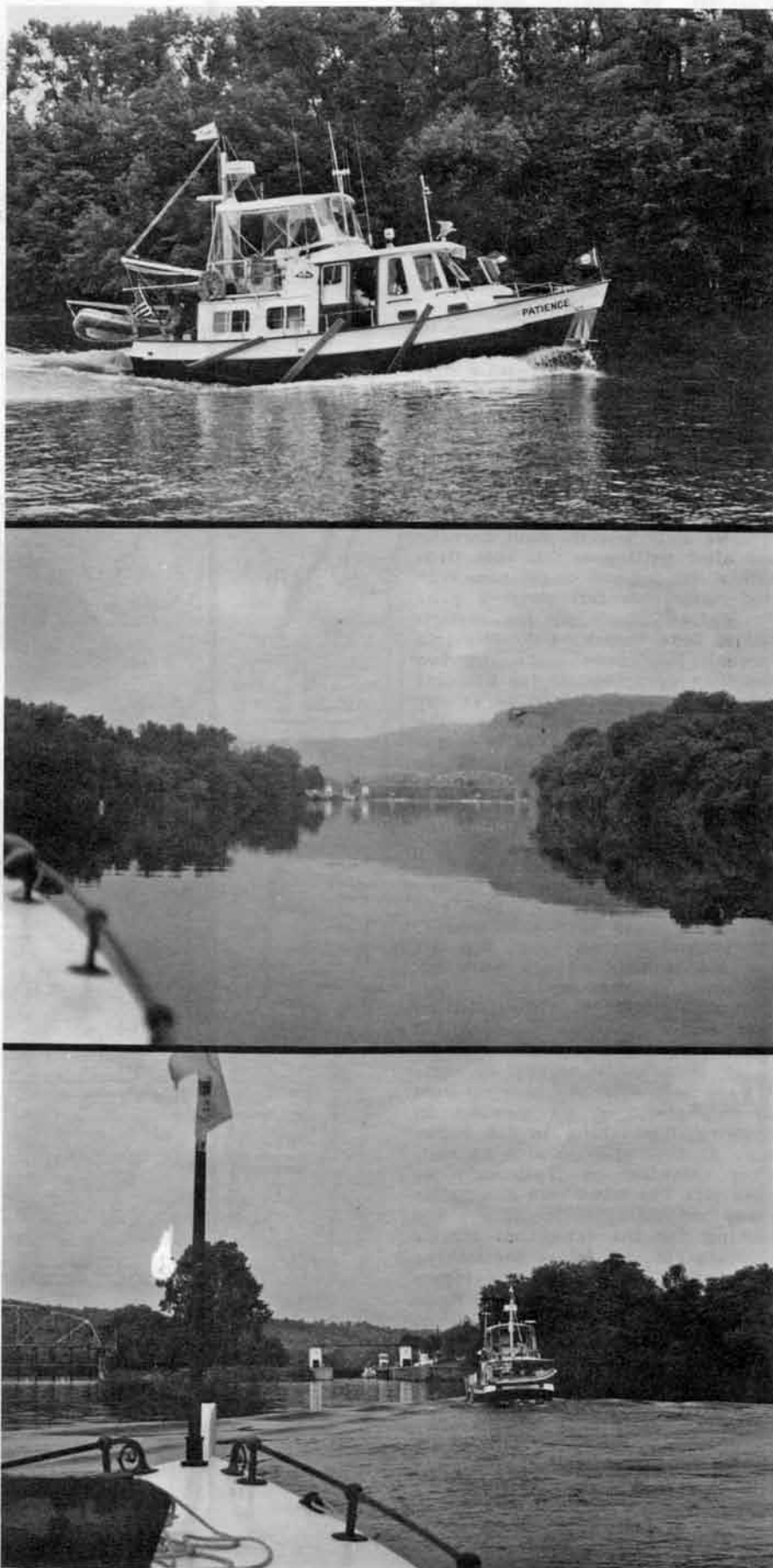
I was up early Tuesday morning and walked up to Lock #2 to look it over. All the locks have four ladders, two on each end; most have ropes hanging about every 30' or so; and some have recessed pipes running from top to bottom, around which you can loop your lines. These are hard to see when entering the lock. To use the hanging ropes, you have to grab one on the way by at the stern with a boathook and then grab the next at the bow as you come up to it. Lisa and I decided to hang back if not too many boats were locking through.

As it turned out, no more than five boats were to lock through together anywhere on the whole trip, most of the time three. So, hanging back, we put fenders on the port side and went for the first ladder just inside the lock, holding the boat through a window at midpoint with the boathook and a line. This worked out well and we got pretty good at doing it this way. A few times early on we bumped the wall, but soon learned just where to place our fenders.

By 9:30 the green light was on to enter Lock #2. We pushed off the wall and let the other boats go in ahead of us. We entered slowly so as not to pull our wake in behind us and hooked onto the ladder. The big doors closed behind us, and the water started turning up around us like a bathtub being filled from the drain up. We went up 33.6' here and the exit doors then opened and each boat in turn left the lock. In the next six miles we would repeat this five more times and end up 183' above the Hudson, and from here on we'd be, for the most part, on the Mohawk River.

With the Waterford locks behind us, we cruised on about 50 miles through Vischer Ferry, Schenectady, Rotterdam, Amsterdam and Fonda, where we stopped at 6:30 p.m. at the Poplar Inn, a nice stop with good facilities and restaurant. Here we enjoyed an evening dining and visiting with the folks from "Patience".

Right from the top: "Patience" sporting "fenders" for all the locking through. Approaching a lock on the Mohawk River.





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On Wednesday, after a good breakfast, we departed about 8:45 for Ilion, a 40 mile trip through Locks #13-#18, and up another 115', including going through Lock #17 at Little Falls, the highest lift lock on the canal at 40.5'. With 16 locks behind us by then we took this in stride. Around midday we again had fuel filter trouble and dropped anchor to clean it out by back blowing with air and repriming the burner pump. "Patience" stood by during this session. This was the last we had of this trouble.

We arrived at Ilion by 3 p.m. and had some time to sit around in the shade and relax. The "marina" here is just a long wall with a fuel pump and a campground set up for motor homes. None of the campground facilities were available to us, however. We had acquired leftover food from our restaurant visits so we dug out the camp stove and heated these up for supper.

We slept late the next morning and after getting a ride into Ilion with a man we met to get some bottled water, we left about 1 p.m. for Sylvan Beach on the eastern end of Lake Oneida, a 35 mile trip through four more locks, up two and then down two. At the midpoint between these we would be at our highest point of 420' above the Hudson, and after an 18 mile cruise we'd begin dropping down, 50' to

Lake Oneida, and 175' in all to Oswego on Lake Ontario. We locked through Lock #22 at 6:10 p.m., probably the last boat of the day, and tied up with "Patience" at Sylvan Beach Marina. Here five different restaurants will come pick you up, and I left it to Lisa to choose. Her love of chicken wings won out and she brought enough back for our lunch the next day.

Lake Oneida is a long shallow lake about 25 miles to Lock #23 from Sylvan Beach. It averages 30' to 40' deep and runs east to west. A good west wind can blow up some rough water, so we planned on crossing first thing in the morning. At 6:00 a.m. we were up and, after breakfast on "Patience", we were off. The water was choppy already but no whitecaps yet. I was looking for the cans, but finally told Lisa to just follow the fishing boats, they seem to all congregate along the channel. By 9:30 a.m. we were locking through Lock #23 on our way down some 125' to Lake Ontario by way of the Oneida and Oswego Rivers. The nine miles through Three River Junction to Lock #1 on the Oswego River were along a "no wake" area with a lot of waterfront homes, so it was slow, but once on the Oswego River we could again travel at 10 mph.

At 11:25 a.m. we locked through Lock #1 on the Oswego River and were now 300 miles from the Tappan Zee Bridge. From here to Lock #8 is only 21 miles, there

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The steamboat flotilla assembling in a lock on the Oswego River at Fulton, NY.

was no lock at #4, and the deepest drop was at Lock #3, 27'. The Oswego River also has some nice waterfront homes and is scenic with picturesque views. Through Fulton's Locks #2 and #3 and on to Minetto, we arrived at Lock #8 and the entrance to Lake Ontario, where Oswego Harbor is protected from wind whipped waves coming off the big lake by a large stone breakwater.

We continued out around the breakwater to port past two large piers to the Wright's Landing Marina, owned and operated by the city of Oswego. This well maintained marina has the best launch ramps I have ever seen, six ramps, each with 100' of dock, and controlled parking for trucks and trailers. It was Friday afternoon, we had arrived early. The International Steamboat Flotilla would not start until Tuesday. "Patience" left us here on her continuing voyage. We would return here on Thursday to have "Tryall" hauled for her overland trip home. In the meantime we had three days to relax and enjoy Oswego, and we did just that.

By Sunday afternoon four steamboats had arrived, among them my friends Elroy and his wife from Manchester, New Hampshire. After six days of steaming in "Tryall" and not knowing when my fuel filter would foul again, Lisa and I accepted Elroy's invitation to steam with them on the flotilla starting Tuesday. This would back track our trip and steam the Oswego River back to Three River Junction, up and down the 21 miles and 7 locks. This time, though, a flotilla of 21 steamboats would take three days to do the 42 miles.

We spent Monday at the marina watching the arrival of the steamboats by trailer, and helping them

get into the water. They came from all over the U.S. and Canada. It was a good day for socializing and making new friends, as well as renewing acquaintance with old friends we see only once or twice a year at such events. The next day we would all steam upstream from Oswego to Fulton; overnight at Fulton; steam the next day to Three River Junction and then back to Fulton for the second overnight; and then conclude the trip the third day back at Oswego.

A flotilla of 21 steamboats, even after ten years of steaming amongst them, is still quite a sight to see for me. Not one boat the same, each the creation of the individual steamboater representing his own ideas, tastes and talents. Most have wood fired boilers, a few propane, some vaporized oil, and two, oil burners like "Tryall". All 21 steaming up, testing whistles, and preparing for a day of steaming, is a great sight to see and I was thankful to be part of it again for another year. Hardest of all, perhaps, is to describe 21 steamboats all in a lock together, fendered three or four abreast. And

"Tryall" heading home, vacation over.



when they all would join in a long group whistle down in that lock, what a sound..

Lisa and I steamed with Elroy on Tuesday and Wednesday, but returned ourselves to Oswego on Thursday, when I had arranged to meet Frank to have "Tryall" hauled for her return trip to Somerset. We enjoyed a last cruise in Oswego Harbor Thursday morning before meeting Frank and seeing "Tryall" off on her overland journey home. Then we rejoined the returning steamboaters later that day and helped with all the hauling and loading. That evening we enjoyed the flotilla banquet where plans were made for next year's event. It was goodbye then to all our friends, and vacation was over for us, with another great steamboat adventure now in our memories.

Roland Evans, W. Bridgewater, MA.

Roland Evans built "Tryall", his second steamboat, of aluminum in his backyard, along with its boiler and steam engine, all from scratch. "Tryall" is from the 1901 book, "Adventures Down the Bay" serialized in "Boats" several years ago.

The 2017 rowing season started early for the members and friends of the Jones River Watershed Association in Kingston, Massachusetts. I was alerted to the traditional New Year's Day row by Jon Aborn of old Cape Cod Viking fame. The day was bright, breezy and mid 40s. I decided to bring my friend Ed's beautiful CLC dory that he finished up this past summer and left in my care to use at my discretion. When I arrived at noon the Jones river folks greeted me, a stranger, with complete aplomb and hospitality.

Launching is done manually over a gravel bank. Since the CLC weighs in at about 100 pounds if that, a few hands, made light work. I had next to zero experience with the 17' boat and was a bit nervous, but with encouragement from Jon and the other oarsmen and women I did my best. Rowing single, I had some close encounters with bridge abutments and brush overhanging the ancient stone wall edging the river as the wind gusts pushed me around. The kindly loan of a block of iron ballast settled the dory and improved handling.

By 2:00 we were having lunch by the warmth of the potbellied stove in the Association's boat shop. Naturally the subject of

New Year's on the Jones River

By Steven Salley

conversation was the nautical history of the Jones River, the South Shore, Cape Cod and beyond. I can't say which I enjoyed more, rowing with new friends or reminiscing with them about the boats and the old days. I do say thanks again to the Jones River folks for a great New Year's Day adventure and for the work they do preserving this historic estuary.



The Jones River Watershed Association is a non profit, member based environmental organization established to protect, enhance and restore the quality of the natural resources in southeastern Massachusetts, in particular the Jones River and Cape Cod Bay, for present and future generations while cultivating effective stewardship of our regional environment through science, advocacy and education.

We began our work in 1985 in response to the terrible impacts of water diversions out of the basin. Since that time we have maintained an increasingly consistent level of effort to educate others and ourselves about this small coastal ecosystem and its relationship to the globally significant Gulf of Maine. Because of the incremental steps taken over the years to conserve land, study the river, remove obstacles to fish movement and address the politics that impact our local environment, we have a chance to restore the vital natural resources important to all of us. JRWA is committed to understanding the impacts of climate change and preparing the region to address those changes in practical ways that focus on ecosystem health.

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Launching the Shantyboat *Moon Snail*

By Bob Hicks - Photos by Harvey Petersiel

In my Commentary last month I discussed the appeal of shantyboats, prompted by my attending the launch of one at nearby Essex, Massachusetts, on New Year's Day. As we were right on top of going to the printer with that February issue, we had no photos to offer at that time. Now, however, friend Harvey has come up with this nice array showing the undeniable pleasure and satisfaction builder Ian derived from his modest craft.



Gray Fleet

The *USS John Finn* (DDG-113) completed a complex series of trials both at pier and at sea before acceptance by the Navy. Navigation, damage control, mechanical and electrical systems, propulsion applications, combat systems and communication were thoroughly inspected and tested as this newest Arleigh Burke Class destroyer with a modernized Aegis System headed for commissioning.

In 2005 the Navy stopped building this class of destroyers and focused on the ill famed LCS ships. In 2008 the military reversed their decision and asked General Dynamics Bath Shipbuilding in Maine and Huntington Ingalls in Mississippi to restart production. *USS John Finn* will join 62 other Burke class destroyers.

John Finn received a Medal of Honor for manning a .50 caliber machine gun on an instruction stand that was totally exposed to the Japanese. He continued firing despite being seriously injured. Chief Petty Officer Finn survived that attack and the war. He died in 2010 at the age of 100.

Senior Chief Scott Dayton, 42, became the first US military victim in the internecine war in Syria. An Explosive Ordinance Disposal expert, he was killed on duty by an IED. He was an element of 300 US special ops servicemen assigned to stifle ISIS in Syria.

The Coast Guard is short on icebreakers and the need is increasing considering the shrinking polar ice cap and significant commercial passage across the Northwest Sea area. *Polar Star* is the only heavy duty icebreaker in their arsenal, however, the *Healy*, a medium duty ship, can help in inland waterways. *Polar Sea*, another heavyweight, suffered catastrophic engine damage in 2010 and is non operational. The *Polar Star* is due for a lengthy overhaul. How the new administration sees the necessity for additional icebreakers is unknown.

The personnel records, social security numbers and military records, including security clearances, job assignments and quarterly reports of over 134,000 current sailors were opened when a Hewlett Packard contractor's laptop was compromised. NCIS is investigating and any fan of TV's Mark Harmon knows that everything will be OK within 48 minutes.

Norway announced their purchase of five P-8A Poseidon anti submarine planes because of the Russians constantly poking their noses into Nordic and Baltic nations waterways. Former 6th Fleet commander Admiral James Foggo III stated that Russia has conducted extensive and frequent submarine patrols throughout the North Atlantic and Norwegian Sea as a part of a strategy to threaten nearly all NATO's maritime forces.

The Heritage Foundation, a right wing political group, claims that both the Navy and the Marines are only "marginal" in their ability to handle a Pacific conflict. The Foundation claims that the Navy simply does not have enough ships to handle a conflict and provide necessary supplies and support. Needless to say, both the Navy and Marine Corps immediately agreed, to no one's surprise. However, this standard report from a devout pro military group does raise the question, for what kind of war should we prepare? The Middle East's guerilla war has bogged us down and cost billions, piracy has occupied a lot of Naval personnel and ships, the Coast Guard is overwhelmed with drug influx, Russia loves poking its nose into everyone's



Over the Horizon

By Stephen D.
(Doc) Regan

business, China is making a major buildup in Asian waters and our good friends in North Korea continue to see how provocative they can be before they make a big enough mistake to ensure a major brouhaha. Balance that with our aging infrastructure, declining educational standards and increasing internal crime costs in a sluggish economy. Mr Trump may quickly discover that, like each of his presidential predecessors, the fly has captured the flypaper.

China continue to harass US Navy ships in the South China Sea that the UN Convention on the Law of the Seas (UNCLOS) has determined is international waters or is territorial waters of the Philippines, Viet Nam, Malaysia, Indonesia or even Brunei. China's aggression includes building artificial islands and building military sites on them, constant very low level flyovers and chronic close calls between US warships and Chinese fishing trawlers. The trawlers literally sail within feet of a destroyer hoping for a collision or follow within feet of the stern attempting to snag the ship's towed acoustic array line. We are talking feet, not yards.

When the US decided to build the memorial for the *USS Arizona* BB-39, RADM Samuel Fuqua (an *Arizona* survivor) pleaded for donations to little success. Elvis Presley heard about this and offered to do a benefit concert in Hawaii for the cause. He, Minnie Pearl and the Jordanaires not only gave a sold out concert, Elvis himself donated a ton of money to the memorial. Elvis's band included Boots Randolph ("Yakety Sax") and Floyd Cramer the pianist. The concert raised over \$40,000. With his assistance, the money necessary for the memorial over the hull was raised within four months.

On the 75th Anniversary of Pearl Harbor I presented a memorial piece of the *USS Arizona* to Waukon, Iowa, a small Iowa town that had two men aboard that battleship on the Day That Lives in Infamy. I also provided a lecture on the attack to over 75 people in attendance including relatives of the two crewmen from Waukon. Ens. Lawrence Anderson was Junior Officer of the Deck that morning and was killed early in the attack. Gunner's Mate Stanley Teslow made it to his station in Turret #3. Under the direction of then Lt Commander Sam Fuqua they attempted to fire the guns. As poisonous gas penetrated the interior of the hull after the explosion, Fuqua ordered the men topside and then to abandon ship. Teslow not only survived the *Arizona* but also was aboard the *USS Reno* when it was hit by a kamikaze. Chief Teslow courageously calmed his men and returned fire until the "abandon ship" order was given. He earned a Silver Star for his efforts. He retired from the Navy and farmed near my hometown. His daughter was a classmate but I never heard his story until recently. His photo now hangs in the Veteran's Hall in Waukon, however, at his family's

request his other memorabilia will be in the Northeast Iowa Veteran Museum in Cedar Rapids, Iowa. Chief Teslow was the first *Arizona* survivor to have his ashes interred within the hull of the old battleship.

The *USS Zumwalt* (DDG-1000) reached San Diego on December 8, 2016 after a three month journey through the Panama Canal where it (surprise, surprise) suffered an "engineering casualty" with the loss of the next generation electronic propulsion system. They blew the system near Norfolk again. Seawater fouled the lube oil chillers. This is the first of three \$22 billion stealthy destroyers with the state of the art everything, including the most modern of technical screw ups.

Merchant Fleet

Hoegh Autoliners, a Dutch firm, named its newest ship the *Hoegh Trotter* at China's Xiamen Shipbuilding as part of a six ship Panamax project. The ship has the capacity to haul 8,500 new cars with 50% less carbon emissions. Looking less like a ship and more like some science fiction space vehicle, these ships are designed for minimal wind resistance, heavy seas and rough weather.

MV Werften shipyard ordered six 48/60 CR 96,000kW engines from Germany's MAN Diesel and Turbo for ships to be built for Genting Hong Kong's Star Cruise vessels. Delivery date is 2020. Evidently the Asian cruise arena is wide open and increasing vacationers are expected.

As of this writing President Elect Trump named Elaine Chao as Secretary of Transportation. Chao is a Washington insider with great connections as former Assistant Sec Transportation under George the Second, chair of the Federal Maritime Commission and eight years as Secretary of Labor. That she is also married to Senator Majority leader Mitch McConnell can't hurt either. Even the Democrats think this was an excellent choice.

Gadani Shipyard, a Pakistani ship breaking yard, experienced an explosion on board *FPSO Aces* killing 25 and injuring 60. The yard had thousands of gallons of gasoline aboard that was ignited by cutting sparks. The world's third largest ship knocker, Gadani has had a reputation for lax oversight of regulations. It, however, is a mainstay to the economy of Pakistan. It covers over six miles of beachfront property.

Inland Waterways

YouTube is redolent with videos of towboats smacking their housing tops on low bridges. Now Steiner Marine Construction is building a retractable pilothouse that can be lowered during high water situations. What a marvelous age we live in.

The 13th Annual Waterways Symposium was held in Cincinnati this past fall with great foci on Washington and the impact of the Trump administration. Trump promised \$1 trillion for infrastructure repair including improvements of ports, immediately support for the Strong Ports Plan for the development of 21st century ports to eliminate congestion, additional funding for port security and rehabilitation of the Sault Ste Marie Locks. Authorities also maintained that the Waters of the United States Act (WOTUS) would be overturned, tossed out in the courts or simply eliminated by executive fiat. Farmers, manufacturers and Big Chemical have long opposed EPA's somewhat heavy handed approach to cleaning up American waterways. Evidence indicates that EPA over-

stepped its authority on several occasions. Environmentalists and the new administration will feud openly for the next four years.

If you want a steel 6-dog watertight door you are in luck. AFCO in Louisiana has them on sale for a mere \$1,295. The advertisement does not state whether the doors are also soundproof or one would be ordered to seal my office next to the kitchen. Retirees understand.

New Orleans Port President Gary LaGrange reported that the city has handled over 500,000 containers for the second straight year. He foresees a significant increase in the market for storage and handling of these containers that typically are used for chemicals, PVCs and resins. He predicted a \$75 billion need for future investments. He cited 2016's \$40 million Napoleon Ave terminal enhancement, a \$25 million purchase of acreage and paving at the Milan Upland Marshalling Yard, a \$25 million increase at the Mississippi Intermodal Terminal and a new \$8 million refrigerator storage unit.

Containers on barges (COB) has been a major thrust of the Maritime Administration, and it is now joined by the Mississippi River Cities and Towns Initiative (MRCTI) that represents all the urban entities along the river. COB accounts for 12% of all transport in the country for only 2% of the cost. Bridges, locks and dams are in a sorry state needing expensive repair. Congress has passed several bills to remedy the situation but whether President Trump will bring these to fruition remains unknown.

South Dakota seems an unlikely center for maritime concerns but the huge dams at Oahe and Gavins Point provides a vast amount of electricity for the Midwest and controls the river flow of the Missouri. The latter dam dumps 25,000 cubic feet of water per second and the six dams on the river produce 7.5 billion kWh per year. By adjusting the flow during the winter, the dams allow minimum ice build up downstream. A tour of the Gavins Point dam and electrical unit is worth the stop on the way to Mount Rushmore or going north on Interstate 29.

Small Boats

Builders of their own boats who do not get *Duckworks* magazine online (free!) are sadly in need of psychiatric assistance, of course, those who build their own boats are a scary lot unto themselves. This current week it features an 18' Vera Cruz Panga powered by an electric motor, a center console Tiburon Panga and a depressingly beautiful 14' Riverman. *Duckworks* also provides plans, equipment ranging from sail repair stuff to planes and myriads of contacts at duckworksbbs.com.

A Green Bay, Wisconsin, eye specialist, Dr Arthur Dupperault, decided to take his family on a sailing vacation in the Caribbean in 1961. He chartered a boat, the *Bluebell*, under Captain Julian Harvey and his wife Mary Dene, and they sailed for four days. Dr Dupperault, his wife and three children were enjoying themselves when one night Terry Jo, 11, went to bed early. She awakened in the middle of the night, climbed on deck and discovered her family and the Captain's wife all dead lying in a pool of blood, hacked to death by the Captain. He had forgotten about the 11-year-old so he simply tossed her overboard.

Several days later he showed up on shore claiming he had capsized in a storm and was the only survivor. Two weeks later a freighter crossing the Atlantic saw some-

thing unusual and discovered the young girl floating in a raft. She had been able to jump into the raft that was trailing the yacht and untied the knot. Floating around for two weeks she was suffering severe malnutrition and significant dehydration. When she was brought ashore the media went wild and the Captain elatedly stated it was a miracle. She was incoherent for a period of time and then refused to talk about the incident. Months later she told a nurse her story. The Captain was about to be arrested when he committed suicide. It was not until 2012 that her story became known. As part of her therapy she wrote a book, *Alone: Orphaned on the Sea*.

A recent social network comment caused a minor discussion on hull numbers. One person wrote that his new Potter 19 had a hull XXXXX but someone else wrote that he owned that specific boat. Fraud? Nope. Several others noted that their "previously owned" boats had hull numbers different than their sail numbers. Obviously people sold sails with numbers on them to other people, therefore the numbers do not match. The newest member of the Potter Yachters discovered his correct hull number on the stern plate. Interestingly, several people had identified their boats only on the sail numbers.

White Fleet

Princess Cruise Lines again was found guilty of dumping bilge water, garbage and oil overboard. The courts proffered the largest criminal fine in history at a staggering \$40 million for multiple felony counts of using a "magic pipe" on the *Caribbean Princess* to discharge contaminated waste. The company demanded their employees cover up the violations. When confronted by a whistle blower, the company held a "sham" investigation claiming they found no issue. The Justice Department's evidence showed quite the opposite. 4,200 gallons of contaminated waste was dumped over 23 miles along the coast of England. Worse, the *Caribbean Princess* had been doing this since 2005 according to court documents. To add to the insult, three other Princess Cruise Line ships have been found guilty of using a "magic pipe." Of course, the company itself blamed low level crew members of the crimes and claimed nothing but the finest character of its onboard officers and corporate executives.

The *Spirit of Nantucket*, one of Cruise West's small tourist ships, ran aground and started sinking off the coast of Virginia Beach. The Coast Guard rescued 66 passengers who were on the trip from Alexandria, Virginia, to Charleston, South Carolina. The Guard also put a rescue swimmer in the water assisting in pumping the ship. Evidently the vessel smacked something that started to fill the boat with water so the Captain intentionally ran aground to avoid a total loss.

Looking at the itinerary of the Carnival Cruise ships, one chuckles at the days labeled "Fun Day at Sea." Five days of sailing on the *Carnival Miracle* lounge sucking up expensive blue colored drinks that are served with a small umbrellas. The webcam on *Carnival Vista* shows it is currently berthed behind a tall ship in Aruba. Those of us in New England, the Midwest or Canada really hate those photos when it is 13° outside.

Environmental News

Environmentalists have listed seven major problems facing the overall ecology of the oceans, none of which are particularly

new that unto itself says humans not only are on a course of self extinction, we want to take the entire flora and fauna with us.

1. Overfishing has been a constant for years. We darn near eliminated sperm and humpback whales that are essential to the overall balance of oceans. Previously this column noted the significance of whale poop to say nothing of the homeostasis of the seas. Cannery Row in Monterey, California, was once the most thriving economy of the town but they overfished the bay and all the canneries failed and were nothing but burned out and abandoned buildings when this writer was stationed there (tough military assignment for a sailor during the Viet Nam War).

2. Killing off predators such as sharks for only their fins wreck havoc with the balance of any ecology.

3. Acidification of the salt waters because of the amount of CO₂ in the air. The ocean is an essential element of absorption of carbon and releasing oxygen. The overwhelming amount of CO₂ in the atmosphere is slowly altering the pH of the oceans. Experts say the seas are the most acidic in 35 million years.

4. Coral Bleaching or the killing of corals due to global warming is becoming a primary focus if earth is to sustain life.

5. Ocean dead zones are growing rapidly. The dead zone at the mouth of the Mississippi is monstrous and it isn't the only one. A major problem is the lack of diverse farming along rivers. In the past, farmers alternated crops with a three year rotation including one year of allowing the field to rest. With modern corn and soybean genetically altered seeds, the crops can grow in concrete. A yield of 50 bushels of corn per year was outstanding 50 years ago. Today farmers can obtain 180 bushels per acre and plant that same field year after year with the same crop. A trip across the Midwest will clearly show how incredibly greater the corn production is than a decade or so ago.

6. Increasing mercury in fish because of coal production that releases the element into the water systems. Tuna is especially susceptible to mercury poisoning. It is turning up on our dinner tables.

7. The Pacific Garbage Patch is a plastic soup the size of Texas smack dab in the middle of the ocean. Plastics have been a godsend in many ways but the fact that they remain stable and unable to decompose for centuries is causing pollution on a gargantuan scale.

Good News

After years of hauling my boat to the lake, raising the mast, transferring "stuff" from car to boat to car and attempting to launch and retrieve the boat without a coronary, stroke or death by frustration, I finally got a slip at Lake McBride. I was going to kiss the DNR worker but he didn't think that was appropriate. Come spring, all my columns will be late!



Messing About in Boats, March 2017 – 21

This month's traditional boat of the month is not a boat, but a rig, the schooner. Uniquely American, it is identifiable by its shorter forward mast and taller aft mast, usually accompanied by a forward staysail, sometimes with boom and often with a jib set flying. All kinds of combinations of sail can be hung on those two masts, and since this rig has been around since early colonists started adding masts and sails to English shallops and Dutch catboats, these sails have all sorts of interesting names. The larger aft sail is the "Main," the forward mast's sail is the "Fore," the forward triangular sail that you and I would call a jib that often has a boom on its foot is tied down close to the stem and is the "Fore Staysail" while the forward triangular sail set flying off the bowsprit is called, prosaically enough, the "Jib."

In between are all sorts of other sails, most set flying, the medium sized one set between the masts is called the "Fisherman Staysail" or "Fish" for short. When that sail extends down towards the deck it is called the "Gollywobbler," a real bear to haul out and set, say nothing about tack. And to top it all off, other than right triangle sails on the Main or Fore, there can be topsails set above the gaffs, either flying or on their own topmasts. Unless there are no topsails above your gaffs, in which case this becomes a "Baldheaded Schooner." Confused? That's just part of the fun.

This results in some really complicated directions from the helm, "Run forward and tighten up on the fore topsail sheet there on the starboard side of the mainmast." And therein lies the enjoyment of sailing a schooner, the esoteric and sometimes archaic rattling off of sail names, sheet names, halyard names, stay names, etc., to the amazement of the crew, whether issuing orders or retelling tall tales of taking in or blowing out sails in "the midst of the wildest blow."

Why pick this rig to discuss which, admittedly, is at the outer reaches of rigs for a small craft? Well, for one, it is traditional, two, it is totally flexible and three, very weatherly. There is a reason it was the rig of choice for Gloucester's fishing schooners, racing yachts before WWI and the Bermuda Race until just after WWII when the rules changed. Another reason is that we have three of these craft just arrived at Mystic Seaport to winter over. Schooner *Brilliant*, home ported here, is just home from ten weeks of shuttling ten teenagers at a time around Long Island Sound and Narragansett Bay, The *Amistad*, an extreme Baltimore Clipper with racy, raked masts (the British, when capturing an American schooner, would straighten the masts but that rake sure is handy when suddenly wishing to strike sail) and the *Mystic Whaler*, a dude schooner known for palatial staterooms and the best food in the fleet. Widely varying hulls, joined by a common rig. Also here for a winter or so is the *Mayflower* which has two masts, but that is a totally different boat.

So why is this rig of interest to us Traditional Small Craft folks? Besides looking "salty," it is flexible. To reduce sail quickly, just strike one of the sails. First the flying jib, then perhaps the fore, or leave up the fore and reef the main, or sometimes just to steady things a bit under power, go with just the fore. Lots of combinations with which to experiment. And lots of lines to pull, as Phil Bolger liked to say, which comes in handy with a large crew of bored teenagers, or as we

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Traditional Boat of the Month The Schooner



Mystic Seaport's Schooner *Brilliant* (Courtesy of Mystic Seaport).

should say, a gung ho, active crew that loves to get involved. A job for everyone.

Where do we find these boats? Well, it seems every traditional boat designer worth his or her salt has tried their hand at designing a schooner. For our sized boats (20' +/-) you could start with the lovely *Florence Oakland* (22'5") V-bottomed schooner as designed by John Atkin, see Chapter 9 in his book, *Practical Small Boat Designs*. A beautiful little bald headed schooner with a single club footed jib, bowsprit, trail boards

and lazy jacks on every sail, including the jib. Lots of strings to pull. Never get bored, nice big cockpit as well as a small cuddy for over-nighting. Order the book from Pat Atkin (see her ad in *Messing About in Boats*) or order a set of plans from the website atkinboatplans.com. Over 75 of these boats have been built, the first for Chesapeake Bay, John Atkins recommended this design as "entirely capable in Long Island Sound."



Outline of Atkin Schooner *Florence Oakland* (Courtesy of AtkinBoatPlans.com).

Murray Peterson drew some beautiful schooners, late in life Roger Duncan of Maine Coast Guide fame chose one to replace his beloved Friendship Sloop. Phil Bolger designed a few for racing, cruising and just for fun. A racing schooner, complete with two foresails and a main topsail, Chapter 42 in *Boats With an Open Mind*, a cruising schooner for use in the Sacramento Delta, reminiscent of the hay scow schooner *Alma*, now at the San Francisco Maritime Museum but still taking an annual cruises up the Delta (her wide decks are great places for the small boat skippers to sleep). Plus, fun designs like the Folding Schooner which at 31' cleverly folds in half to trailer. Folding her always draws a crowd at boat meets.



And perhaps more our size and style, just for fun, Phil Bolger designed the day-sailer "Schooner" (no "h"), Chapter 6 in his book *30-Odd Boat Designs*. At 23'6" long with a 5' beam it is billed as a smaller Folding Schooner but carries an impressive 266sq ft of sail, counting a main staysail. He notes that the schooner rig is a good one for carrying lots of sail down low as well as being easy to decrease sail area by lowering individual sails while still retaining a balanced sail plan (reefed main and full foresail, for example).

This boat is expected to "reach into a fresh breeze with four or five people on the rail to hold her up" and "skitter like a bobsled" downwind. No spar is over 16' long, a

simple daggerboard is amidships for lateral stability and a nice curved stem flows into a short bowsprit on which the jib is hung, Chesapeake style. Trailboards are shown, she can be tricked out to the fondest schooner dreams. Look for an out of print book or drop a line to Phil Bolger & Friends, PO Box 1209, Gloucester, MA 01930 for a set of plans. Note that a well for an outboard is shown so that 2hp Honda that's been kept in the corner can be put to good use. See you on the water, running downwind with a "schooner breeze" off the aft quarter.

Winter Solstice Row

By Padeye

We lucked out the Sunday before Christmas, the day dawned dark and dreary but not freezing cold like the day before (and after). Phil Behney had us all organized, boards were pre cut to the correct dimensions, ready to assemble into a storage rack for the club dories. They went together without a hitch after a bit of late fall cleanup along the garage. One by one the dories were tilted up, their gunnel's marked and small blocks screwed down for the dories to rest against. A stout rope over all hugs them together.

After the previous day's cold, all arrived saying, "Probably won't go out today." But as the day was turning balmy, albeit with a bit of rain in the air, and since the dories were down anyway and the water's edge was only a couple of dory lengths away, in they went. The last we saw of them they were disappearing around the corner on their way down to the point. As they rowed off, they were mumbling something about gathering at the "Harp and the Hound" after. We'll have to wait for a full report on that portion of the "Row," if they remember to send it.



The Dory Rack Crew at Mystic Shipyard East: Steve Barton, Karen Rutherford, David Tang, Phil Behney and down front, Dane Rochelle.

Launching for the row, Phil, David and Steve.



Around The Boat Shops

The home shops are into their winter builds. Peter Vermilya has his catboats put away for the season, the Marshall 22 cruiser and his refurbished Beetle Cat that chocked up a string of firsts in Stonington Harbor's

Wednesday Night Races. He is now concentrating on reassembling the molds and applying plank on frame for his Delaware Ducker. George Spragg has a 14' garvey of his own design ready just in time for duck hunting season, give him a call in case your black Lab needs a new boat to ride around in. Based on the twinkle in George's eye another boat, a different one, is in the offing. Bill Meier is busy converting his 1920s gasoline powered launch to electric power. He has already done the small stuff, replacing the transom and most of the keel.

At our Avery Point Community Boat-house member Steve Barton continues his plywood replica of a fabric covered Klepper canoe. He is putting the finishing touches on the frames and has a few planks ready to apply. Bill Armitage and Phil Behney are designing and installing the interior framework for thwarts and stretchers in our Chapter's Avery Point Dory. Their goal is total flexibility between solo, pair and pair with passenger rowing configurations.

At Mystic Seaport's Livery Boathouse and John Gardner Boat Shop, work is proceeding apace on winter restoration, rehabilitation and refinishing, the "Three Rs" for the livery rowing and sailing boats. Pilots Weekend saw the boats pulled, power washed and returned to the nearby Boat Shed for storage until their turn in the shop. Rowing craft go to the Boathouse while Beetle Cats go to the Boat Shop (wider doors). Meanwhile, the bigger boats are going under cover, *Aida* under her pipe and canvas frame while *Breck Marshall* is getting a brand new cover sewn by Dr Steve and his crew in the adjacent Sail Loft. Let winter come, we're ready!

Other builds, large and small. Bob Hatcher, bobgblhatcher.com, is looking for information on the Martin Skiff our Chapter built a number of years ago. He found photos on our website so if you were involved or recall, drop him a line. On the smaller side, the Mystic Seaport Ship Modelers' November meeting was a demonstration on how convert a servo into a drive motor. Reach out to Bob Andrie at smallyachtsailor@cimail.com.



Culler Good Little Skiff, Waldo Howland, with fresh paint ready for next season.

Aida with frame for winter cover in place.



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My 22' Winslow designed cutter was in a local boatyard when I bought it, and that first spring I readied it for a summer of sailing right where it was in its cradle, set on the cinder surfaced yard.

As autumn approached I began to contemplate all I hoped to do in the way of restoration during the coming winter and the thought of working outside in winter and early spring weather was not very appealing. Outside storage in that yard would have cost me about \$175 back in '77, inside room, if available, and in unheated, dark surroundings would have been double that. And the four mile trip to and from the house, while not a long one, would certainly be made many times, I'd be sure to leave some needed item behind.

I wanted to bring the boat home and I had a barn to which I could add a lean-to shed for the boat. But how to get her home? The boat had a 4' draft, full keel and no trailer. A rigger quoted me \$150 for each trip, amounting to \$300 a year. Thinking about these costs, and about yard storage costs, I decided I might as well spend some more money to do it the way I wanted. I needed a trailer and it happened I knew where I could get one at a really reasonable price. The owner of a boat I didn't buy had tipped me off to a one man shop near Taunton, Massachusetts, which built big flatbed trailers for only \$395!

I drove the 75 miles to Taunton to see the proprietor, Mr Zion, and found his corrugated steel shed set in a rough clearing on Rt 28 in Middleboro. He had several finished trailers on hand awaiting pickup and readily agreed to build me one, a 24'x8' unit with four Chevy truck wheels in tandem, all for \$395. Delivery would be about two weeks. A card came in two weeks and I had my trailer.

For \$395 (then) I got a trailer welded up of 6" channels and 3" axles. It had no floor, no lights and no brakes but was strong, with

Bringing It All Home

When yard bills for storage and maintenance start cutting into your enjoyment of a boat, it's time to find another approach

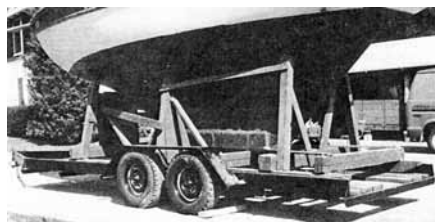
By Bob Hicks

First Published in *SBJ* October 1979

a 2" hitch. For \$12 I bought a trailer lighting kit. My van had power brakes that would easily stop everything.

To keep height down I had asked Zion to weld the cross pieces beneath the side channels rather than above. My 7' deep hull doesn't tower quite so high this way. Six 2"x12" hemlock planks 16' long cost me only \$.19 a board foot at the sawmill, that's about \$36 worth.

We hauled the boat by spiking the cradle right to the trailer planks and chaining the whole thing onto the marine railway at the yard. I just drove it away when the railcar came up, and even at an easy 30mph I was home in a few minutes with the boat. All in all, less than \$500 had given me the ability to move my keelboat at the cost of a couple of years' yard storage. In 1979 Zion's price was up to \$450 when a friend bought a similar rig. That's still a hell of a value.



While getting the trailer arranged I had gone ahead with my shed. In planning it I wanted room enough to park the boat on the trailer with headroom above for work on the deck plus side room for a long bench and some tools. Plenty of light was also necessary; I don't care for dank, gloomy sheds.

My barn is 30' long with the gutters 13' up. The trailer is 8' wide. Some sketching on graph paper left me with a shed roof building 30' long by 15' wide, 12' high where it joined the barn and 10' high at the outside. A straight run from the street over a flat lawn was available and the end of the shed facing the street was to be left open. For deep winter I'd close it with a lightly framed, plastic covered door/window to keep out weather and let in sun.

This was to be a 450 sq ft building and if I didn't want to put more into it than I had into the boat I knew I'd have to economize. I'd seen sheds built of lath covered with plastic, light but flimsy. I wanted solid construction. The structure I settled upon as best was a pole building.

This type of construction uses treated poles (similar to utility poles) to hold up the roof. Walls are of the simple curtain type, non load bearing. I used a book put out by the Garden Way people up in Burlington, Vermont, *Low Cost Pole Building Construction* as a guide. It worked, for about \$1,200 plus my labor I got a sturdy, roomy and well lit boatshed.

With an existing barn to provide one wall, I needed only four poles. Each had to be 12' long, 3' in the ground and 9' above the plate holding the rafters. It used to be that

these poles could be bought at farm supply outlets but around here (near Boston) there are no longer such places. They all cater to suburban needs now and who needs 12' telephone poles in the suburbs!

Well, Koppers Chemical does the pressure treatment at their plant in Nashua, New Hampshire. A call to them explaining my needs brought success, they'd sell me the poles under a yard pickup, cash deal arrangement. I hauled them home in my long wheel-base van. I could have used the boat trailer but it was easier to just let the poles stick out the rear of the van.

The trailer came into use getting the framing timbers. I needed 16' 2"x10"s plus 2"x4"s for wall framing. The 2"x10"s would spike together for the plate and serve both as rafters and as a cleat running the length of the barn for the rafters to rest on. Prices at local "discount" lumber yards were ridiculous. Heading to northern New Hampshire with van and 24' flatbed trailer (still no floor), I bought the aforementioned fir and framing timbers and hemlock planks (for the trailer floor) at a water powered mill in Lost Nation (near Lancaster). (The \$.19/board foot price is up to about \$.23 in 1979.) The trailer handled it all with ease and would subsequently become useful (when not holding the boat) for transporting such bulk as firewood and farm machines.

For siding I opted for rough surfaced exterior plywood with vertical grooving resembling vertical boarding. These 4'x8' sheets ran about \$14 each at the lowest cost Boston area lumber outlet (Brewsters in Woburn, Massachusetts). For roofing I bought cheap 3/4" particle board sheets, 4'x8'. Over these would go asphalt roll roofing, single cover. Light would get in through six secondhand storm windows measuring about 32"x60" which I bought for \$4 each through the local *Bargain Hunters Guide* classified weekly.

It took me about a month of intermittent effort to get the boatshed up, working alone except for help in getting the sheets of particle board up onto the 10' high outer roof plate. Putting up a pole building is certainly simple. I first graded the dirt floor, removing sod cover and planting it elsewhere. Four holes 3' deep were dug, about 4" of concrete poured in each all leveled with a simple gauge. The poles were then trimmed to equal length and set up in the holes with rocks packed around them. The plate was built on top of the poles, three layers of 2"x4"s spiked together with overlapping joints. A cleat of 2"x10"s went on the barn wall just under the gutter overhang, leaving room for rafters and roofing to fit in under the edge of the barn roof.

Rafters were all precut and slid and lifted into place, then 2"x4" spacers went between the rafters to provide support for the weak particle board roofing. The latter then went up and on, cut to fit in place as needed, and I had a roof on poles.

Now for the walls. Since they carry only their own weight, the 2"x4" studding could be on 24" centers to suit the 4'x8' sheathing. Each section on the outside wall was framed thusly, with window openings. The back end wall was the same, with two windows plus the small upper triangle to close in the gable end. On went the plywood, it's sheathing and exterior finish in one. Some pine board facings around the windows, the roll roofing up top, a gutter along the edge to control water runoff from the combined barn and shed roofs and I was ready for the boat.

How it All Began

My initial venturing into writing about messing about in boats came in the later 1970s when, after having been avidly reading the monthly *National Fisherman*, especially John Gardner's column, I undertook to send off an article to *NF* on my first wooden boat building experience at a two week course held in an old barn in Southwest Harbor Maine. I was no stranger to writing, for I had been doing so in my motorcycling magazines for about 18 years by then.

Well, I heard nothing and went on with my regular work. Then, to my surprise, a new magazine, *Small Boat Journal*, turned up in my mail. It was the introductory issue and there within was my article. Editor Dave Getchell liked my writing and subsequently he published several more of my articles before the magazine was sold to a new publisher who wasn't interested.

Somewhere in our "archives" (all the stuff from all the years piled up in boxes, etc) I think I have saved all the published articles, but where? Recently at the local TSCA monthly meeting a pile of old *SBJs* was on the help yourself table so I grabbed them and lo, I now have four in hand, which I will inflict upon you over the next several issues. Those were exciting days getting into a new field of interest that had grabbed me in my middle age.



The cutter sits against the barn wall, leaving about 3' over the deck and 5' over the cockpit. I just have to watch my head on deck but most work was belowdecks anyway. Alongside, a 7' work area 30' long permits a 20' workbench on the outer wall by the windows. At the back, a woodburning box

stove takes the edge off the cold, getting the temperature up to 40° or so in coldest winter, good enough to keep fingers from freezing. Clamp on drop lights supplement daylight and provide illumination where needed. There's room for the table saw and lumber piles under the bench. The big entry area is closed off by the strapping and plastic door/window for the winter, and I get in and out through an existing side door in the barn.

Now my \$5000 boat gets home on a \$500 trailer and spends its winters in a \$1,200 shed I can reach from the house via connecting sheds without going outdoors. No

more yard storage bills, no more cold rain or hot sun, no blowing dust on new varnish, no more teeny bopper rock and roll music from the guy next to me in the boatyard, no more finding things left behind. I can work when I want to for as long or little as I wish, in touch with family and friends and business, which I run from an office in the barn. All this is pretty important for someone who enjoys working on a boat as much as sailing it. It can be yours for a lot less than you think if you are handy with tools, have some room in the yard at home and are willing to go to the source for raw materials whenever possible.

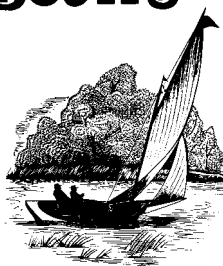
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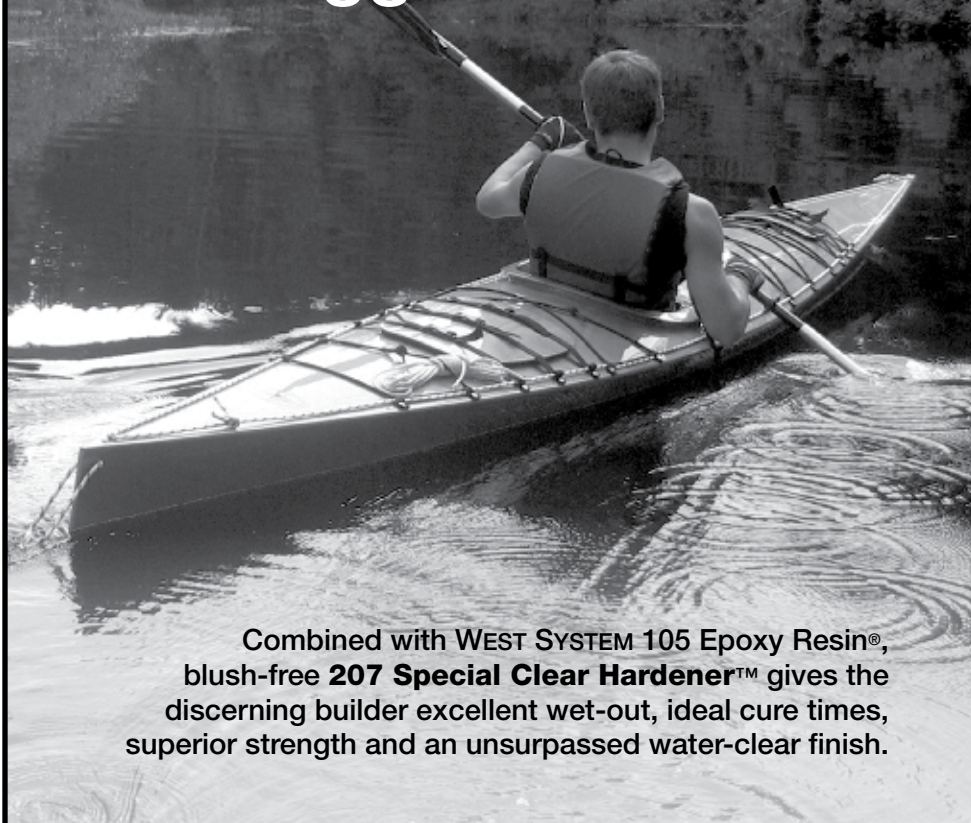
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I couldn't avoid it, it was passed on in my blood, that's my story and I'm sticking to it! My grandfather loved the water, he grew up boating and swimming in Connecticut, in fact, he was an alternate for the US Olympic swim team in '36. He was also an Army Ranger, but just before the entry of the US into WWII he cut his shoulder to the bone diving into a river. He was told he would never use his arm again and was discharged from the Army. After his arm healed (perfectly, thanks to the power of faith) he put his boyhood hobby to use as a radio officer in the US Merchant Marine. He spent the war and a few years afterwards traveling the North Atlantic on Liberty ships.

As a former Ranger, he also trained the anti aircraft gunners the army sent them (usually washouts from army boot camp), most of them showed up aboard the ship with no clue about gunnery or even how to load the AA guns. He survived the war with memories of torpedo attacks on his convoys, even watching torpedoes just miss his ship and a direct hit on the bridge of his ship in the English Channel during an emergency ammunition run to support the Battle of the Bulge. He was the only officer who survived the hit, as his radio equipment took the brunt of the blast. When he came to he was in charge of the ship.

After the war he spent many hours out on an old wooden motorboat found abandoned on a Maine beach. Since he also kept a collection of wornout outboard motors, my dad spent many hours rowing the boat back from wherever the motor quit at while my grandfather tried to get the motor restarted.

My dad went on to row crew for Northeastern University, so that all that rowing paid off. My dad inherited that old motorboat, but other than one summer when we left it at a friend's house on a pond in Maine, we never used it. We finally dumped it off the trailer in '85 and left it to die slowly beside the ice pond.

When I was about five years old my parents bought a Coleman canoe. This was back when we got a flat hull and a box of screws and poles. I still remember my dad wrestling the hull into shape and somewhere we have a slide of me sitting in the canoe. Thanks to that canoe we finally got to spend more than a few days a year on the water. Before that my parents had borrowed boats for our yearly camping trip, but those camping trips are usually remembered by the "year something bad happened."

Like the year I hit my sister in the head with a horseshoe, or the year my dad split his scalp on the trunk lid, the year our tent got flooded and my sister and I woke up on opposite sides of the tent than when we fell asleep, with her head in a puddle, and the year my dad got bit by a dog and spent the rest of the week fighting the infection. That was the time I discovered I could pull the canoe around with my family riding along. With my dad out of commission, I paddled like crazy in the bow while my mom did the steering. We didn't go camping again after that.

After we moved to our new house on the ice pond, my sister and I took the canoe on the pond a few times a week until the pond was drained. Within a couple of years I read about a rowing club for teens being started a few miles away on the Merrimack River. Five miles was an easy bike ride to get out rowing, most of the time alone, but also in a group when a bunch of us got a ride from one of our high school teachers. The rowing club got us into races along the coast of Mas-

The Rowerwet Chronicles...

How I Got into Boat Building

By Josh Withe

sachusetts and taught us very quickly that dories are safe, but slow and easily blown around by wind.

Seven years later we finally began building a competitive boat. That spring we launched a Phil Bolger Stretched Gull Dory. While we had a boat that had been considered competitive in the traditional style racing, most of the rowers were moving on to faster designs. I loved the Stretched Gull and spent many hours in it. My wife and I even won first in our class in it not long after we were married.

Later living in Maine, with the rowing club in Massachusetts, I had to give up the rowing club and dories. To get my boating fix I borrowed my dad's canoe. For the next seven years I dreamed of building a fast rowboat but settled for adding outriggers and oarlocks to the canoe. Only after my parents took their canoe back, and a couple of years lugging a 17' Coleman canoe, did I get into my dream of building a boat. I ended up working nights, the hours put me out of sync with my family and I ended up with a few hours a night after everyone was in bed.

I read an article about building Mouseboats in *MAIB* and followed the link to the Yahoo Mouseboats group. At one point I read every single thread on the site all the way back to the first posts. While I felt I knew everything about building a Mouse I could read, I had this idea that wooden boat building was a precision game, much like building airplanes or race cars. I got this from building the Stretched Gull Dory while in the rowing club, we built it in the shop of a professional boat builder and carpenter, somebody who actually worked at Lowell's Boat Shop in Amesbury. He couldn't let a group of amateurs build a bad boat in his shop so he spent plenty of time perfecting our build and the boat came out looking like furniture.

I knew I couldn't make a boat like that and didn't know then that there are plenty of boats whose builders know every defect and oops, but they float and go just like the furniture boats. I finally got my nerve up and drew out a Micro Mouse on a sheet of cheap lauan (amazing how bad the cheap stuff has gotten in just a few years at the Depot), then spent a few hours leveling the tops of two sawhorses, attaching 2"x4"s to them and marking out the stations exactly (note, this is not how to build a Mouse)!

Instead, wire or tie wrap the hull together as fast as possible on any relatively flat surface, then get busy gluing the seams ASAP, before the cheap ply starts to warp, nobody cares if the Mouse is warped, they think it is cute/want to buy it/want to know where they can get one/can you build one for them/are just plain jealous that you are on the water and they are not. It took me all summer to build that Mouse, the garage was not heated so it got no attention all winter, then the next summer I finally dragged it over to a little known Maine pond hidden in the woods and launched it where nobody could see it fail.

It floated! Not only that it, was a nice boat, easy to paddle and stable! Fortunately somebody brought their kids over to swim

at the pond so I not only got them to take a picture, but got the first of a million longing looks from kids and compliments/questions about finding the plans from adults. Then I put the boat away and didn't touch it again for a whole year!

"*Seagull* the Mouseboat" tells the rest of this story (coming soon on these pages). Since then I've gone on to build eight Mouseboats (a record)? Two years ago I built two Minimice at the same time (twin Mouseboats) and another micro, *Scuffy*, the proper way, cut, tywrapped, taped and painted in a month and a half for all three. Yes, one is wracked (only I know) and one has a splice where I cut the curve wrong (only I know where) but it doesn't matter, just about every person I meet wants to know about the "cute little boats." All they know is my kids are having a blast in their own boats and they/their kids are not.

I finally built a "real" boat, a Michalak Larsboat, last summer but then went off on a wild tangent, building my eighth Mouse out of foam (weighs half as much as a plywood Mouse). A foam SUP (incomplete, thank you ADD) and a foam kayak I designed for my parents that is fast, stable and lightweight, called Sawfish. Google search for "sawfish kayak" to find the instructions on a site called instructables.com. In the past three years 16 Sawfish have been launched and currently there are more under construction around the world.

My brain is still designing the next boat, I just can't build it now because I'm busy building my foam camper (another story for another site). I get plenty of people wanting to build a boat, dreaming, planning (and probably never really pulling the trigger) responding to my Sawfish plans. If you just can't wait to build that perfect boat (there is no such thing) start with a small easy boat NOW!! I designed Sawfish to be easy to build, easy to move and inexpensive. For a little over \$100 US you will have a good performing kayak, If you don't like it, somebody else will give you enough money to buy materials for the next boat (more to come on these pages soon).

If you are committed to building a plywood boat, learn on a Mouseboat or two, don't bother with a showroom mirror finish, slap a coat of porch paint on it and get out there! Save the mirror finishes for after you are a boat building master and can build a boat worth wasting that much time just doing the finish. Mice can be built just about anywhere, in about the same space as a twin bed and stored in about the same space as a wheelbarrow.

If you have kids you owe it to them to get them out on the water early, all four of ours have been boating since birth, they all have fallen asleep on a boat cushion watching the stars and rocked by the waves. My oldest has just launched her first boat (I showed her what to do and she did just about all of it), all four love the water and should be addicted for life. *Seagull* is still going strong, now about to be passed on to a new family. For a boat built of cheap lauan and a ton of PL premium many years ago, she is not showing her age.

If you want to see the album of pictures of my Mouseboat fleet in use, the build albums of my Mice, foam Mouseboat, Larsboat *Duet*, Hannu's light rowing shell modified to be a kayak and built by my oldest child, the continuing evolution of my Sawfish design or read more about building a camping trailer out of XPS foam, look up my facebook page Rowerwet.



All nine of the loblolly pine logs needed to replace the the hull have been selected and shaped.

Shipwrights and apprentices at the Chesapeake Bay Maritime Museum have picked all nine of the loblolly pine logs to be used in on the 2016-2018 log hull restoration of the historic 1889 bug-eye *Edna E. Lockwood*. The team is restoring CBMM's queen of the fleet and National Historic Landmark by replacing her nine log hull in adherence to the Secretary of the Interior's Standards



Shipwrights and apprentices use adzes to hand shape one of the nine logs selected for the historic restoration.

Nine Logs Picked For *Edna E. Lockwood* Restoration

for Historic Vessel Preservation. Shipwright apprentices working on the project are generously supported by the Seip Family Foundation and the RPM Foundation. All work takes place in full public view at CBMM's waterfront campus on the Miles River in St Michaels, Maryland, now through 2018.

In March 2016, 16 loblolly yellow pine logs measuring more than 3' in diameter and over 55' long were delivered to CBMM after a two year search, thanks to a very generous donation by Paul M. Jones Lumber Co of Snow Hill, Maryland. With transportation costs of the logs underwritten by individual donors, the pine logs were trucked to St Michaels by Johnson Lumber of Easton, Maryland, and submerged in the Miles River for preservation. This fall the logs were moved onto the sawmill and rough shaped as the crew began to identify which logs would be selected for the hull. "It was very important to us to choose the right logs for this project," Shipyard Manager Michael Gorman said. "We were looking for old trees with tight grain and we're really happy with our results so far."

Over the rest of the winter shipwrights and apprentices will be preparing molds for the outside shape of *Edna's* hull, constructing her three cabins inside the boatshop and continuing to shape and pin logs. The beginnings of the hull are on display now in the boatyard.

Through spring 2017 the new log hull will be assembled and the original four

frames present in the bug-eye will be located and installed to reinforce the hull. When the restoration is complete, *Edna* will be placed on the marine railway and relaunched at CBMM's OysterFest in 2018.

Built in 1889 by John B. Harrison on Tilghman Island for Daniel W. Haddaway, *Edna Lockwood* dredged for oysters through winter and carried freight such as lumber, grain and produce after the dredging season ended. She worked faithfully for many owners, mainly out of Cambridge, Maryland, until she stopped "drudging" in 1967. In 1973 *Edna* was donated to the Chesapeake Bay Maritime Museum by John R. Kimberly. Recognized as the last working oyster boat of her kind, *Edna Lockwood* was declared a National Historic Landmark in 1994. *Edna* is the last historic sailing bug-eye in the world. More about the project, including progress videos, is at ednalockwood.org.



Shipwrights and apprentices work on a spare piece of loblolly pine.



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08-26-16

Well, I got the worktable back into the workroom. I'd taken it out ("it" being actually a shipping pallet and a 4'x4' sheet of $\frac{3}{8}$ " plywood) so that I could see if an idea I had would work. The idea was to possibly get *Talitha Cumi* to fit underneath the worktable, thereby allowing me to keep her inside during the winter (instead of outside under a tarp). At first glance it doesn't look as though it will work. The pieces of 2"x4" cantilevered out from what used to be the frame for the sofa, which support the west half of the table, look like they're too close to the floor. Then one thought I had was that I might be able to modify the support system for the table so that there would be more space under there.

One question that arises, of course, is how much time is appropriate to spend on that facet and how much should be dedicated to actual work on *Dancing Chicken*. Maybe I can think of some way to divide the time between the two. After all, *Dancing Chicken* is a sectional and, of course, one of the advantages of this fact is that moving her around from place to place is a lot easier than it would be if that was not the case. During my attempt at moving *Talitha Cumi* up into the loft I remember reflecting on the differences between the factors involved in moving a boat that's a sectional and those in moving a boat that isn't.

09-08-2016

OK, one thing seems to be obvious. Phases and factors just take as long as they take. Not only that, but as they're evolving, they seem to reveal yet other factors, some of which may be important enough so that to try to accelerate any part of the process could be, well, not as good an idea as it might have seemed at first.

11-09-16

Part of the time lapse is due to the fact that my fall school semester had started and HTMLCSS (used to design web pages) can be, well, hmmm. To get some idea of what it's like, just pull up a web page on the internet, any web page. With your cursor on the page, right click with the mouse (somewhere in the middle). A menu should come up. Move the mouse down to where it says "View page source." Left click on that. What you will see next is the "code" the person who designed and executed the web page had to, well, design and execute to make the web page happen. It's been interesting. I am taking a break from the above and it seemed appropriate to pick up the thread of the tale I had dropped a short (sort of) while back there.

The worktable was suffering from the contingencies impinging upon it (one of my favorite phrases again) due to the conflict between what I wanted it to do and the fact that the various parts of the table were adamantly insisting on obeying the laws of physics, no matter what. Not that I'm knocking physics. Actually, I am a big fan of physics. For one thing, at some point I came to realize that physics is actually a big set of tinker toys given to us to play with by the designer thereof.

Meanwhile, various factors, such as the fact that since I built *Talitha Cumi* my camper has developed even more of a list to starboard than it was exhibiting then, is affecting what needs to be done in order to construct, or partially reconstruct, a work surface for the boat which will stay more or less where I put it

Dancing Chicken

A Mini Saga in ? Parts

By Gloria Sadler Burge
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Part III

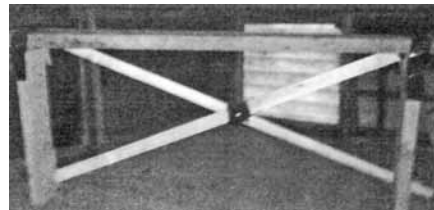
for the duration of the project. Yes, I know I should jack up the camper, but to quote Olaf (Frozen, Disney, Chris Buck, Peter Del Vecho), "Not right this minute."

When I first put the worktable together, just about any supporting members could be put together, with or without any major fastening, and the weight of the pallet on top would put enough downward pressure on it so that it would stay put. It was lots of fun to be able to do it that way. Now, however, more factors are apparently going to be involved in constructing the supporting members. Actually, now they would probably more accurately be called supporting "modules," not just individual pieces, and they have to be able to resist that penchant that I mentioned earlier while building *Talitha Cumi* that rectangles have a way of wanting to become parallelograms.

The solution seems to be turning out to be triangles. I've played with these before and I may, in the course of this saga, chortle about them some more. But meanwhile, they need to, in every sense of the word in which it is currently applicable, be put in their place. Their place is, of course, under the table, cooperating at that location with the other members that make up the modules that I am hoping will work to get the table finally back up.

12-27-16

The table is up! Here is a photograph of one of the modules. There is a piece there on the right that doesn't look exactly relevant to the module and that's because it is actually part of *Dancing Chicken* obligingly assisting by keeping the module from tipping over while I take a picture of it while I have it standing temporarily on the west half of the table.



At one point I recall being not only grateful that at some point someone had invented #12 gauge utility wire, but that I had obtained a roll a few weeks ago, thinking that it might (as it often does) come in handy. It did. The piece illustrated is being used to help convince the east side of the table that it should remain with the west side of the table instead of trying to do one of those parallelogramizing experiments.



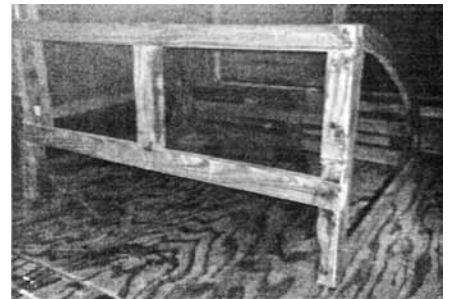
Here is a picture of the table before I put the two sheets of $\frac{3}{8}$ " plywood on it that comprise the worktop of the table, showing the #12 gauge wire there doing its job.



And next here is the worktable with the boards in place.



Next I relieved *Dancing Chicken* of all the miscellaneous items she had been holding for me while I worked on the table and got her situated back thereon. At 8:30 on New Year's Eve I took this photo of *Dancing Chicken* back on the worktable.



This next shot is not actually "Work in Progress" per se, but more along the lines of a "three dimensional rough sketch."



The reason for this, aside from what I mentioned earlier about the fact that doing it this way gives me a chance to "twiggle" and to see if things look like they are going to fit, before the final gluing and fastening, is that the table episode gave me a chance to rethink a couple of things.

No, I am not doing any major redesigning of the original *Dancing Chicken*, at least not of the original profile view of the bow section that has come with me through all those moves and on which I have stated I was not doing any major redesigning. But did I mention that part of the reason I had designed the midsection and aft sections to the dimensions that I did was so that they could fit in the pack-

age express compartment (I think that's what they call it, it's been awhile since I conferred with them) of the Greyhound bus?

When I lived in Houston and started building *Dancing Chicken* some 30 years or so ago, there was a bus that went from Houston to Galveston. My plan was to build *Dancing Chicken*, take her with me on the Greyhound bus in the package express compartment (which I had ascertained that with some advance planning, etc, it would be possible to do so that both she and I would arrive in Galveston on the same bus) and launch in Offats Bayou.

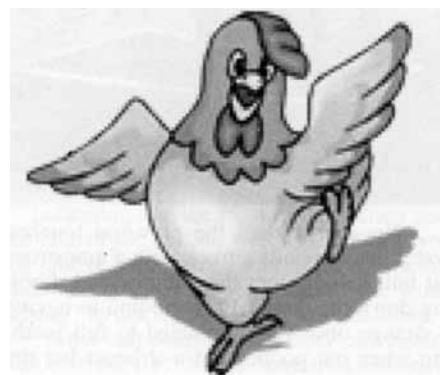
Back then getting in touch with the right people to find out what I would need to know in order to do this was not easy. The main problem was getting the right dimensions. I needed to know what the maximum size would be that I would be able to transport in the way I had planned. I'm pretty sure that the dimensions I wrote down back then were smaller than they

needed to be, but at the time they were what I thought I needed, so I went with those.

So now two factors come into play. For one thing, the main criterion right now is getting *Dancing Chicken* actualized and into the water as she does not have to go on the Greyhound bus, at least not right away. The other factor is that longer sections (the original sections being 2 1/2") would have definite advantages in several ways.

So here she is, back on the worktable with three dimensional rough sketching taking place (I will plan to include a more cohesive picture of this unfolding design and maybe some drawings in Part IV). The development at this point reminds me of a Polaroid camera photograph becoming visible. Hmmm. Am I referencing an anachronism at this point? I am realizing that at my age I have several that I can reference. Did I ever mention that I can remember when it

was illegal for margarine to be yellow? Well, obviously, another time for that one. Meanwhile, here is *Dancing Chicken* in the process of hatching (or rehatching)? We shall see.



The Beetle Shop had a busy 95th year shipping Beetle Cat new boats, used boats and parts all over the country. California, Missouri, Alabama and Montana are just a few of the places introducing the Beetle Cat to their local waters. One thing always seems to remain the same wherever this little boat goes, it is an eye catcher and centerpiece for conversation.



Beetle Cat headed to Montana.

The new website has been a hit as it has allowed us to keep up with changes easier (especially on the brokerage side). This has translated into a spike in interest in both used Beetle Cats and the larger vintage wood boats we have on site.

We were warmly welcomed at the Woodenboat Show where there was lots of interest and questions on rebuilding Beetle Cats, along with the techniques used in building the custom spars. The trend this year has been toward used Beetles both as project boats and entry level sailing for families. Since January 2016 we have successfully brokered 24 used Beetle Cats. In addition, we

News From the Beetle Boat Shop

have over 225 boats in house for winter storage and maintenance, which is a good indication that the fleet is alive and well. The word of mouth recommendations and positive social media from the Beetle Cat community has been a big part of our growth and longevity and is much appreciated.



Beetle Cats in the Storage Barn.

On the latest press side of things, *Classic Boat* magazine readers voted the Beetle Cat runner up for Best Traditional New Build under 40' this year and the 26' Herreshoff Alerion *Thetis* is featured in the month of March in the 2017 Woodenboat Calendar.

Any reader who has any questions on repairs, maintenance or parts for a Beetle Cat, do not hesitate to call. We just shipped a

complete backbone and frames to California for a customer who is doing a full restoration. We ourselves are doing a complete restoration of a 1960s Beetle Cat that sails in Padanaram Harbor. The original owner is excited to get it back in the water for next summer.



Frames bent on the mold.

Beetle Cat backbone ready for shipment to California.



Part 18

Well. It's finally New Year's Eve. Poor, blighted, divisive and explosive 2016 is just about done and so is the building phase of *Mobius*, the bunkhouse barge. I got a note from the Planning Department, actually it was scrawled across one of the still unopened envelopes in a pile of reminders of obligations, new offers and oddments that have accumulated during my recent period of convalescence. "Fri-Sun: (1) finish interior canvass coverings, (2) glass forward bulkhead, (3) fill in forward footwell, (4) first coat of paint on (at least) coachroof."

I think there were at least another dozen things on that scrawled list. Who do those Planning guys think I am? Superman?

Well, what I discover is that I am officially a septuagenarian. My rookie season is already four days old. Not only that, but a baby septua with a recent and brutal surgery to change one knee from bone on bone to titanium on ultra high molecular weight polyethylene. That doesn't quite sound like Superman. I may have to put the next bit of the Plan of Action and Milestones into more than one envelope. Guess we'll see about that.

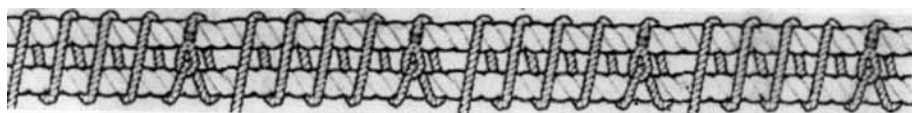
Being that it's Friday, The Boss and I had an extra cuppa Joe, watched the snow fall for a while and waited for the morning crew to show up. There's this one act play by Samuel Beckett, "Waiting for Godot," that I sort of think about at times like these. By 10:30, with nobody else here to get to work, I was wondering what size painter's coveralls The Boss wears. He gave me the ol' stink eye and let me know that painting is for creatures with opposable thumbs. The rest of God's children get by just fine without paint, thank you very much. Things were off to a slow start. One good thing came of all this.

I'm the only one on the crew who's on salary. Anybody else would be hourly. I don't figure we need to pay hourly guys when they don't show up for work. Me? I can work all the hours I want to and nobody gets too excited.

So with that late start I figured The Boss would be disappointed when he came out to inspect later. Although, at the moment, he didn't seem too bothered by anything.



When I finally got to work I was a bit ticked off to see that the night shift left a pretty big pile of rubble in the cockpit. There was a note on the whiteboard, "Clean up cockpit, finish hanging insulation in overhead, finish gluing canvas on interior surfaces before painting."



A Modest Proposal

(continued)

By Dan Rogers



Nothing for it but to get to work, I suppose.



It's not rocket science but I have to crawl in and out constantly to cut and fit all those little styro blocks. And I cut the canvass panels out on the outfeed table, too. But I don't go back to physical therapy for about a week and should be able to get the swelling in my knee back down before then. So I canvassed all the remaining flat panels, cut and fit a bazillion styro pieces.

And before my friend Dan at the paint counter in our local hardware store closed up for the day, I was getting another gallon of my favorite color, "Fiddler's Green Cream," mixed up. Kate and I first came up with this custom color for our liveaboard in San Diego. Since then I've discovered that it's the same thing as a manila file folder and Rustoleum's antique white spray paint. But we thought we were really on to something back then. Anyhow, it's an easy match.



By the time we had an early knock off for the night shift, I had two coats on just about everything inside and out. And I'm outta paint already. I think the top is supposed to be red. Another custom color that matches Rustoleum's regal red. I guess I'll have to go visit Dan in the morning. And, you know, I pretty much doubt anybody will get anything done while I'm gone.



Part 19

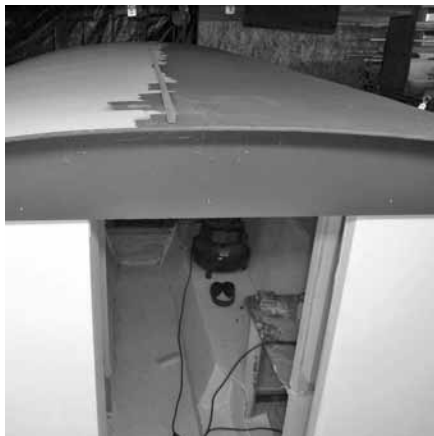
Twenty-two below and spring just has to be around the corner someplace. Alice and I went down to see what's up at the beach. Not much happening this afternoon. But hey, the first cruise of the year over here on the Dry Side (east coast of Washington) comes in less than three months. Fortunately the county crews take care of this particular road. We were just being tourists. Believe me, I was some kinda COLD out there today. I scuttled back to the shop and got back to work before The Boss discovered I was AWOL.



Seems like, the last time I checked in, the Frankenbot in progress was gonna have a red top and the designated name was *Mobius*. But then I mentioned it to SWMBO. Since then, there have been a couple rather large changes of paradigm.

First off, I discovered that I have had too many red boats. What I really wanted was a green boat. And not just any green. What I really wanted was a forest green. This would

be the particular green that I discovered I really wanted to paint the cabin top all along. At least I hope this is the one I really wanted because my friend Dan, over at the hardware store, mixed me up a fresh gallon of the stuff.



I of little faith, started with a quart. That made two coats for one side. At this rate I should have plenty of green paint. When SWMBO dropped by on one of her quite infrequent visits to check on the newly desired colors, she mentioned that the boat was looking like a gypsy wagon. I of little spine readily agreed.

That was when I discovered that I really didn't like the name *Mobius*. Nope, not a bit. What I really did like, shall I assume you've already beat me to the punch line here? What I really like better is *Gypsy Wagon*. So *Gypsy Wagon* with the forest green lid will, hopefully, inch closer to launch and sea trials.

After the styro insulation was all in I had a moment of hesitation. My plan all along has been to close the overhead in with narrow pine strips. It's a process that I've used in several of the forebears. When I began cutting up the pine that I have been saving for this next phase, it had a whole lot more stress, twists and warps than I figured on. Not the best circumstance when the stock all must be resawn and bull nosed and sanded and expected to remain in place. Soooo, I took a bit of a short cut. The longest distance between two points. I cut up a stack of birch faced doorskins and hung them up one frame bay at a time.



Of course, I still needed trim stock to cover all the staples used to mount the birch ply panels. Same stock. Same process. Same short cut. Maybe fewer climbings in and out. Anyhow, there's still a modicum of pine strips needed to trim out the corners and bulkhead ends and such. But further progress today was sort of limited.

The other reason I drove Alice down to the lake today was an effort to get her transmission warmed up. Seems her original equipment hydraulic system (1947) is prone to freezing up. The oil comes directly out of the main gearbox and through a simple power take off pump. It goes through a 10' long hose to a single action cylinder, no return line. While wrapping that 14hp four banger up to "full speed" (probably 15mph) is kinda dramatic, not enough heat generated to get the snow blade lifting mechanism to work. And we've got another dump of snow on the way. Soooooo, looks like I'll have to rack up the remainder of the day to other than Frankenbuilding. Here's hoping for better luck tomorrow...

Part 20

I have it on good authority that we cannot have another spring and summer without first experiencing fall and winter. At least most of us.



Just as all roads eventually lead to a wider world, it's still the journey that matters. Or so my staff poet here at the Frankenwerke tells me on those ubiquitous little yellow stickies he leaves stuck to my computer screen and other places that he thinks I might be searching out inspiration. Anyhow.

The day shift has been a bit distracted lately. Lotsa snow. Really, really cold outside. Boatsheds threatening to come crashing down. Ice dams on a slippery roof.



If it wasn't for the night shift we wouldn't be getting anything done. And a lot like Johnny Cash and his lunchbox car, those guys have been doing it literally "one piece at a time." My potentially hairball idea to cover the entire inside and outside of *Gypsy Wagon* with glued on canvas comes with a significant risk of catastrophe. It still could all come peeling off. And wouldn't that be a fine kettle of fish?

So one of my fallback positions has been the notion that each and every "edge" would at least be clamped down by some sort of trim pieces. Granted, these sticks are glued down to the very stuff they are supposed to anchor. An example of circular reasoning, if I do say so myself. But on they went. Sticks. Lotsa sticks.



A long serving Federal Reserve Chairman famously warned about “irrational exuberance” a while back. There is probably a lesson here. But nothing hides things like a couple of coats of paint (“putty and paint make a boat what it ain’t!”). And I’m thinking that nothing stiffens fabric like a couple of coats of paint. My work shirtsleeves would be an instructive case in point. Anyhow, thanks to those guys on the night shift the whole outside is more or less clamped down, and trimmed up. On to the inside.



And the inside job is being run by a group of management specialists who still remember the shibboleth of the “80/20” rule. Or in other words, every time I think I’m about 80% done with the inside, the remaining 20% grows back into something else again.



Like that heckler who shows up at the morning staff meeting sometimes. “Hey, smart guy, what’rya gonna do about those piled up, globby messes at the corners of the coachroof?!” And about all I can think of at the moment is something like this common rejoinder, “I’ll work on it while I’m out plowing snow. And besides, that night shift usually gets stuff figured out. Usually.”

Right now I’ve got to go out and cut some more sticks so those guys will have something to work with.

Part 21

Spring plowing.



What I mean by that is if I didn’t go out and move a bunch of critical snow berms this afternoon, spring would come and go with my fleet likely still snowbound. When The Lucas chastised me for moving here to this “frozen hellhole in Almostcanada” he really didn’t know the half of it. Come March, even April, we can still have snow and ice on the ground. Folks in Spokane (35 miles away) have been out planting petunias and having BBQ chicken on the deck for weeks already.

But what tipped the scales today was a rather alarming winter weather alert from those boys and girls down at the Weather-guesser Office. Seems, it’s gonna warm up and rain, rain, RAIN. Then, being only the middle of January, when it’s done raining it’ll no doubt freeze, freeze, FREEZE. And that would be that. *Miss Kathleen* has been spending her winter vacation at the bottom of a hill and behind a rather large pile of snow. Once turned to ice it would be a bugger to bust her out for our first cruise. And, truth be told, I often take a few solo outings in January or February.



That shed is 15’ high and about 30’ long with *M/K* hunkered down inside, cold but dry.



And after an hour or so of huffing and puffing Alice and I had her closer to being ready for an early jail break.



But not without incident. Alice is only one model year younger than I am. And neither one of us is quite as spry as we once were. In the process of taking “just one more swipe” at a particularly pernicious pile of precipitation, I slid us right off the road.



This particular shot is after about an hour of working with that shovel, here stuck in the snowbank at a rakish angle. Not quite authorized activity for somebody still going to physical therapy for a total knee replacement. And the right drive wheel isn’t even on “anything.” And all I was trying to do was get ready for spring. I know, excuses, excuses. Once Alice got dug out we went after *Gypsy Wagon’s* trailer. More huff and puff.



And, this matters how? Well, for starters I officially declared the sawdust phase of getting *Gypsy Wagon* into the water for initial trials complete, for now anyway. Yep, we're busy varnishing and painting. Cabinets and interior doors and more trim can wait. There's two sliding doors and four swing up windows still to invent. But as soon as the top is painted we could actually start working on getting her back on that refrigerated trailer.



Maybe only a couple of rainstorms and maybe a dry day or two from now. Maybe. I would at least like to be able to step back far enough to see what this little girl looks like. Maybe soon.

Part 22

I have become a bit of a slacker. At least that's what I think the term means. Back in my Fleet Sailor days we knew 'em as "Skates." Perhaps this relative vacation has been more a matter of indulging the "soul of a poet" that I, on occasion, allow to emerge. He's a reclusive thing. Please allow me to describe one of his furtive squints into the sunlight.

Alice the tractor, Beau the sea dog and I were out plowing snow for the umpteenth time yesterday. Alice has a relatively small engine and a relatively small plow blade, at least compared to present day machines with roaring V-8s and huge articulated plows mounted ahead of humongous pickup trucks of various manufacture. We move slowly and often come to a jarring halt. You could say that we are caught in that netherworld of snowplowing. We are too slow to blast our way through the drifts and high piled berms. We are not powerful enough to muscle our way through them either. So we must make repeated passes with varying results. Occasionally it's an almost perfectly beautiful thing.



We, all of us, put to sea in boats for slightly differing reasons. Me? I delight in watching the curl of a bow wave. I can do it for hours. Often I'll let the girl have her head and just lie prone on the foredeck. I watch the infinitely variable shavings of water, they form and disperse in an instant. Each surge is an independent being of, at least indirectly, my own creation. The opalescence of one curl is often joined by a thick, truncated companion as we ascend upward. The next, predictably taller and thinner as the boat surges down and follows her unwritten table of ever shifting buoyancy. Yesterday, so it was with the snowplow.

Beau maintained his lookout, in seamanlike fashion, off to port. Alice, as she may well have done each winter of her 70 total, continued to thrum along. Her four cylinders fed by that ancient Zenith updraft carburetor, each answering to the equally ancient magneto's electrical stimuli, leaving me to study the infinitely variable curl of our bow wave. Nearly pure white, thin, but a most graceful performance, everything in balance, everything detached from the accepted norms.

For that moment, perhaps an hour or so, my inanimate companion, my loyal and sentient beast and that reclusive soul of the poet joined me for a metaphorical sea voyage. You could say that we tacked back and forth over a shifting seascape, rising, surging and playfully shoving the ocean aside, but ever that beautiful curve of a bow wave. Announcing our presence to absolutely no one. Shattered in our wake of lugged tires and chains. Each lovely billow but a blurred memory.

As all reveries must, that one ended with cold fingers, despite my gloves. Time to shed my veteran Carhart jacket, plowing Stetson, rubber boots, Beau's crow's nest and assorted winter things.



Even a poet knows to avoid dripping across Kate's floors. We typically decamp out in the shop. And what a delightful surprise! The elves have not only been busy, they've been doing some pretty good work during my sabbatical. Apparently we interrupted a work inprogress. At least, those elves never seem to be around when I go looking for 'em. And how were they going to know that I might just show up and decide to climb up inside *Gypsy Wagon's* cabin? Just a good thing for me that I move more slowly these days!

That “temporary” ladder, that has become an almost permanent fixture, was on the way out and something with a bit more class taking its place.



Like I was saying, those elves tend to stay out of sight, but they didn't seem to mind when I got down on my belly to peer into the catacombs under the aft cockpit.



Another “temporary” solution to my own impatience and the imperative of rapidly passing time. The original engine bearers and associated offal still inhabit this zone of darkness. One day tankage will find a home here, until then, ignorance is bliss.



For now, just a dungeon. But the surprises just kept coming. Somebody had been experimenting with a sliding door for the aft entrance. I'll suppose the elves have grown tired of hearing me complain about thwacking my head on the too low door frame. While I was out playing, er plowing, somebody cut a significant chunk out of the head knocker.



That notch runs right up against the interior woodwork and headliner. Somebody did quite well with a grinder and Sawzall, is all I've gotta say. The door was still pretty rough but certainly shows promise. There was a profusion of aluminum extrusions lying about, probably something from that pile will turn into tracks. Maybe. Then the piece de resistance, pieces actually.



Somebody had been turning perfectly good (and damned heavy) sheets of 3/4" MDO into strips and arches and such. The long awaited windows!



I also sorta wondered what the poet might have to say about it. I'll have to try to remember to ask when I see him.

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Suppose you need a place to live and suppose you love boats and suppose, furthermore, that you only have money for the boat so you'll have to live on it, too. Solution, get yourself a houseboat. But houseboats are boring, blocky things that just float at the dock and don't go anywhere, whereas you'd like to go sailing in this one boat that you can afford. Solution, build yourself a Quidnon. The name means "Why not?" in Latin, as in, "Why not build a houseboat that sails?" Not only is Quidnon strangely versatile, it is strange to look at as well, being a square boat and very much from a Phil Bolger lineage. Basically I started with a sharpie, and then...

But let me digress. Ten years ago I was a software engineer living in a condo in Boston and commuting to work by car. But I wanted to give up programming and become a writer instead (which, by the way, I did). Now, becoming a writer is usually a really good way to end up broke, but I didn't, because I eliminated two large categories of expense, the condo and the car. Instead, my wife and I bought a sailboat, moved aboard and set off sailing.

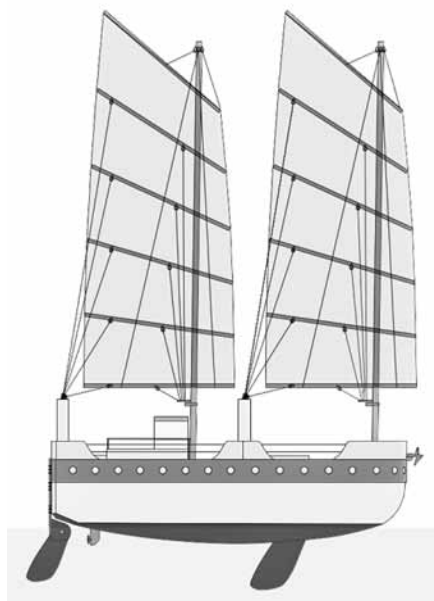
I was a big fan of Phil Bolger and so the boat we bought was a sharpie, *Hogfish*, built by Chris Morejohn. We found out about it from an ad in this very magazine. I loved *Hogfish*, the way it sailed and especially the way it went aground. We went aground at least half a dozen times just getting through the Intracoastal Waterway along the New Jersey coast. Usually when we went aground I'd take a nap, or make a cup of tea and wait for the tide to lift us off again.

But then we got pregnant and it became clear that *Hogfish*, at 32' and an 8' beam, wasn't going to be big enough for the three of us. And so I sold it and bought a "proper" yacht. I didn't like it nearly as much and in my copious spare time (writing is an on again, off again sort of work) I started dreaming of building a boat I would really like, a houseboat that sails. This being the 21st century, I started a blog (at quidnon.blogspot.com) where I recorded my design ideas. A year into this project I was joined by two other engineers, one in Boston, one in Lisbon. With their help we made rapid progress and we are now making plans to build and launch Hull #1 later this year. We tested out the design on a 1:12 scale model, found a few bugs with our assembly process and fixed them. We also used the model to verify that this houseboat does indeed sail, even close-hauled, and it even short tacks well.



A Houseboat That Sails

By Dmitry Orlov



How many hulls will there be eventually? Well, that's the interesting thing about Quidnon. Most boat building projects go on and on because every piece has to be hand-crafted, then installed. But I wanted to be able to start building this boat and then sail off just two or three months later? How could that be done?

Our solution is a combination of extreme high tech and extreme low tech. We modeled the entire hull in 3D design software. It consists of plywood panels that are epoxied, painted and then milled out on a numerically controlled mill and fit together like a three dimensional jigsaw puzzle. The panels, numbered in order of assembly, are all joined together using mortises and tenons and fixed in place by driving in wedges, barn raising style. Then all the joints are saturated with epoxy, filleted and the outside of the hull fiberglassed, faired and painted. And then its splash time! All that's needed is a level patch of ground near water, a tarp to throw over the hull on rainy days and a crane, which is

needed exactly twice, to flip the hull and to dump it in the water. Everything else can be done with the boat floating at the dock.

Anybody who can wield a wood let and drive in screws can build a Quidnon. Those unfamiliar with fiberglass and epoxy might want to leave that part of the operation to the Fiberglass Elves but everything else can be almost entirely DIY. We hope that lots of people will want to build a Quidnon. We even have a sort of business plan to get the operation off the ground. We will seek crowdfunding for this project and those who contribute will receive a discount on their eventual order of the Quidnon kit. We will also sell consulting services to make sure that the DIY part of the operation goes off without a hitch.

This is a great boat for anyone who wants to live aboard and mess about in a sailboat. And it is an especially good boat for anyone who likes Phil Bolger and boats that go aground well. When the first Quidnon takes to the water, drops its keelboards, raises its twin junk sails and heads for the horizon, I hope that Phil will look down from heaven and smile. To find out more about it, visit Quidnon.blogspot.com or email me directly at dmitry.orlov@gmail.com.



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Delaware River Chapter of the Traditional Small Craft Association January 2017

Forty-five years ago at the University of Pennsylvania my advisor in Sanskrit, an ancient language of India, told me that the oldest aphorism in the world is found in the *Rig Veda* and says, "The wright learns from the cracked." Basically this means that you truly learn how to do it correctly by examining and repairing what failed. Most of my training as a boat wright involved repairing boats which had failed structurally, or by rot or teredo worms. Leaving structural considerations, technique mistakes largely aside, I would like to focus on how the boat builder might mitigate failure through rot and worms.

Let's take a moment to look at the historical picture. As I write, the *U.S.S. Constitution*, built in the late 18th century, is in drydock being repaired so that she might be refloated again. What is *Old Ironsides* built of? Her frames or ribs are southern live oak, the kind of tree with the moss hanging down from the branches. Her skin is northern white oak, much more suitable for planking as it comes in longer, straighter lengths. Although it is difficult to be precise, she's thought to be slightly less than 50% original.



In Hartpool, England, lies the frigate *Tricomalee*, built about 1813. She was constructed in Bombay, India, from old growth teak, both ribs and planking, and is largely original. Here in Philadelphia most ships were built from what's referred to as hart, hard or red pine, a long leaf pine that was denser than white oak and incredibly resinous. Most of this wood was timbered by 1820 but you can still see it in the deep red floors of Old City. The oldest log canoes were made of hard pine logs dragged out of the Maryland swamps.

So it seems that the modern boat builder has to contend with seven factors when choosing woods (notice the plural) when building a boat. They are as follows.

1. Old growth seems universally superior to plantation of reseeded woods.

Boat Building with Wood

By Carl Weissinger

2. Heart wood is more rot resistant than sap.

3. Air dried is superior to kiln dried except in the case of gluing laminates.

4. Quarter sawn is superior to plain sawn as it expands and contracts less.

5. For the sake of the planet, tropical hardwoods are to be avoided as they cut down many other trees to drag the preferred log out of the jungle.

6. Price.

7. Availability, there are thousands of woods but many of them are rare, at least hereabouts.

So where might one buy boat building wood?

Maurice Condon in White Plains, New York, specializes in boat building woods. They carry both hardwoods for ribs and keels as well as softwoods for planking and Sitka spruce for masts and spars. Incidentally, bring your checkbook as they will not take a card.



Harbor Sales in Baltimore, Maryland, specializes in marine plywood and will deliver locally.



Thompson mahogany, here in Philadelphia, specializes in mahogany and also carries ipe and Brazilian cherry or jatoba.

Bateman Brothers, another Philadelphia firm, carries softwoods such as Douglas fir and western red cedar.



A local lumberyard such as Tague can order for you. Gannon and Benjamin have a line on tropical hardwoods such as angelique. You could call them for their source.



As to plywood, the key here is to have waterproof glue between the laminates. Another factor is gaps in the laminates, "aircraft grade" being the best. Edges should always be sealed as also should be sheet fasteners. Therefore, when you drill a hole, put some sealant in before the bolt or screw.

Some woods have no business being near a boat. We've all heard stories of balsa cored decks rotting out completely. Poplar seems like the best friend of rot and red oak has a better capillary draw than celery and should be strictly avoided. For structural wood, white oak is local, cheap and available and the business about it not getting along with epoxy is an urban myth. Use #80 grit, surface wipe with alcohol and you're fine. Most of the teak these days is plantation grown which is good but it doesn't have nearly the rot resistance of old growth teak. Black locust is grown largely in Kentucky and Tennessee and, if you can source it, lasts forever and is not expensive. It is somewhat difficult to work with. Osage orange has a similar story.

For planking woods, cypress is cheaper than western red cedar but like Spanish cedar, which is plantation grown, smells bad when you work it. According to the US Forest Service black cherry and black walnut are both highly rot resistant and locally available although the latter is especially pricy.

The following woods are known by me to be plantation grown or sustainably replanted: Spanish cedar, American mahogany, cherry, black walnut, Douglas fir, Sitka spruce and teak.

As to worms, it was discovered in the 18th century that this pesky mollusk could be kept out by sheathing the hull in copper plates. Later on copper paint was developed to do the same thing, hence botto'm paint. They've been known as far north as Hoboken, New Jersey, but not in fresh water.

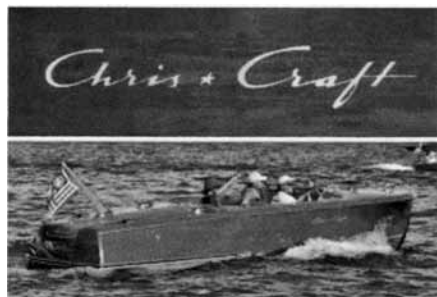
So what about local woods? I've used the tropical hardwood ipe for all of my rub rails as it has a terrific impact resistance. I've found, however, that when precautions were taken gluing with a 12/1 taper, rough surface, wiping with acetone and epoxy glue, the joint failed after several years.

I also like what is called iatoba or Brazilian cherry. It is an extremely dense wood and is oily like teak and has a deep red color. I generally use it for decks but it must be kept oiled. It is considerably less expensive than teak.

Another tropical hardwood you might consider is American mahogany. In colonial times most mahogany came from swamps and is termed low land mahogany. It was/is a very dark, dense wood which was largely used up by 1900. A cousin to this wood is still pulled out of the South American rain forests and is locally available. Most mahogany we see today is farmed from Central America and grows at higher elevations. It isn't nearly as dense as the lowland variety and is redder in color. It is referred to as upland mahogany. Interestingly enough, the *Kalmar Nickle*, Delaware's recreated tall ship of Swedish origin, is built completely from mahogany excepting the spars. Her keel, planking and carving are all mahogany.



You might ask, "what about the other mahoganies?" Back in the days when Chris Craft was a going wooden boat concern, they sourced their wood completely from the Philippines. At some point, perhaps in the 1970s, the Philippines decided to process their wood for themselves, therefore shipping only milled lumber of a darker hue. Unfortunately, they decided to jumble several different species in their shipments, some of it rot resistant, much not. In consequence, you never knew what characteristics a given board would have so most boat builders won't touch it today.



The same is true for of the so called African mahogany. There are said to be five different species in any load of African mahogany. Some of it will work very well and some will corkscrew when ripped on the table saw. Gannon and Benjamin, per-

haps the premier boat builders on Martha's Vineyard, favor the use of angelique for their structural parts on the schooners they build. Supposedly their suppliers take special precautions to carefully extract their logs from the rain forests in northern South America.

Speaking of New England, some traditional boat builders used to build compartments where the deck met the side of the ship. These boxes would then be periodically packed with salt so that any water that seeped through would be so saline that rot could not grow. When I was a lad, most boat builders tried to ventilate every part of a boats interior. A flotation pocket would be a no no. This was thought to discourage rot.

Of course today, with the advent of cloth and epoxy coatings, the thought is to encapsulate the wood so that no water and rot spores ever contact the wood. I built a dory this way designed by Phil Bolger in the finest marine plywood in 1970 or so. I double coated all with West Epoxy and the boat lasted for 30 years. Eventually water and spores got in and the sides turned to powder.

My lesson was that very little lasts forever. I might point out that down the road, if a boat part is epoxy fastened there are two consequences. One is that of bedding. In the '60s, if the plans called for two pieces of wood to cross each other,

you would smear the intersecting members with the bedding compound, a goo purported to prohibit rot. With the advent of epoxy this joint would be glued and the plastic would seat the wood. Unfortunately, when rot did occur the epoxy joint was often much more difficult to disassemble for repair or replacement.

So what would I use if I were building a boat today? I think I would make the structural parts out of laminated white oak glued with epoxy. I might just try black locust if I could get a hold of it. For planking I've traditionally used western red cedar. It's available in long lengths in pre milled lumber in either 3/4" or 1 1/2" thickness. The 1 1/2" is nice because ripping yields quarter sawn strips. It is incredibly expensive though you get a high yield out of your lumber.

Cypress is less expensive but you have to get it from Condon or a South Carolina source. Both these woods are extremely soft and will not take much abuse although an epoxy glass coating certainly helps. So why not cherry? It's locally available from small country sawmills at half the price. It's attractive if you want a clear finish. The Forest Service gives it an excellent rot resistance rating and it doesn't dent nearly as easily. It is a bit heavier though. It also glues exceptionally well. So let's go.



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Basic Measures When Talking About Electric Power

(If you remember your high school physics you can skip this section)

Volts: this is a measure of the electric “pressure” present in a system. Electrons (electricity) will flow from the minus terminal to the plus terminal on a battery if there is conductor between them. The volts are a measure of how much force is being exerted on those electrons. Normally air is a good insulator so we don’t have any electricity flowing between the plus and minus terminals on a battery because the volts (pressure) are fairly low. Now if we crank up the pressure to 50,000volts the pressure is so high that air no longer acts as an insulator and we will get a spark, such as in a Tesla coil or static electricity generator.

Amps: Amps are a measure of how many electrons are actually moving in a circuit. If we have only one electron being pushed by 50,000volts it is not going to cause much damage. Static electricity may have a very high voltage but not many electrons moving (a static shock may be 0.002amps or 2milliamps). However, if we short out a 12volt battery (which contains lots of electrons) we can get a current of 1000amps or more and this will cause quite an explosion and melt the battery terminals.

Watts: Watts are a measure of the power the electricity is providing at any one moment. It is calculated as volts x amps, and the unit of power is called a watt (volts x amps = watts). Watts can readily be converted to other measures of power such as horsepower, calories, BTUs: for example 1hp = 750watts. 1000watts is called a kilowatt or kwatt.

Watt-Hour: Watt Hour is a measure of energy used or available. When power is exerted over time it becomes energy. For example if we keep a 100watt light bulb on for one hour we will have used 100watt-hours of energy. If we use 1000watts for one hour we have used 1kilowatt-hour or 1kwatt-hour. A battery stores energy for future use. A 12volt 100amp-hour battery theoretically stores 12volts x 100amps = 1.2kwatt-hours of energy. This can be used sparingly or rapidly. If we have a current of only 1amp (power = 12watts) then we can use it for 100 hours. If however our current is 10amps (power = 120watts) then the battery will last less than 10 hours (I will describe below why it will always be less than 10 hours).

Amp-Hour: An amp-hour is a current of 1amp run for one hour. It is a given current in amps times the hours that it is run regardless of the voltage. A 12volt current of 1amp run for 1 hour is 1amp-hour. However, a 6volt current of 1amp that is run for 1 hour is also 1amp-hour. So, amp-hours do not represent the power available. To get power we need to multiply the current by the voltage. Deep cycle batteries are rated in amp-hours. A 100amp-hour battery should theoretically be able to produce 100amps for 1 hour or 1amp for 100 hours. Lead acid batteries that are rated at 100amp-hours, however, cannot produce a 100amp current for 1 hour though they can produce 1amp for 100 hours. To find out why read on...

C: C is the current (in amps) leaving a battery that is equal to its amp-hour rating. A current of 1C for a 100amp-hour battery would be 100amps and 200amps for a 200amp-hour battery. Currents are often stated as a fraction of C. So for a 100amp-hour battery, C/100 = 1amp; C/20 = 5amps; and C/3 = 33amps.

Lily 2016

All You Need to Know About Electric Powering Your Boat

By Tom Hruby

I would like to accept the challenge extended by Phil Bolger’s friends in the September 2016 issue of *MAIB* to propose updates for the electric propulsion in Lily, Phil’s 16’ runabout. So here goes. I will present several different options and price ranges as well as different levels of complexity. Be prepared, this is going to be a fairly dull discussion since I find it hard to be witty with numbers and I don’t have any pictures of pretty boats, not up to the usual standard in *MAIB*. Sorry! However, you may actually learn some things with which to wow your friends.

DC: DC is short for direct current. This is the type of current that comes out of batteries. The electrons move only in one direction. On the other hand household current is AC or alternating current. We should never mix circuits that are DC with ones that use AC currents.

And now on to Lily

Clarifying some original numbers: Before describing a 2016 version of electric propulsion for Lily I would like to clarify some numbers in the article that can be misleading. The charging system described for Lily has six 12volt chargers, each charging one of the six batteries at 10amps each. This was discussed as a 60amp charging system. However the overall charging is occurring at 30amps because the system is 24volts. Each 12volt charger puts out 120watts to a battery (12volts x 10amps). The six together put 720watts into the battery system. However, the system is 24volts so the overall charging rate is 720watts/24volts = 30amps.

Phil and his friends complain about the low recharge rate, and the attempts to find a “fast” charging system. Unfortunately, a rate of 10amps per battery is the maximum that a 12volt Group 27 battery can sustain. Lead acid batteries are limited in the rate at which they can be charged. Specifically, the maximum charging current should be around 1/10 of the rated capacity (in amp-hours) of the battery (C/10). So a 12volt battery that is rated at 100amp-hours should not be charged at more than 10amps.

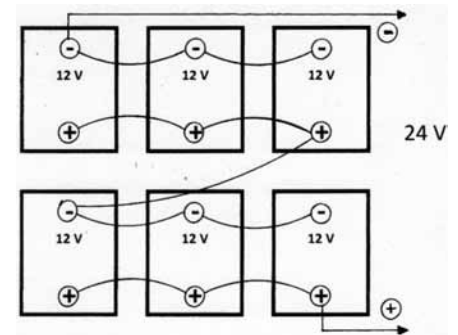
The 1996 design for Lily is at maximum charging capacity and one should not try to increase the charging rate. This is one major failing of lead acid batteries. They cannot be recharged rapidly; whereas lithium batteries or nickel metal hydride batteries can be recharged at a higher rate (up to 10 to 20 times faster).

Furthermore, the charging time is increased by the charging profile (voltages and currents during the charging cycle) that is needed for lead acid batteries. A so-called “smart” charger will put 10amps to a battery until it reaches about 80% of the maximum capacity. After that the charging current is reduced slowly until it is 0amps at full charge. This means that the final 20% of the charge has an average current of only 5amps (or less depending on the charger).

Wiring the Batteries Together: The 1996 version of Lily had two 12volt batteries in series and three such groups in parallel to get

the necessary 300amp-hours at 24volts. They had to include diodes to avoid problems with unbalances among batteries. My experience is that it would be better to wire three 12volt batteries in parallel (+ to + and - to -) and then connect two such “packs” together to get 24volts (see picture).

Connecting wires should be at least #6 gauge to handle the 34amp current. If you never throw anything out (like I do) we can dig out an old #10 or #12 gauge extension cord. We can create a suitable cable by connecting the white, black, and green wires together at each end. This will to give us a cable that is thick enough to carry the current. I use a #12 gauge cord that remained after my father’s electric lawnmower died and it carries the 30amps used by one motor without problems.



When wiring the three batteries in parallel as shown in the picture they will balance each other out.

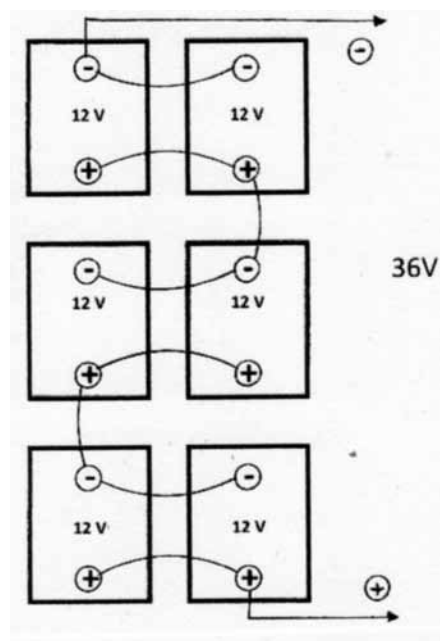
If one battery’s voltage is lower than the other two, the two will add power to it until the voltages are balanced. Thus, there is no need for diodes with this system. I have also found that it is preferable to connect the (+) and (-) connections in the series from opposite ends of the set of batteries in parallel. This helps promote the balancing of the batteries in parallel. The proposed schemes, however, impact how the batteries are charged and one cannot put a 12volt (10amp) charger on each battery. More on this in the discussion of chargers.

IMPORTANT SAFETY NOTE: When connecting batteries or battery banks in parallel, it is best to fully charge each battery first before hooking them up. Most batteries are sold only 60-80% charged, and this amount varies from battery to battery. Also, it is important to use an anti-corrosion conductive grease such as Noalox on all power connections. Corrosion will occur in the marine environment! I have had flooded batteries explode on me because corrosion created resistance, and heat, that melted the lead contacts.

The Motors: In 1995 Lily was set up with a 24volt trolling motor, and I consider trolling motors to still be the most cost effective option for electric propulsion in boats less than 25’ or so. I power my 26’ St. Pierre dory with two trolling motors that easily get me up to hull speed of 5.2 knots. Other options such as an electric inboard, or an electric outboard (such as the Torqueedo), will cost more than a trolling motor.

For the 2016 version of Lily I suggest a 36volt trolling motor rather than a 24volt one. These motors are about 25% more powerful and will bring Lily up to hull speed, though one can still cruise at a lower speed and maintain the original range of the 1996 system. One of these 36volt motors moves my dory (3,400lbs) at 3.9-4.0 knots so it should easily do the same for Lily.

The six 12volt Group 27 batteries can easily be rewired to give 36volts. In this case two 12volt batteries are wired in parallel and three such groups in series, rather than having three parallel groups of two batteries in series. The other option is to use six 6volt golf cart batteries in series if they can be made to fit. A 6volt golf cart battery is usually rated at 220amp-hrs so six of them would provide about 10% more capacity than the six 12volt Group 27 batteries. The picture below shows two batteries in parallel and three of these parallel sets in series to get 36volts.



Lily needs about 800watts to reach 3.8 knots, so with a 36volt motor it will get there with a current of $800\text{watts}/36\text{volts} = 22\text{amps}$ instead of 34amps as described. There are two 36volt, marine rated, trolling motors on the market, Mercury Marine makes a one called the Motor Guide Great White. A transom mounted version costs \$700-\$750. The Minn Kota version is called the Rip Tide and goes for about \$850. As far as I can determine from the specs, these two are almost identical. They both have variable speed control systems that maximize power usage by giving the motor only the power it needs.

I purchased the Motor Guide motors because they are less expensive and I have had no problems with them over the last ten years. My Motor Guides ran at 30amps each and provided about 1080watts of power when I was using lead acid batteries compared to the 800watts for the 24volt motor used in the 1996 version of Lily. I currently use lithium batteries at 40volts and 30amps and get 1200watts per motor. NOTE: I contacted Motor Guide and they told me the maximum voltage for their motor is 49volts, so using lithium batteries does not exceed the specs.

There has been a lot of "hype" about the Torquedo electric outboards, but when one looks at the numbers they are not much better than the trolling motors. The Torquedo Travel 1003 is rated at 1,000watts and is comparable with the trolling motors in power, BUT it costs \$2,000. It also needs special, and expensive, batteries. Yes, the propeller is slightly more efficient than the props on the trolling motors, and one might get 10% further on each watt-hour of energy used. The Torquedo turns a 12" propeller at 1,200rpm

while the Motor Guide turns a 3-bladed 10" prop at about 1,600-1,800rpm. Bigger, slower props are more efficient in displacement hulls. Here is a fascinating fact I found while researching props... A World War II destroyer could get to 30knots at 300rpm... must have been a whopper of a prop.

The Batteries: The original Lily was set up with six Group 27 12volt batteries rated at 117amp-hours. I was unable to find any batteries that match these specifications. All of the Group 27 deep cycle batteries I found are rated between 90-100amp-hours. Given that battery technology has remained the same, if not improved, in the last twenty years I have a strong hunch that the batteries Phil was using were actually 100amp-hour batteries. Some manufacturers inflate the capacity of their batteries by using a more permissive test procedure. Here is why:

In order to get an amp-hour rating, the battery that is being tested has to be drained down to 0volts (10.5volts) over the course of a specified amount of time. The amount of current that it took to get it down to zero multiplied by the time constitutes the amp-hour rating. Lead acid batteries have a notorious quirk, more so than other battery chemistries (called the Peukert effect). The faster a battery is drained, the less overall energy is available (see graph below).

If we discharge a battery over the course of 100 hours, the amp-hour rating looks higher than if we discharge that same battery over the course of one hour. So, there has to be a standard. For deep cycle batteries the standard rating is 20 hours. So, if a battery has a rating of 100amp/hours at 20 hour rate, then that battery was discharged over 20 hours with a 5amp load. Sometimes, however, a manufacturer will use a "100 hour" rate (generally used for small batteries less than 10amp-hours) just to make the bigger battery look better than it really is.

For example, here are the numbers for the Interstate group SRM-27 deep cycle battery (data are from the Interstate web site):

At 5amps it will run for 18.9 hours, and total output is 94.5amp hours.

At 15amps, run time is 5.5 hours and total output is 82.5amp-hours before being fully discharged.

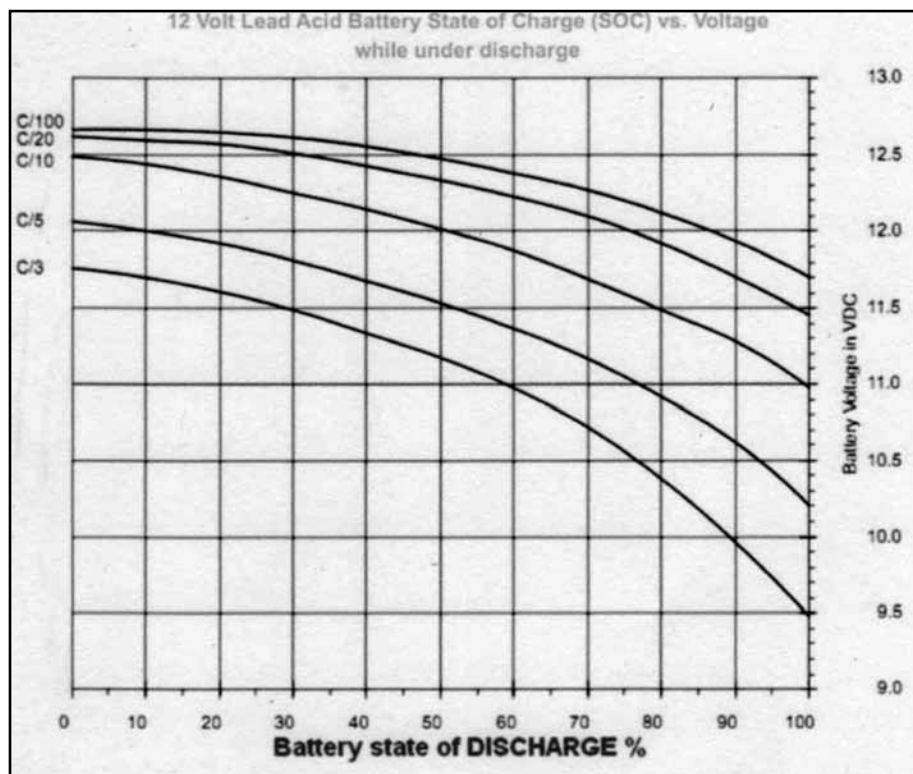
Rather than going into details with equations and numbers that are beyond me, I can make my point with just one picture. The graph shows that both the capacity of the battery and its voltage is significantly reduced when higher currents are withdrawn. This is called the voltage sag and is found in all battery chemistries, though it is the highest in lead acid batteries.

Buyers beware! When buying batteries make sure the test procedure is listed. Some of the manufacturers will also list the capacity at a 10 hour and 5 hour rate. The 10 hour rate is the one that will provide the best estimate of the battery capacity when used in the Lily since the 24volt motor requires 34amps (roughly 10amps from each of the three 12volt batteries in parallel).

Refining the Range of Lily: The graph above shows that the actual capacity of a lead acid battery at C/10 is about 20% lower than the capacity at C/20 (20 hour rate). Thus, at 3.8 knots (34amps total) the actual capacity of each 100amp-hour Group 27 battery is roughly 80amp-hours. If we limit the use to 75% of capacity, each battery will provide only 60amp-hours. Six batteries will provide 4,320watt-hrs (12volts x 60amp-hours x 6 batteries). At 3.8 knots Lily is using 800watts/hr so the range will be 5.4 hours and 20 nautical miles.

More About Batteries and Their Costs: When comparing batteries I will be converting the cost to the initial cost, and the cost over ten years, of a battery pack for Lily. This allows comparisons between batteries that have quite different cost and performance characteristics.

Lead Acid Batteries: At the time Lily was designed in 1996 the only relatively inexpensive battery was the "flooded" variety that had little caps on each cell and required constant monitoring of the water levels. Today



sealed lead acid batteries (called AGM) are available that do not require any maintenance. A third lead acid design, called gel, is also available but I would not recommend it for Lily since it has no advantage over the AGM and tends to cost more.

Flooded Group 27: A 100amp-hour Group 27 flooded battery costs about \$130 today and six would be \$780.

Flooded 6volt Golf Cart Batteries: If choosing a 36volt system, six 6volt golf cart batteries will provide more energy capacity (220amp-hours and about 5300watt-hours). These batteries (medium quality) also cost about \$130-\$150 and the weight would be similar. I have compared many different lead acid batteries (2, 6, 8, 12volt) and it turns out the weight per kwatt-hour of energy (called energy density) stored is quite consistent. It takes about 50lbs of batteries to store 1kwatt-hour of energy.

Phil and friends use a 75% depth of discharge (DOD) as the basis for their estimates, and one might expect the Group 27 batteries to last 200-250 charging cycles. Based on these numbers we might expect to be paying about \$3.20 per trip for the batteries. Not so! We cannot expect to be able to take 250 trips in Lily on a set of batteries, unless we are really "gung ho" and take 50 trips a year or more.

Lead acid batteries age fairly rapidly and will fail in time even if they are not used. I used flooded lead acid batteries in my boats for fifteen years and found that they lasted only five years, or less, regardless of how frequently they were used (I never even was close to 50 trips a year). Less expensive batteries bought at the mall stores lasted only three years while the more expensive Trojan batteries lasted five years when installed in my boat that sat outside all winter long and were recharged only once a month or so. Some lead acid batteries, those often used with solar panels, have a life span of ten years, but these are double the price of the Trojans, so, the costs balance out.

If we use Lily less than the 250 times in five years the cost of the Group 27 batteries comes out to be $\$780/5\text{years} = \$156/\text{year}$ regardless of how many times we go out.

AGM Lead Acid Group 27: A 100amp-hour group 27 AGM battery costs about \$250 so six would cost \$1,500. Six 200amp-hour 6volt AGM batteries are about the same. Since the performance of AGM batteries is very close to that of the flooded ones, the costs of AGM's is almost double that for flooded batteries. If an AGM battery is well maintained it may last longer than a flooded one in a boat. One sailor using AGM batteries in his boat had them last eight years, but he did not discharge them below 50% of capacity. Assuming AGM's will last six years rather than five the annual cost is \$250.

Trade-offs Between Flooded and AGM Batteries: Flooded batteries cost about 1/3 less than AGM's on an annual basis. That is their one big advantage. On the other hand they have a number of problems relative to AGM's that may sway you in the other direction. Specifically:

Flooded batteries will tend to leak if we get into rough water. I have yet to find a cap that does not leak a little when the boat is rocked from side to side in waves. The acid mixture inside sloshes around and can leak out through the cap. This means the water level in the batteries has to be checked after every trip and any slight leaks wiped up.

Water levels need to be checked every 4-5 charging cycles to make sure the level of liquid does not get below the plates. Charging flooded batteries will break down some of the water in the cells and release it as hydrogen and oxygen.

Flooded batteries have a very high "self discharge rate" compared to other battery types. A flooded lead acid battery can lose between 3%-5% of its charge per month so over the winter batteries can lose over 25% of their charge. A lead acid battery that is stored when not fully charged can also lose a significant amount of its capacity through a chemical process called sulfation. This means that the batteries will need to be connected to a charger that will provide a constant small current to replace the self-discharge. This is called "floating," and most advanced chargers have this capacity. However, the inexpensive chargers at Sears or auto parts stores often do not have this option. The self-discharge rate of AGM batteries is much lower (1%-1.5%/month) so they will need charging only every three months or so when not in use.

Flooded batteries need to have adequate ventilation so the highly flammable hydrogen gas does not build up. AGM batteries do not need this extra ventilation. In addition, AGM's can be stacked on their sides if needed to better use the space allocated for a battery box.

Lithium Batteries: The variety of lithium batteries is expanding rapidly, but for now I would recommend only one lithium chemistry for the home builder, Lithium Iron Phosphate called LiFePO4 or LiPo for short. Cell phones, tablets, electric cars use what is called a Lithium Ion chemistry but it requires very complicated battery management systems to "maintain their cool." Lithium ion batteries are much less stable and can explode or cause fires as has happened in the new Samsung Note 7 and in the Boeing 787.

LiFePO4 batteries on the other hand are much more stable and not subject to unexpected overheating. Their one disadvantage relative to lithium ion batteries is their lower energy density. This means that 1lb of a LiFePO4 battery holds 15% less energy than 1lb of a Lithium ion battery. Since the energy density of LiFePO4 batteries is more than twice that of lead acid ones (23 lbs/kwatt-hours of energy compared to 50lbs/kwatt-hours for lead acid), it should not make much of a difference in a displacement boat.

There are a number of used lithium battery packs from Volts and other electric cars coming onto the market that are being offered at very low prices. These however are all the lithium ion batteries that require special cooling and other control systems. I don't recommend them for marine applications by home builders unless they really know what they are doing.

There are two options for those considering LiFePO4 batteries. The first is to purchase a 12volt 80-100amp-hour battery already packaged in a battery box and that contains the necessary battery management system. The second option is to purchase the individual cells that are rated at 3.2volts and build a system where the battery management system is added and connect all the individual cells. Individual 3.2volt cells come in sizes from 40amp-hours up to 200amp-hours. A 36volt system that is comparable to six 12volt Group 27 lead acid batteries might consist of twelve 180amp-hour

cells in series. A 24volt system might consist of sixteen 100amp-hour cells with two in parallel and eight such groups in series.

Building a battery bank from individual cells is harder than just connecting six battery boxes together because a battery management system must be installed to make sure the individual cells stay within the correct voltage limits. The one down side of lithium batteries is that they are much more sensitive to a full discharge of overcharging. If either the high voltage threshold (3.7-3.8volts) or the low end threshold (approx. 2volts) are exceeded the battery dies and cannot be revived.

Costs: A Group 27 80amp-hour LiFePO4 battery cost \$1,050 and six of them would cost \$6,300. Since the expected life of these batteries is at least ten years the cost per year is \$630. Again the number of discharge cycles does not play a major role because lithium batteries are good for at least 2,000 cycles (200 trips per year). The Group 27 batteries would increase the range available to Lily. LiFePO4 batteries do not suffer from the same voltage sag as lead acid batteries until reaching discharge rates greater than 3C. Also, they can be discharged to within 10% of their capacity. The 80amp-hour Group 27 lithium batteries will have 72amp-hours or 5,180watt-hrs available and the range for Lily would be 6.5 hours and about 25 nautical miles.

Another option using a "complete" battery would be to go with a 12volt 100amp-hour battery that is not exactly the same footprint as a Group 27 but will probably fit in the same box. These are available at websites that cater to boat and auto conversions (e.g. Thunderstruck Motors) and go for about \$1,000. Six of them would be \$6,000 with the additional benefit of increasing the range to about 30 nautical miles.

The costs of a lithium system can be reduced significantly by building the system from scratch with parts available in the electric car conversion market. Since I want to compare the cost of lithium batteries to flooded ones I will start with need to provide 4,320watt-hours of storage, the amount available from flooded batteries. First this value needs to be increased by 10% because we cannot discharge them to 0%. However there is no need to discount the capacity for a current less than about 3C. This means we need a system that has a capacity of about 4,800watt-hours. A single LiFePO4 cell is rated at 3.2volts and we would need eight of them in series to get above 24volts (25.6volts actually). $4,800\text{watt-hours}/25.6 = 187.5\text{amp-hours}$.

So each 3.2volt cell would have to be rated at about 190amp-hours. For a 36volt system we would need twelve 3.2volt cells in series with a capacity of at least 125amp-hours. LiFePO4 cells are available in 40, 60, 70, 72, 100 and 180amp-hour sizes. In designing a system using these cells the closest I could come is either 4,600watt-hours or 5,100-5,300watt-hrs. Any battery bank should have all the cells of the same size, but smaller cells can be put in parallel before putting them in series. So we could get 140amp-hours at 3.2volts by putting two 70amp-hour cells in parallel.

The initial cost of a LiFePO4 system built from scratch comes out to be about \$450/kwatt-hour of stored energy or about \$2,300 for a system that will power Lily roughly the same distance as lead acid batteries.

Just like the AGM's the cost of LiFePO4 batteries is higher than flooded ones, but they do have certain advantages that might mitigate this additional cost.

LiFePO4 batteries have a higher energy density, 23 lbs per kwatt-hour of stored energy compared to the 50lbs/kwatt-hour for lead acid batteries. So the battery pack for Lily would weigh about 110lbs.

LiFePO4 batteries can take up about half the space (volume) of lead acid batteries for that 1kwatt-hour. When I replaced my lead acid batteries (15kwatt-hours of total energy) with lithium batteries in the same space I was able to get 28kwatt-hours of stored energy and doubled my cruising range.

LiFePO4 can be drawn down to 10% of their capacity without affecting their longevity. Even under these conditions they are rated for 2,000 - 3,000 cycles.

LiFePO4 batteries have a very low self discharge rate. I use 180amp-hour batteries and in six months the charge dropped only 1amp-hour. This is a self-discharge rate of less than 0.1% per month.

LiFePO4 batteries do not seem to age like lead acid batteries. I have had some of mine for five years and still have no evidence of any loss of capacity. Manufacturers claim at least ten years but we don't know if that is a low estimate because they have not been on the market long enough to get a good measure. A dealer supplying LiFePO4 batteries to the electric car market has some first generation batteries on his shelf without maintaining them and found that after five years their capacity was down only by 7%.

LiFePO4 batteries have a much better tolerance for cold conditions. If cruising in a cold climate be aware that lead acid batteries have a reduced capacity when it gets cold. At freezing, a lead acid battery has only half of its rated capacity, while the capacity of the CALB CA LiFePO4 cells I use are reduced only by 8% at freezing.

Anyone interested in building a lithium battery system can contact me with questions on the Electric Seas discussion group (<http://www.electricsseas.org/>).

Chargers for Lead Acid Batteries: There are several types of charger technologies out there, so one has to be careful when comparing features and prices. Furthermore, not all chargers are suitable for a boat because they are not sealed. I would discourage anyone from purchasing a charger that has open vents rather than heat sinks for cooling. If you look at the detailed specifications on the former types you will find that they are not suited for an ambient humidity >90%. Of course, I had to learn this the hard way. I was seduced by fancy, lightweight, computer-controlled chargers that claimed very high efficiencies only to find that they all died within a year when installed in my boat. It was the humidity that killed them, both on the water, and from our wet winters here in the Puget Sound area.

The 1996 version of Lily had six 12volt chargers, each putting out 10amps. If one keeps the original wiring of the six Group 27 batteries, then this can be achieved by two chargers that can charge three batteries each, often called 30amp 3-bank chargers. These are sealed, marine rated and will charge each 12volt battery at 10amps (the maximum). Diodes will probably still need to be included to avoid cross currents between the three parallel banks during the charging cycle. The disadvantage of this approach however is that two 3-bank 30amp chargers are expen-

sive. Current prices are about \$500 for the two. Six individual 12volt 10amp waterproof chargers are about \$600.

With the wiring options I propose with the 12volt batteries in parallel first and then in series, only one charger is needed for the entire set. In this case we move away from chargers designed for multi-bank systems to those designed for fork lifts and golf carts. This also applies to a battery bank that has six 6volt golf cart batteries of 200-220amp-hours. I found two companies that make sealed 24volt and 36volt chargers in the 20-40amp range. These are Lester and Quick Charge. The Lester is relatively new on the market and I don't have experience with it. However, I have used Quick Charge now for 20 years and they have proved very reliable. They are made in the US and in my experience have a good customer service.

For a 24volt system using three 12volt batteries in parallel a 30-40amp charger will be needed. Since the charging current will be split among the batteries each will get about 10amps. For a 36volt system a 20-25amp charger will be needed since there are only two batteries in parallel. However, this will not change the time needed to recharge because the number of watts that go into the batteries remains roughly the same (30amps at 24volts = 720watts and 20amps at 36volts = 720 watts).

Here are prices I found on the internet:

Lester Summit 24volts-25amps, \$340.

Quick Charge 24volts-25amps, \$348.

Quick Charge 24volts-40amps, \$421.

Lester Summit 36volts-20amps, \$388.

Quick Charge 36volts-25amps, \$400.

NOTE: Flooded batteries have a different charging cycle than AGM batteries. It is necessary to make sure that the charger purchased is compatible with battery type chosen. Most chargers offer the option of programming either flooded or AGM.

Chargers for Lithium Batteries: I have tried several different brands of chargers for lithium batteries, but most of them failed within a short time because they were not adequately sealed. Only the Quick Charge chargers have withstood the marine environment. Quick Charge makes their Programmable On-board Chargers on order and can be specified for a charging profile suitable for lithium batteries if they are contacted in advance. There is no extra charge if the unit has been designed for that option. The change however has to be done by them and is not a regular programmable option.

Summary of Options for Powering Lily in 2016: After trying to assimilate all this information you may be a little confused. So, here are my suggestions for powering Lily:

Option 1: 24volt system with flooded batteries: Six 12volt 100amp-hour Group 27 deep cycle flooded batteries - \$780. Motor Guide 24volt (80lb thrust) Great White motor - \$650

(the MinnKota costs \$750). Quick Charge or Lester 24volt-25amp charger (\$347 or \$341). Cables, lugs, etc. \$50 - \$75. I find #6 or #8 gauge jumper cables are less expensive than buying cable by the foot if more than about 10' is needed. Total initial cost of system: \$1,850. Cost over 10 years = \$2,630.

Option 2: 24volt system with AGM batteries: Six 12volt 100amp-hour Group 27 deep cycle AGM batteries - \$1,500. Motor Guide 24volt (80lb thrust) Great White motor - \$650 (the MinnKota costs \$750). Quick Charge or Lester 24volt-25amp charger - \$350. Cables, lugs, etc. \$50 - \$75. Total initial cost of system: \$2,550. Cost over 10 years = \$3,300.

Option 3: 36volt system with flooded batteries: Six 12volt 100amp-hr Group 27 flooded batteries - \$780 (or 6volt 200amp-hour batteries). Motor Guide 36volt Great White motor - \$750 (the MinnKota costs \$850). Quick Charge 36volt 25amp charger - \$400. Cables, lugs, etc. \$50 - \$75. Total initial cost of system: \$2,000. Cost over 10 years = \$2,780.

Option 4: 36volt system with AGM batteries: Six 12volt 100amp-hour Group 27 AGM batteries - \$1,500 (or 6volt golf cart batteries). Motor Guide 36volt Great White motor - \$750. Quick Charge 36volt 25amp charger - \$400. Cables, lugs, etc. \$50 - \$75. Total initial cost of system: \$2,700. Cost over 10 years = \$3,450.

Option 5: 24volt system with LiFePO4 batteries (build it yourself): 16 100amp-hour 3.2volt cells (2 in parallel and 8 in series) & BMS - \$2,400 5.1 kwatt-hour. Motor Guide 24volt Great White motor - \$650. Quick Charge 36volt 25amp charger - \$350. Cables, lugs, etc. \$50 - \$75. Total initial cost of system: \$3,450. Cost over 10 years = \$3,450.

Option 6: 36volt system with LiFePO4 batteries (build it yourself): 24 70amp-hour LiFePO4 3.2V cells and BMS - \$2,500 (5.3kwatt-hours). Motor Guide 36volt Great White motor - \$750. Quick Charge 36volt 25amp charger - \$400. Cables, lugs, etc. \$50 - \$75. Total initial cost of system: \$3,700. Cost over 10 years = \$3,700.

Option 7: 36volt system with LiFePO4 batteries (using 6 12volt vehicle batteries): 6 12volt 100amp-hour LiFePO4 batteries - \$6,000. Motor Guide 36volt Great White motor - \$750. Quick Charge 36volt 25amp charger - \$400. Cables, lugs, etc. \$50 - \$75. Total initial cost of system: \$7,200. Cost over 10 years = \$7,200. This option increases the range of Lily by 50% compared to lead acid.

After twenty years with three electric boats I strongly believe this is the way to go. Here on Puget Sound seals and dolphins come right up to us to check us out, and I can talk to my wife in the cabin while sitting in the stern with my hand on the tiller. Lily is a great "starter" boat for those just beginning the electric experience. May the amps be with you!



Good to hear from Tom Hruby with his take on Lily's electrical system. His wholehearted approach with proper lingo, options and system costs is welcome indeed. The more folks do thinking about silent power on the water, without spars and sails, that is, the better.

Phil had over the decades done a few hulls for typically low power electric propulsion. As he soon saw confirmed, low power usually meant long running times per available battery weight at never more than hull speed, preferably with slippery hulls. Going much faster would be a much more hardware expensive idea with much more limited range. But he had left that techno stuff to the motivated clients.

So, in Lily he let his freshly minted wife, Susanne, do the electrical system while she/I also did her hull. Phil lent his inimitable drafting style to make it all look good on paper. He enjoyed watching and learning this electrical stuff that he had always left to others. His rendering of my electrical diagram still looks just fine. And he sure is showing her off expertly on video.

The point for us was to combine a simple but able and reasonably good looking hull for four adults with as close to daylong running time as we could manage, daylong as in not attempting full bore liner service, but rather looking around, stopping, perhaps some fishing or poking around in really tight waters always ready to extract her by swiveling the unit and prop 180°. We wanted decent ergonomics, good balances and worked to the premise of using only commercial off the shelf hardware, readily available at reasonable cost, put together in a novice doable geometry, not even requiring soldering.

For that rediscussion of Lily and her system some 20 years later last September '16 (*MAIB* Vol 34, No 5) I should have indeed added that circuitry layout. That would have helped Tom (and others) not having to speculate beyond what the text outlined. As you study that plans sheet you see the system broken down into four segments from Circuit A with her six 110VAC chargers, over the 12VDC Charging Circuit B, then the 12VDC Accessory Circuit C to the 24VDC Drive Circuit D.

It took me less time to build the system physically on the shop floor than to plan it sensibly enough on paper and with cata-

More About Lily From the Designer

By Susanne Altenburger

logues in hand to manage 110VAC, 12VDC and 24VDC all on that modest hull without sparking unnecessary excitements. The basic system is still in her today.

Her system is charged by plugging a #16ga, if not #14ga extension cord, depending upon length of run from the nearest 110VAC/15amp, into the one 110VAC onboard receptacle top left of Circuit A and then split into the six leads to the six chargers. I made a point of having that receptacle and all 110VAC hardware clustered and boxed up high in that console, well above any waterline rain or hull breach could reach before draining out through the motor well.

Looking at Circuit B, Tom would have had a chance to notice that these are indeed 6x12VDC 10amp "smart" chargers, each assigned to carefully tend to its dedicated 12V Schedule 27 deep cycle battery for best attention and loving flow of just the right measure of electrons. Each battery was sold to us as 117ah.

Let's ignore the plain vanilla 12VDC Accessory Circuit C with its position lights, AM/FM/Tape radio, etc, and let's admire the elegance of that stand alone self powered knotmeter.

Once each battery has received its matching charge via Circuit B, in Circuit D we find three switches able to link three pairs of batteries to then become on demand 24V DC batteries, i.e., two 12V units in series. Since these three 24VDC batteries might want to electrically interact with each other to potentially unpredictable results, we were advised to prevent that interaction through a defacto one way only valve of sorts, an electrical item called a 3 into 1 diode that connects three batteries into one 24VDC outlet but without any chance of one 24V unit messing with another if all three were just bolted together. Juice only can come out, the diode keeps any from going back in the other direction.

Next in line following that 3 into 1 diode is a 50amp circuit breaker to allow a weed strangled motor to trip it before burning itself up in

the hands of a didn't smell nothing duffer. And behind that breaker, that E-Meter, that offers us voltage, amps, relative consumption, etc.

As you see in the September '16 piece, Lily's ergonomics only allowed Schedule 27 batteries to fit under the forward aft facing seat/bench. We had looked at stouter batteries along with semi exotic and pricey and not waterproof 60amp chargers, along with quite different overall layout options for boat, system and people.

But after some back and forth then, and today, as she is, Lily stands up in the context of what we had set for our list of desirable attributes. All out of the catalogue, almost plug and play and not too scary to traumatize the novice builder. Some who had pursued other electrical layout ideas aboard their Lilys reported that they returned to the original geometries.

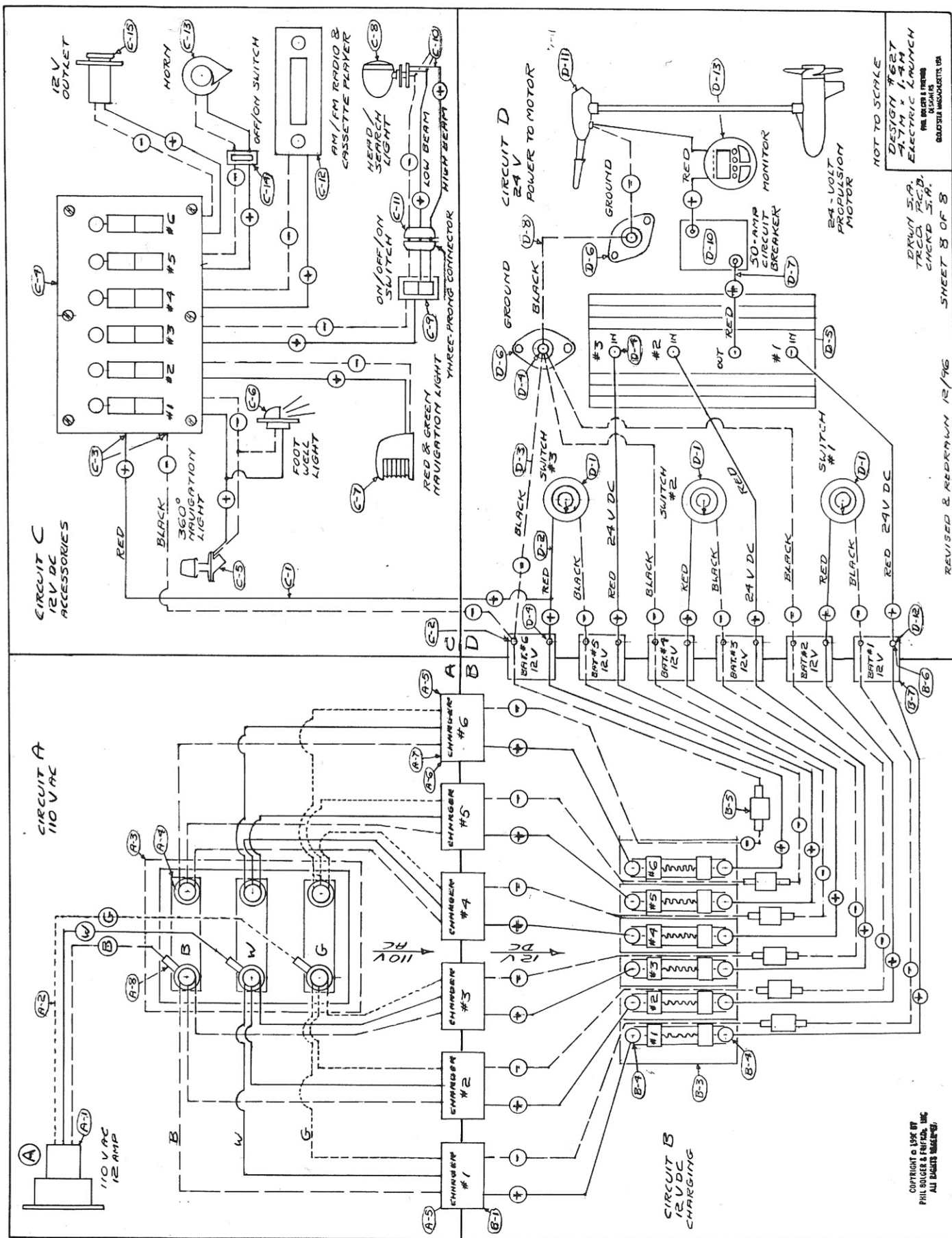
As Tom's numbers on system cost suggests today, to get going on this quiet power boating, the original geometry seems still an affordable approach. On the other hand, between just aging production electric cars and hybrids, less than perfect but much more energy density per battery weight elements are tempting to get more range and/or speed. Someone suggested last year that certain life saving medical devices have civilized ion battery types in them that need changing out/discarding per FDA regulations before they are remotely worn out and thus likely still good enough for the likes of Lily.

But then, as Tom properly points out, what ever modern batteries we'd pursue, we may have to do soldering if not more dramatic building of componentry and look for proper charging technology to match those newer types to then discover which castoff duper battery is funky after all, etc, etc.

What I would do today, not available 20 years ago, is to look at potent 36VDC trolling motors and I'd finally invest in some fine work by my friendly machinist to turn me an adaptor to put a greater variety of onboard props on that output shaft than is doable with the 11"x4" two blade weed less floppy plastic Minnkota units. We might routinely see full hull speed with Lily, however, likely at the usual expense of speed versus range. That is why the E-Meter and its amps readout are so important to keep an eye on, true whether running electrically on the water or on land.

The technology center at left. Phil and Susanne enjoying the fruits of their creativity in 1996





NOT TO SCALE

DESIGN #227
DRAWN S.A.
ELECTRIC LAYOUT
CHECKED S.A.
WILLIAMS ELECTRIC
BOATWORKS
BOATWORKS MANUFACTURING

REVISED & REDRAWN 12/96

SHEET 8 OF 8

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DEPARTMENT OF DEFENSE
DEFENSE SUPPLY AGENCY
SALE NO. 16-7022
 BID OPENING:
18 MAY 1977 - 10:00 A.M.

SEALED BID **THE FORMER PRESIDENTIAL YACHT**

Offering...



SEQUOIA

(Editor Comments: In the December issue Boyd Mefferd treated us to a tale of "Adventures in Military Surplus Property," one item being the Presidential Yacht *Sequoia*, which was put up for sale in 1977. Since then Boyd came up with the original government invitation for sealed bids on the vessel. I thought it might interest some of you so I've extracted from it the parts that talk about the boat itself):

"It has been determined that this property is no longer needed by the Federal Government. The following cabin cruiser is located at the Washington Navy Yard, Washington, DC:

Cabin Cruiser Presidential Yacht (ex-*Sequoia*): Hull #AG-23, wooden hull, Diesel drive (twin engines, 225hp ea), 1,400 mile cruising range.

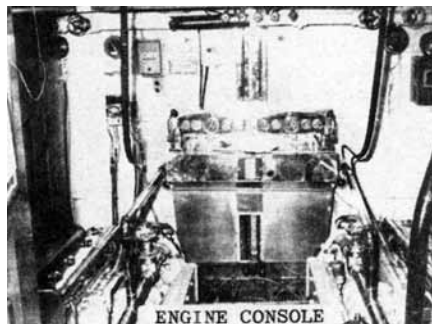
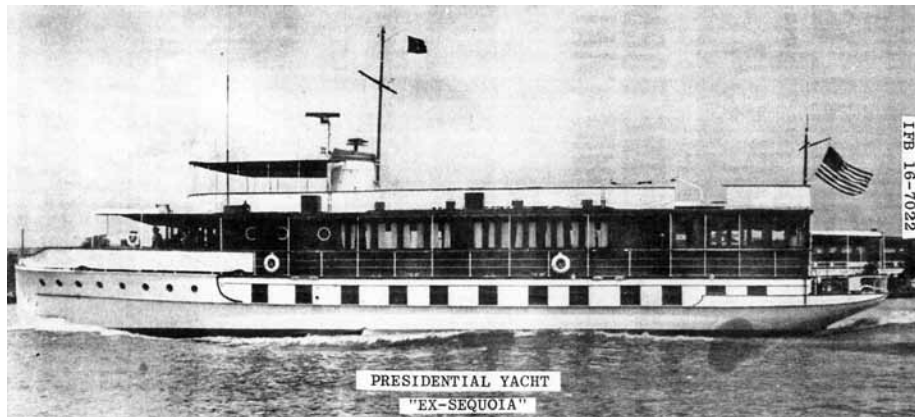
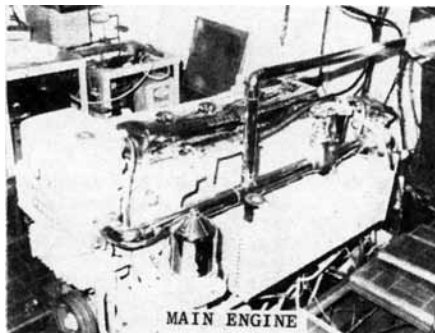
Builder, Mathis Shipbuilding Co, Camden, NJ in 1925, last dry docked October 1976. The *Sequoia* has been used extensively as a Presidential Yacht.

Design Characteristics: Length (overall) 104' 7", beam (extreme) 19' 8 1/2", draft (max nav) 5' 3", masthead above wl 35' 3" mast hinged 21' 9", light displacement 110 tons.

Condition: The hull of the cabin cruiser *Sequoia* is considered to be in excellent condition. The craft can be towed or moved under its own power; this is an expression of opinion only and not a warranty or representation by the government that the craft is towable. Each bidder is urged to inspect the craft and rely solely on his own inspection.

Major items of equipment remaining on board:

2 ea Engine, Main Propulsion, Diesel, General Motors Corp, Model 6-71, 6 cylinder, 2 cycle, 225hp, 2,300rpm (aluminum block) with 2 ea Morse engine control systems.



1 ea Generator, Ship Service, Geils & Foerst Co, Model MBO-314/30, 30kw, 37.5kva, 156amp, 120/ 240vac. Diesel data: Mercedes Benz Co, Model ON-314-1, 4 cylinder, 4 cycle.

1 ea Generator, Ship Service, Diesel, Delco Div of General Motors Corp, 50kw, 326/312/163/156amp, 115/120/230/240vac, 3 phase, 60cycle, 1,200rpm. Diesel data: General Motors Corp, Model 2-71, 2 cylinder, 2 cycle, 30bhp, 1,200rpm.

1 ea Compressor, Air, Low Pressure, Quincy Compressor Co, Model 210, Size 2 1/2"x2", 100psi. Motor data: Dayton Electric Co, 3/4 hp, 115vac.

2 ea Air Conditioning Unit, Cruisair Co, Model WCAH-24, 24,000btu, 4 ton capacity. Motor data: 230vdc.

2 ea Pump, Fire, Teel Pump Co, Model 1P851, centrifugal type, 7,000gph, 120psi. Motor data: Dayton Electric Co, 2hp, 115/120/208vac, 3,450rpm.

2 ea Pump, Bilge, Jabsco Pump Co, centrifugal type, Model 77737, 25gpm, 25psi. Motor data: Dayton Electric Co, 2hp, 115vac.

1 ea Radar Unit, RCA Corp, Type CRM-N6A-1Q, range 1 to 32 miles.

2 ea Batteries, engine starting, generator, 6 volts, 205 amp hours.

4 ea Batteries, engine starting, main engines, 8 volts, 150 amp hours.

1 ea Anchor Windlass, Cleveland Troy Co, 2 gypsy head, 2 drum. Motor data: W.W. Granger Co, 3 1/4 hp, 115vac, 1,725 rpm.



2 ea Std Navy Lt Wt Anchors, 50lb, approx 100' chain per anchor.

2 ea Gyro Compasses.

2 ea Depth Finder, Raytheon Model DE725.

Window drapes throughout, wall to wall carpeting throughout (except crews' quarters and galley). There is approximately 600gals of Diesel fuel remaining on board the craft. Total fuel capacity 2 tons.

Note: presidential memorabilia and some shipboard furniture has been removed.



Additional Information on the Presidential Yacht:

History: *Sequoia's* keel was laid in 1924 and she was launched in 1925 by the Mathis Shipbuilding Company of Camden, New Jersey (owned and operated by John Trumpy and Sons). She was registered under the name *Savarona* by her first owners, Mr and Mrs Richard M. Cadwallader, Jr, of Philadelphia.

The Cadwallader family sailed *Savarona* until 1928 when she was purchased by Mr William H. Dunning, Jr, of Fort Worth, Texas, who renamed her the *Sequoia*. The *Sequoia* served as Mr Dunning's yacht until March 1931 when she was purchased by the Department of Commerce for duty as an inspection vessel.

In 1931 the presidential yacht *Mayflower* was partially destroyed by fire and for two years there was no presidential yacht. However, President Hoover is reported to have used the *Sequoia* on occasion. Then, on March 25, 1933, the US Navy purchased the *Sequoia* and officially commissioned her at Annapolis, Maryland, as the *USS Sequoia* (AG 23). She was assigned to the Washington Navy Yard where she was fitted out as the Presidential Yacht and subsequently served President Franklin D. Roosevelt until 1936.

The *USS Sequoia* was officially replaced by the *USS Potomac* as the presidential yacht and on 2 March 1936 she was designated as the Secretary of the Navy's yacht. She remained in that status until 1968.

On 1 October 1968 *Sequoia's* status was changed from "in commission" to "in ser-

vice," officially changing her designation from *USS Sequoia* to the yacht *Sequoia*. Following this change she was refitted and once again designated as a Presidential Yacht. She has subsequently served Presidents Johnson, Nixon and Ford.

General characteristics: The keel and frame structure of *Sequoia* are constructed of oak, with mahogany and fir used for hull planking. The deck house is constructed of teak, and the interiors of the main salon and after salon are paneled with mahogany. The master stateroom is paneled with walnut with staterooms #2, #3 and #4 and the stateroom passageway paneled with ash wood.

The master stateroom has a king size bed and its own private bath. Stateroom #2 (the captain's cabin) has a single berth and private bath. Stateroom #3 has twin berths and private bath while stateroom #4 has twin berths with an adjacent bath located in the main passageway. All rooms are completely air conditioned.

The yacht is extremely maneuverable, having two 36" bronze propellers (each powered by a 225 horsepower Diesel engine) and one large bronze rudder with two small wing rudders attached.

(Editor Comments...Again!) In mid-December Boyd followed up with the following note:

"No sooner had I settled down with your Issue #700 than I saw a news piece about the current state of the Mathis/Trumpy *Sequoia* on the CBS Evening News. It turns out that she has been the object of a legal battle and in the meantime sits on dry land at a marina

completely uncovered and exposed to the elements. The piece said that she is estimated to need 10,000 hours of work to get back into top shape. First step will be to evict the raccoons which have moved into the Presidential Stateroom. The commuter yacht *Aphrodite* is said to have consumed 25,000 hours and is obviously a smaller vessel so 10,000 hours seems low. Apparently she is to go to Newport, which I guess means IYRS."

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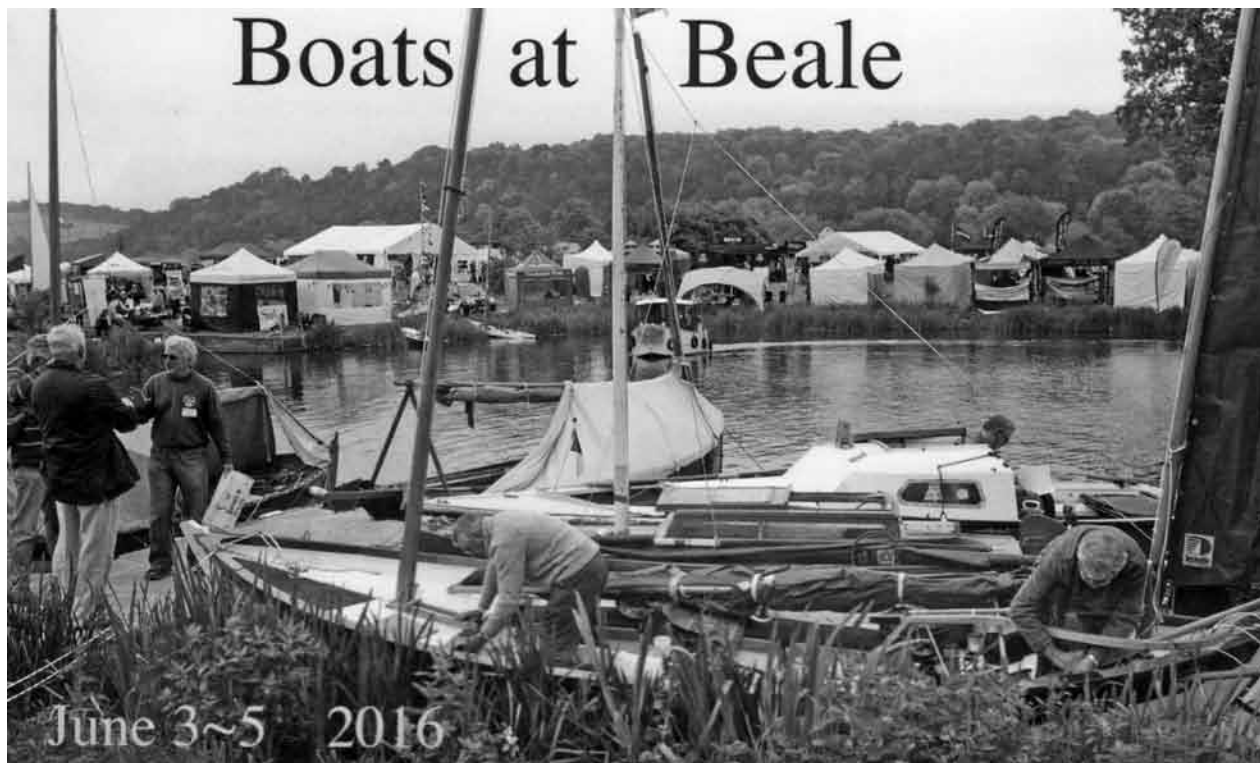
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Boats at Beale



Reprinted from *Dinghy Cruising*, Journal of the Dinghy Cruising Association UK

I FIRST CAME ACROSS one of Colin Cumming's innovative plywood designs a few years ago when an early marque of his *Pathfinder* slid past me in my *Cruz* at Milford Haven on a joint Gaffers / DCA meeting, the designer/builder at the tiller.

First impression was that conventional full boat-length planking is anathema to him. Second impression: so is wetted surface. The next time I saw him in *Pathfinder* he was ferociously attacking the lead boat in a race at another Gaffers' meeting at Glenridding on Ullswater, which explained his attitude to wetted surface.

Fyneboats now have a kit of his *Pathfinder* canoe-sterned yawl – I think it is now at Mk 4. It features the remarkably successful lightweight 'z-cut', 'single-plank' frameless construction, shown in *Water Craft* and elsewhere, with a traditional yawl rig, and offered at a reasonable kit price.

Last year at Beale Park (June 2015) Colin exhibited his *la Mouette* dinghy cruiser with cabin: 19ft 8ins LOA x 7ft 6ins beam with two 6ft 6ins bunks and weighing an amazing 400lbs / 182kilos. The cabin top is based on the pattern for the canoe stern of the *Pathfinder* – but inverted! (right)

This year Beale saw another boat from Colin, but one that came previously tried and tested and not built solely by himself. The inspiration for it came from the Hamble Star dinghy designed in 1925, and one boat in particular: *Starlight*. I am unsure whether that name has been adopted for Colin's new dinghy, but I'll use



©Fyneboats

Adriess in Windermere – Pathfinder Mk 4



la Mouette (K Muscott)



la Mouette (K Muscott)

it anyway. (Certainly the development of the boat is 'The Starlight Project'.)

The original Star boats are few in number but much-loved and were innovative for their time, if not as much as Colin's boats are. Though carvel-built they had a hard chine hull.

The Hamble Star Association provided details of the original lines and he adapted his 'z-cut' approach to create a new design from them which could be easily constructed in plywood by novices.

Students at the new Thornton Science Park at Chester University, one of my old *almae matres*, built the first sailing and rowing versions of *Starlight* in just four weeks, and the plan is now to test and develop them for kit production, a realistic and rewarding experience for engineering students.

Small wonder that Colin is a visiting lecturer. He is also Executive Technical Director at MWH Global. KM

More BOATS AT BEALE next time.



An original Hamble Star dinghy, below.
(Other photographs on this page of the new *Starlight* taken by K Muscott)





***Dolly Dawn* – 14ft Yachting World Dayboat, described by Alan Moulton**

In 1949, the same year that Jack Holt designed the GP14, *Yachting World* magazine published details of a 14ft dinghy that George Kennedy O'Brian had been commissioned to design. This was a round bilged general purpose boat, intended to be easily built by an amateur using several possible methods including clinker, carvel and double diagonal construction. It was to be called the *Yachting World Dayboat* and was aimed at family knockabout sailing in open waters, rivers and estuaries.

At a time when enthusiastic amateurs were creating an upsurge of interest in recreational boating by building very capable if somewhat boxy boats out of plywood, the YW Dayboat enjoyed only limited early success. Despite proving to be a capable and sea-kindly craft, its relatively difficult construction meant that many amateurs opted instead to build boats like the plywood GP14 and the smaller, lighter Heron dinghy.

The class grew slowly but its success in areas where sailing was difficult such

as the Bristol Channel meant that the boat was desired by many people who nonetheless felt unable to build one.

Consequently, in 1955, YW magazine relented on its original position of only allowing amateur construction and licensed the design to professional builders. Over 600 boats have subsequently been built, variously in clinker, carvel, cold moulding and GRP. Today, there are various active racing fleets around the country as well as many individual boats used as family daysailers.

Dolly Dawn is YW Dayboat Number 254, professionally built in 1961 in mahogany clinker by HH Benson of Caerleon and she was on display at Beale Park this year (2015). The first time I saw *Dolly Dawn* was at the Southampton Boat Show in September 2014. My initial reaction was that I was looking at a beautiful new Dayboat and as so very few clinker examples are built these days I was immediately hooked. She was pristine and gave off that warm amber glow that is characteristic of a skilfully built and lovingly varnished wooden boat.

Only when I eventually noticed

her hull number did I realise with some surprise that I was looking at a simply stunning refurbishment. As I was gazing wistfully at her I was approached by Alan Staley *, the boat builder responsible for her meticulous restoration and he told me her poignant back story.

In 1963 she was acquired by Major General George Fletcher, GM, MBE, PL, and he and his family owned and sailed *Dolly Dawn* for many years until he passed away in 2009. *Dolly Dawn* remained in the garden of the family home deteriorating slowly until Mrs. Fletcher decided it was time to face letting her go.

In 2013 she invited Alan to take *Dolly Dawn* away and burn her if she was beyond saving. Alan took her back to his yard and after looking her over decided instead to carry out an extensive refurbishment.

* Alan Staley is also well-known as the boatbuilder who in recent times housed George Holmes's *Eel* in his yard and eventually carried out her restoration –Ed

This involved fitting a new keel, new hog, new decks, the replacement of some planks and nearly all the steam-bent ribs. The work was largely carried out by his apprentices under Alan's close scrutiny. As it was used as a training exercise and without an owner fretting about his wallet, no shortcuts were taken and no expense spared. The result is simply breathtaking.

Alan invited George Fletcher's family to see the newly refurbished *Dolly Dawn* at the Southampton Boat Show and apparently it was an emotional reunion. It was several days later that I saw her for the first time and was so completely bewitched.

I was very pleased to see *Dolly Dawn* once more at the Beale Park Boat Show this year. Once again she looked resplendent and attracted a great deal of interest but by now Alan was clearly motivated to sell. I talked to him once again and the urge to purchase her was strong. However I couldn't own her, she is just too beautiful, I couldn't bear to be responsible for the inevitable decline she would suffer under my ownership, despite my best efforts. I hope Alan sold her well and that she has gone to a loving home. Maybe I will see her out on the water some day in the future. AM



(Right) Beale 2015. First two photographs of *Dolly Dawn* by Alan Moulton; bottom one by Keith Muscott. The price tag of £10,000 (eventually repeated with trailer) was something of a deterrent, even if it was reasonable considering the work involved –Ed

The 12ft Farthing From Willow Bay Boats, Keith Muscott

That doyen of British wooden boatbuilding, Dick Phillips, was in attendance at Beale 2016 as usual, fronting Willow Bay Boats of Dorset.

He had kindly photocopied for me his famous series of Classic Boat articles from 1991 on building George Holmes's *Ethel I* canoe yawl with students at Falmouth Marine Centre.

In seeking him out to receive the articles I soon found myself fully engaged in inspecting the 11ft 7ins



LOD Farthing and her bigger sister the 13ft 8ins Ha'penny, and talking to Dick about them. His superior workmanship goes without question, but I was struck by these boats' ability to swap rigs while afloat, as described on Willow's website:

"The Rig has been developed to be used in two forms:

1. The Standing Lug, with the mast raked aft, both Main and Jib are set. A traditional boom, with jaws, can be set along the foot of the sail. Alternatively a Sprit Boom may be used, this is set above the tack, clearing the heads of both crew and helm, whilst still controlling the tension along the sail foot.

2. The Balance Lug, the mast is adjusted to rake less severely aft (by means of a wedge at the mast foot), and the main only is set. The combination of altering the mast rake and allowing the boom to travel forward beyond the mast moves the Centre of Effort of the sail forward, to compensate for losing the jib. The rig and the hull, in this way, remain in balance.

All boats are able to be rigged in both these manners.

Alternative rigs are available."

The Farthing

SPECIFICATIONS

LOD: 11' 07" (3.50m)

LOA: 13' 08" (4.17m)

Beam: 5' 00" (1.50m)

Draught: board up 07" (0.18m)

board down 2' 07" (0.79m)

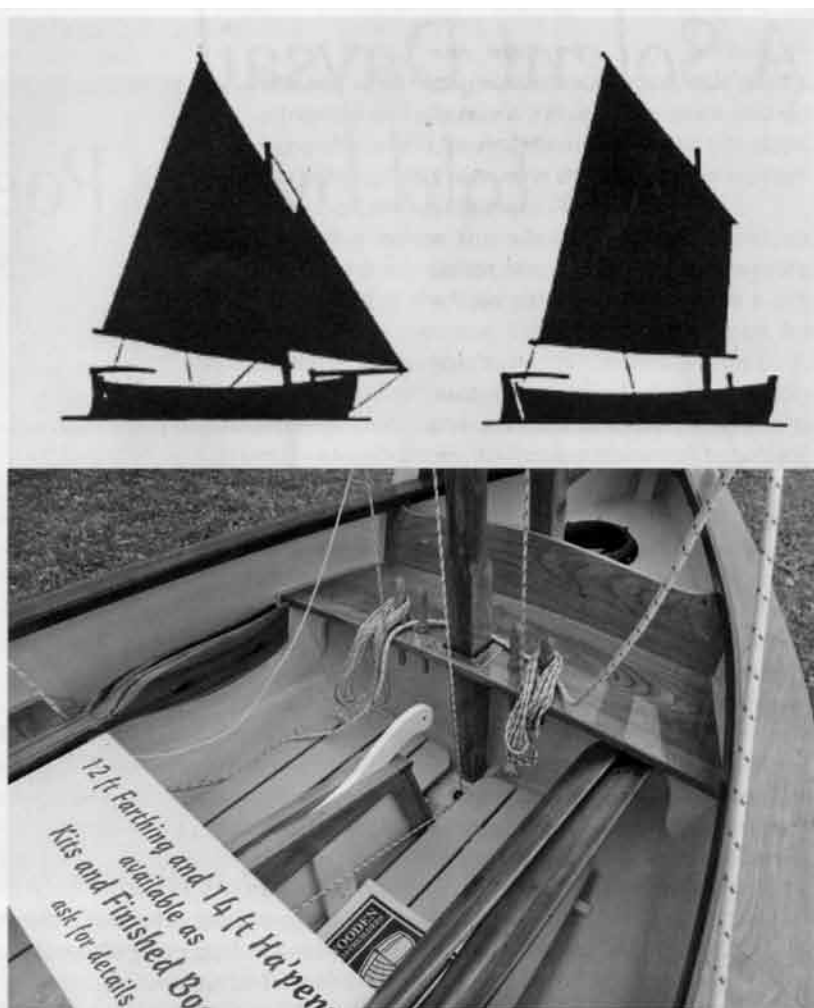
Sail Area:

87 sq ft (7.2sq. m.)

Trailing weight:

approx. 250 lbs (approx.) (113.64 Kgs.)

The silhouettes (top right) show the same boat with her two rigs that can be swapped, even while afloat. My photograph underneath the silhouettes shows the sturdy mast step which allows these changes. When the wedge is inserted behind the mast heel the spar is raked aft and is perfectly balanced carrying main with the jib on the bowsprit. When the jib is dropped and the wedge inserted in front of the mast heel, the small movement there becomes a larger arc aloft, following the principle of the lever with the bronze



collar in the mast thwart acting as the fulcrum, thus moving the CE forward and allowing the boat to be perfectly balanced when una-rigged. As you can see from the silhouettes, the mast is freestanding with running rigging only, which facilitates this manoeuvre. (A move from a sprit boom set-up to the balance lug would probably be effected onshore, not afloat.)

I love simple and effective tricks like this, and as the Farthing was fully rigged with jib and main and there was a breeze blowing, I satisfied myself that it could be done easily. Thinking that it was an innovation developed by Dick, I enthused about it on one of our forums only to be knocked back by someone with the comment that it could never be done at sea with a weight of wind in the sails.

Then I returned and saw there was nothing new under the Sun, and that Coble fishermen – and a lot of others – had been doing much the same thing in their boats, finely tuning the mast movement at the foot to suit a number of sail combinations. Which just goes to show that you can't afford to be

adamant until you get hands-on, climb in, and maybe shove off from the shore.

The fittings on the Willow boat were of the best quality, including the Henderson watertight hatch (below).



I bought two of these recently and at around £30 each you have to swallow hard and blink back the tears. They are installed on the sail and oar lifeboat the *Charles Henry Ashley* too, and our Bosun tells me they are the second lot as the first perished under Anglesey's ultraviolet rays in the protected harbour. Must be the black finish. Most of our boats don't spend the season on moorings, though. KM

More BOATS AT BEALE next time, including small and distinctive BOUNTY



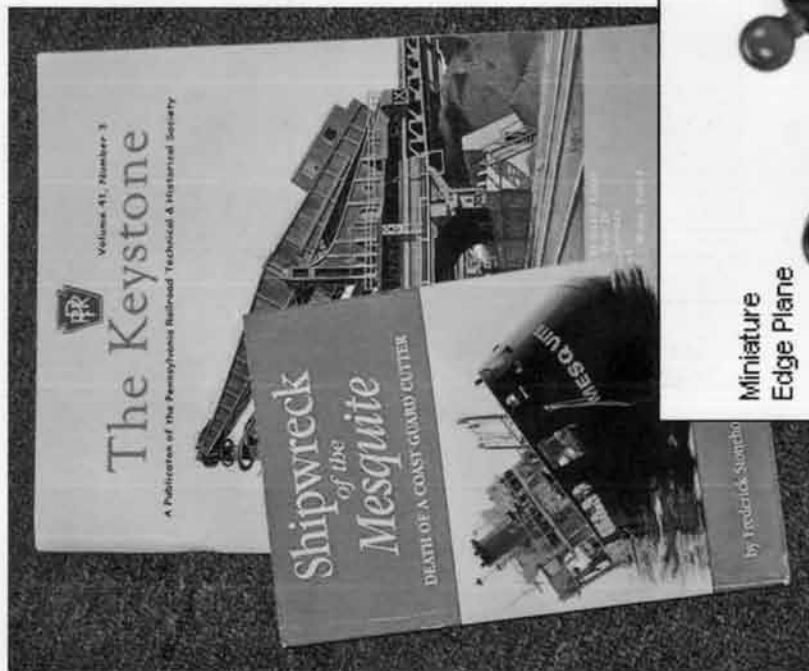
Phil Stager: "showed one book on the wreck of the Coast Guard buoy tender *Mesquite* – poor navigation can ruin your day. He also showed a copy of a journal (The Keystone) from the *Pennsylvania RR Historical Society* which had excellent articles on the PRR's coal and ore facilities on the Lakes and on the Anchor Line which was operated by the PRR until the Panama Canal Act prohibited railroads from owning steamship companies."

What hooked Phil on the *Journal*, was a cover photo of a HULETT Ore Unloader, one of his favorite Great Lakes model subjects.

Steve McMurtry: "Here are the links for the place I bought the spokeshave and the site of the Canadian manufacturer.

<http://www.leevalley.com/en/hardware/page.aspx?p=7121&cat=1,50230&ap=1>

<http://www.veritastools.com/Products/Page.aspx?p=641>"



Phil is much taken by the ore moving facilities on the Great Lakes, since seeing them as a kid. These monster Hulett unloaders are indeed impressive and memorable.

Steve has miniature spar work to do on his whaler, CWMorgan, so has started a collection of appropriate tools, from Lee Valley (below). Photos from the [www Veritas site](http://www.veritasite.com).



It seems that almost every activity has a set of unique words and phrases. Have you ever “frog legged a chute in a turtle?” If you are a racing sailor, you may have at some point along the way. It is the process of packing a spinnaker into its bag so that the head of the sail and the two clews stick out ready for the halyard and lines to be attached. The bag is secured on the foredeck and looks a bit like a turtle, hence the term.

While I know the term and have done the work to have the results on the foredeck, I cannot find the phrase in any of my sailing books or nautical dictionaries or online sources (including Wiki). Our Fireball had a spinnaker carried in a tube under the forward deck. The spinnaker had a retrieval patch (with line) secured in the center of the sail. When it was time to retrieve the spinnaker we released the halyard, sheet/guy and then pulled the sail back into the tube. The spinnaker pole was then detached and stowed in its tube under the bow. Any water that came in through the spinnaker tube was sucked out by the bailers. It was a much easier process than recovering a spinnaker on a Ranger 26.

The rig of the Fireball introduced me to the continuous line idea for the spinnaker sheet/guy. One line ran from a spinnaker clew back to the cockpit with a secure point on each side of the cockpit and then ran forward to the other clew. The section of the line that ran through the spinnaker pole was the guy and the other was the sheet. This approach took care of the extra line problem found on some boats when setting up to raise the spinnaker or after the spinnaker is retrieved. This method also takes care of any loose lines over the side or flying out to windward if the line gets away from the crew. You might want to give the continuous spinnaker sheet/guy line a try.

We know that sea level is an arbitrary term, since the sea is not “level.” A sailing friend of mine studies the air/sea interface which, among other things, includes the rise or fall of the sea depending on atmospheric pressure. Atmospheric conditions can raise or



From the Lee Rail

By C. Henry Depew

lower the water and my friend's instruments (both floating and via satellite) measured this difference. Nautical charts use a “chart datum” number that is derived from the average low (or lowest low depending on the country creating the chart) tide. While some countries use a single location, the US has a number of sites in its National Water Level Observation Network to calculate the mean lower low water level used for the chart datum.

When boating outside of Apalachee Bay I use: http://tbone.biol.sc.edu/tide/sites_usgulf.html. This is not the official NOAA website but provides coverage for the entire coastline. For information about tides in Florida, especially Apalachee Bay, I use the official NOAA site: https://tidesandcurrents.noaa.gov/tide_predictions.html. I then pick “Florida” for state coverage and then the tide station I want “Shell Point, Walker Creek.” The NOAA site gives me the ability to create a PDF file for the year (three months to a page). Of course, then there is the tide prediction information carried in many local newspapers.

For those of us who “cruise” along a given coast, local charts and local knowledge will suffice in most instances. If you go cruising to other countries you might want to check what their chart datum is for tide information.

When purchasing a light bulb we expect the bulb to fit the socket if we have the right size base. Light bulb socket bases are standard, right? Well, maybe not if you are dealing with the new plug base lights. We purchased a new fixture and found that the 40watt Halogen light bulbs were very hot (we could not touch the fixture after an hour

or so). We went looking for a smaller size (20watt) to replace the 40watt bulbs. No luck on finding a 20watt Halogen but we did find some nice LED lights

Both the Halogen and the LED lights listed their bases as “G9.” However, the LED G9 base connectors were a little shorter than the Halogen G9 connectors. I knew that because I took one of the Halogen bulbs with me as, when possible, I take the part that needs to be replaced with me to make sure everything matches. The LED lights were not that expensive and one could always return them so we bought two lights and went home to check out the fit and light brightness. The fit of the LED light is a little “loose” but works fine in the fixture. I am not sure if the same could be said if the fixture was on a boat in a seaway. Anyway, if you have LED lights on your boat it might be a good idea to make sure the plugs of any replacement match the size and length of the plugs you are replacing.

There was a letter to the editor in one of the boating magazines about the problem with “prop walk” when maneuvering the vessel. “Prop walk” is an interesting phenomena of a single screw vessel. While there is some of it going forward, the rudder counteracts this factor to some extent. However, when moving at slow speeds (or going in reverse), the “walk” can be a factor. Most of us use this movement as part of our maneuvering activities. Knowing the amount of “walk” at various speeds can help in shifting the stern (or bow) a little when docking a vessel.

Some rudders have a “trim tab” to help offset the condition when going forward, much as most small airplanes have either a trim tab on the vertical stabilizer of the aircraft (rudder) or an adjustment within the cockpit that is set at neutral when landing or taking off. Like many other aspects of boating, knowing your vessel's “prop walk” at various speeds in forward and reverse can be very useful. Of course, you could spend the money to install a small thruster (bow or stern) and use it to counter the effect.

During the fall of 1954 I came upon an article about building a canvas covered kayak. I approached my Dad and he thought it would be a good idea for us to bond during the winter months. The article gave us step by step directions and drawings for patterns to follow. The reduced patterns were all he needed as we drew full size plans of our own. I learned at that point how to read and draw plans full size. The plans were first laid out on paper and then on plywood. My Dad was very handy with tools as he had learned from his father just as I was learning from him now. I picked up the steps quickly as I was eager to learn such skills as to the proper ways to measure, cut and fabricate using a variety of hand tools and how to use each one properly. All we had for power tools was a small drill and a table saw.

The actual frame was made of pine, fir and plywood. It took several months of evenings and weekends to slowly bend and shape each component, brass screws were

Kayak Building with My Dad

By Ron Albert

used throughout to avoid rusting. I remember that the actual bending was done with homemade clamps consisting of rope tied off. There were evenings where all we did was pull the rope tighter and wrap and wet a rag around said piece to ease the grains in the wood for bending.

Slowly the boat took shape with countless hours of bending, hand planning, filing and finish sanding. At that point it was complete and ready for the canvas that would cover the entire boat. I believe that my Dad bought a painter's canvas drop cloth. The entire boat was painted numerous times and then carried out of our basement. To transport it, the boat was tied down on our fam-

ily sedan with rope running every which way through windows and back and forth to front to back bumpers.

The boat was taken to our summer cabin in Wisconsin. My Dad and I went together to the launch site as Mom stayed at home. I remember her looking very nervous, the thought of her only son going off in that kayak was just about all she could handle. Besides, she told me later, she was so busy praying she couldn't have watched at the same time while I prepared for the maiden voyage. It took me a while to paddle about a half mile to our property. Once I got the feel for the paddle it went better. I didn't even have a double edged paddle, just a canoe paddle with one blade.

I can still to this day see my Mom and Dad standing by the water's edge, my Dad with a great big grin and very proud and my Mom with a look of total relief. From that day forward I remember being in that kayak every day through the rest of that long ago summer when we were at the lake.

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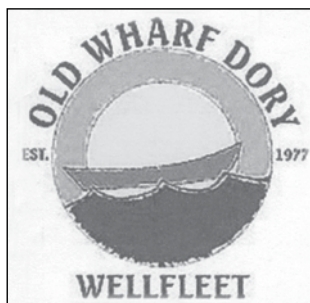
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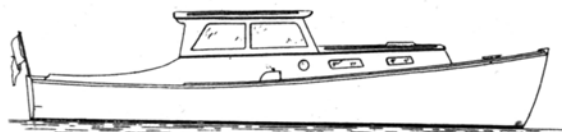


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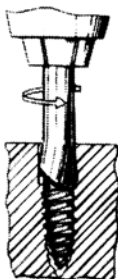
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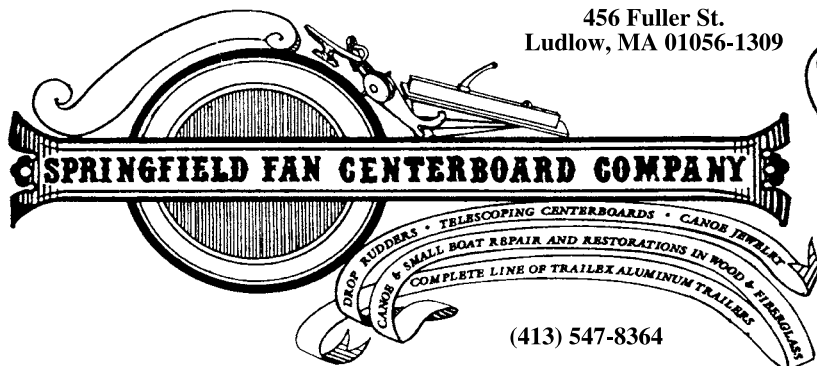
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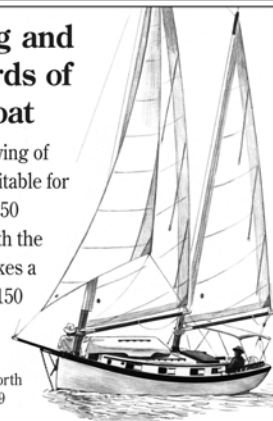
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