



# JUNK RIG Association

## Magazine

Issue 62  
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*Grand PHA  
strutting her stuff in  
Lymington - pages*



*Edward Hooper and  
Steve Peake, very  
content with their  
performance in the  
Round The Island Race  
- page 56*

# From the Editor

by David Tyler

Actually, that title should read "From one of the Editors". Lynda Chidell, having kindly offered to help me with the preparation of the magazine, has hit the ground running. Whilst I was on passage from Kaua'i to Kodiak (page 59), she made such progress in

gathering material and laying out individual articles that I had little to do to finalise them and to assemble them into the magazine that you are now reading. I'm grateful to her, and to Annie Hill, who has helped both of us to bring the text up to a fine polish.

Sixty-four pages again, thanks to all the contributors who have sent us their articles for publication. For two consecutive issues, the magazine has

been at the maximum practical size. Let's see if we can do it again when it's time to prepare issue 63 for October publication.

Many of you Northern Hemisphere members will have been undertaking your summer cruises, won't you? - while it's all still fresh in your mind, the good parts and the bad parts alike, sit down and write about it, and send it to us.

In this issue, we read of some notable new launches, re-launches, re-rigs and first passages under junk rig. *La Chica*, *Malliemac*, *Grand PHA*, *Aletheia*, *Redwing*, *Flutterby*... it's been a good year for junk rig building activity. What will other builders have to write about in issue 63, I wonder?



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# Flutterby gets an "A" on her test sail

by Meps Schulte and Barry Stellrecht

For several weeks in November, 2012, the Brunswick Landing Marina, in southern Georgia, was buzzing with talk about "that weird boat with the sails up." It was during the final stages of rigging *Flutterby*, our Freedom 33, and my husband, Barry, was delighted with his well-controlled, weathervaning junk rig. Each morning, in our slip, he'd hoist one of our sails and then spend hours studying it, tying and splicing lines for sheets and downhauls and parrels. The other boaters couldn't believe their eyes, expecting a gust of wind to wreak chaos, as it would if they hoisted sail at the dock in anything but the calmest weather.

Finally, on the 13th of December, we were ready for our test sail.

The temperature had plummeted. A steady stream of cruisers had left the marina, moving south in search of sunshine. The sky was gray and cloudy, threatening rain.

We rooted through our lockers and dressed for a winter sail, donning layers of thermal underwear, wool socks, fleece jackets, gloves, and those ubiquitous waterproof red jackets and black bibs we call "foulies." Our dock neighbor, Don, was incredulous. "You're taking your boat out in *this*

weather? You guys are nuts!" Shivering, the Miami native slammed shut his companionway hatch to huddle over his cabin heater.

It took us about a half hour to motor up the East river to the Brunswick river, which is wide and deep. Looking up the river, we could see a couple of huge container ships docked and unloading a half mile away. To the left, under the soaring Sidney Lanier Bridge, a casino boat was docked, but they weren't moving either. We had the river to ourselves.

As we set about hoisting our sails for the very first time, the wind was gusty, ranging from 10 to 15 knots. We could see by the water rushing past the navigation buoys that a wicked current was ripping through. I had hoped for a mellow, easy first sail, but it was not to be.

I left the motor running as Barry began to hoist the 500-square-foot split-rigged mainsail. Nervously remembering that the main on *Flutterby's* original rig was only 350 square feet, I gave him a conservative order to keep two panels reefed.

I was focused on the helm, making sure that we weren't swept sideways into a concrete bridge footing the size of a small building, as Barry started pulling



Barry does a test hoist in the Brunswick Landing Marina



Meps Schulte was at the helm of Flutterby when Barry hoisted the sails

on the halyard.

It was supposed to be so easy, right? But that first hoist, everything went wrong. As the third sail panel started to go up, Barry realized that the yard-hauling parrel was fouled by the topping lift. And the lazy jack sail gatherer for the jiblets interfered as well.

Our rig was designed to be sailed from the cockpit, with the control lines running aft. But when things go awry, somebody has to clamber up on deck and straighten out the mess. Barry got a lot of exercise that day, clambering up on deck to straighten out the messes. Still, we did eventually get the mainsail hoisted, and then turned our attention to the mizzen. Although that part went

smoothly, the process of simply raising both sails took over 45 minutes.

Finally, it was time to turn off the engine and trust that we could maneuver this 33-foot vessel under sail alone.

Ahh. Blessed quiet, for the first time in over five years.

That special quiet moment, one that all sailors know and appreciate, was followed by high-fives, cheering, and victory-dances by the two-person crew of the s/v *Flutterby*. For the next 60 minutes, the sound of water rushing past our hull was accented with peals of joyful laughter. After years of waiting for this moment, I was giddy

and giggling. Barry had a mile-wide grin.

The two of us took turns taking pictures and fighting for the right to steer. It was like we had a beautiful horse, and we both wanted to ride. We were both very curious to know how high she could point, but three knots of current kept sweeping us down the river, so our GPS track didn't show a lot of progress. Still, we fairly flew when we went downwind, especially when we winged the two sails out on opposite sides of the boat.

We didn't go very fast that day, occasionally seeing boat speeds of

five or six knots. We were a little unsure of ourselves, the weather, and the new rig, so we kept it slow with our double reefs, but the potential was there to go much faster.

The whole time we were sailing, we were in the shadows of the awe-inspiring Sidney Lanier bridge. It's the longest bridge in the state of Georgia, with clearance of 185 feet and 485-foot bridge towers. Above us, hundreds of cars whizzed by, but in the gloomy drizzle, I doubted that they even noticed our beautiful red-and-white



*Going to weather aboard Flutterby after several years of motoring, heeling (and having things dumped all over the cabin) was a fun experience*



*Flutterby, sailing in the Brunswick River beneath the Sidney Lanier Bridge*

butterfly sails.

Finally, we decided to call it a day and head back to the marina. Barry started the noisy engine, and I lowered the sails. Once again, we were delighted with the windvane effect of the junk rig – we didn't have to turn the bow of the boat all the way into the wind to drop our sails.

*Flutterby* was now a proper junk-rigged sailboat. We returned to our slip, triumPHAnt, but with no witnesses or fanfare. That rainy, gloomy day was a private celebration, leaving us completely unprepared for the attention that would be lavished upon our sailboat in the coming months.

Follow our adventures -- stories, limericks, and photos -- at <http://www.mepsnbarry.com>.

There's also a video from our shakedown cruise on YouTube: <http://youtu.be/HTWLvNmhzLM>

#### *About Flutterby*

*Flutterby* is a Freedom 33, built by the Tillotson-Pearson boatyard in 1981. Her original rig was a cat ketch with unstayed carbon fiber masts, wraparound sails, and wishbone booms. Because of the wraparound sails, the two masts are simple tapered cylinders without mast tracks, a key factor in our decision to buy the boat in 2007. We intended to convert her to a junk rig from the beginning and only sailed her with the original sails for a couple of hours.

However, the rig conversion was held up for a number of years, as we toiled at a never-ending list of projects involving the balsa-cored hull, decks, hatches, port-lights, engine, electrical system, and plumbing. We also refinished the carbon fiber masts, which had a bad case of circumferential cracking that was probably not structural. We did the work ourselves at Bock Marine, a beautiful but remote North Carolina boatyard, while attempting to live aboard. It was hot and buggy in the summer and freezing



*"How's the weather-helm?" Rig designer Barry Stellrecht takes the helm of Flutterby for the first time.*

cold in the winter, which slowed the work considerably.

After three years, we were tired of living on the hard; *Flutterby* is our only home. So we launched our red boat with her sky-blue masts, but no rig. For several years, we motored on the Intracoastal Waterway for three or four weeks at a time to spend winters in Florida.

The junk rig was designed by Barry, with aesthetic design by Meps. The

unique color scheme was inspired by our first daysailer, a 1967 Starcraft Skylark with a sky-blue hull and a white sail with a red panel just below the top. Barry lofted and sewed the sails on the floor of Meps' father's one-car garage in Vero Beach, Florida, using a heavy-duty conventional sewing machine and a borrowed knock-off Sailrite with a walking foot. He completed the rigging at marinas in Jacksonville, Florida and Brunswick, Georgia.

#### **Barry Stellrecht talks about designing and creating *Flutterby's* rig**

##### *Design*

I didn't spend enough time sailing *Flutterby* to know how she sailed and balanced with original rig. However, there is an active message board of Freedom owners, and in reading it, I found that the mizzen was always reefed first. There was also a "tall mast" variant built with a bigger main.

From this, I decided to make the main bigger and move the center of effort for the overall sail plan forward a little bit from the original sail plan. I believed that this would reduce the problem of too much weather helm. Also, given the ease of reefing, I wanted to put as much sail area as I could on the mast and deck of *Flutterby* and still make it work with single sheets. I didn't want to use double sheets if I didn't have to.

The original rig had 330 square feet in the main and 195 in the mizzen, for a total of 525 square feet. Our new 7-panel main is 507 square feet, and the 8-panel mizzen is 304. At 811 square

feet, we have 50% more sail area than the original rig.

In order to get the mainsail area as far forward as I wanted it, I needed more sail balance than was likely to behave well with a normal cambered sail. I decided to do a split rig, using Slieve McGalliard's design. The forward end of the mainsail is actually forward of the bow.

The other reason for this was to improve the ability to go to weather. I'd spent some time sailing a Freedom 44 cat ketch and been disappointed with the upwind performance. Then I saw the Freedom 44 known as *Aquavit*, formerly *Frog Kiss*, with a tiny bowsprit

and jib added. That 30-year-old boat won the first leg of the Bermuda 1-2 race. I thought that by adding jiblets, I could get a similar boost to our windward sailing performance.

I decided to use a slightly lower yard angle, about 50 degrees, on my high-balanced main, and a higher yard angle, 60 degrees, on my low-balanced mizzen.

I tweaked the geometry of the nearly triangular panels at the top so they would have the same sail area as the trapezoidal panels below. As a result, they ended up with the luff a little longer than the traditional Hasler-McLeod triangular panel sails.

### *Sail and Batten Materials and Construction*

The sails were sewn out of Odyssey III. All panels are white, except for the second from the top of each sail, which is red. There's a red polyester webbing bolt-rope around each sail. Ribbon telltales are sewn to the trailing edge of each panel. Each of the five jiblets has a telltale in the



*Meps helps with lofting which was done panel by panel in a small garage*



*Until his back complained, Barry's sewing was done on the floor of the small garage. He eventually moved the machine onto a card table*



*Much of the sewing was done using a heavy duty BabyLock machine which handled Odyssey III with no problems. Over two layers of polyester, webbing bolt-rope presented a challenge, and eventually forced Barry to borrow a sailmaker's walking foot machine.*

middle on both sides. Depending on light conditions, the white fabric is transparent enough to read the leeward telltale, as well as the windward one.

The mizzen sail panels were constructed according to Arne Kverneland's style of cambered panels and were sewn first. The top two panels of the main were sewn using the same method of construction as the mizzen. The jiblet section was sewn using conventional sailmaking techniques, following Slieve's instructions to the letter. I didn't care to try to redo any of his math for that; I believed that his method worked. The third section of the mainsail (the 5 lower panels abaft the mast) was sewn with camber, plus a little bit of tucking, also

following Slieve's instructions.

I sewed batten pockets in two-to-three-foot sections for all the battens in the middle of the sail. That allowed me to use small scraps of fabric without a lot of seams, as well as allowing gaps in the pockets where I can lash control lines to the battens. There's one webbing loop at each end of each panel, sewed into the bolt-rope. The yards are attached differently in the middle, with short lashings of small stuff and holes melted through the bolt-rope.

I reused sections of the old wishbone booms as yards, and because of the available material, my main yard is 16 feet long even though the other battens are 18 feet long. The mizzen yard and battens are 11 feet long.

The battens are aluminum, 6063 T5, 1/16th inch wall thickness. I epoxied PVC caps into the ends of them with holes drilled through to lash on the sails, parrels, and sheetlets. The main battens are 2 inches in diameter. The top two mizzen battens are 1-1/2 inches in diameter. The rest of the mizzen battens are 1-1/4 inches in diameter.

### Rigging

One trick we learned from Pete Hill, who converted another Freedom 33 to junk rig, was to install the masts rotated nearly 180 degrees, with original cranes pointed backwards. This gave us the attachment points we needed for halyards and topping lifts.

Both halyards have a 3 to 1 purchase.

I tried to leave enough room for the sheet spans according to the *Practical Junk Rig* formulas, and came fairly close.

The main sheet is a 3:1 sheet with 6 sheeted battens and two minimum-length 3-point spans. It works pretty well.

The mizzen has an extra panel, making things more complicated. It is a 5:1 sheet with 7 sheeted battens, arranged in two anti-twist 2-point spans and one minimum-length 3-point span. There is a traveler at the transom, and it gets put to good use.

Except for halyard blocks and small cam-cleats for the downhauls, all this was done with hardware from the original rig. I thought I might need to replace some of it with more appropriate hardware as I worked out the details, but it's working well enough for now.

I have a running yard-hauling parrel on each sail. I have a fixed tack parrel. I rigged a standing throat parrel; I wanted to rig a running throat or luff hauling parrel but didn't have any clutches or cleats to attach one to. I used Slieve's spanned downhaul-parrel combination on both sails, but because I had an extra batten in the mizzen, I have a standing boom downhaul on the mizzen. It's basically a fixed line that limits how far up you can pull the boom.



*The ends of some of the mizzen battens, with PVC ends and caps epoxied in to keep the water out and protect whatever they are bouncing onto.*

I currently have Hong Kong parrels rigged. During our shakedown cruise, I added some short parrels, which increased friction so much that I took them right off again, at least when combined with the spanned downhaul-parrels.

I lashed a ring to the yards to attach the halyard block and the yard-hauling parrel block. Instead of terminating the halyard to the becket on the halyard block, I tied it around the yard itself, offset from the ring, to slightly adjust the point at which the yard hangs.

### Acknowledgements

A project of this scope is like a book -- it takes a village, and acknowledgements are in order. Meps and Barry would like to thank: All the members of the JRA, for providing an international community of support and encouragement. Annie Hill, who set our feet on this path with *Voyaging on a Small Income* in 1993. Slieve McGalliard and Arne Kverneland, for their invaluable technical guidance and inspiration on sail design and construction. Kris Steyn, who kicked us off the jackstands and into the water. The folks at Bock Marine, especially Randy, for giving us a boatyard home in Beaufort, North Carolina.

The spirits of our mentors, Bill Brown (*Freebooter*), Jon Roop, and Ward Morgan (*Desiderata*) live on in the winds that move *Flutterby's* sails. We are forever grateful to them for leading the way.

*There will be more from Meps and Barry on their shakedown cruise in the next issue of the JRA magazine.*

Ed

