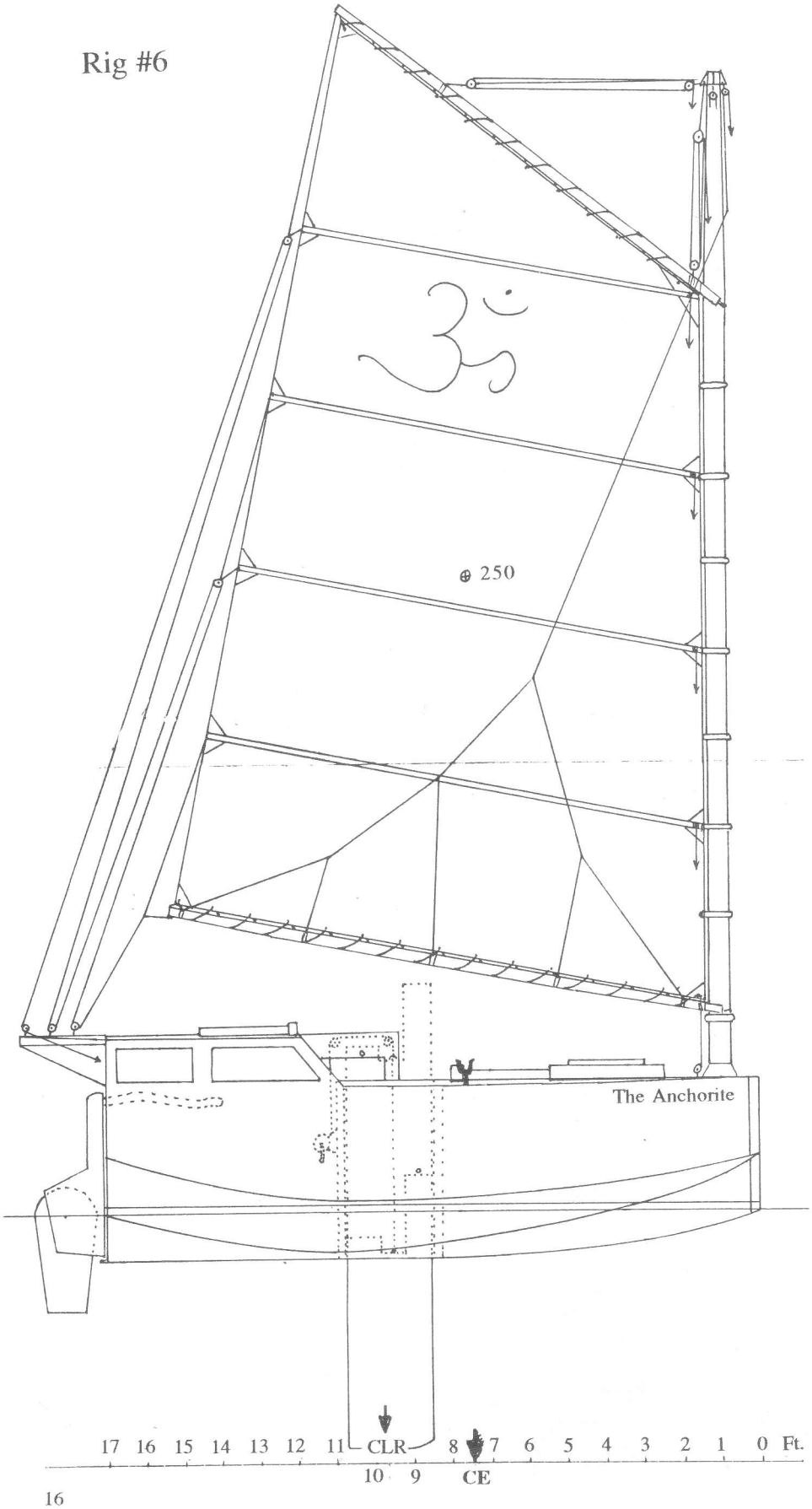
Messing About in Boats, March 1, 1995

Pilgrimage of the Anchorite:
The Scribbling Years



By Bill Robinson

Since moving to Massachusetts from Texas in 1961 at age 6, the sea has been dominant in my spiritual life, if not always materially. How often this is the case! The realities, limitations, and hard choices of life often drew me far away, so that despite a voluminous book learning, actual experience was very limited until 1987 when I bought a Klepper double kayak while living in New Mexico, equally distant from Atlantic and Pacific.

This purchase was a leap of faith, as I'd been disabled with arthritis in my back, hips, shoulders, and neck since 1980, and had no idea if I could handle the thing. But it was advertised as a comfortable, sailable, seaworthy, practical boat. and in time (and after making adaptive gear) I found this to be true. With this and a single occume ply-epoxy kayak I made from one of John Lockwood's kits, friends and I sailed and paddled many miles in water of all types from Minnesota to Georgia over a five year period.

During this time I met many interesting kayak-oriented folks, and as my interest was especially in sail, I found real friends in Mark Balogh and Sam Carveth, who run Balogh Sail Designs from their house on the North Carolina coast. Their gear proved the best available and very enjoyable, and we continue to be good friends.

While the immediacy and amphibious nature of kayaking, and especially the esthetic quality of the folding kayak experience, was rewarding and remarkable, in reality the physical difficulties of kayak camping came to be a real problem for me. My considerable investment in kayaking held me back from selling my gear for a cruising sailboat, but Fate intervened in Her usual way when I was rudely interrupted by a SWAT team at my humble abode in North Carolina on July 31, 1991.

Despite no recorded complaints, it seems the NC State Bureau of Investigation took exception to my possession of LSD and an illegal, if sacred, species of fungus. They wanted to put me behind bars for life, but after some of the usual disgusting legal wrangles I got 14 years and other hallucinatory details I won't bore you with. My "crime" is seen by authorities as too severe to merit parole. They put murderers and their ilk on the street to make room for me. Don't you feel safer now? Between good behavior, gain time and so forth I hope to be out in 1996.

Although I've been a practitioner of yoga and very serious about spiritual life for a long time, naturally incarceration radically intensified my daily practice, and I focussed heavily on Hinduism. Gradually my long-term desire to circumnavigate crystallized around a pilgrimage to holy sites around the world in a little sailboat, alone or with others as circumstances dictate.

My correspondence with others also interested in small boats on big voyages has been of great value. I knew David Bolduc from kayaking, he's known to many readers from his article about his Bahamas trip with his wife Mindy last summer. His friendship and letters have been a real help. He introduced me to Matt Layden, the designer and builder of his boat *Little Cruiser*, with whom I've had a most interesting series of letters. I've also had the opportunity to write to David Goodchild, constructor of *Toad Hall* and author of the series of articles I've enjoyed in these pages. David has big plans and valuable experience and a fine esthetic sense.

Somehow he's found time to send me letters of considerable length and remarkable content. His ideas for making otherwise very expensive gear at home, cheaply and well, is critical to the whole project. Another fellow I contacted is Don Musante, owner of another Matt Layden boat (and a satisfied one too, I may add) who knows a good deal about junk rigs and other lugs.

Most important in terms of technical details has been my correspondence with Phil Bolger, who has given of his valuable time and guided me through the rank beginner status of design to the sophomoric fumbler stage I find myself at now. His social and political insights are pungent, trenchant, and sadly accurate. While readers can see the influence of others, like Matt Layden, in my design, all my work since Mark 3 has been variation on themes by Phil Bolger.

So what am I aiming for besides escapism and learning about design? I don't care to spend more time in the boatyard than on the water, so if I build it would be small and easy to construct. If I have a partner we may build a two-man boat, but anything bigger I'd rather fix up. To be feasible it has to be as cheap as safety allows, which again means very small, or at least light.

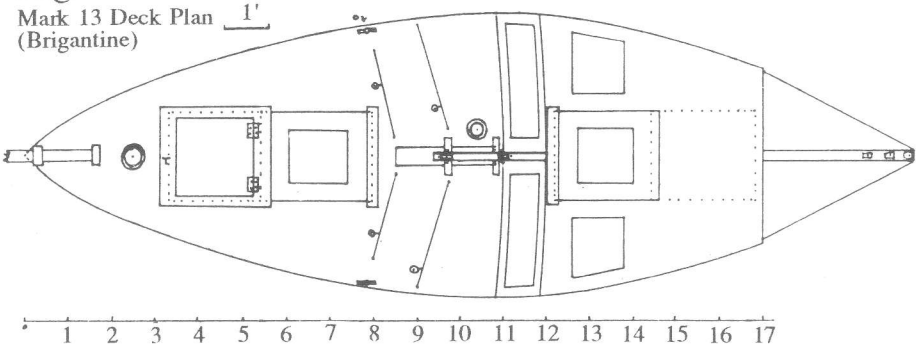
One absolute requirement in all my designs, and which would have to be a retrofit of a fixer-upper, is that all usual and essential sail handling must be done from inside. Note that Mark 13's topsides are designed around this concept. and the rig is essentially defined by it.

As remote and poor areas are on the route, the boat must carry as much as 1000lbs plus water per person. While a small outboard may be used for going up a river or two, no engine is a serious goal and a big economy. Shoal draft is an obvious value, and while the boat must be capable of offshore conditions, being able to sit upright on a mudbank without fuss and feathers is marvelous if possible, as with Mark 13.

For safety, the boat should self-right (this with the load and size cuts out multihulls) and either not sink, as with Mark 13 after cutting the daggerboard uphaul and so dumping the ballast, or be extremely hard to hole, as with steel in a two-man version, 23'-25'. Sail should ride rather low on strong spars that rely on scantlings, not cable, to keep them up and in one piece. David Goodchild's PVC core plyepoxy design wouldn't break even after serious damage. Hollow spars, either round after D.G. or box construction, can be filled with wads of aluminum foil and provide good radar reflection, beyond the abilities of storebought radar reflectors.

Rig #7

Mark 13 Deck Plan 1'
(Brigantine)



As to a rig, I'm not going to break a sweat to create yet another Bermudian sloop, and if given one I'd probably check my stash of shekels to see if I could throw in a yardarm or two. Yes, they perform the best to windward, and if I wore red pants I guess that would really matter. They aren't the safest or the cheapest or the easiest to handle or the best off the wind, so you won't see them in my designs.

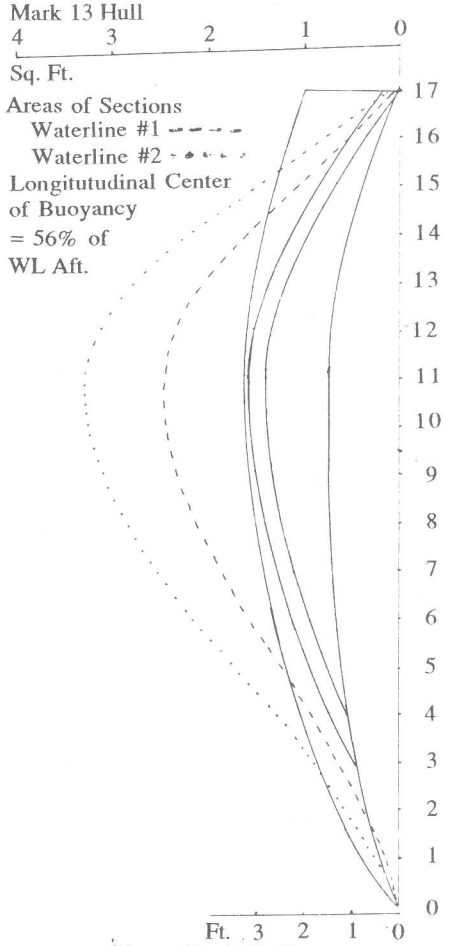
Junks held my attention at first, but the nonexistent airfoil in light airs is a serious drawback. However, the modern method of handling junks can be used with other sail types that give better performance. This is the gist of Phil Bolger's suggestion for an offshore rig, one variant of which is the Rig #6 on Mark 13, and is the most practical idea for a singlehanded cruiser I've seen. If I were building today this is the one I would use, after refining the details.

However, if "practical" were the most important point here, I'd buy a plane ticket to Hyderabad and pack the Klepper (and the Kayopectate) for a jaunt down the Ganges. No, there's a good deal else going on here. The worth of a pilgrimage is enhanced by the difficulty and exoticism of the travel. Hence my current interest in the square sail, and trying to make a square-rigger simple enough to singlehand, and not impossibly horrible to windward. Reader input is definitely requested here.

The idea behind Rig #7, the brigantine, is something like this: With no shrouds, the yardarms can come nearly fore and aft, so that the windward ability of the square sails is a function of the camber and the tension on the luff. Note the traveller below both the foreboom and fore yardarm, each with a downhaul from the bowsprit. I'm hoping that enough tension from the boom, or if reefed from the fore yardarm, will result from this downhaul to allow reasonable windward performance, but a reliable auxiliary would be required.

Reefing is as easy as with a junk, by dropping the yardarms into the lazyjacks; and chafe is not a problem as the fore lazyjack can be eased while keeping the aft taught, as needed. In storm conditions reefing points can cut the topsail to 30 sq. ft. This is the only sail handling requiring opening a hatch, which is acceptable as it's not essential. The foresail could also have reef points, but I'm a bit puzzled as to whether to make the yards a bit longer and tie up to them, or to tie the sail to itself and bundle the bottom part, as shown.

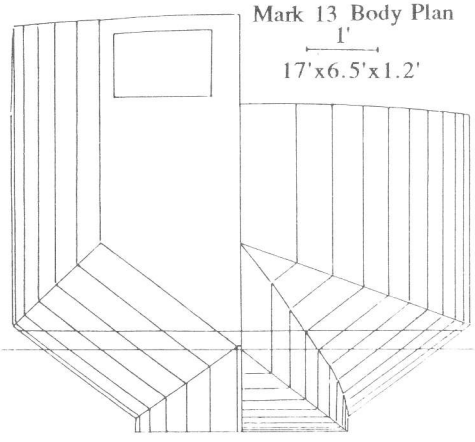
Mark 13 Hull



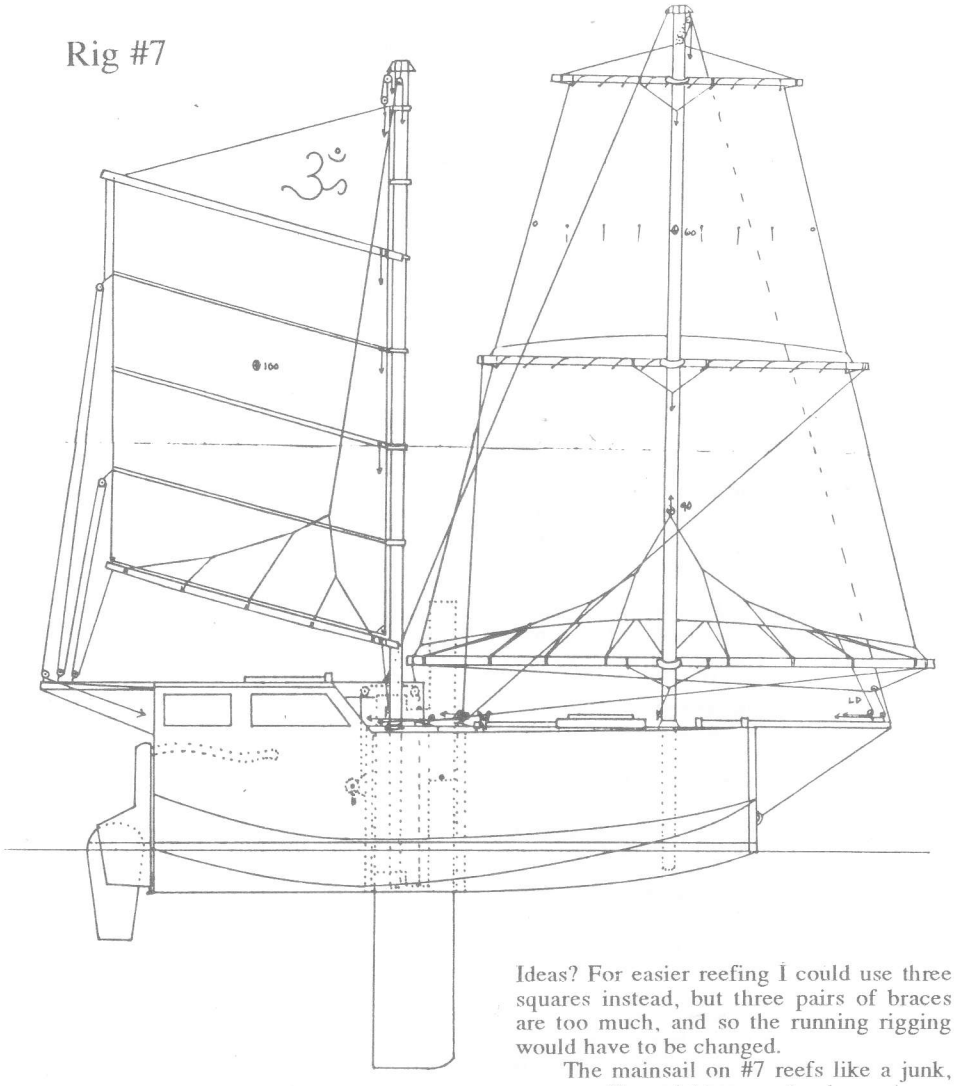
Lines: Deck Outline
WL#1 & #2
Keel Outline

November 1993

Mark 13 Body Plan
1'
17'x6.5'x1.2'



Rig #7



Spex (17'x6.5'x1.2' - 6.2'

Hull Materials: 1/2" ply skin and deck, steel plate on bottom of box keel, fiberglass exterior sheath, all sealed with epoxy, probably taped seams, 1-1/2-2" foam insulation/flotation inside hull 1" below deck.

	WL #1	WL #2
Displacement	3070lbs	4160lbs
Prismatic Coef	.573	.583
D/L	279	378
Sail Area	250SF	
SA/D	19	15.5
Wetted Surface (Board Down)	112.5SF	128SF
SA/WSA (Board Up)	2.75	2.35
(Board down)	2.20	1.95
Beam WL	5.04'	6.36'
Long Cntr of Buoy	9.54' Aft of Bow	
% LCB (of WL) aft	56%	

Ballast: about 800lbs of lead in bottom 2.1' of daggerboard, plus steel plate on bottom.

Lead, % of WL: ig #6 13.4%; Rig #7 15%.

Ideas? For easier reefing I could use three squares instead, but three pairs of braces are too much, and so the running rigging would have to be changed.

The mainsail on #7 reefs like a junk, uses a gaff or wishbone and only needs one halyard. I hope it won't twist too much, but I've been told by people who would know that this is likely. The fore backstay as shown isn't quite right, I'd fasten it on the deck close to the mast to avoid any interference with rotation of the main to straight forward, in either direction. The lazyjacks function as gallows, as with all the other sails.

My first try at a brigantine included sails on stays that, with squares down, changed the rig to a staysail ketch, via roller reefing. Of course this is just too complex for one guy to handle, but it looks cool and would work on a bigger boat.

Now, about the hull. The first few boats I drew and measured as best I could, but after some time and practice I realized that with no planimeter, compass, or any equipment at all (David Goodchild later contributed some excellent graph paper and French curves that have been extremely helpful) the only practical way to put down lines was to define the curves with functions, bang out the offsets on a calculator, plot the dots and draw by numbers. This has worked out splendidly, although I'm still limited to chine designs. I can fill all my design goals reasonably well with sheet materials anyway. If you'd like the details of the math, drop me a line (address at the end of the article) and we'll talk. It's quite simple.

This box keel-step hull concept, which Phil Bolger turned me onto when I mentioned my interest in small steel boats, looks better and better the more I play with it. At first I tried a deeper, narrower keel to afford headroom and liberate me from a board of some sort, but the initial stability was always too poor. The current design should be fine, although more vertically cramped inside at this short length. Scaled up just a few feet could give full headroom throughout.

Notice some advantages: While the daggerboard gives 6.2' draft and easy self-righting when locked down, when it's up the boat draws 1.2' and can sit easily on the bottom. The short slot doesn't hurt the strength of the hull too much, and effective lateral area with board up is maximized. This should allow reasonable sailing if the board must be cut loose in an emergency, a big advantage there, to be able to dump the ballast. Note that the board is centered in lateral area on the hull's CLA, and its ballast is centered on the longitudinal center of buoyancy. (These details are really too fine to matter much, but elegance counts!). A swinging ballasted keel couldn't do this, couldn't be dumped, and would take up a bunch of room I couldn't afford. The mainmast's off-center position in Rig #7 isn't a big deal.

The catch to the daggerboard is making the trunk strong enough and able to withstand grounding. Perhaps rubber along the lower aft and halfway up the front of the inside of the trunk would work. In ply construction, incorporating steel flatbar within a ply-epoxy-glass matrix should make the trunk very strong. A bigger (23'-25') boat could be all steel and wouldn't have a problem.

The hull shape is ideal for leeboards, and I have considered them, but I want ballast lower than the hull's bottom. Even with about 800 lbs of lead in the daggerboard, there's room for a bit more ballast, and if the hull's of ply and not aluminum, I'd like to put steel plate (1/8"-1/4") on the bottom of the box keel, full length. Also shown in the sail plan is a strip of steel on the bow, a V-shape made of 2" wide flat bar to fit the entry angles. That's easy to do with this design, so why not? Cheap insurance. Can you tell I used a cloth-covered kayak for some years?

That's about it for now. Please get in touch if you have ideas, or especially if the pilgrimage idea sounds like something you'd like to get involved in.

Let me thank a few more people: Jay Benford sent me information on his 14' cruiser *Happy*, gratis, very nice of him; also, Derek Van Loan found a copy of his *The Chinese Sailing Rig--Designing and Building Your Own* that he said was old and he gave it to me. A terrific little book and quite complete, I recommend it highly.

Postscript--I wrote this article in November, 1993. Since then I've moved to another prison camp, where until recently I didn't have the opportunity to design as before. I've gone back to my previous work of learning Sanskrit, and also have just started Hindi. Actually building a boat like the one described seems to be a remote possibility--still, with the right set of situations.

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