

## From the Archives

# The Designing and Building of “Lynx”

This article will attempt to explain some of the evolution of ideas that went into designing and the on-going building of the 25-foot steel catboat “Lynx.”

First of all I would like to say that I have no formal training in boat design. The closest I ever came was a degree in Fine Art and many years working as an art teacher and professional artist.

Also, I have never sailed offshore. I did spend four years living aboard my own boats and coastal cruising extensively around British Columbia. The first was the Maurice Griffith’s designed “Eventide” sloop and the other was a “Pacific 30” cutter. Plus I had the chance to sail on a number of other vessels of different sizes and rigs.

I did have the opportunity to spend about six years working in a boat repair and new construction in wood, fiberglass, steel and aluminum.

So with this experience in boat construction and sailing, I would like to make some general comments on design features before we get into the actual boat under discussion.

Materials are the first subject. I have no real preference but for a builder of limited means I think steel has a lot to offer.

As far as displacement is concerned, I think you can put more of what you need in a heavy displacement boat with short overhangs. Many modern designers draw out the ends of their boats to make them seem bigger than they really are. I have never been convinced that drawn out stems and transoms make a boat more seaworthy. Another good reason to have short overhangs is berthing fees — they “ain’t getting any cheaper.”

About round bilge and chine construction for metal boats, I know one company that charges double for a round bilge boat compared to a slab sided one of the same design. Now it’s no secret most boating people have deeper pockets than me, but this is ridiculous. Especially when you consider there is no difference in



Photo 1

seakindliness, speed, or even aesthetics.

As far as the number of chines, one always seemed too little, and more than two excessive.

Let’s touch briefly on “folded boat” construction. I have seen successful boats built using this process, but I have always felt that it was an unprofessional way of building a boat. Now I know from building many metal sculptures that flat bar and rod will bend fair. But huge sheets of steel? And if it’s not bending fairly, how can you tell with no framing in place? Sorry, for my point of view, the proper way to build a metal or wood boat is to build the keel, set the frames RIGHT SIDE UP, then proceed to planking.

As far as built-in tanks are concerned — the question is not “if” they will ever give you grief, but rather “when”. Somewhere, years down the road, they will get contaminated, the connectors will leak, or the through hulls will deteriorate. And designers almost never put in large enough clean-out ports, if they even

bother to put in any at all.

Speaking of through hulls, I believe the best through hulls are like the best neighbors to have — none. It always seemed to me the height of silliness to spend all that time and money to build a water tight hull, and then as soon as you’re finished, to start madly drilling holes in it. But you say, you have to have “some” through holes, don’t you? What part of no through hulls don’t you understand, stubborn reader?

Let’s go through the reasons usually given. We need two for the head, of course. No sir, I’ve fought with the best “heads” around and always lost. For me, it’s “buck it and chuck it”. Same for the galley. And this brings us to the beast, the demon, the fiend from Hell: the inboard engine.

I’ve had a great deal of experience with inboard engines — all of it bad. Let’s identify some of these negatives. First of

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all, it puts the weight where you don't want it — in the stern. And then they're very expensive to begin with, in addition to being noisy and stinking up your boat. Also, when they do need repair, the repairman is hard to get and very expensive. Plus the engine takes up valuable storage space. Nope — my next boat is going to have an outboard.

Now, I realize that above a certain size of built-in tanks, through hulls, and inboard engines are probably unavoidable. But my response to that would be, does anyone really need a boat that big?

Every boat needs a hard dinghy. My preferred method of carry is upside down on stern davits. Why upside down? It doesn't collect rain water and that following sea just might not wash it away.

For anchors, you need two: as large as required, permanently mounted on deck where they are instantly available. By the time you dig out the "spare" anchor below, the crisis is going to have resolved itself, usually in a permanently unsatisfactory manner.

Just a quick word about seaworthiness, I define it thusly: the ability of the hull, deck and rig of a sailing vessel to stay in one piece in a really bad storm, even when the crew do everything wrong, which they usually will.

Robert Perry in reviewing my two designs (which I will be discussing) has called them "coastal cruisers" when everything about them shouts blue water boats. But then some designers are so obviously influenced by racing principles, they have forgotten the fundamentals of a good cruising boat. Like long keels, keel protected rudders, low aspect, simple and unstressed rigging. And as far as minimizing "wetted surface", some of these designers should be worried instead about a surface likely to get "wetted" when their skittish, unstable, high stressed rigs toss them in the water 500 miles offshore — that is their butts.

And as far as different design "coefficients" are concerned, I get the feeling the only coefficient a lot of designers are interested in is the ratio of how their bank account increases in relation to the client's steadily decreasing one.

So now I'll talk a bit about the design

evolution of "Lynx". One brief summer between high school and college I had the opportunity to work in the shop of Tom Colvin when he was located in Miles, Virginia. Funny, at the time I wasn't even that interested in boats other than canoes.

About 15 years later when this interest did develop, I thought seriously for the first time about building a boat. After studying many designers (and purchasing many study plans), I decided on Colvin's 42 foot junk design "Oothoon". I still love that design. I went so far as to purchase the plans and loft the lines. Then things changed, and that project was put on hold.

About 10 years later I began again to think about a boat design. While I still liked "Oothoon", at 35,000 lbs, it now seemed a bit big. I realize every builder of a sailboat believes the hardest job he will have finding a crew will be choosing which of the blond, bikini-clad beauties lined up at the dock to sail away with. The reality is, you will probably be on your own most of the time, so better build or buy a boat you are comfortable single-handing. So I designed a 32 foot Cat Schooner, what I thought an off-shore boat should look like. Long straight keel, simple rig, double chine steel construction. Thus came into being my "Raven Lady" design. A scale model 1/2 hull was carved, and the keel was actually fabricated. This boat was about 18,000 pounds displacement.

Then I started having second thoughts about the size, not the design. So I began to think: what is the smallest, simplest steel boat that a sailor might consider taking to blue water? After a few months sketching at the drawing board, the result was "Lynx": a 25-foot steel, full keel, double chine cat boat, displacement 11,000 pounds. So construction commenced. I was able to use a lot of the keel from the "Raven Lady". Once the keel was built, it was time to make the frames. I was not looking forward to carving another % hull, so I thought to try an experiment. The keel and stem were fabricated from the profile drawing. I knew the basic shape of the mid-section frame and transom from "Raven Lady", so I just scaled them down, made them, and set them up on the keel.

Now here comes the different part. A few years ago in a boating magazine (I think it was the one that advocates that weird material — wood), there was an article about a method of boat building where you set up the keel, stem, transom and middle frame and swing battens to establish the hull shape. Then the intermediate frames are fabricated and planking can begin.

So this is what I did: round solid bars 5/8" were sprung into place at the chines and shear. With a bit of spreading in the forward sections, the shape was fair and pleasing. So I then made

the rest of the frames to fit the chine bars at 2 foot centers. Sort of like lofting the boat in place. It actually was quite straight forward.

The planking was ready to begin when --- oops! --- another move of 2,000 miles became necessary. Now with a 10 foot beam the moving of the boat in one piece was impractical. So... the frames were all then taken off the keel but kept in one piece, and the keel was cut in half. The after part of the keel, at about 1,500 lbs or so, was just too heavy to move. So it was left. Also, a pattern was made to take along of that part of the keel left behind.

This all happened last summer. As of March 15, 2010, the after part of the keel was remade and the frames were all set in place with new chine bars and we are ready (again!) to start planking. (Photo 1)

Like most people I can only work on this project as time and money permits. However, I am hopeful by this fall to have the hull and deck completed. The interior is going to be very simple and inexpensive; the rig was designed to be that way from the beginning. So, say another year from this fall to completion.

Although there have been a lot of setbacks, overall it's been a fun project. And the size of the boat is such that, even for a person of modest means, it seems doable. Sometimes that is the only motivation that keeps a project steadily moving along; the feeling that the completion of the project is visible on the horizon, even if somewhat distant.

Mike Camp  
March 15, 2010

Haileybury, Ontario Canada

# Completing the “Lynx”

*Editor’s Note: In the From The Archives section we have Mike Camp’s article from the Summer 2010 issue.*



*Photo 1*

*Photo 2*

When we left off five years ago, the steel plating of the 25 foot “Lynx” was ready to begin.

As often happens, this took two summers longer than anticipated. Since the boat can only be worked on during our short summers, it is somewhat understandable. The planking went on fairly easily, as the chine bars assured smooth lines. (photo 1)

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## Lynx Specifications

- Length .....24 feet waterline  
25 feet on deck  
30 feet to end of dinghy davits
- Beam ..... 10 feet
- Draft .....4 feet
- Displacement ..... 11,000 pounds
- Sail Area .....360 square feet
- Headroom .....5 feet 6 inches



*Photo 3*

The decks were also of steel, including the area in front of the cabin to the bow. The cabin sides, cabin roof, cockpit floor and seats were of laminated wood, fiberglass covered. The floor frames, berth frames, and cockpit framing was also of steel. (Photo 2)

The only real problem encountered in this part of the project was the somewhat extreme curvature of the cabin, especially the roof. To give a pleasing shape to a small boat requires a bit of extra work,

but now that it is done, I think it was worth it. This part took about one-and-a-half summers work.

Now we come to the rigging. Originally the boat was designed as a catboat, but after I fabricated that huge boom of laminated wood, I began to have serious doubts. Imagining that large boom sweeping across the boat in a gale gave me second thoughts.

So, I wimped-out and redesigned the boat as a sloop with non-overlapping jib

and a permanent boom and reef points, and a main sail of 195 sq. ft. With the jib of 165 sq. ft., there is a total sail area of 360 square feet.

There is both a permanent main boom gallows, and also one for the jib. The mast, of laminated wood, is mounted on a sturdy stainless steel tabernacle on the cabin roof. There is also a heavy stainless steel post taking the load from

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the cabin roof to the keel. With a horizontal winch on the foredeck, you are able to raise and lower the mast single-handedly. (Photo 3)

Below decks is very simply laid out: a large single berth port and starboard with a permanent round table between so you can sit on the berths to eat. (Photo 4)

Next, a wood-stove to port, and propane stove opposite. To port there is a small wash basin, then a curtain with a basic toilet. And forward of that to the

bow, light stowage. (Photo 5) Below the cockpit is a large storage area, as there is no inboard engine, rather, two high thrust outboards mounted on the stern as well as permanent dinghy davits. The outboards have remote controls mounted in the cockpit. There are also two anchors mounted side-by-side on the bow.

So this was all completed this fall of 2015. As we are into freezing weather by middle of October, launching will have to wait until next Spring in the Great Lakes.

As this is a custom designed and built sailing vessel, I am looking forward to the launching with great interest.

*Mike Camp October 15, 2015*  
*Northern Ontario, Canada*



*Photo 4*



*Photo 5*