THE BOATS I'VE LOVED

20 CLASSIC SAILBOAT DESIGNS

BY CHUCK PAINE

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ACKNOWLEDGMENTS

THIS BOOK IS DEDICATED FIRSTLY TO my trusting clients who commissioned the design of the yachts depicted. Without you, this book would not have been born.

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As always my thanks go out to my wife Debby, who has supported and encouraged me in all my endeavors.

Chuck Paine
July 2016

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INTRODUCTION

THIS BOOK IS DEDICATED to the would-be nautical adventurer who is curious about classic sailing yachts from the hand of an accomplished designer. Displayed here are the most renowned of my portfolio of sailboat designs, along with some recent ones that might interest "my type" of sailor. Most of them have been built in sufficient numbers to crop up frequently on the used boat market, while some of the newer designs must be built from the available plans.

SO YOU WANT TO OWN A BOAT?

IN ORDER TO EXPERIENCE the fun of sailing, you have to have a boat. I wrote have, not own. There was a time when you had to own it, but increasingly today there are ways to bypass ownership, and that can be a very good thing for a certain type of sailor. In many cities today there are "community sailing" organizations that own a fleet of boats and will rent you one for a few hours which you can then enjoy, with some restrictions on how far you venture, for a modest fee. You can go as skipper or crew, and if you go as crew you can often go for free, or at the most for "shared expenses." And of course one can now charter a yacht-often one much larger and more luxurious than you might ever be able to own–and do so in parts of the world far beyond the range of most of us who must return to work on Monday.

But there are many who aspire to more than this, and for this you must own, not rent. If you want to spread your wings for a week or two and cross new horizons, community sailing is not for you–for it limits both the time you can sail-in daylight only- and the distance you can go. If you want to fall in love with a boat, to have it become part of your family history, to sail something of real value and beauty, to learn the names of the stars, or to chuck it all in and sail around the world, chartering most definitely will not do. And you who are reading this have already proven to me that you are this type of person, because you bought my book. For you, there are but two choices–you can buy a boat, or you can build one.

My readers most probably know that I am not in the business of building new boats. I, and this book, can be helpful to you in telling you a bit about some of the best of my older designs–many of which appear regularly on the brokerage market. For those of you who prefer the advantages of a new boat and are willing to pay the much higher price that comes with "new", there are some enticing designs here for you to consider. So let's dive right into the most difficult decision you have to make right off–do you buy or build?

BUY A GOOD OLD BOAT

THERE'S ONLY ONE REASON to buy an old boat, and that is, price. Most of you will buy an existing boat on the brokerage market, for the simple reason that old boats are a lot cheaper than new boats. Because more even perhaps than cars, boats depreciate.

Why? Same reasons–cars go speeding through dust-laden air at sixty miles an hour and occasionally hit things like other cars, engines wear out, paint gets dull, the kids spill their big macs all over the nice upholstery, and nobody places ads on TV for ten-year old Volvos between the plays at the Super Bowl. Boats bury themselves on windy days under clouds of salt laden spray, their engines wear out, they occasionally hit other boats and despite their owners' protestations to the contrary–the bottom, paint gets dull, the kids (and their parents) spill the contents of their stomachs all over the nice upholstery, and, well, you get it. And boats, being continually immersed in a corrosive fluid, require A LOT more maintenance than cars.

I once had a marine finance guy tell me at a boat show that for the purposes of the lender staying ahead of the borrower when financing a boat in case the latter defaults, the bank assumed the depreciation of a yacht at straight-line depreciation to scrap value over a period of ten years. Of course this is an oversimplification. In the first two or three years of its life a yacht depreciates a lot faster than this, but at the tail end it retains a bit more value than nil. I've heard others of my yacht broker friends say that the day after a new yacht is launched, it is worth half what the owner paid for it. A bit severe, I think, but not far off of right.

Few of the classic sailing designs shown in this book are less than ten years old, so the near end of the depreciation curve is of no interest here. The fact is, well built and well-designed boats often last twenty or thirty years and still have some life left in them. If originally well built with a hull built of single skin (as opposed to cored) fiberglass, the hull at least can be sanded down and repainted and will be something like 90% as strong as the day it was born. Equally true of WEST system epoxy saturated cold-molded hulls. And the hull is the most important part of any boat, old or new.

The problem is, all the other bits.

Decks that were well built originally can last between ten and thirty years before bad things happen. Never trust a plywood deck that has not been covered with fiberglass or Dynel. These are your ten-year decks. Cored fiberglass decks can last a long time if water doesn't get to the core. Once it does, all bets

are off. Plywood decks that were both epoxy saturated at birth and covered with glass in epoxy resin might get well beyond thirty years before needing attention.

Interior plywood, if BS1088 marine grade, which all high quality boatyards, and some amateur builders, will have used, will last a long time if it has been kept reasonably dry. Common sense tells you where it is most likely to get wet–the area around the chainplates, back under the cockpit, the chain locker bulkhead, but most importantly beneath the cabin sole. I once saw a ten-year old boat whose plywood had turned to mishmash everywhere beneath the cabin sole!

Electrical systems are usually the first thing to go. If you had any sense, you'd rip it all out and use kerosene lamps. If you buy a boat more than twenty years old, ASSUME that all the wiring, plus the panel and most of the fixtures, have to be replaced.

Rigging does not last forever. If made of stainless steel (and I'll bet every Paine design that is on Yachtworld.com today has stainless steel standing rigging) it is subject to a phenomenon called chloride stress corrosion. The rule of thumb I have been told is that stainless steel wire that is older than 20 years if kept up north, or 12 years if kept in the tropics, MUST BE REPLACED. Even though it looks as good as new. It's not.

Seacocks used to be made of bronze. Good, noble stuff, and extremely valuable. But it corrodes. And if it is corroded just enough that you can't move the handle, it can cost you your life. So if you buy an old boat, replace all the seacocks.

And then there's the engine. Most likely it will not be the original engine but a recent replacement. If this is not the case, replace it. If so, have a mechanic go over it with a jeweler's loupe and replace EVERYTHING that might possibly fail in the next three years.

Then most worrying of all, the ballast. If made of lead (and no design in this book uses a ballast ingot not made of lead) the good news is that the lead will last not thirty years, but probably forever. The bad news is the keelbolts. As another rule of thumb, bronze keelbolts usually last longer than stainless ones. You guessed it–chloride stress corrosion. And it is here that you must trust your surveyor as if your life depended on it—which in fact it does. Somehow–and it is never fun–the keelbolts MUST be inspected and found seaworthy. I've recently become good friends with a Brazilian fellow who bought JESSICA–the custom Paine 39 near the end of this book. He heeded the surveyor's advice and spent thousands of dollars to remove the nuts and lift the boat off the ballast to expose the keelbolts.

He was lucky – after thirty years they were as good as new. But imagine how he would have felt if they were corroded down to the diameter of a pencil? Or if he'd gone blithely on his way and the thing had fallen off halfway to Bermuda?

FIND A GOOD MARINE SURVEYOR, AND STOP YOUR WISHFUL THINKING

ANYBODY WHO WOULD BUY a used boat more than ten years old is suffering from a disease called wishful thinking. "Hey, I'm a real nice guy. Nothing bad could ever happen to a nice guy like me, right?" The damned awful thing about wishful thinking (and it applies to flying airplanes, too), is that it can be fatal. So hire the best marine surveyor you can find, and do everything he tells you to do, regardless of what it costs, because if you don't you could lose something much more valuable than your money.

THE ECONOMICS OF BUYING OLD

SO YOU CAN'T AFFORD a new boat. (And not many people can–while the inflation rate in the overall economy has been on the order of one to two percent for a decade in the USA, and negative one to two percent in Europe and Japan, it has been stuck at something like ten percent-in the upward direction year after year-in the cost of building new yachts). Like it or not, you're relegated to the brokerage market.

My advice is first of all, at least make sure the *design* is good. Because while boats decline and depreciate rapidly, good designs will always be good designs. The sea doesn't change, and if a design looked great and steered well and didn't sideslip too much and stood up well to its sail and made good speed thirty years ago, it will still do so today and will thirty years hence.

I've followed the yacht depreciation curve for most of my adult life. And in writing this book I've had a long look at listings on Yachtworld.com. I've come to the conclusion that after fifteen to twenty years of use the asking prices of yachts of my design seem to stabilize at between 20% and 10% of their new replacement cost.

A bargain? Some people think so. They'll buy the boat and although it looks like hell and would be outright embarrassing to be seen in without a lot of sprucing up first, the first stage is to go bragging to all of one's friends and most importantly one's wife that you practically stole the thing.

Then reality sets in. You look at the surveyor's list and you think, what on earth have I done?

So here, for you to accept or reject, is my advice. You DID get a bargain, because fiberglass hulls and lead ingots and aluminum masts and stainless steel chainplates and bow weldments and lifeline stanchions and on and on and on last a long time and you paid 20 cents on the dollar for them. You saved 80% of the cost of building a new boat. Take half of what you saved and do EVERYTHING on the surveyor's list, and everything on my list, above.

And throw in a new Awlgrip job on the topsides and a complete repaint of the yacht's interior, plus a few new but basic electronics. (Don't go overboard here-they are worthless the day after you install them). And still continue bragging to your friends (and your wife) about how you stole the thing but don't tell them about the extra 30% of replacement cost you added to make it "like new." And go sailing.

THE ECONOMICS OF BUILDING NEW

WHEN YOU BUILD A NEW BOAT, it's not "like new", it's new. Everything shines like new, the chloride stress corrosion curve and the metal fatigue curve and the paint fadation curve and the sailcloth sun-rot curve and the engine tachometer and the wiring disappearance curve and the plywood mishmash curve are all at zero. The likelihood of something failing for lack of maintenance, with death resulting, is near, but never at, zero. You're the most prudent of prudent seamen, and you put your crew–and your loved ones–at the least possible risk. And your friends all think you're either very smart or very lucky to be able to afford something that beautiful, and truth be told, a few of them are a little envious. For which you pay...

A whole lot of money.

When my business closed eight years ago my design firm was among the most active in the entire world. We were building four to six custom-designed yachts every year, averaging in cost well over a million dollars each. And we never had to do "concept" designs to look busy like some of the other design firms did. The designs were really getting built. So we knew what the owners were paying.

They were paying between US $40.00 and $60.00 per pound of displacement. The lower figure for small yacht yards in rural Maine or a Canadian yard that had the advantage of an undervalued currency, that built exquisite yachts. The higher figure for larger and more prestigious names like Morris and Lyman-Morse, and yacht-yards all over the rest of the world with names like Kelley Archer in New Zealand and Gouwerok in Holland who built if at all possible, even more exquisite yachts. Read it-go to the displacement figures given in the following text and do the multiplication-and weep.

The good news is that the inflation curve has leveled off hanks to the economic debacle of 2008. So these figures might still apply today. And that these figures apply to the actual, all up, fully tricked out cost of the boat including sails and electronics and luxuries–not the "base price" you see at boat shows and dealerships, to which 30% or more must be added before you actually go sailing.

BLEMISHES

EVERY BOAT EVER DESIGNED or built has flaws or shortcomings. It is a law of human nature that mankind strives to make things better, or to use an idiom, the design bar is raised every year. Thus older boats have more of these shortcomings than newer boats.

They're sort of like people. When people are young they can be so attractive that you don't even see their flaws, and you can downright fall in love with them. As they age the flaws become noticed, and later on in life sometimes their imperfections are all you see. But you can still love them, despite their—what shall we call them?—blemishes.

In my text I will try to isolate the worst little deficiency than I can think of for each of the designs shown. I'm their designer after all–who knows them better than me? Since none of them are so egregious that they will stop someone from loving that particular boat, I'll call them **BLEMISHES**.

GET YOUR FACE OUTTA THAT SMARTPHONE, AND LIVE

SAILBOATS ARE, FIRST AND foremost, things of beauty. In choosing the ones illustrated in this book, I have tried to pick out the very best that I and my employees created in over forty years of designing yachts. The twenty yachts chosen not only are the loveliest, at least to my eye, but are the smallest and thus most affordable of our oeuvre.

Whether you buy an old boat and restore it, or bite the bullet and build a new one, I hope you will come to know that by striking out to sea, relying only on yourself and your good judgment, making good decisions because bad ones could cost you quite literally everything, breathing clean air at midnight under the stars, trusting at fi st and then knowing after a thousand miles that your little yacht will rise to every wave it encounters no matter how large–you are choosing to LIVE. By the time you return, you may have discovered who you really are, you will be a lot healthier than when you departed, and you will very likely have started a long conversation with a guy you never knew before called God.

So let's begin our journey through my portfolio of classic, proven sailboat designs, beginning from small to large with the first boat ever to enter my life–a Sparkman & Stephens Bluejay named *SCRATCH*.

Sparkman & Stephens
Bluejay

Scratch

I DESIGNED YACHTS FOR MORE than forty years of my life. I can't imagine a more improbable yacht designer than me. Every other person in history that carried on the trade seems cast from the same mold–comfortable patricians who accompanied their parents to the yacht club and sailed aboard the family yacht since birth. Universally male, they shared a look that I have seen in hundreds of photographs by Morris Rosenfeld and in many cases, worked in the family's design office until it was passed down from father to son. If their designs failed to appeal, there was always the inheritance to fall back on.

And then there's me. I was born an identical twin, into a home that was not technically broken—my parents never divorced—but with a father who was absent for much of my upbringing, and we were dirt poor. When I was a child I had my mother to care for me, plus my twin brother Art and my doting grandparents and most of the village of Jamestown, Rhode Island on an island in the middle of Narragansett Bay. Pretty early on my mother discovered that she had for her offspring two idiot savants, though these days they kindly drop the idiot part and just call kids like us savants. Art and I were obsessed, you see, and our obsession was boats. So she'd entertain us by driving us around the island knowing that all we wanted to do was to look at boats. There were two boatyards on the island– Round House Shipyard, and Wharton's, and these would be the inevitable destinations.

We'd clamber out of whatever jalopy Mom was able to borrow from my grandfather's aging fleet of cast-offs and go from boat to boat peering over the gunwales while my Mom sat in the car and smoked, as everyone did back in those days. Boatyards weren't locked back then, and anyway if the owner found us snooping around he'd like nothing better than to see a couple of identical tow-heads admiring his charges, and maybe sneak a peek at Mom, too, for she was a looker. And of the boats laid up for storage that Art and I most adored, close to half would be *HERRESHOFF 12½s*. To a couple of six-year olds, the *H12* and "sailboat" seemed synonymous.

A certain unhappy day came when my mother realized that despite its many charms, Jamestown lacked the sort of schools that would be appropriate for her two kids, for we were both very smart. My father entered the picture long enough to concur, and they bought a small ranch house in one of Rhode Island's versions of Levittown called Greenwood Manor in the city of Warwick, where the public schools were first rate despite the affordable house prices. At about the age of ten my brother and I began our working lives, with paper delivery routes in the morning before school began and lawn mowing in the summer and driveway shoveling in the winter and any other manual job we could scrape up. But moving off the island took us away from the sea and our grandfather the famous fisherman, and boats.

One of the families whose properties we took care of were the Berkys. Bill and Ruth Berky were unable to have children of their own, and essentially adopted my brother and me. They were members of the East Greenwich Yacht Club–about ten miles from our house. In 1957 that club instituted a sailing class for teenagers with the unusual policy for the time, of accepting the children of non-members. Bill knew the family situation, and sponsored us for the class when we were thirteen years old. Until that summer neither of us had ever stepped foot in a sailboat.

And that was the summer we discovered FUN! We took to sailing instantly, and began to race and more often than not to win, and we made lots of friends and half of them were that intriguing subspecies of humankind called girls. In short, we were hooked, and I've remained hooked on the wonderful sport of sailing for the remainder of my life.

The sailing class was conducted in little plywood boats called Bluejays. They were 13'- 6" long with a flattish vee bottom, and light enough that off the wind with the spinnaker, they could plane. There's nothing better for impressing girls, we discovered, than popping the chute and hiking as hard as you could and screaming by them whooping at the top of your lungs. By the end of the summer we knew that we had to have a Bluejay.

We'd saved enough money to afford the materials —buying a finished boat was out of the question. So we wrote off to Sparkman & Stephens, the famous yacht design firm in New York, and bought the building plans for $50.00. They would assign each plan purchaser a hull number, which would also be your racing sail number, and we took it as an auspicious portent that we got the nice round number 2350. It is in honor of this fact that you paid $23.50 to purchase this book–it should have been more, but I'm superstitious.

We took a bus down to the M. L. Condon Company in White Plains, New York to pick out the lumber. You could use fir plywood and if so it had to be of quarter-inch thickness, but if you chose the world's highest quality marine mahogany ply—Bruynzeel—you could use thinner 6mm. So many bluejays were being built back then that M. L. Condon made up custom scarfed 14-foot long by four foot sheets which would just suffice for the side planking. By that point in our lives we had read every book ever written on the subject of yacht design, and we knew the first rule of racing (which applied to cars and airplanes and bicycles as well as yachts)–that lighter meant faster. So we chose the lightest woods permitted for each of the structural members, including beautiful blond Sitka Spruce for the frames and stringers. It all arrived in a huge semi-truck late in the fall, with its driver expecting to be met with a forklift, but instead a gang of neighbors was hastily enlisted

and we dumped the load in the street.

By late the next Spring she was finished. Nowadays racing dinghies are industrial looking assemblages of white plastic glued together with ugly black spars and not a speck of wood. But back in 1958 all of the kids competed to make their bluejay the most beautiful in the fleet. There was lots of varnished mahogany trim and the mast and boom had to be of Sitka Spruce. Nat Herreshoff once famously wrote, "There are only two colors you can paint a yacht—white or black—and only a damn fool would paint his black." Not so the East Greenwich fleet. Steve Hartley's was a vibrant yellow, the Dinsmoors' and the Eldredges' pastel green and blue, and Carol Fitton's was white, admittedly, but with pink polka-dots. We chose Woolsey Signal Red–a color so brilliant it would make your eyeballs ache. And because we had built her from scratch, rather than the more common "kit", we named her *SCRATCH*.

Lots of my customers have discovered that building a yacht can change your life very much for the better. *SCRATCH* certainly did that for the Paine twins.

Chuck Paine sailing *SCRATCH* at age fifteen. That funny thing on the top of his head was called a "crew cut."

Art Paine photo

Scaled Down Herreshoff 12½

Paine 14

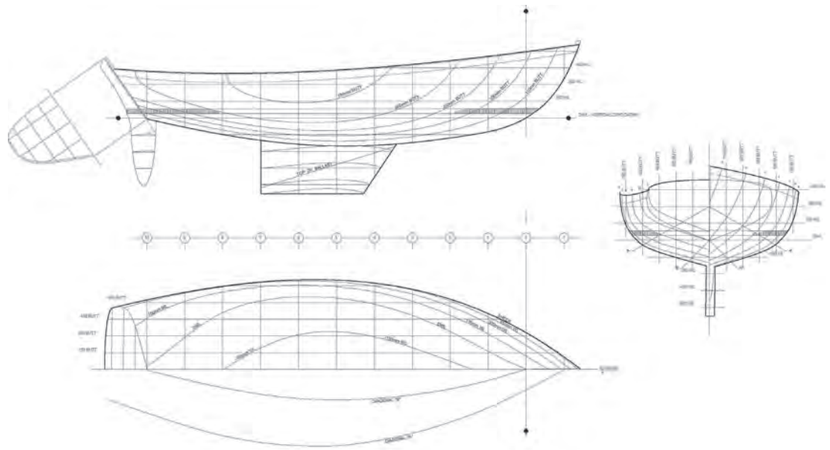
L.O.A.:	14'-0"
L.W.L.:	11'-2"
BEAM:	5'-3"
DRAFT	2'-3"
DISP:	860 Lb.
BALLAST:	385 Lb.
SAIL AREA:	96 Sq. Ft.

The second PAINE 14 built, "AMELIA".

ONE OF THE BOATS I sail in my retirement is *AMELIA*, a scaled-down *HERRESHOFF 12½* with a fin keel. I believe she just might be the most beautiful small keelboat ever designed.

The design began in 2007 when my design firm—now sadly defunct—was completing work on a 72-foot motoryacht under construction in New Zealand. The owner phoned me from his home in Australia: "I'd like to keep a sailboat on the boat deck of my new yacht–what would you suggest?" I told him most of the other motor-yachts we'd designed ended up with a Laser as their sailing toy. He responded, "I'm way too old for a Laser–I want something with real gravitas." I'd studied Latin as a schoolboy so I knew what gravitas meant. And of course I knew the perfect boat for him–a Herreshoff 12½. "Well, the finest small boat in the world is the Herreshoff 12½, or in your case one of the fiberglass versions." So he said, "I want one of those."

I had a disconcerting inkling that something was wrong, and I took my architect's scale over to one of the drawings. "I have some bad news for you," I said, "It won't fit." He asked, "Well, what are my options?" I thought for a second. "Well, as I see it, there are only two." He quickly asked, "What are they?"



The hull lines pay respectful homage to Nat Herreshoff's wonderful 12½, but with flatter deadrise and a true NACA foil fin keel. Construction is of cold molded wood and all detailing strictly replicates the true H 12½. The rudder tucks under the counter stern.

REDWING being hoisted onto the boat deck of her mothership-the 72-foot Paine designed ADAGIO.

"We could scrap the boat you've got going now (he had about five million dollars into it at that point) and begin work on a hundred-footer." Predictably, he came back, "What's my other option?" "We could design you a slightly smaller version of the Herreshoff 12½".

And that's what we did. His boat was built cold-molded and had a removable keel to store properly on his boat deck–a tricky bit of engineering with the loads involved and the fact that the attachment bolts were underwater and absolutely couldn't leak. He had the boat built, and named it *REDWING*.

A couple of years after the world's economy collapsed and my yacht design firm with it, I got the urge to build another boat. I had the plans for *REDWING*, and it was the perfect size for me to build in my barn alongside *PETUNIA*, my antique 12½. The boat shown in these photos—*AMELIA*—is the result.

The performance of the *PAINE 14* is quite amazing. The helm is perfectly balanced in both light airs and heavy. This is because she is, I believe, the first yacht ever to combine a transom hung rudder with a partially balanced rudder blade. The compromise here is that the rudder cannot be easily unshipped by pulling pintles out of gudgeons–it must be

She's shown with the experimental lashed jib-boom.

Art Paine photo

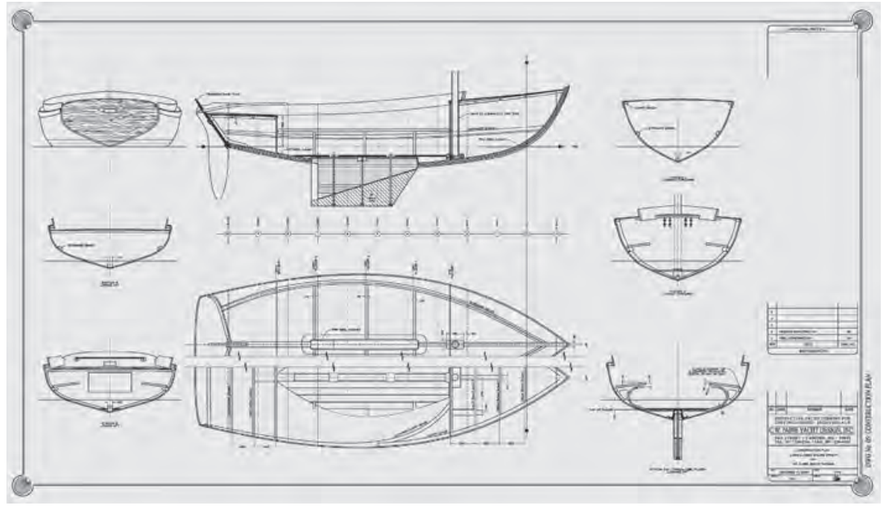
fixed into place and the rudder removed for maintenance by unscrewing the gudgeons. But the wonderful feel on the helm is well worth it.

With the full jib and a reefed main, she can handle 20 knots of wind. And in stronger winds, she can be sailed under complete control without the jib–an extremely rare capability among small boats. This is also helpful in picking up a mooring or coming alongside a dock. You can roll up the jib first, clearing the foredeck and its mooring cleat of the nasty slapping jib, and get safely cinched up with a clear field of view.

I experimented with simply lashing the jib-boom to the stemhead, having arranged a series of bales on its underside. You could thereby move the entire foot of the jib forward or aft depending upon the wind strength. Then I remembered that this was not a new invention—the Marblehead 20 (inch long) radio-controlled pond racers had used it decades before. Finally I gave it up because it made the boat much more user-friendly to fit a Harken dinghy furler to the jib, requiring a single pivot point at the very front.

She has nearly identical ergonomics to a H 12½–just a tad smaller. You sit on the perfectly slanted wooden seat, lean back and the cockpit coaming cradles your back like a kitchen chair, your hand falls onto the elliptical rounded knob of the tiller, and your feet against the edge of the opposing seat when she heels.

The carbon mast is inserted into a fiberglass tube like a Laser dinghy so no stays are required. In anything less than 20 knots of wind, she's considerably faster than a 12½.



As with all designs, the devil's in the details. The plans are beautifully detailed, and the individual pieces are small and light enough to enable a skilled person working alone to build her in a garage, as I did. The watertight bow and stern tanks make her unsinkable.

She's lovely.

Art Paine photo

One of my bugaboos in the latter years of my career has been self-rescue. If you fall overboard from even a yacht of low freeboard like this, it is impossible to get back aboard. You can imagine the potential consequences. So I made the decision that no future design of mine would lack this vital capability. The *PAINE 14* is fitted with a simple step on the trailing edge of the rudder. You never know it's there until you need it, but if you ever do, you'll thank its designer a thousand times over.

The partially balanced rudder with its rescue step.

AMELIA chasing PETUNIA. It didn't take long in this light airs for the more efficient smaller boat to overtake her predecessor.

The *PAINE 14* is the first yacht ever fitted with the PAINE DVT jib-vanging system. (Stands for Dang Vang Thangs). The PAINE DVT invention consists of a series of carbon-fiber battens, fitted parallel to the luff, and extending from the leech to the foot of the sail. These battens both stiffen the leech of the sail as do other battens, but in extending to the foot of the sail prevent it from rising. (Note some other photos in this book show the older, conventional jib). Being parallel to the luff, the battens do not interfere with the ability of the jib to be roller-furled.

I've discovered that despite its simplicity this really works! Yes, I know there's another device on the market that really works, too. But it is ten times the price, and it clutters up the foredeck whether or not it is in use. So steal this idea—I made the conscious decision not to patent it—and I think you will thank me.

Off the wind, the sail goes OUT, not UP!

It's especially impressive when sailing wing-and-wing.

The *PAINE 14* carbon fiber mast requires no stays and weighs with its halyards a mere 20 pounds, so it is as easy to deploy as that on a Laser dinghy. Easier, actually, as the sail need not be attached before stepping the mast. You just stand it up vertical at the forward end of the cockpit, and quickly lift it up and plunk it into the hole.

I invented a nifty way to attach the sails to the spars very quickly– no tedious fitting of little slides to little tracks, so the boat can be launched and gotten going in a matter of minutes. I even considered patenting the idea, but the sport of sailing has been good to me and I offer it to you to use with my blessing. It works well enough that I'll bet it will replace tracks and slides and mast hoops in the next few years.

I've had the boat out in over 20 knots of wind, and I've let the sail flog in a most unseamanlike manner, and I've tried everything I can–and the straps don't let go. And I tried the idea before on another design, with no failures. I'd use this Velcro attachment on considerably larger boats. Another benefit is that the luff tape moves over to the leeward side of the mast, presenting a much better foil to the wind and increasing driving force.

Strap open. The simple Velcro-strap attachments render tracks and slides, and mast hoops obsolete.

Strap closed.

A motorcycle battery beneath the seat powers an automatic bilge pump down in the deadwood. No cold-molded boat should be without this feature. Otherwise as little as a cupful of water will distribute itself all over the boat when you heel. An additional benefit is that you can sail a *PAINE 14* on a windy day, and it bails itself.

No need for a cockpit cover– she bails herself.

CAN YOU SINK A *PAINE 14*? The only way to find out is to try. These photos show how far you can heel her fully swamped. The bow and stern tanks keep her floating level until you decide to bail her out. *AMELIA* even has a battery-powered bilge pump, so all you have to do is wait awhile and she pumps herself out automatically.

She floats with about ten inches of freeboard when fully swamped. If you swamp an original 12½ like my beloved *PETUNIA*, the bow tank will keep her afloat for awhile. But almost completely submerged with the bow pointing straight up and no place to safely await rescue and no way to bail her out. Not so the *PAINE 14*.

I couldn't swamp her using my body weight no matter how hard I tried. So I had to bail the water in.

This is how far she can be heeled when fully swamped..

Bailing her out.

MIND THE GAP.

THIS DESIGN HAS A balanced rudder, making it exquisite to helm. This means that some of the rudder blade area is forward of the pivot axis. This is great for the helm balance, but since the aft end of the boat has deadrise, as soon as the rudder is swung off-center, a gap opens up between the rudder and the hull. It's like a forward facing pair of scissors.

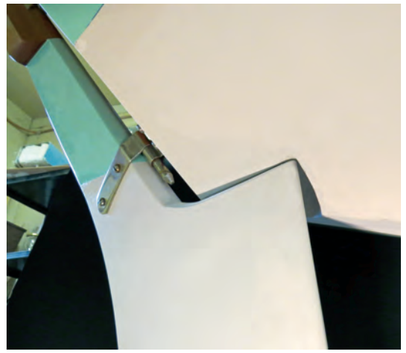
One week this past summer I took my friend Dennis sailing. It was blowing pretty hard, and just as I cast off the mooring a gust caught us on the wrong tack, forcing us to sail over the dinghy painter which was tied to the mooring float. Needless to say, in she went, and almost immediately we were tethered stern to wind, and a lot of it. The forces involved are huge. There was no choice but to wrestle the mainsail down—no small feat—and roll up the jib to remove the pressure. Then fish around underwater with the boom crutch to finally release the jammed rope, near the point of exhaustion. Not exactly a day of elegant relaxation on the water.

Then just to drive the point home we sailed over a lobster pot line an hour later and did the same thing all over again!

I was determined that this would never happen again. I considered the other ways that have been used to mitigate the problem: A windsurfer fin installed just forward of the rudder, or pieces of shock cord that stretch across the open maw–but neither is entirely proof against a jam for as we all know on a sailboat, if anything can possibly go wrong, it will. So I have invented an absolutely jam-proof solution to the problem. Since many other designs have the combination of a balanced rudder and veed hull, I offer my solution for your benefit. It will be fitted to all *PAINE 14*s and *YORK 18*s and any similar yachts I might design in the future.

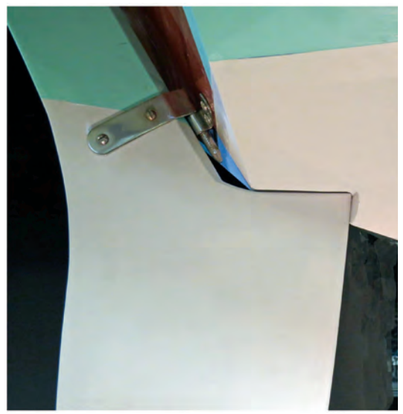
What I did was to swing the rudder off-center to its maximum possible turning angle. Then I extended the top of the rudder up until it just cleared the hull at this angle. Of course then when you articulate the rudder toward the centerline there is a hull in the way. This I carved away into a section of the surface of a cone, such that the top of the rudder just "sweeps" the concave cone with a paper-width of clearance–far too little for anything to force its way into the gap.

It works great. The amount of turbulence created by the little discontinuity is trivial. And no more embarrassing and potentially dangerous rudder jams.



Swung to starboard - no gap.

Swung to port, no gap.



On centerline - no gap.

THIS BOOK IS LARGELY about the aesthetics of yachts. There's no practical reason to own a sailboat-much of the reward that derives from owning a yacht is the simple pleasure of looking at it. I decided to build *AMELIA* because I believe that she was one of the most beautiful designs our studio ever produced. There's something about just being aboard something this lovely, and of showing off how swiftly it moves, borne along by an invisible force, that makes life worth living.

She's a heavily ballasted keelboat. Not only does this make her safe to sail by persons with no athletic ability (old farts like me), but it means you can keep her on a mooring, unlike many small unballasted centerboarders.

BLEMISHES.

This design is too new for any blemishes to have shown up. Well, except perhaps one–her cost to build. I kept an accurate spreadsheet of the cost of materials and labor, without any overheads (rent, heat, electricity, etc.) or profit. It came out to US $70,016.61, or precisely US $81.42 per pound of displacement. Is this a blemish, or skin cancer?

The *PAINE 14* is an elegant, easily transportable keelboat for the person who can afford the very best. It sails exquisitely and looks absolutely scrumptious. But the simple fact is, to own something like this, you have to be seriously rich.

Art Paine photo

Scaled Down Herreshoff 12 ½

Paine 15

L.O.A.:	15'-0"
L.W.L.:	11'-11"
BEAM:	5'-7"
DRAFT	2'-5"
DISP:	1050 Lb.
BALLAST:	465 Lb.
SAIL AREA:	111 Sq. Ft.

The second PAINE 15. She sails at hull speed in a 7-knot wind! *Art Paine photo.*

I GAVE MY "YACHT CLUB TALK" at the New York Yacht Club on 44th Street in April of 2016. I'd had a few months' warning–enough time to design a whole new boat. I'd been thinking for a long time that the club needed a small boat, and a hugely elegant one that would appeal to this well-heeled group, that they could race in Brenton Cove. That way their races would become a spectator sport, with the windward mark just beyond the flagpole at Harbour Court in Newport.

So I decided to pitch the idea at my talk. My wife and I slept in the *Corsair* room in J.P. Morgan's bed. I thought if I sold enough of the boats someday I might become a tycoon, too. All I'd have to do is scale up my little *AMELIA* and put HC on the sailplan, for Harbour Court.

I even did a painting of the fleet, each yacht a different color like the bluejays of old East Greenwich.

By moving the main bulkhead forward a bit and making the stern tank slightly smaller I was able to increase the length of the seats by well over a foot. Combined with the increased beam of the scale-up this results in the cockpit being almost the same size as that on a 12½.

The other difference is that the mast is easier to step and unstep than on the *PAINE 14.* The carbon fiber mast on the 15 is a bit heavier, so I made the decision to place it just aft of the main bulkhead so that it could be swung up Iwo-Jima style, into a lovely bronze gated fitting identical to that used on the 12½ and its fiberglass derivatives.

An exquisitely beautiful family-sized yacht. *Art Paine Photo.*

The Harbour Court 15- now renamed the Paine 15. They are now being built by French and Webb in Belfast, Maine.
Norm Talbot photo.

Original Herreshoff 12½
designed by Nat Herreshoff

Petunia

PETUNIA turns 80 years old in 2017. She's showing her age a bit but should make it to 100.

OF ALL THE BOATS I'VE LOVED, the one I have loved the longest is my 80-year old Herreshoff 12½, *PETUNIA*. For a human to love a mere thing is irrational, I suppose, but there's a story here, so let me tell it. Maybe you'll discover that you can fall in love with a boat, too.

At the age of twenty-seven I was nearing the end of my tour of duty in the Peace Corps. I was stationed in Tehran, Iran, where I had been living for two years. It was a sprawling, hot and dusty city, the prospects for meeting girls were nil, and life there was divided between work – computer programming in a government ministry—and travel on their numerous holidays all over the Middle East between Afghanistan and Turkey. I was fluent in farsi, and these countries at the time—1971—were the safest places on earth thanks to a religion whose very name—Islam— literally translated, meant "peace."

Near the end of my term I did a lot of thinking about what I might do when I returned home to the United States. I'd worked as a mechanical engineer ever since graduating from college, but I had spent my entire youth drawing and sketching and designing boats, and that's all in my heart of hearts I really wanted to do. I had always been told that "people like me" could never become a yacht designer – that it was a pastime of the very wealthy. At age 27 I resolved to prove them wrong.

I spent a month backpacking my way west across the Balkans and Europe and finally flew home in September of 1971. I stayed in my brother's apartment in Marblehead and slept for three days and ate rare hamburgers and had solid stools. My plan was to interview with every yacht designer in America and if I didn't get a job as a draftsman, starve in the effort. I've always been lucky. I walked unannounced into the office of the famous racing yacht designer Dick Carter—my first interview—and he gave me a job on the spot.

He paid me well and after my first year I had money in my pocket. I'd met a girl and she liked to sail too and her parents had a summer cottage in Maine, and kept their cruising yacht—a Cal 35—amongst a fleet of working lobsterboats in a place called Pleasant Point Gut. I realized that all I wanted in the world was to hang around with Debby, and if I could find one I could afford, to buy a Herreshoff 12½.

Deb and I spent the Spring of 1972 driving around New England, sleeping in the back of my Volkswagen Van on weekends and yeah, maybe smoking a little weed, and looking at every H12 for sale between New York City and Maine. We kept a list of the different boats and the extent of repair that each one needed, and the one that needed the least work, that I could still afford, was conveniently located only thirty miles away from the Gut out on North Haven Island. It was owned by a crafty old buzzard named Bernard Smith, but everyone called him "Bun." Bun was asking $1300 for the leaky old bucket, and I finally got him to let go of it for $1250. (*PETUNIA* is worth at least twenty times that much today).

Early in June Bun phoned and said he thought *Bassinet*—that was her name and I knew it would have to be changed—had stopped leaking enough for me to come and sail her away. So Deb and I took the first ferry out to the island, hitched a ride across to Pulpit Harbor where the boat lay on a mooring, and started the long sail home. As luck would have it the smoky Souwester filled in early that day, meaning it would blow hard for most of the day at least. And Pleasant Point Gut lay precisely to windward of Pulpit Harbor across a succession of horizons. So began a thirty-mile beat into twenty knots of wind across the open expanse of Penobscot Bay. Everybody said these little boats could take a lot of wind, and we were about to find out if that was true.

So basically, I sailed, and Deb bailed – nonstop, for eleven hours. Seems *Bassinet* hadn't taken up quite as much as Bun had thought, and then there was the spray, which was prodigious. But boy, what they said about those boats was God's honest truth! I trimmed the little jib in hard, and carried a huge bubble of backwind in the luff of the main – if she'd had a reef I would have used it. But she didn't, and my focus was to keep the end of the boom out of the water for if it went in just once, the water flow would trim the main in and we would be swamped. On she would march undaunted, into a wind-driven chop a third as high as the boat was long. Debby was sure after we'd sailed out of the lee in Pulpit Harbor that she'd gone into league with a fool and we'd both be drowned inside an hour, but we quickly gained confidence as that little sucker just kept going, and even Debby—as a female much less foolhardy than us males—came to realize that that staunch little boat would see us safely home.

So, can you fall in love with a boat? You bet!

One of the great things about a 12 ½ is that the cockpit is huge and can comfortably accommodate lots of people. Here are five of us, and none of us is what you would call a lightweight.

They came with two different rigs. From 1914 until 1924 there was just the gaff rig, but from 1924 onwards you—or more usually your yacht club—would have the choice of gaff or Marconi. I've sailed alongside my friend Steve in his much older gaff-rigged boat, and there's virtually no difference in speed between the two.

Jim Cleary photos

18' Daysailor

York 18

L.O.A.:	18-1"
L.W.L.:	14'-7"
BEAM:	6'-6"
DRAFT	2'-10"
DISP:	1635 Lb.
BALLAST:	695 Lb.
SAIL AREA:	157 SqFt.

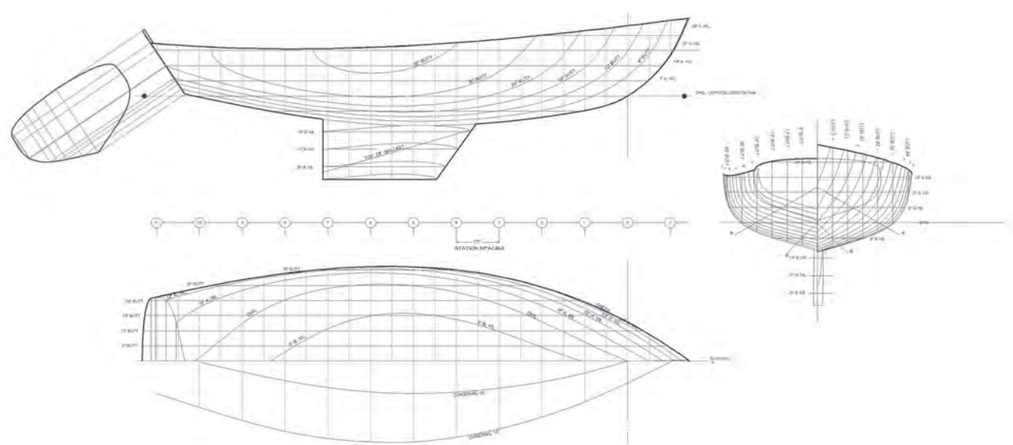
The primary difference with its predecessors is the spade rudder. The vertical battens in the jib prevent it "kiting" and twisting off, increasing her speed significantly.

THE YORK 18 IS THE LARGEST of three new designs which combine a traditional, Herreshoff-inspired aesthetic with a modern high performance fin keel and separate spade rudder. Her hull, decks and rudder are of fiberglass, but there is sufficient varnished teak or mahogany trim to make them look like the most elegant of wooden boats.

Like her smaller sisters he has a modern, innovative sailplan. She carries a freestanding carbon fiber mast, and no headstay, side shrouds nor backstay, eliminating their aerodynamic drag, The mainsail is attached to the mast and boom using simple Velcro straps, and the jib sports full-length vertical battens. The amount of driving force generated by this rig is remarkable.

This beautiful new yacht is a wolf in sheeps' clothing. Her blade-proportioned high aspect ratio jib is self-tending, does not twist off like other high aspect blades thanks to the vertical battens, and enables her to be short-tacked to windward up a narrow channel without touching a jibsheet.

The York 18 is built to order to each owner's taste. The price is unexpectedly reasonable given the unexcelled quality of finish. Built entirely by hand, you have to have a bit of patience until yours is delivered. Contact: Mike York, York Marine, Rockland, Maine.



24' Double-Ender

Carol

L.O.A.:	24'-4"
L.W.L.:	20'-0"
BEAM:	8'-0"
DRAFT	3'-6"
DISP:	5709 Lb.
BALLAST:	2700 Lb.
SAIL AREA:	300 Sq. Ft.

JEANETTE was built in western Canada. Even without the contrasting wale stripe, she looks good.

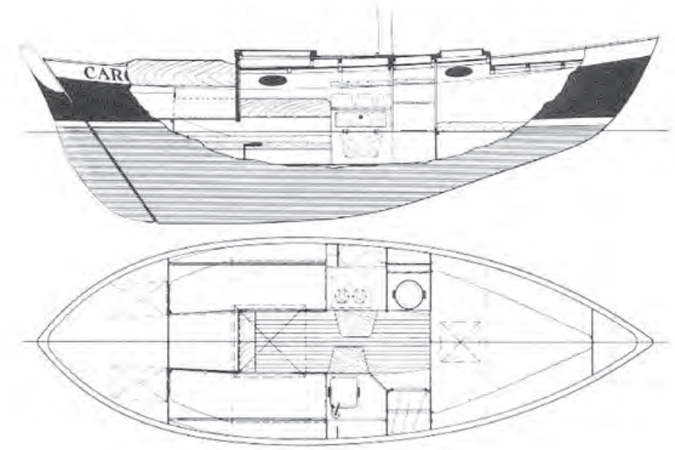
I DESIGNED *CAROL* IN 1979. She was, as I recall, the only design my fi m ever drew "on spec", and one of a handful that we permitted amateurs to build. By that time and for many years afterward my design office was in the unusual position of being perpetually oversubscribed, with paying customers waiting in a queue for us to get to their design. I can assure you, it's not that way anymore.

CAROL was a scaled-down version of my earlier *FRANCES*. I had read one of the first copies of the Gougeon Brothers' excellent book on WEST System construction of cold-molded boats, and thought the world would flock to build something as lovely as *CAROL*. And in a way they did, when you consider what it costs to build a custom boat. I believe we sold more than fifty sets of plans, and photos trickled in over the years of at least twenty finished boats.

CAROL fit right in with the style of the times, for she was a double-ender. And double-enders were a bit of a craze at the time. Between those of my own design and Bob Perry's, I'll bet over a thousand were built in the late '70s and early '80s. And among them, *CAROL* was one of the smallest, meaning the most affordable. When I had designed the 26-foot *FRANCES* a few years earlier I'd done studies and thought she was the smallest flush-decked boat that could offer full sitting headroom. But by narrowing the cabin sole and pushing the settee cushion tops a bit lower I found out you could pull it off in a little over 24 feet.

One compromise was that the *CAROL* mast has to be stepped on deck. It was a bit of a squeeze to get by the mast belowdecks on the larger *FRANCES*, meaning it would border on impossible to do so on *CAROL*. Some of the *CAROLs* fitted a small diameter pipe to support the downward thrust of the mast, while others used a massively reinforced deck beam, which cleared up the passage entirely. With carbon fiber available today and relatively cheap given its remarkable strength, that is what I would do if I built one today.

A few years ago I heard that there were two *CAROLs* berthed in Chichester Harbour Marina in Itchenor, England. So I contacted the owners and got myself, my wife and my twin brother invited for a sail. First we had a look at *JUNO LUCINA*—pictured at right, and had lunch with her owners. They loved the boat, and not only raced her, but did amazingly well—not easy in a heavy displacement double-ender. Then we boarded the second one, *HARRIET ROSE*, departed the marina which involved passing through a lock to the lower level of Chichester Harbour, and chugged downstream to a patch of navigable water amidst acres of sticky mud. There was virtually no wind, but like many truly great designs, the boat would use the slightest zephyr to gather a little way and in this manner, "make her own wind." I began to see how *JUNO LUCINA* could go out and win races – the *CAROL* is a truly great performer, at least in the light airs we had to work with. And, because she's heavily ballasted and of moderately heavy displacement, I'll bet she gets even better when it comes on to blow.



The standard interior. Two settees aft also serve as sea berths. You can flip up seats to do the cooking or washing-up. The double berth forward is cozy – good for cuddling and playing footsies. The beam that supports the deck-stepped mast must be reinforced with aluminum or carbon fiber.

JUNO LUCINA was built in southern England. Her owners fit a small house aft – not a bad idea.

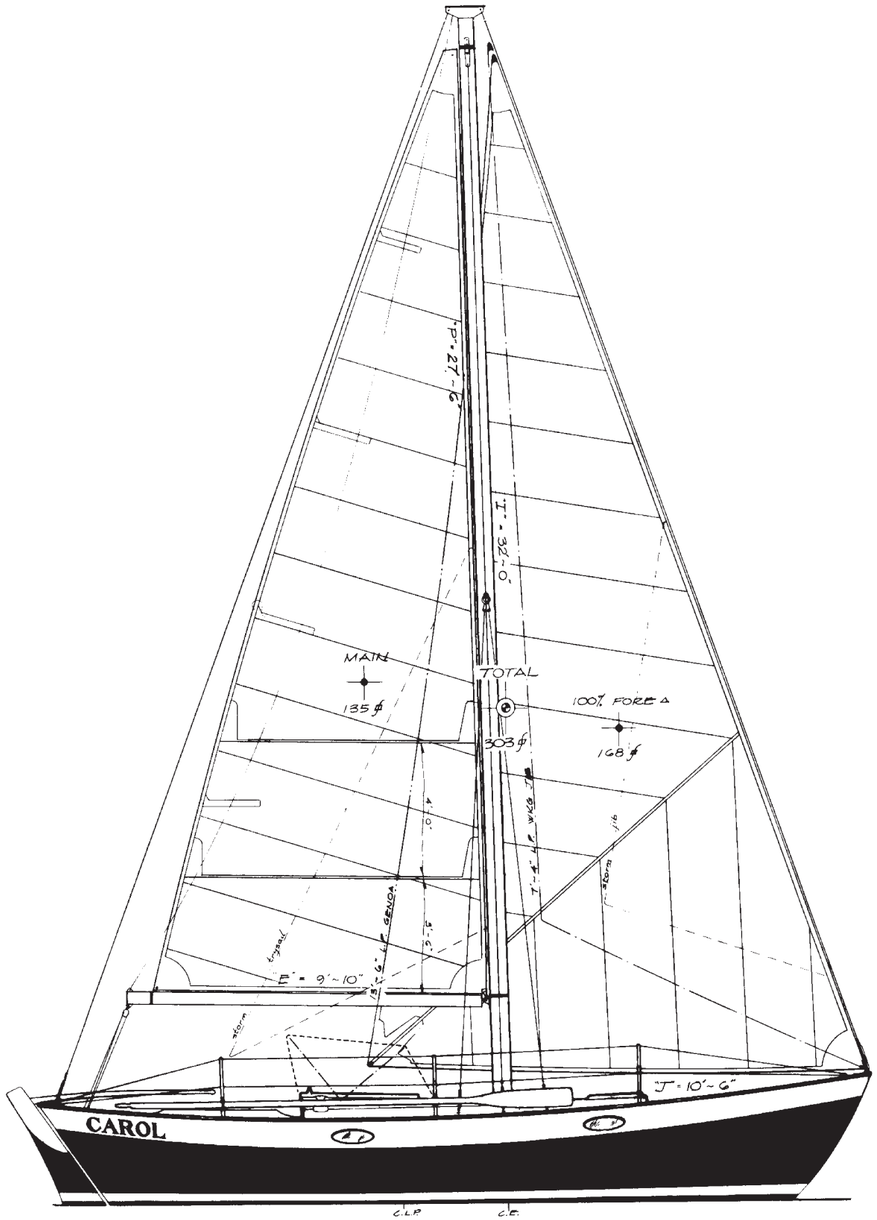
The adventurous spirit is not dead. This little lady lives aboard her CAROL in a marina in Australia.

Most owners fitted a small engine, though none is shown on the plans. I think this is a good idea, not only for convenience but for safety. There are times when a small boat would become untenable under sail alone, but could motorsail toward a safe port under a close-reefed sail and her engine.

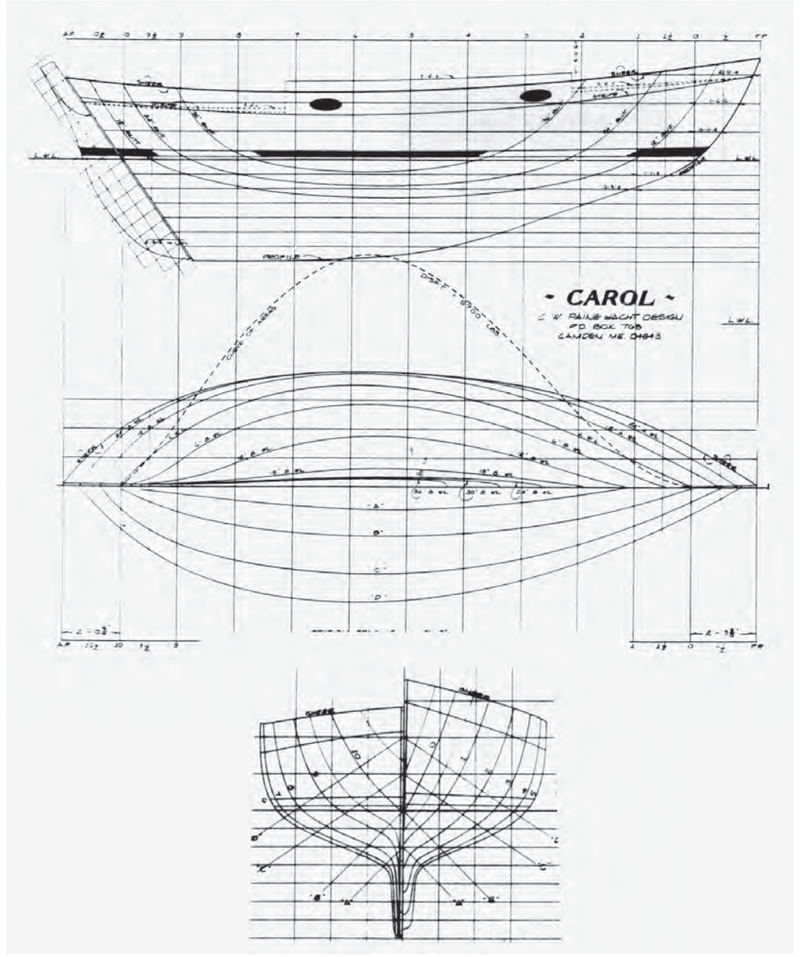
It so happens as I write this book that two of the *CAROLs* shown in these photos are for sale on the brokerage market. And they serve as great reality therapy for anyone trying to decide whether to build a new boat, or buy and restore. *JEANETTE*'s owner is asking US$21,000, and *JUNO LUCINA* is priced at US$17,500. These boats are used, and over 20 years old. In all likelihood the sails and rigging at the very least will need replacement. To bring either of these yachts up to a cosmetic standard comparable to a new boat would cost another well over $50,000. So you could have, if you wanted to, a newish looking twenty-year old *CAROL* for between US$67,500 and $71,000. Now consider building a new boat. The materials alone to build a *CAROL* today would cost approximately US$100,000. The labor at a rural Maine boatyard rate would cost at least US$125,000. At a yard anywhere near a big city it would be a whole lot more.

So that's your choice. A used boat, restored to "look like new", but whose every nook and cranny would show her age of twenty years, and which would have you constantly worrying, "are those keelbolts so corroded that I might go sailing one day and not come back?" Or a brand new boat, shining like a virgin at her wedding and equally unused, for more than twice the price.

Decisions, decisions.



This sailplan, with a slightly smaller and higher cut genoa on a roller furler, will be simple and fast. Today I would fit a bow and stern pulpit and carry the lifelines completely around the deck for more security. And I'd go up on the spar a foot.



Less deadrise than FRANCES, and a proportionately deeper keel make her stiffer and more weatherly.

A small but comfy interior. Using a cooler as the companionway step makes good sense on this size boat.

BLEMISHES.

Can't think of much. Every *CAROL* built was an amateur project. So you can't be really sure what you're getting. I probably would rake the mast more vertical than I've shown it in the sailplan. One of the owners substituted a one-foot taller rig than I had designed—the one that I sailed in England—and it was clearly not too tall. Other than that, though, she's still close to perfect.

DELAMERE, now renamed *QUEEN BEE,* is fast and perfectly balanced and lovely to look at. She'd have better light below if fitted with the fixed hull ports shown in the plans. If taken far out to sea, you'd want to fit lifelines.

25' Herreshoff Style Daysailor

Pentimento

L.O.A.:	25-5"
L.W.L.:	20-3"
BEAM:	8'-2"
DRAFT	3-6"
DISP:	5525 Lb.
BALLAST:	2470 Lb.
SAIL AREA:	297 Sq. Ft.

One of the most beautiful designs we ever produced. If I owned her I would fit lifelines which would make her safer in heavy weather and at night. *Photo: Mark Fitzgerald*

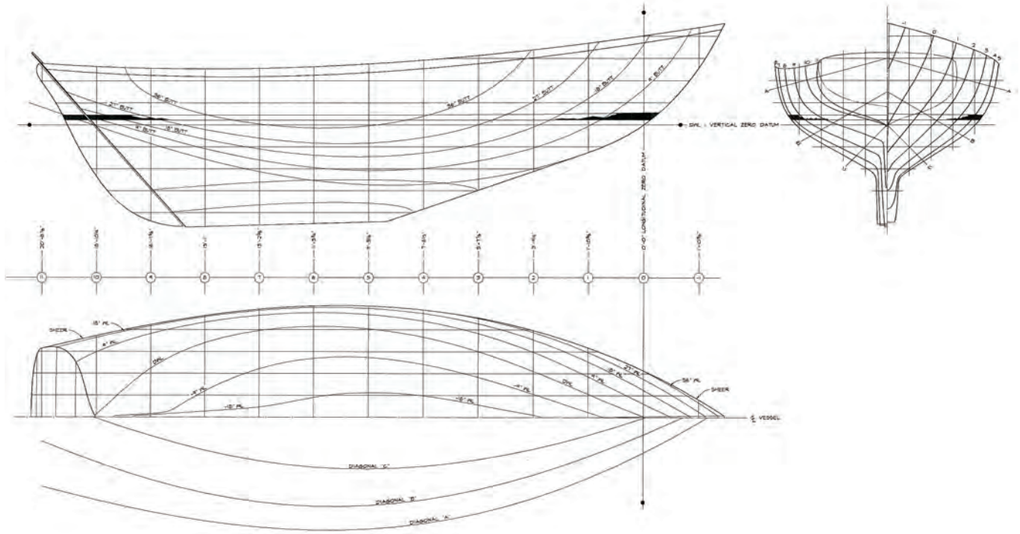
***PENTIMENTO* WAS ONE OF OUR** office's final designs. She's essentially a scaled-up Herreshoff FISH with a pointed coaming/cabin to give a good-sized area belowdecks to tuck in out of the weather. Her styling is absolutely Herreshoff, including the sculpted wale strake. And she was even built of wood, the only plank-on-frame design ever produced by my office. She was built by Dave Corcoran at Bullhouse Boatworks in Arundel, Maine.

The design brief was to keep it Herreshoff in every respect. I came to think this a mistake, and it caused an arm wrestling match between myself and the builder which I always lost. "If you don't do it my way I'll stop building the boat." He insisted on an open as opposed to self-bailing cockpit, though the cockpit sole was above the waterline and it would have been trivial to make it self draining. And he designed the rig himself—to save the owner my fees I suppose, and I never was happy with it. In every other respect—especially her lovely hull shape—I was content. And she sails just beautifully. She was fitted with an electric motor for propulsion. This turned out to be a bad idea, because the owner kept her on a mooring, not at a dock. It didn't take long before its use ran the battery down, and the owner was old like me and couldn't lift an automobile battery out of the boat and over his beautifully varnished coamings for recharging.

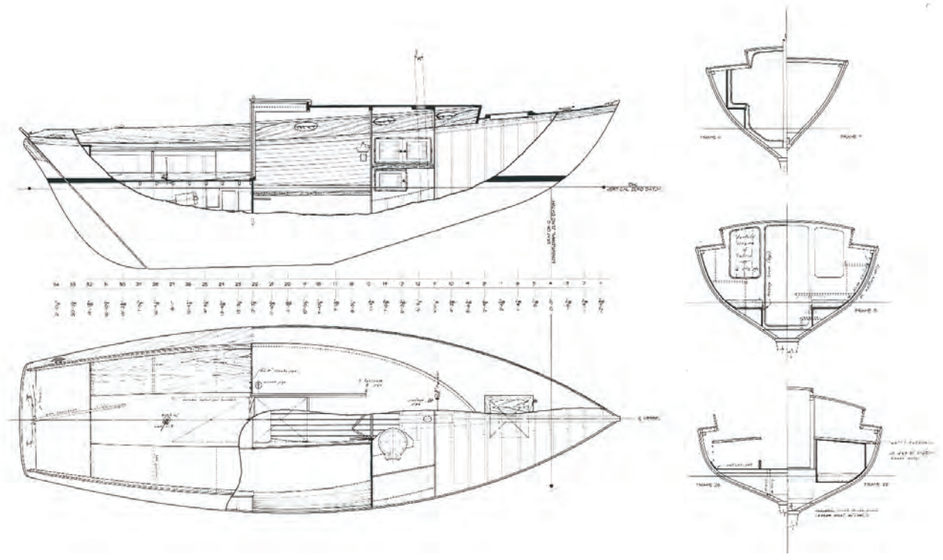
Then along came the rainstorm of the century, the battery was flat, and the electric bilge pump didn't work. And remember she didn't have a self-bailing cockpit, right?

She didn't actually sink, but she got close. So if you build one of these, only fit electric propulsion if you keep her in a marina or at a dock with shoreside power.

But enough of the negatives. She is absolutely beautiful, she sails really well, and her genoa-less sailplan is dead easy to handle.



Take a Herreshoff FISH, scale her up properly after thirty years of learning how, and this is what you get...



A cozy interior arrangement that doesn't try to do too much.

BLEMISHES.

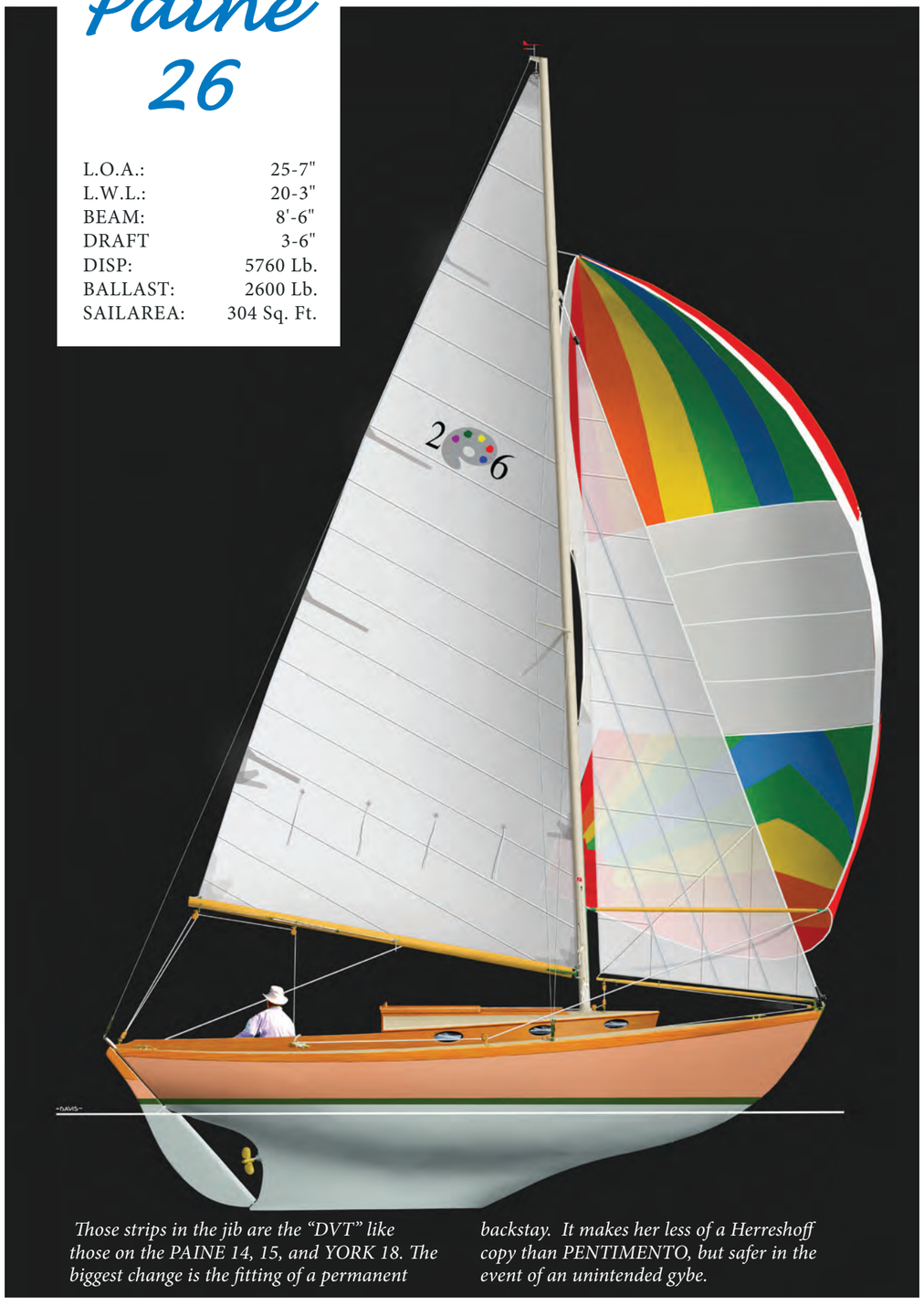
Lack of self-bailing cockpit. Add lifelines. Fit a lighter mast and boom. Think long and hard about electric propulsion. And I'd fit roller-furling to her jib so one didn't need to go onto the foredeck to get her going. Remember plank-on-frames must be "swoll up" in the Spring, so better to use cold-molded construction, which is seamless.

She's drop-dead gorgeous, her sailplan is easy to control, and she moves right along. What could be more fun on a day like this?

Photo: Mark Fitzgerald

Paine 26

L.O.A.:	25-7"
L.W.L.:	20-3"
BEAM:	8'-6"
DRAFT	3-6"
DISP:	5760 Lb.
BALLAST:	2600 Lb.
SAILAREA:	304 Sq. Ft.



Those strips in the jib are the "DVT" like those on the PAINE 14, 15, and YORK 18. The biggest change is the fitting of a permanent backstay. It makes her less of a Herreshoff copy than PENTIMENTO, but safer in the event of an unintended gybe.

THE *PAINE 26* IS SIMPLY a revised version of *PENTIMENTO*, scaled-up just a little and fitted with a more modern, non-Herreshoff rig. She's designed to be built using WEST system cold-molded wood. In my experience, properly maintained cold-molded wood boats will last longer than those of any other method of construction.

Notice that the keel looks a little different from *PENTIMENTO*'s. That cut-away forward of the rudder is something I developed back at Paine Yacht Design and used on a number of larger designs. I call it a "Full Flow Aperture". First of all notice that the bottom of the rudder is supported by a heel cup just as it would be if that oversized aperture were not there. So the rudder is a lot more secure and less vulnerable than a spade rudder. But what's a full flow aperture for?

What it does is to permit an outboard hung rudder to behave in essentially the same way as a spade rudder. The leading edge of the rudder blade is exposed to undisturbed water flow, and the blade acts like a rotating airplane wing, making it much more efficient than a rudder that is merely a flap at the end of a keel. Also, unlike a conventional outboard rudder and similar to a spade, there is blade area forward of the pivot axis. This puts the center of pressure developed by the rudder just aft (as opposed to too far aft) of the pivot axis, which reduces the helm forces. It's up to the designer just how much "feel" he wants a rudder like this to impart. If you put the center of pressure right at the pivot axis, then you could rotate the rudder with a three-inch tiller, because there would be no "turning moment" at all. But of course you don't do that – you keep the CP just a little aft of the axis so there is a pleasant amount of "feel" at the end of the tiller. (And so that when you let go of the tiller, the rudder trails straight aft rather than going its own merry way with disastrous results).

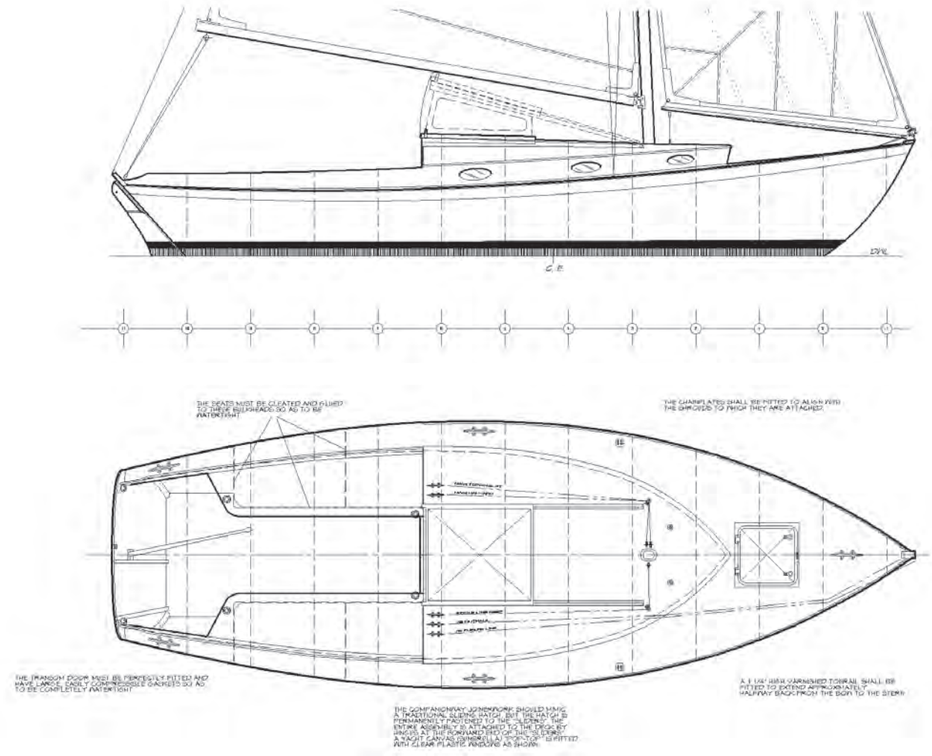
Where's the "rescue step"? There is none. Instead the cockpit footwell extends all the way back to the transom, and a big hunk of the transom with steps attached to it hinges down into the water. So once again, no loss of life if you fall overboard from a *PAINE 26*.

The sailplan is more modern than that on *PENTIMENTO*. The rig is taller and set on a slender tapered aluminum mast with swept back spreaders and single lower shrouds, and a permanent backstay. The other spars will be varnished Sitka spruce, purely for looks. She'll have a roller-furling jib set on a jib-boom, and the "Paine DVT" to keep it from kiting when the sheet is paid out.

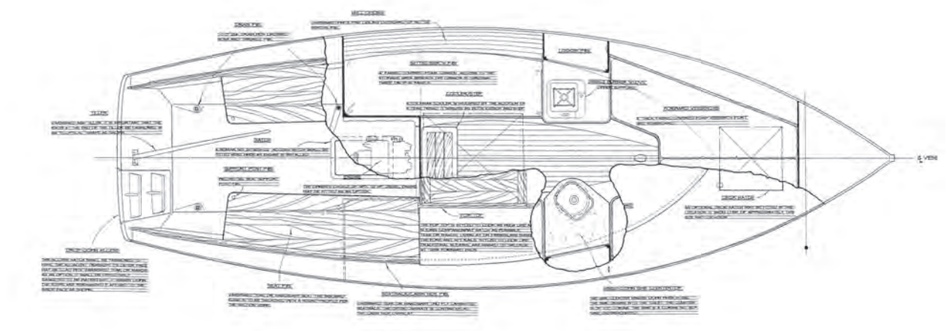
The large cockpit has a "bathing beach" aft of the seats, complete with a hinge-down transom door and ladder that will make swimming from this boat fun and easy. A small latch on the outboard face of the transom will enable a person overboard to open the transom door unassisted and climb back aboard. With the halyards, self tending jibsheet, roller furling line and a single mainsail reef led to the aft end of the cabin there will be no reason ever to leave the safety of the cockpit except to drop or retrieve a mooring or anchor.

The interior will have two forward berths and two cushioned midship settees which can also be used for sleeping. A marine toilet is to starboard beneath a hinge-up sink counter. A small propane stove for cooking, Corian sink with manual fresh water pump and tank, and Coleman cooler for the beer which doubles as a companionway step are shown on the drawings. The interior detailing will be, of course, "Herreshoff style" with varnished mahogany trim, and varnished white pine ceilings. The companionway opening does not slide but hinges up and contains a marine fabric "pop top" tent, providing a little area of close to full headroom.

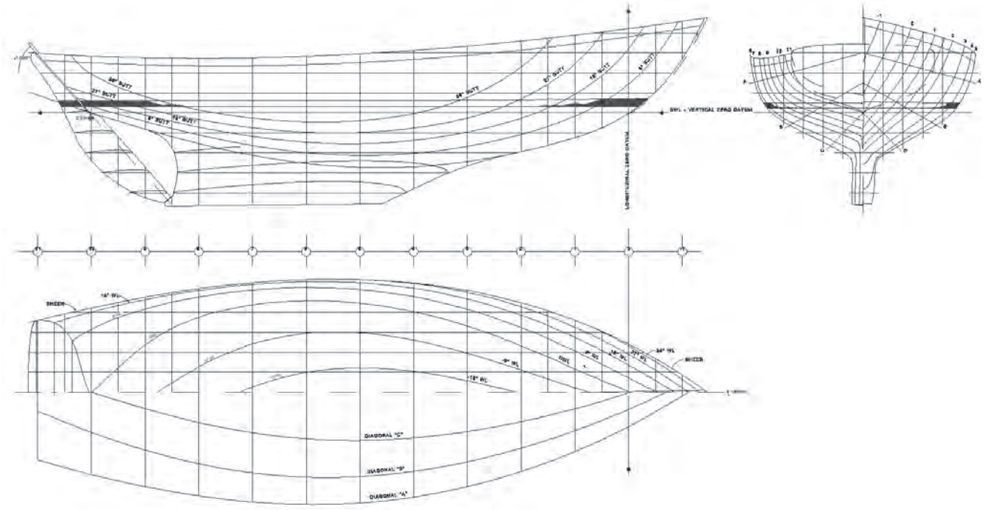
Like *PENTIMENTO*, the *PAINE 26* will sail just beautifully. But she'll have a backstay, a seamless hull, a self-bailing cockpit, a small diesel auxiliary, and a way to get back aboard if the worst should happen.



The companionway hatch looks exactly like a traditional one but hinges up rather than sliding to reveal a canvas "pop top" tent so there is an area of full(ish) headroom with it open. The jib is roller-furling with the control line brought back to the cockpit. Likewise the main halyard, so you never leave the cockpit when sailing the boat.



Notice the drop down door through the transom, to permit swimming and self rescue. The countertop with a sink attached to it is made of Corian and hinges up out of the way when you need to use the toilet. An Igloo cooler with teak tread glued to its top doubles as the step from the cockpit into the boat.

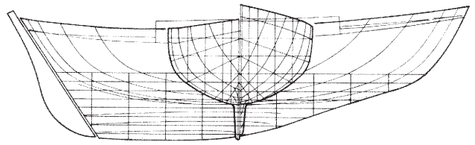


The hull is based upon PENTIMENTO. The keel is a true NACA foil with my Full Flow Aperture and spadelike rudder—both with very narrow trailing edges.

My painting of hull number one sailing across to the Bahamas in a brisk Northerly. Should make it to Bimini by nightfall.

26' Double-Ended Yacht

Frances



Two early Franceses sailing in Maine *Art Paine photo*

L.O.A.:	25-10"
L.W.L.:	21-3"
BEAM:	8'-2"
DRAFT	3'-10"
DISP:	6800 Lb.
BALLAST:	3500 Lb.
SAIL AREA:	340 Sq. Ft.

***FRANCES* IS ONE OF** recent history's most recognized cruising designs. Over 200 of the small yachts are now sailing, and they are well loved wherever they voyage. My boat was flush-decked, and I cruised it from Maine to Rhode Island. Another (*LA LUZ*) is halfway through a circumnavigation! Many of the sisterships added a small house for full headroom, and a variety of sailplans have been fitted. *FRANCES*es were built in fiberglass by Morris Yachts in America and Victoria Marine in the U.K. Quite a few fine examples have been custom built of cold-molded wood using the WEST system.

Building the first *FRANCES* was the biggest risk I had ever taken in my life. In 1973 I quit my job working for Dick Carter and had saved just enough money to buy materials for a 26-foot boat, but not enough to pay for labor. So I would have to build it myself. Then, finally, the world would have a Chuck Paine design that floated, and if it was good enough, my dream of becoming a yacht designer might get its start. It very nearly didn't happen.

When I originally designed her I was young and not yet married. I dreamed of building the boat and then setting off for the Bahamas, and this is the reason for her shoal draft – the one factor above all others that limits her performance.

With my incredible luck I found a heated and beautifully equipped boat shop in rural Maine that the owner was willing to rent to me for next to nothing. His name was Colonel Greene. He had tired of being a gentleman boatbuilder and cared most that I kept his shop clean and paid for the insurance and let him come around every once in a while and watch me build boats.

By the end of that summer that first boat was nearly complete and I had sold the rights to build sisterships to another young boatbuilder further downeast named Tom Morris – the beginning of a famous partnership.

But the project had fallen behind schedule and my builder's risk insurance policy was about to run out. I phoned the insurance agent and talked to a secretary there, asking her to renew for three months. She told me that I was "bound", whatever that meant, and that the paperwork would come along in a few weeks to be signed.

A week later the shop burned to the ground. Gone up in smoke were my life savings, all the tools I had collected for 20 years and my dream of becoming America's great new yacht designer and builder. I was faced with the prospect of a Maine winter with no shop, no money, and nothing to do.

I talked it over with my fiancée. We could move back to Boston and I could probably find work designing nuclear power plants as I had been doing before I joined the Peace Corps. Or maybe Dick Carter would have a place for me.

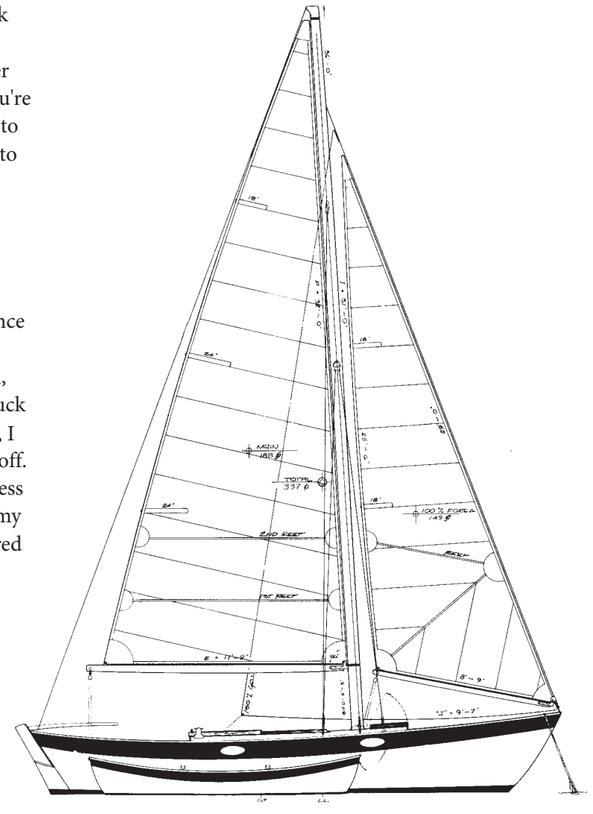
But she contended and I had to agree – I had come too far down this road to turn back. I would pick up some part time work as a boat carpenter and start over on another *FRANCES* in the Spring. When you're young and you have decided what to do with your life, you simply have to follow your dream.

Then I remembered – the new insurance papers hadn't arrived yet. Meaning there was no signed contract! The fire happened on a Saturday, and of course the insurance agency was closed. But I knew the name of the owner. I phoned him, hyperventilating. "My name is Chuck Paine. It's about the fire. Honestly, I phoned one of your..." He cut me off.

"Mr. Paine, the insurance business is all about integrity. I spoke with my people and one of them remembered your phone call. So papers or no papers, you're insured."

So I'd be able to build another *FRANCES*. And it floated.

The end of the first FRANCES.



The first of many sailplans used on a FRANCES. Drawn back in the days of hanked-on jibs. Today you'd probably not use the boomed jib but just fit the genoa on a roller-furler. For offshore sailing, the cutter rig gives you better options when the wind comes on to blow.

LA LUZ—shown at right—and her young owner epitomize the spirit that I hope this book will evoke amongst nautical dreamers. She began her wanderings as *KARMA*, the second Morris built *FRANCES* which was bought as a kit and fitted out by her owner. *KARMA* had no engine, with a pair of long sweeps sufficing to urge her into a dock or marina slip. She was fitted with a windvane self-steerer and was sailed from Maine to the Caribbean for her first winter.

Years later she came up for sale, needing a lot of work, most all of which was merely cosmetic. One fortunate fact is that older, single skin fiberglass hulls do not lose much of their structural strength as they age. Especially if they were built by builders with real integrity, like Tom Morris, they can be restored and go on to serve for many more years.

An engine was added, and the sweeps removed. I feel this is almost a necessity in this day and age. It might be a necessity if one is to obtain insurance, but more importantly there are conditions that might overwhelm a small boat under sail alone but where the combination of a scrap of sail and a small diesel chugging away might get her home to shelter. At sea, SIZE MATTERS – a poorly designed 40-footer is far safer at sea than a well designed 26-footer. So you have to take advantage of every possible safety enhancement on a boat as small as *FRANCES*.

She carries a roughly 120% genoa on a roller-furler. Hers is the cutter rig, with a short bowsprit and a cutterstay. In heavy airs the genoa is rolled up and a staysail hanked on. This much smaller sail forward and a reefed main will keep her going in close to 30 knots apparent. After this you're in survival mode for a yacht of this size and you either run off under bare poles, lie ahull, or chug somewhat into the wind under power and the staysail alone if you have to claw off a lee shore.

The cockpit shelter is a fantastic idea. There are times in the tropics when it is beastly hot belowdecks, and you just crave fresh air out of the sun. Under this clever shelter the wind blows right through when at anchor and you get to stretch out and stand up in the cockpit.

James Baldwin photos

FRANCESes were built all over the world. This is TOM THUMB, built in Australia.

Get a FRANCES going—and it takes awhile—and they gain a lot of momentum. Best get out of the way – they don't come with brakes!

by Jules VidPicPro.com

BLEMISHES.

By today's standards, *FRANCES* would be considered a bit tender. Her keel is just a bit too shallow. And she sideslips too much when pressed hard, for the same reason.

Because of her narrow waterplane, especially aft, and her low center of gravity, she can roll uncomfortably – especially dead downwind if the sea state is just right (wrong).

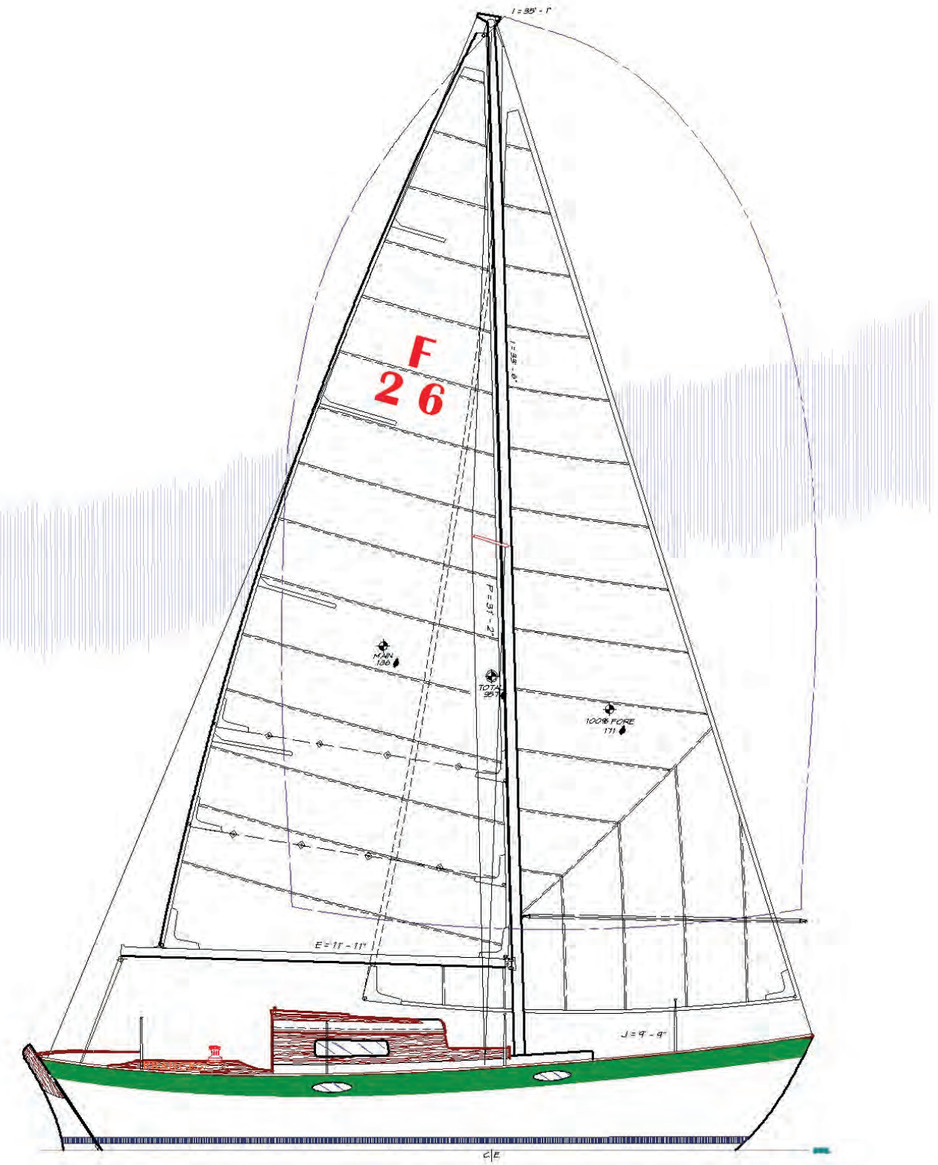
KARMA sails herself along very nicely with her big genoa in light airs and her owner sleeping below. Five hours later he'll wake up twenty miles closer to Paradise.

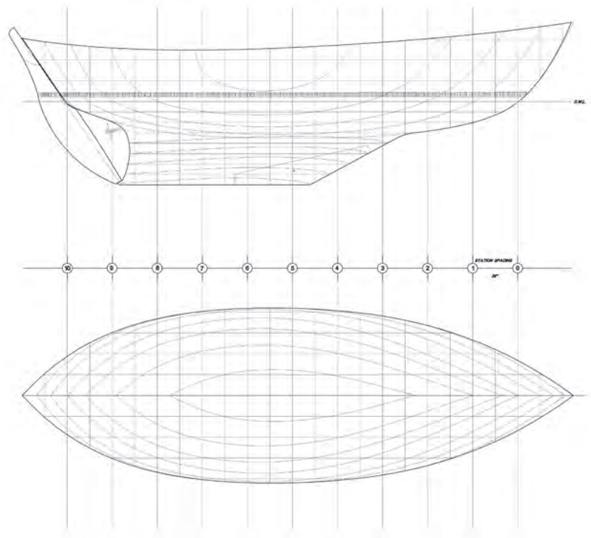
Art Paine photo

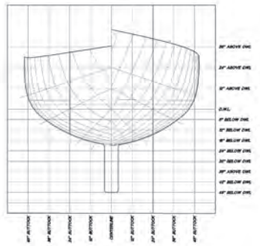
Improved 26' Frances

Frances II

L.O.A.:	26'-2"
L.W.L.:	21-8"
BEAM:	8'-4"
DRAFT	4'-3"
DISP:	7350 Lb.
BALLAST:	3500 Lb.
SAIL AREA:	357 Sq. Ft.

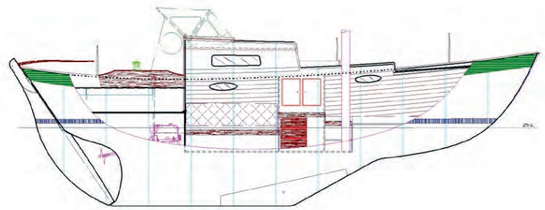


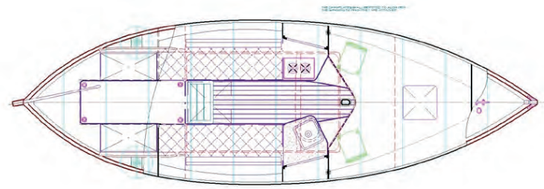




THE ORIGINAL *FRANCES* is an imperfect, classic design. But people love her. She's comparable to an MGTD or a J3 Cub. They spewed oil and weren't very fast by today's standards, but they were so cute and stylish that their owners have enjoyed every minute of their use for decades. With nearly 40 years to think about an upgrade, *FRANCES II* approaches perfection.

FRANCES II embodies all the improvements I could think up in 39 years. She carries a taller, simpler rig with sweptback spreaders, single lowers and a masthead genoa. Her house provides full headroom (if you're less than six feet tall), and has a neat extension aft of the mast for storing deck gear. The keel is a little deeper, a lot shorter fore and aft, and would take the bottom more securely because of its straight and level bottom.





The rudder falls abaft the Full Flow Aperture, and is deep and partially balanced, so helm forces are minimal. Not a bad idea since any of these boats ever built will have either a windvane self-steerer or a battery-powered autopilot, both of which benefit from a rudder that is easy to turn. The ballast ends up deeper than the original version, making *FRANCES II* one of the stiffest designs for her size my studio ever designed.

The British Built *FRANCES*

Victoria 26

L.O.A.:	25-10"
L.W.L.:	21-3"
BEAM:	8'-2"
DRAFT	3'-10"
DISP:	6800 Lb.
BALLAST:	3500 Lb.
SAIL AREA:	340 Sq. Ft.

A VICTORIA 26 at her birthplace – Stone Pier Yard in Warsash on the Hamble

VICTORIA MARINE BEGAN building the *FRANCES* in 1977, and built many more than did Tom Morris – something over one hundred in a variety of configurations. Their *VICTORIA 26* was built to almost the same high standard as the elegant and costly Morris version, though with a lot less varnished trim on deck and encapsulated as opposed to bolted-on lead ballast.

Most of them had a short house aft of the mast, which offered a sizable area with full headroom – as long as you weren't too tall. This really enhanced the appeal of the design, and is surely responsible for so many being built. The encapsulated ballast has advantages and disadvantages.

It means there are no keelbolts to leak or to worry about. But it also raises the center of gravity a bit, making the British boats a little more tender than the outside ballasted American ones.

If your interest is in buying and restoring a boat rather than building one new, you should be aware that resale prices of sailboats in the UK and Europe are considerably higher than in the US. Meaning that you are likely to pay more for a similar vintage and condition Victoria than a Morris – despite the fact that the perceived value of the latter tends to be higher.

The Frances design had a long and varied life. Frances was intended as a shoal draft double-ender of such heavy displacement that it could be safely taken offshore. But it was not by any means a performance yacht, even by the standards of 1973. It sailed just well enough to be comparable with Cape Dorys and Vertues and Contessa 26s, though, and better than Westsails, and was lovely to look at. You get only one chance to make a first impression, and if that first Chuck Paine design had been a dog my long and satisfying career would have died a'bornin'. The first hull went up in smoke, but it caught the eye of a young Tom Morris and thus got me started as an independent yacht designer.

It's interesting to view the design process in a rearview mirror with a focal length of forty years. You stand at a drafting table (later a computer terminal), or at an easel staring at a blank canvas, and you see something very beautiful. You've studied engineering and apprenticed with a great master and attended seminars and boat shows, and you know what can be done with the wonderful new materials that have emerged on the market… fiberglass in 1973, carbon fiber in 2016. Then the compromises begin, and as good as you think you are, you can only perform up to the skill level you have attained to that point. Years later you look at that design, or that painting, and you think, why didn't I see then what I can see now?

Which is why four of the offerings in this book are not boats I've loved, but boats I'd love to meet and maybe fall in love with. In the *Paine 26, Frances II, Annie II* and *Expannie* you see revisions of my past work, reflecting the state of the yacht design art as it stands today. If you're reading this book in 2056, I'll bet you'll say, "How could that Paine guy have been such a klutz?"

BLEMISHES.

Same as for the *FRANCES* – it's the same boat, with a British accent.

Any time you revise an existing product you can usually make it better. When Victoria Marine picked up the *Frances* design from Tom Morris they wisely added a cabin with standing headroom, had the good sense to retain the mast stepped through-deck to the keel (not an easy decision as it always made passage to the forward cabin a bit of a squeeze), and presciently fitted encapsulated ballast with no keelbolts.

What Victoria Yachts added to the concept was to tool up to build them in numbers that enabled the price to be brought within the reach of common folk. Peter Gregory and the Desty brothers built the boats to a reasonably high quality, although not quite up to the Morris Yachts standard. The interior arrangements were standardized, although there were always two or three different ones to choose from. With much less exterior wood trim there was less to go bad after thirty years of less than perfect maintenance. Many of the boats are still out there bringing joy to their owners nearly 40 years later.

I'll sum up not with my own words but those of Doug Bell, who spent five years sailing his flush-decked *Frances* from Savannah Georgia to New Zealand, where he sold her:

La Luz was a wonderful boat and I will never forget her. She stood up to a blow and moved in light air and never gave me even a second of doubt. And, she was always the most beautiful boat in the anchorage. What more can a person ask for? The only problem was comfort at anchor: bucket toilets and one-burner primus stoves have their appeal, but after 5 years it was time to flush!

The perfected Herreshoff Alerion

Bella Luna

L.O.A	27'-10"
L.W.L.:	21'-8"
BEAM:	7'-10"
DRAFT	4'-8"
DISP:	6632 Lb.
BALLAST:	3300 Lb.
SAIL AREA:	365 Sq.Ft.

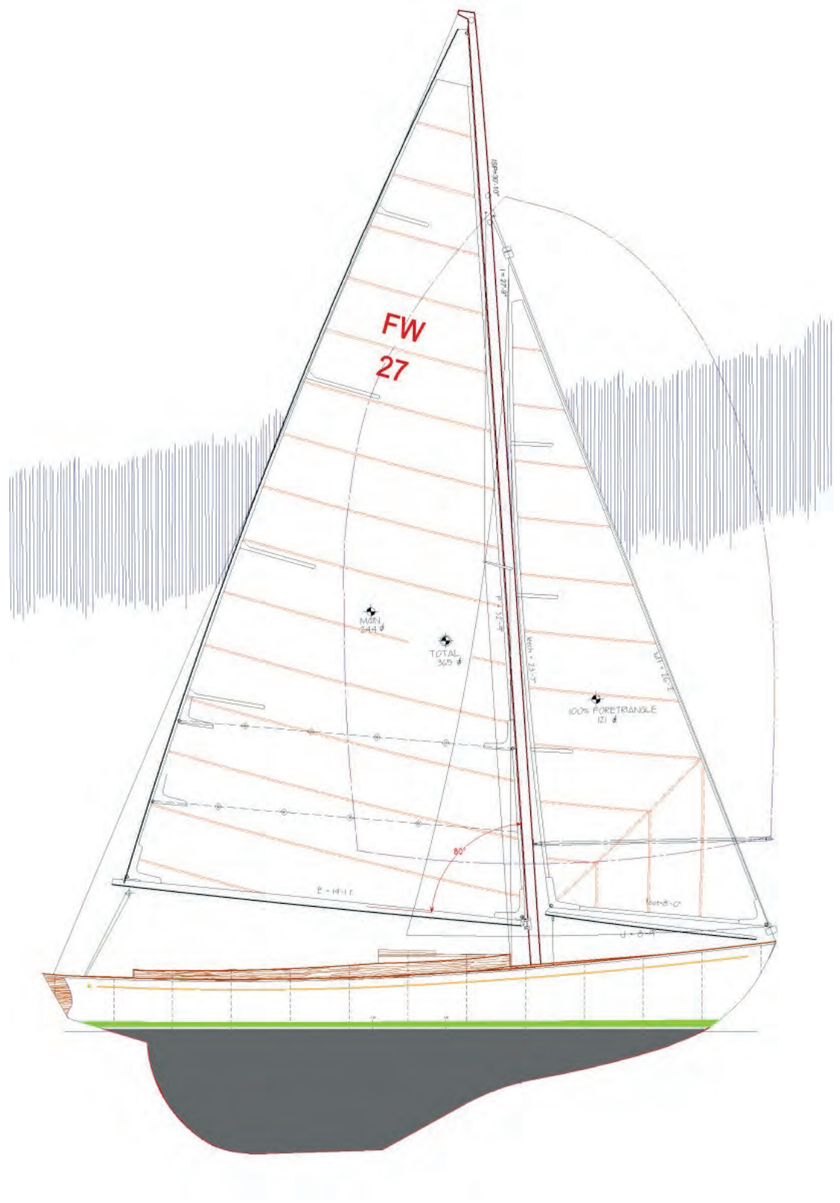
Leslie takes me and her husband sailing on a blustery blue sky day. *Art Paine photo*

I WAS HIRED IN 2015 TO MAKE improvements to Nat Herreshoff's *ALERION*, and to develop computer faired lines and loftings. Like many other sailors I loved this design from the moment I first saw Nat's original at Mystic Seaport in my early teens. But after much study I discovered that the original design had some serious flaws, being very tender and hard to steer. Rumor has it that Nat added over 600 pounds of internal ballast to his to attempt to stiffen her up, but that was not enough. When he got a sistership commission he designed *SADIE*, now in the Herreshoff museum in Bristol, RI. He made *SADIE* 5" beamier, heavier, and lengthened the bow to bring the jibstay and thus the center of effort of the sailplan further forward. While this improved matters the design still was very tender and still developed too much weather helm.

With all this history as my guide, I used *SADIE*'s beamier hull and a NACA-sectioned keel to make her reassuringly stable, and my 40 years of study to perfect her helm balance. And it worked – this is truly a perfected *ALERION*.

The obvious answer to the stability problem was to fit a full, relatively deep keel with its outside ballast over two feet lower than the centerboard versions. This resulted in enough stability to please present-day sailors.

The weather helm was corrected by making the rig a little taller and moving the leech of the mainsail further forward, with the added benefit that the rig could then be fitted with a permanent backstay. *BELLA LUNA*, built by French & Webb in Belfast, Maine, is wonderfully stiff — able to handle over 20 knots apparent wind without reefing — and an absolute delight to helm in all



conditions. And she's just as beautiful as the original, as the accompanying photos should illustrate.

Once I got the naval architecture and all of the new drawings done I got to thinking about changes to the deck that the owners insisted upon. They came up with the rounded cabin front and coaming aft. I hated it at first, for the simple reason that it didn't look like a Herreshoff. I thought they were messing with the work of The Master, with the decided risk that a big black cloud would hover over them and a thunderbolt strike them dead. But once I saw it finished, and sailed the boat, dare I say, I like it.

Art Paine photo

photo: Amanda Green

She was finished off "Herreshoff Style" belowdecks. Lots of white paint with varnished mahogany trim. The hanging knees and ring frames are there to insure she complies with ABS structural standards for cold-molded construction. There's not a lot to do down below, but nobody anticipates spending a night there. For riding out a rain squall, it's the perfect spot.

She's a daysailor, meaning NO LUXURIES. Luxuries are always the enemy of performance but in this case nothing got added, and she floats dead on the overall weight, trim and stability that my laboriously compiled calculations said she would.

The feel on the helm of this boat is heaven on earth. Most of the Herreshoff designs suffer from too much weather helm (and of course some of mine do too). But not this one. She carries just the slightest inclination to turn up into the wind in light airs. In heavy airs amazingly – not much more. And when you get hit by a puff you just let her feel her way up into the wind a little until the mainsail luff goes slack, and she heels over just a tiny bit more, and goes like she's got the engine going. Sailing this boat is pure joy.

Art Paine photo

BLEMISHES.

Only one. Nobody liked the spindly carbon fiber jib boom. Its fabricator insisted that it was adequately strong, and I'm sure it was. It was replaced by something that looked a lot better, thank goodness.

BELLA LUNA. Take a fine but flawed design by one of the great masters. Put a modern keel on it and carbon fiber spars. This is what you get. Thanks for the ride, Leslie.

Art Paine photo

30' Double-Ender

Leigh

L.O.A.:	29- 8"
L.W.L.:	23'-2"
BEAM:	9'-7"
DRAFT	4'-7"
DISP:	9010 Lb.
BALLAST:	4400 Lb.
SAIL AREA:	316 Sq. Ft.

One trouble with a traveler is you do have to remember to let it down to leeward when you tack. Onne van der Wal photo

BY 1977 TOM MORRIS AND I had enjoyed great success with the little *FRANCES* and his customers were asking for something larger. Back then "big boats" began at thirty feet, and we agreed that I'd design him a "big" double ender. Once again he deferred to me on the name of the design – *LEIGH* was a teenage heartthrob.

By that time I had designed another "big" double-ender, the 32-foot *SARAH*. That design had proven to be very stable and fast, though she required a bowsprit to get the helm balance right. I thought the best of all worlds would be a boat that sailed as well as *SARAH* but didn't require the widowmaker.

So I scaled down *SARAH*'s hull and tweaked all of the other balance factors to get rid of the bowsprit. The mast was stepped slightly further forward and raked more vertically, and the leading edge of the keel moved back a little. Since *LEIGH* would be furnished as standard with a tiller, and *SARAH* had a wheel, I had to get it dead right, and I did. *LEIGH* was my final double-ender, and it might be fun to trace the progression that began with *FRANCES*.

FRANCES had a shoal draft keel with an undulating profile that left the water wondering where the hull left off and the keel began. Her sections had more deadrise than *LEIGH*, mostly to benefit the interior by pushing the cabin sole as low in the hull as possible. Thus in order to have enough stability, she had over 50% of her weight in lead ballast—not an easy thing for the builder to pull off. Tom did it, though, by eschewing interior fiberglass "liners" and hand-building all of the cosmetic interior trim. *LEIGH* had a 49% ratio of ballast to all-up weight – also a very high percentage at that time for a fiberglass boat.

Onne van der Wal photo

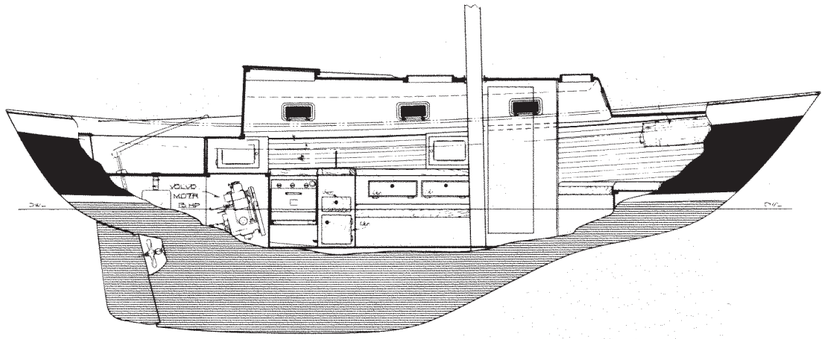
The biggest difference between my first and my last double-ender was the keel. I had begun to learn what is obvious to everyone now – that the continuous profile long keel, that looks so good on the drawings, gives up a lot of performance to a keel whose leading edge is more vertical. Today's highest performance keels are twice the depth of any of my early ones, and their leading and trailing edges are dead vertical. But of course they can't be grounded out – either intentionally or the way things occasionally happen in life, so in this as in all things you have to suit the design to its mission.

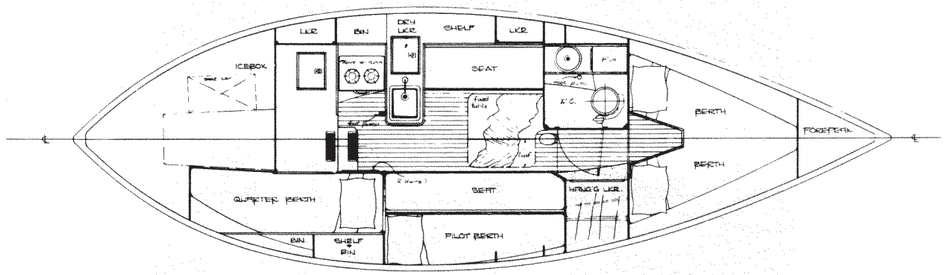
By the time he had begun building the *LEIGH*, Tom Morris was hiring more carpenters and perfecting his joinerwork skills. He had as his goal to build his boats so well that he could muscle his way into the pool of Wall-Street customers enjoyed by his famous neighbor, the Hinckley Company. I had only a small part in this, as you can take a set of drawings and build them to any standard you like. It was fun to watch the Morris interiors as they morphed from plain and simple Herreshoff style with white painted bulkheads and spindly but beautifully varnished Honduras Mahogany trim, to a 60–40 mix of paint to varnished hardwood – in my opinion the most attractive of all interior finishes. Of course this required money and lots of it, but Tom was on a mission to prove himself and he always managed to charge enough to stay in business.

LEIGH's deck design was intentionally old-fashioned. It's not that I and my draftsmen couldn't come up with a more sexy modern shape, but this would have been an oxymoron on such a traditional hull. So the house had nearly vertical sides and front, looking like something made of wood rather than fiberglass.

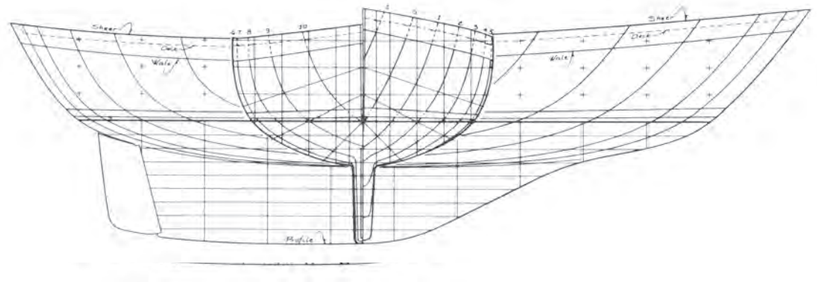
It was at this point in my career that I perceived the advantages of a flat deck crown. Crown is put into decks to shed rain and spray toward the deck edge, whence it finds its way into scuppers or plumbed deck drains. And it adds a modicum of strength. But nobody likes walking on a slant or a hump. So *LEIGH,* and basically every design I created after her, has a minimal—less than 3% ratio of height to breadth—deck crown. I got so I absolutely hated crowns greater than this when I encountered them on other designers' boats.

With her great performance—as good as any double-ender I have ever sailed—and high standard of finish, *LEIGH* opened some eyes and helped put Morris Yachts on the map.

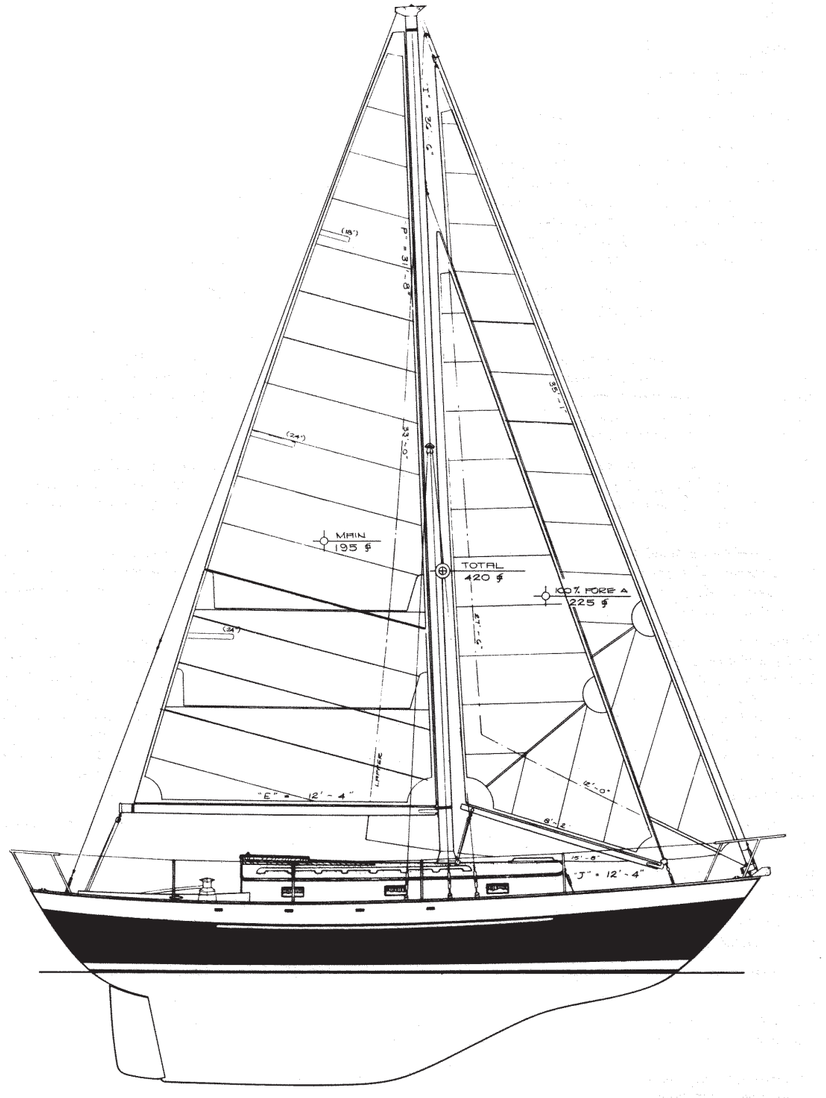




LEIGH came standard with a tiller, and the helm balance was perfect. But a lot of folks didn't like steering from the front of the cockpit with their guests seated behind them, and replaced it with a wheel for this reason.



LEIGH had flatter deadrise still than FRANCES and SARAH. It took me many years to abandon the tucked-up profile ahead of the rudder, which made the worst of a good situation from a pressure differential point of view.



It didn't take long for people to discover that the boat was too small for a cutter rig and the clumsy staysail boom, and to just fit a genoa on a roller-furler. And soon enough the mainsheet traveler found its way onto the housetop just ahead of the dodger. If you wanted a staysail for offshore sailing, you could have a deployable stay and hank it on when necessary.

BLEMISHES.

This design was the best of all my double-enders. Today I'd pull the backstay to the sternhead to get more roach in the top of the mainsail. I'd make the cutterstay removable, lose the cutter boom altogether and treat the staysail as a storm sail, sheeted port and starboard. And fit a 130% genoa o n a roller-furler And yes, I'd go up a foot on the height of the rig—she can easily take it and just go a little faster. I'd keep the tiller though.

Tom Morris sailing his *LEIGH* in 1977, with his wife Tina relaxing in the stern. Tom and his son Cuyler eventually built 199 yachts to my designs.

The British Built *LEIGH*

Victoria 30

L.O.A.:	29-8"
L.W.L.:	23'-2"
BEAM:	9'-7"
DRAFT	4'-7"
DISP:	9010 Lb.
BALLAST:	4400 Lb.
SAIL AREA:	316 Sq. Ft.

PETER GREGORY HAD AN eye for boats, and obtained the rights to build Tom Morris' *LEIGH* in England.

Victoria Yachts built more than 50 of the yachts. Known as the *VICTORIA 30*, the British version was built to different standards that appealed to local tastes. The hull laminate was redesigned by Lloyds–a staid old marine company whose name approached deification by the British yachting set. Peter knew that unless you had a "Lloyds hull release certificate", nobody in his country would buy your yacht, no matter how well built it might be. It helped that the *LEIGH* was one of the most stable double-ended yachts ever designed in America–so its derivative was entirely appropriate for the coast of Britain where the winds blew dogs off their chains.

These boats were built to an upmarket standard before I knew what the term upmarket meant. The interior furniture was built atop "IGUs"–Interior Glass Units, which reduced the cost, but they were so clad with beautifully varnished teak that nobody knew the difference. By this time Victoria Marine had grown to a point where they could use their own inhouse designer. So they hired a fellow named Bob Hathaway, and he came up with all sorts of appealing design touches like the clever fold-down table you see on the next page.

Much less varnished trim than the Morris, but add the optional teak deck and she's anything but plain.

The *VICTORIA 30* would deal with more inclement weather than its American counterpart, so part of the aesthetic exercise was to rid it of much of the varnished wood trim that Tom Morris loved so much. So the half-round eyebrow at the junction between the cabin sides and top had to go. Likewise the teak covered coaming tops. We all agreed that if the tooling was detailed just right there would be no need for a lot of hard to maintain trim, and I think it has a no nonsense, down to business look about it.

The one wooden element that was retained was the railcap. It had to be there to cover the row of bolts that attached the deck to the hull. Since the sheerline is the most important line that the designer draws in designing a yacht, it makes a lot of difference if you get it right. Then if it is, nothing draws the eye more than to attract the eye to it by emphasizing its color with a nice coat of varnish.

If I ever aspire again to breaking the bonds that bind me to the land, I'll find an old *VIC 30,* sand the railcap down to raw wood, hire my twin brother to work his magic with Epifanes and a badger bristle brush, and sail away.

The VIC 30 TUI cruising the coast of Spain. These capable yachts ranged all over Europe, including well into the Med. Though they didn't have much exterior wood trim, that one broad wale stripe, properly tapered toward the ends, made them distinctive and instantly recognizable.

photo courtesy Colin Reid

Though built on IGUs, so much honey-colored teak was added that they looked almost custom built.

BLEMISHES.

From a design point of view, there's little that could be improved. I've given my post-retirement Yacht Club presentation twice in Britain, and it invariably turns into a love-fest. And the design that they seem to love most is the *VIC 30*. The "standard" finish for the exterior teak trim had been no finish at all, or what they call, "raw teak." Boats that had no varnish, or a wet oily rag wiped over the teak 30 years ago, need a lot of TLC to get the trim looking halfway decent. But the shape is so right, and the performance so good, that you'd be hard-pressed to find a better boat to restore.

30' Cruising Yacht

Annie

L.O.A.:	29-8"
L.W.L.:	24-9"
BEAM:	9'-8"
DRAFT	4'-6"
DISP:	11000 Lb.
BALLAST:	4400 Lb.
SAIL AREA:	446 Sq. Ft.

This is what makes ANNIE so endearing. You can carry full sail with that ominous squall building and know she's so stable you'll have time to get a reef in before all hell breaks loose. *Art Paine photo*

***ANNIES* ARE SO STABLE** that you can make all sorts of mistakes and they'll keep you out of trouble. I began the design of *ANNIE* in 1979 on the off chance that I could sell it to Tom Morris. I told Tom that if he took on the design I'd order the first one – or rather a "kit-boat" partially fitted out without the interior, which I would somehow build myself even though all its pieces would have to fit through the unfinished companionway opening. On the next pages you can see the result. Tom Morris built 16 of the boats, and Loomis Yachts of Florida a few more, so you should be able to find one to restore.

ANNIE is about as small a boat as could be close to comfortable at sea. Her ability to carry sail is reassuring and she has the cushy motion of a heavy displacement boat. The interior can accommodate four persons without feeling cramped. There are four or five, berths for sleeping, and four persons fit easily at the table for dining.

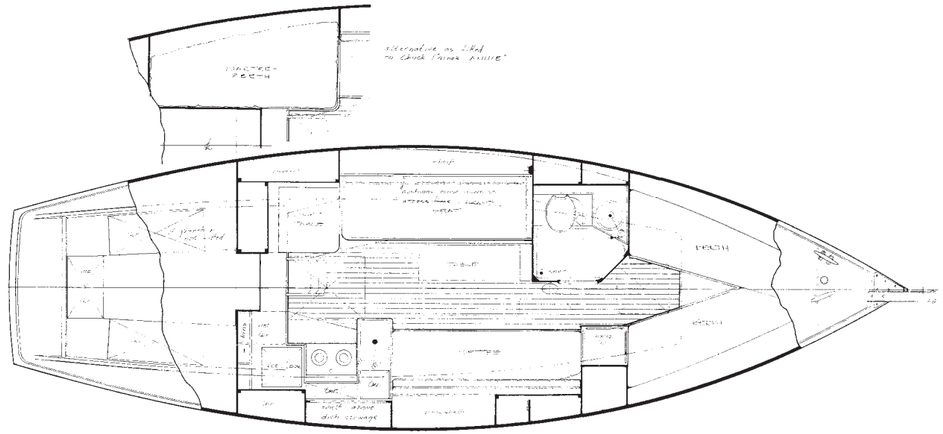
ANNIE has full headroom – if you're short like me. The headroom throughout the cabin is 5'-11" on centerline. Meaning in the head, and working at the stove, it's less. For me at 5'-7" it's perfect, placing my eyeballs right at the level of the opening ports. The cabin sides are vertical so the view out the windows is of the horizon, not the sky.

The cockpit has unusually high seatbacks and the seating area is low to the water which reduces the perceived motion – a wonderfully secure nest from which to watch the watery world go by.

Some of the ANNIEs were built with a bowsprit and cutter rig. This moved the sailplan forward. Onne van der Wal photo

This is ARTEMIS. A new owner put a lot of money into her and now has a wonderful cruising yacht. I wish I'd gotten to her first. *John Wasielewski photo*

A fellow contacted me two years ago, who had "stolen" a used *ANNIE*. He said he had gotten it for $14,500, which if you are good at maths is 2.6% of its replacement cost! If I had known about it, I would have outbid him for the boat sight unseen. But if I had gotten it I'd have built a new rudder, of carbon fiber over a lightweight core, to a better profile. And then I'd very likely have done what always gets done on older designs with too much weather helm – I'd have fitted wheel steering. And of course done all of the other things on my yacht restoration list. Short of building an *ANNIE II* for half a million dollars, I'd have had a truly wonderful yacht in which to sail off into the sunset for a stupidly low cost. With her outlandish stability and heavy displacement motion, *ANNIE* is a boat I'd sail across any ocean.



Probably the ideal interior arrangement for a four-person crew. The interior I built was the one with a quarterberth where a chart table is shown. It was without question the most comfortable berth in the boat. This is a small boat and there's no such thing as privacy. I never got clever enough to figure out a way for the head door to close off the forward cabin. Not that there's much you could do up there that the folks back aft wouldn't know about.

The quarterberth with its cut-down access so that you could sit there if you'd like.

The starboard settee seatback hinged up to form a narrow berth. The leecloth was Velcro'd beneath it.

The table was sized to the plates, which just fit between the fiddles. Even the plates had "fiddles!"

There was a cushioned infill that turned the two forward berths into a playpen.

I found these neat duffles with loops on the ends. You'd just pack your gear at home and hang them up when you got aboard – no repacking.

The slats on the companionway hatch cover had holes in them so you could lash the liferaft on top of it.

When you removed the floorboard there were these big stowage tubs, which could be easily removed to view the bilge and the keelbolts. I kept my canned goods in there. No bilgewater could get to them, and they were down low for stability.

The head sat on a flat plinth that was just big enough for it to fit. Quite a bit of the slant of the hull was there both in front of the plinth and beyond it. But by cladding it with vinyl flooring material it all looked like "floor". These vinyl flooring products are amazing – they are designed to look like real tiles, grout and all, and they are shiny to look at. But somehow when they were wet your bare feet would almost stick to them. It looked slippery as hell but it wasn't!

BLEMISHES.

My *ANNIE* design had too much weather helm. This was magnified by a rudder that was of a poorly contrived shape, and massively heavy which made things worse. Wheel steering is the quick way to fix the problem.

ANNIE was one of the prettiest yachts my firm ever created. Every line, every proportion was perfect. With a few small improvements, she would make one of the best offshore cruising yachts ever designed.

Improved 30' Annie

Annie II

L.O.A.:	29-10"
L.W.L.:	24'-2"
BEAM:	9'-8"
DRAFT	4'-6"
DISP:	11027 Lb.
BALLAST:	4500 Lb.
SAIL AREA:	457 Sq. Ft.

LIKE SO MANY WONDERFUL YACHTS of the previous century *ANNIE*'s small size made her uneconomical for Morris Yachts to build some years ago. With the decline of the middle class, builders had to redirect their offerings toward larger yachts that would appeal to the "one percenters" who were all that was left of the new yacht market.

But this is a legendary design and I am encouraging true voyagers to build a new one at the boatyard of their choice. At 30 feet the new *ANNIE II* is really all the sailboat most folks ever actually use. Larger boats spend their lives in marinas for lack of crew; smaller ones lack the seaworthiness to venture very far out into the ocean, and the headroom to make it comfortable.

The *ANNIE II* cockpit, where all the fun happens, is huge – larger than that on most forty footers. The interior gives you the option of winters in the Caribbean with four adults aboard. There's a stand-up shower in the fully enclosed head, stove for cooking, centerline table for dining, and five comfortable bunks. In order to make her seaworthy beyond her length the *ANNIE II* is of moderately heavy displacement. She has wineglass sections, a hollow bow, with a modernized long keel and she's tiller steered with a simple-shaped but costly carbon fiber outboard rudder.

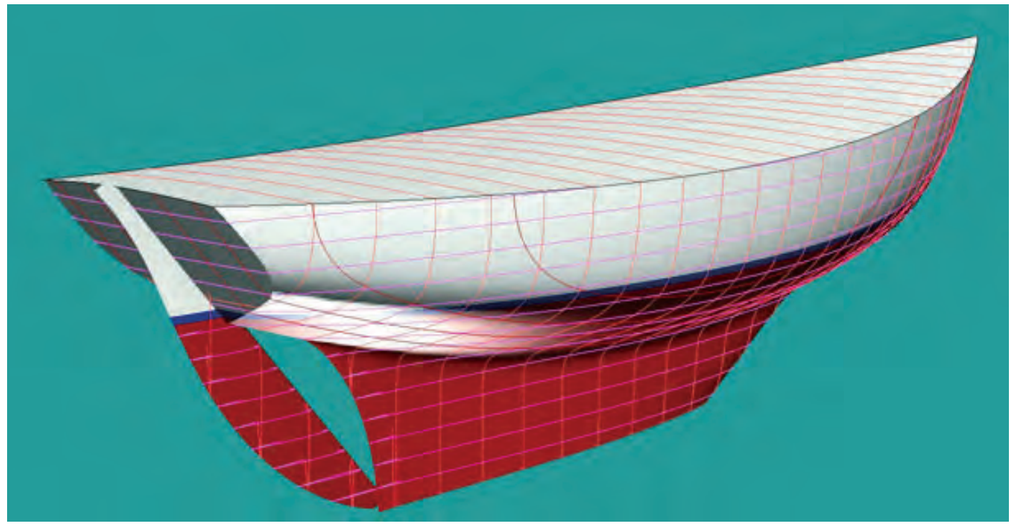
Her styling is a respectful tribute to the design genius of Nat Herreshoff and Ralph Winslow, but with every detail modernized to make her technologically up to date. She has outside lead ballast which comprises 40 percent of the weight of the entire yacht. Her rig is large to match her displacement with a high sail area to displacement ratio of 16.37. This in combination with a genoa jib whose overlap area is not included in that figure translates into good speed through the water. The leading edge of the keel is cut away, and I've fitted the Full Flow Aperture and fully balanced rudder that I dreamed up fifteen years after I drew the original *ANNIE*. Another improvement is a slight enlargement in both length and freeboard.

One of the joys of sailing is swimming once you get there. And a fun recreation that no used classic boat on the market—Cape Dory 30, Twister, Nicholson 31—I know them all—can offer. I've included a simple transom door and swim ladder that gets you from the cockpit into the water in a trice for hours of aquatic fun. And incidentally (incidentally?) if you ever fall overboard from any of those esteemed older boats, you'll have a few minutes to think about maybe having bought the wrong boat– perhaps an hour if you're a strong swimmer. If you own an *ANNIE II,* you'll pull a little latch easily reached from the water, the transom door will fall open, and you'll be back on board after a pleasant little unexpected swim. And go sailing tomorrow.

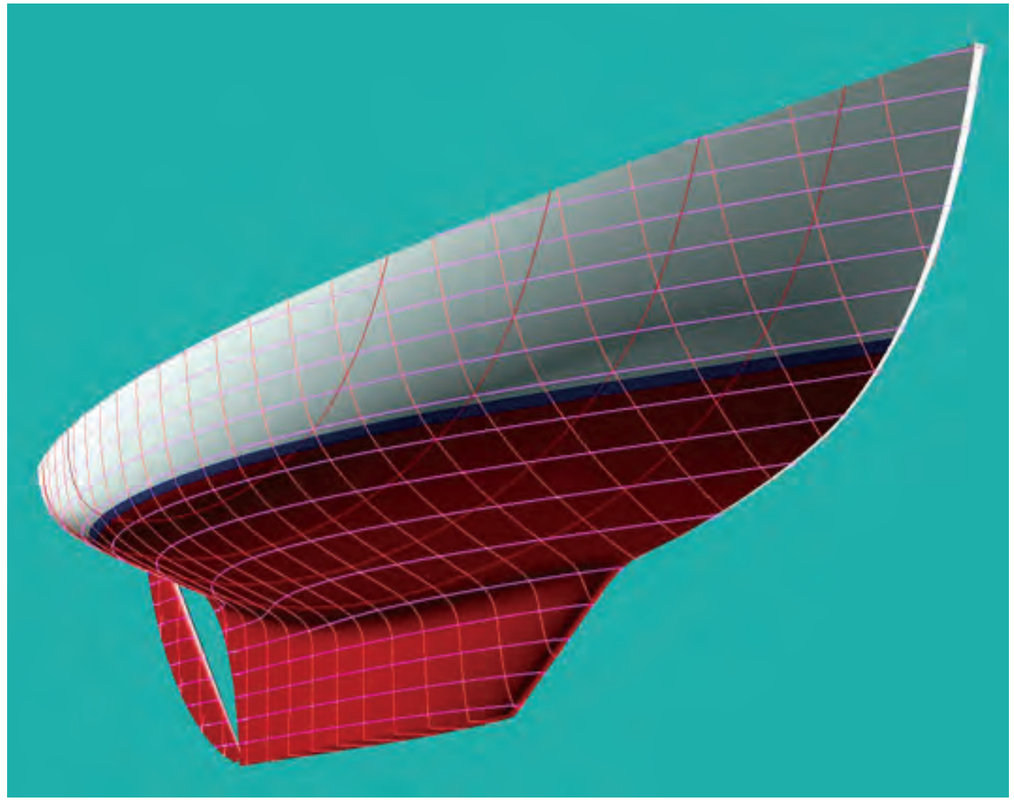
There is a lot of stowage volume beneath the cockpit seats. The deck camber is quite flat for easy passage forward. With the halyards, roller-furling line and mainsail reef brought to the aft end of the cabin there is no reason ever to leave the safety of the cockpit except to drop or retrieve the mooring or anchor.

With a cost to build today of over half a million dollars, I was beginning to think all the work of perfecting this wonderful design would turn out to be for naught. Then not long ago a person of obvious means phoned and got a long way down the road toward building a new one for himself. It was not the money but the lack of sufficient headroom that finally scotched the deal. Why is it that financial success and tall stature seem to go together? I'm pretty sure now he'll build an *EXPANNIE,* illustrated later in this book, which he can stand up in.

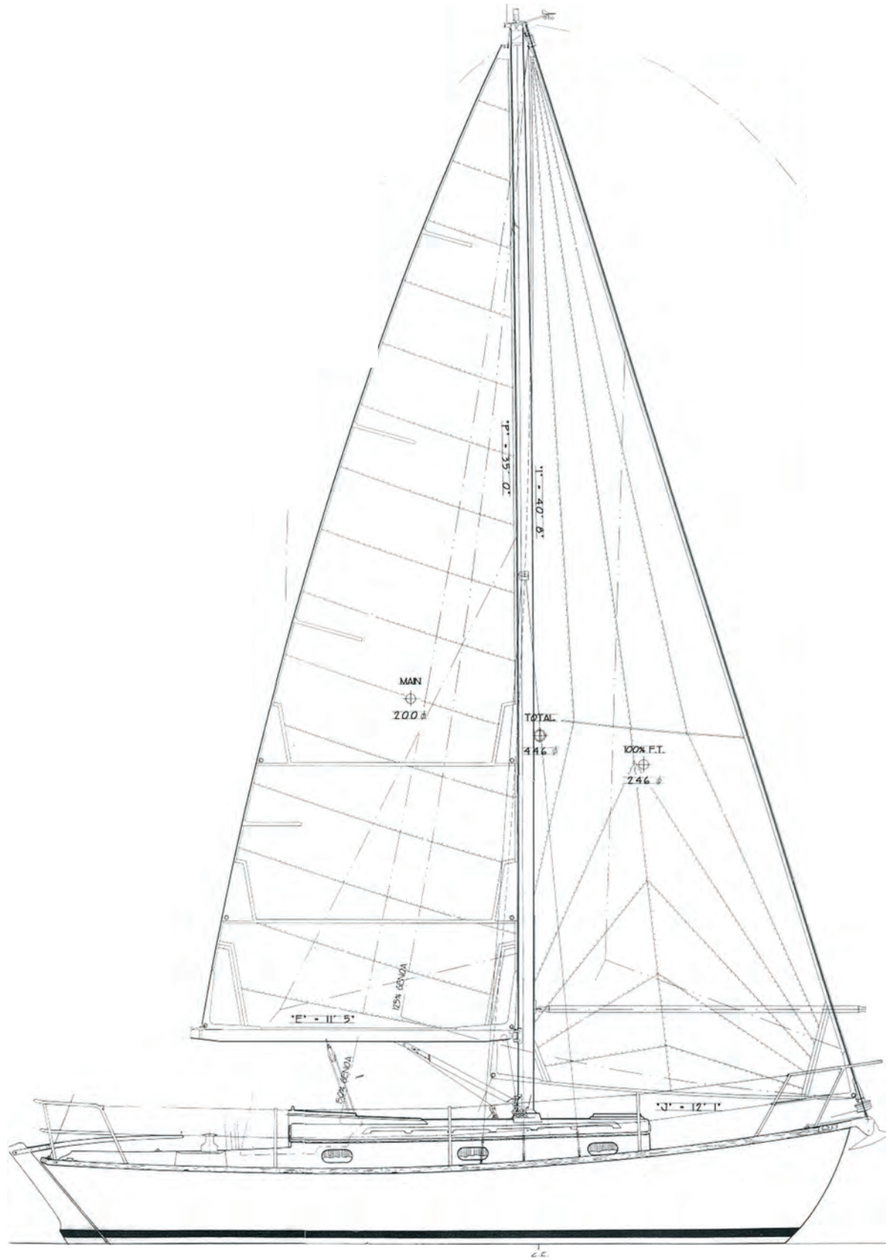
If you ever find a way to build one I'm sure you will quickly fall in love with your new *ANNIE II*.



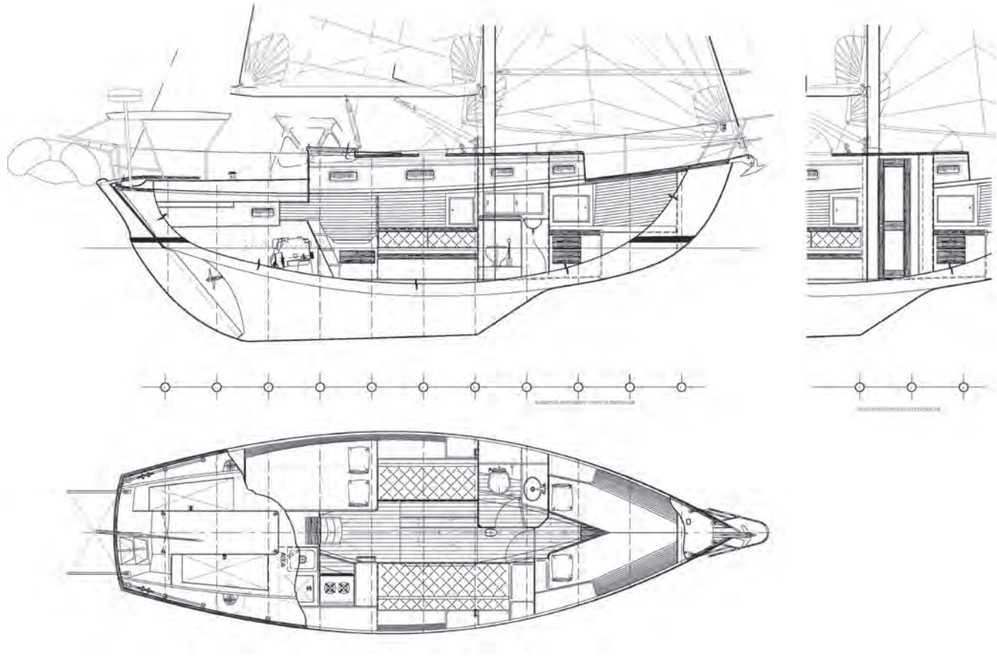
The perfected rudder shape behind the Full Flow Aperture.



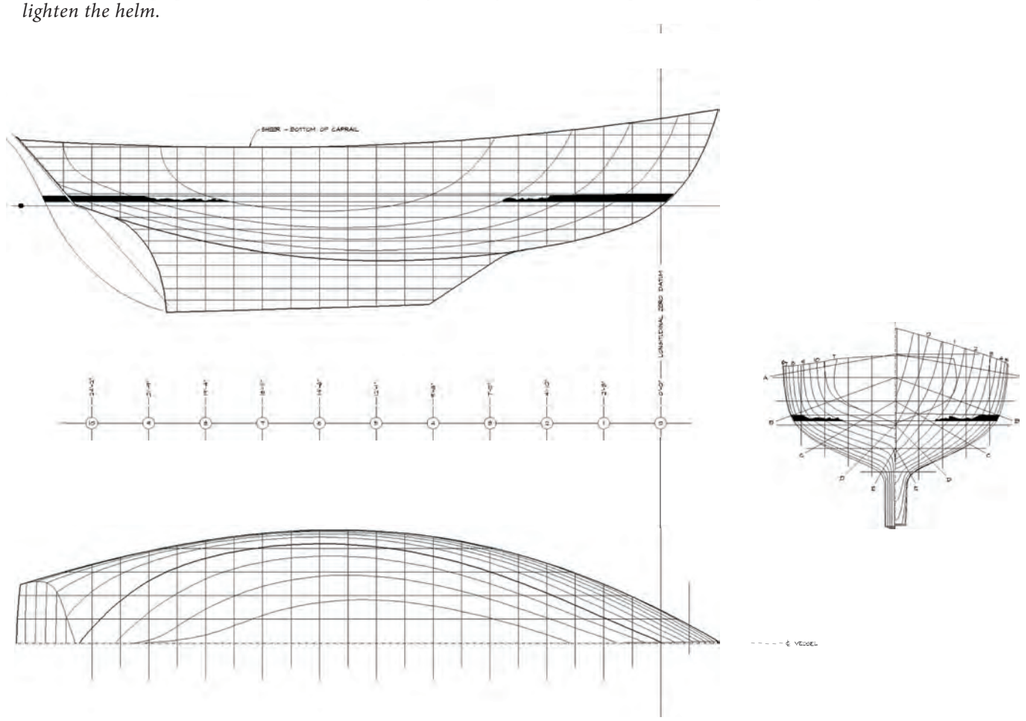
This amount of cutaway will eliminate the heavy weather helm of its predecessor



The new sailplan moves the center of effort forward and uses a taller spar. The 110% genoa on a roller-furler is simple and versatile. I'd have a 140% genoa stowed away somewhere for racing, though.



This rudder shape puts the maximum blade area furthest from the turning center, and is partially balanced to lighten the helm.



32' Double-Ender

Sarah

L.O.A.:	31'-5"
L.W.L.:	25-10"
BEAM:	10'-3"
DRAFT	4'-9"
DISP:	11100 Lb.
BALLAST:	5100 Lb.
SAIL AREA:	474 Sq. Ft.

SARAHs were bloody stiff, so you could carry full sail in almost 20 knots.

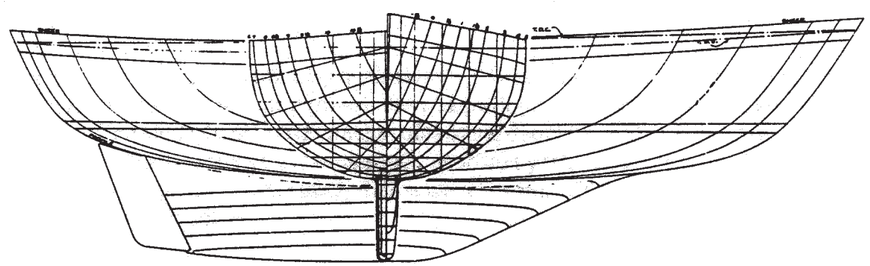
***SARAH* WAS MY SECOND** double-ender. I designed her in 1976 as a reaction to the popularity of the *WESTSAIL 32* which people were buying in droves, despite the fact that she was a poor performer in anything short of a gale. When it came to performance, *SARAH* had everything that the Westsail didn't. She still had a longish keel, but cut away forward and ending well forward of the stern in a rudder that was fully immersed below the hull's counter – so it wouldn't ventilate when the boat was hard pressed. *SARAH* was an attempt to preserve the double-ended shape of the Westsail at something like the same length, but to offer a boat that sailed a whole lot better. Which it did.

The boats were built by a fellow named Lyon Loomis – first in Padanaram, Massachussetts, and later in Florida. He had molds for the fiberglass hull and deck, and for the outside lead ballast casting. Everything else was hand finished and to a very high standard. There's no better way to build a fiberglass boat than this. As soon as you try to reduce cost by using an underdeck liner and IGUs (internal glass units) to create the interior furniture, the weight of the boat increases — because fiberglass weighs 96 pounds per cubic foot and plywood weighs 35. IGUs are typically puttied to the inside of the hull molding — a weaker connection than tabbing plywood into place.

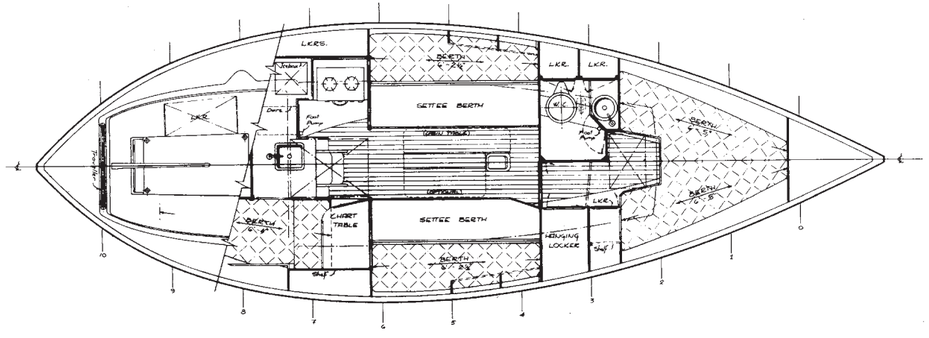
I can't in good conscience recommend that anyone build a *SARAH* today – the cost would be beyond the bounds of reason. Partially because her drawings were done manually in ink on vellum, and the lines would require lofting from a table of offsets. Computer loftings, which are available for most of the other designs in this book, eliminate this interminable task and are infinitely more accurate.

But *SARAHs* crop up occasionally on the brokerage market at depreciated prices, and the design would be ideal for an aspiring offshore voyager. The double-ended shape is inherently easy on the helm so self-steering using a windvane or battery-powered autopilot would not consume a lot of energy. The single-skinned hulls were bulletproof and with a coat of Awlgrip could be made to look as good as new. And the fact is, you'd be hard pressed to find a vintage design that sails nearly as well as a *SARAH*.

There is a pilot berth and settee on both sides.



SARAH's lines were about as racy as a double-ender can get. The sections were very close to the same shape as the pure racing yachts we had been designing at Dick Carter's office a few years before. The fairing radius between the hull and the keel was very small, maximizing the effective vertical extent of the keel, and the keel foils approached those of NACA foils that were being used on racing yachts. SARAH proved that a cruising double-ender did not need to be slow.



The standard interior had two pilot berths. Most owners eliminated one of them and substituted stowage lockers on that side.

BLEMISHES.

From a design point of view, there's not much that isn't right about the *SARAH*. So your decision to buy and restore one must depend upon condition, and price.

34' Cruising Yacht

Victoria 34

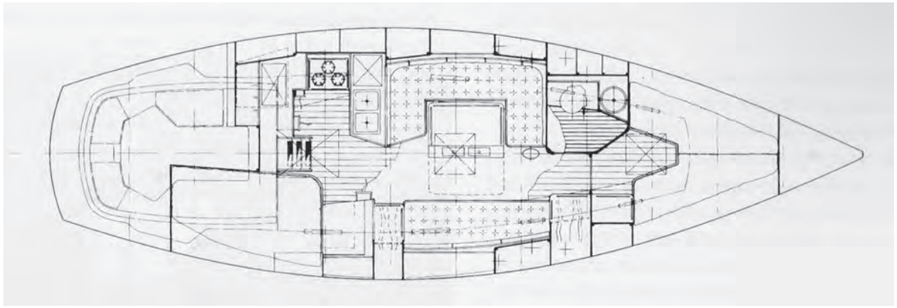
The VICTORIA 34 stepping right along in a light breeze.

L.O.A.:	34'-3"
L.W.L.:	28-4"
BEAM:	10'-7"
DRAFT	4'-10"
DISP:	12719 Lb.
BALLAST:	5525 Lb.
SAIL AREA:	568Sq. Ft.

I WAS WORKING THE stand at the London Boat Show in drafty old Earls Court Exhibition Centre, helping sell *VICTORIA 26*s and *30*s, when Peter Gregory announced that he was ready for a new design. The show was held in early January. He told me that his plan was to have the first boat of my new design on display at the next London show – in 11 months' time. By 1984 my studio had grown quite popular and my draftsman, Chris Davis, had plenty of work to do while I was off selling boats in London. I wasn't sure he and I could get the drawings for a new boat done in time to suit Peter's ambitious schedule, but that is what nights and weekends are for, so I said, "sure."

This was as carte blanche as any design we had ever been offered. Peter pretty much said, "I want a 34-footer, and not a double-ender this time, and I want it to look British." I had all sorts of ideas for new boats rattling around in my head, and what I had learned by now was that without any racing pretensions, the thing that boat buyers valued above all else, was beauty. So my brief was simply to design a beautiful 34-foot boat as far as I could tell. And I knew that Peter respected the amount of effort I put into the aesthetics and would accurately render in the tooling every detail on my drawings. At this point in boatbuilding industry history, it was obvious that effort spent on the "tooling" tended to be rewarded in increased sales. Although additional effort and expense was involved adding aesthetic details to the plug from which the fiberglass molds were taken, once the molds were finished it made virtually no difference to the cost of the parts—hull and deck —that came out of the molds. Peter assured us that no expense would be spared on the tooling, and indeed the amount of detailing designed into the molds of the *VIC 34* exceeded anything we had been involved in before.

I had always loved the sheerline treatment of a couple of highly successful British yachts—the Nicholson 31 and 35. They had a recessed "wale strake" and a cove stripe. We had to decide—was this so unique that it might be considered proprietary—or was it in the public domain? It had been used on sufficient wooden yachts in the past that we considered it up for grabs, and included it on our hull drawing. It, and many other details on the deck such as the subtle crease in the seatbacks surrounding the cockpit, reeked of quality, though they added to the time it took to complete the molds. So much so that



Her beautifully finished interior could sleep six, though four would be a better fit.

the project fell behind schedule. By September it became obvious that the first boat would not be finished on time. Peter phoned me from England and lamented that if it didn't get into Earls Court by mid-December it would spell the end of Victoria Yachts! I didn't even have time to check it out with my wife or Chris when I blurted, "Would it make any difference if we came over and lent a hand?"

Which is how one week later Chris, my wife Debby, our infant son Nicholas, and I were winging our way once again across the Atlantic. Luckily it was my philosophy never to hire a draftsman who had not built a boat. And by that time I had built five boats myself. Our checked bags were absolutely clanking with hand tools, and of course there had been no time to obtain work permits. If customs opened our bags we were toast. But my part-Irish luck prevailed, and the next morning Chris and I were down on our knees on the mold loft floor in Warsash, England, lofting interior parts.

We spent the next three months living in Hamble and commuting across the river to build one very vital *VICTORIA 34* at the factory in Warsash. And the boat did get finished – well not really finished but finished enough to look finished with a non-functional engine in place and an electrical system that was not hooked up yet. And it happened to be the point in economic history when the British Pound had hit a cyclical low and Earls Court was swarming with Americans and Canadians and Europeans looking to get a bargain on a boat, and I think we sold eleven *VIC 34*s at that show.

Shakespeare got it right when he wrote, *"There is a tide in the affairs of men which, taken at the flood, leads on to fortune. Omitted, all the voyage of their life is bound in shallows and in miseries."* Getting that boat finished caught that tide, and the *VICTORIA 34* went on to be one of the most popular cruising yachts ever built in Britain.

WINDERMERE, the first *VICTORIA 34* enjoying a rainy day on Southampton Water. The recessed wale and incised cove stripe and creased cockpit seatbacks made her look "upmarket". The teak deck and "eyebrow" over the windows were optional extras.

36' Cruising Yacht

Morris 36

L.O.A.:	36'-3"
L.W.L.:	29-6"
BEAM:	11'-7"
DRAFT	5'-6"
DISP:	16302 Lb.
BALLAST:	6500 Lb.
SAIL AREA:	627 Sq. Ft.

There's just about no amount of wind the MORRIS 36 doesn't revel in. *Onne van der Wal photo*

THE MORRIS 36 WAS TOM Morris's next offering after the *LEIGH 30*. For a time he called it the "*JUSTINE 36*", after his wife Tina. Back in those days we both hoped we could attract attention to our partnership if we named each new design after a woman – like its predecessors, *FRANCES* and *LEIGH*. Then after a time he had built so many beautiful yachts that the name Morris began to be recognized, and he changed the name of the design to the *MORRIS 36*.

Cruising sailors at that time still thought they could combine good windward performance with shoal draft, so she was fitted with the "Scheel Keel", designed by fellow Mainer Henry Scheel. It took a long time for me to finally concede, honestly, that you can't – and that the single most important arbiter of a sailing yacht's performance is the depth of its keel, no matter how cleverly it might be shaped. Once we cottoned on to this we offered a significantly deeper fin keel as an option.

There's virtue in being different. I had studied every stern that had ever been designed from double-ended to canoe stern to transom to counter to retrousee' or whatever it's called in English – but if you could design one that had never been done before, and if it was attractive to look at, and if it didn't slow the boat down, then people might take notice. So I designed for Tom what I called "the Morris Stern"– the stern on the *MORRIS 36*. It looked like a transom stern that ought to be fitted with an outboard rudder, but wasn't. The rudder actually ended up just below the counter, where it didn't extend above the waterplane and therefore didn't ventilate no matter how hard you pushed the boat. So it worked really well. I thought it worked so well that Tom and I should have used it on some subsequent design – and we did on the *MORRIS 32*.

I designed the boat with full length bulwarks around the desk for security. Of course these added to the freeboard and I knew I would have to do something to disguise this. So I came up with the broad wale stripe and recessed top strake and tooled-in cove stripe, all of which drew the eye to a lower level on the hull and took the curse off.

Then after fifteen or so of the boats had been built the orders began to peter out. Tom began to understand that there are just so many customers who wanted a given design no matter how attractive it might be. So then, what do you do? There was all that heady investment in the hull mold and the deck mold and the ballast and the interior jigs and fixtures, not to mention my design efforts. So he came up with, the "stretch."

If we lengthened the boat a couple of feet we could offer a whole new design, and call it by a different name – the *MORRIS 38*. There were no negatives – it would look just as good, we could devise a couple of lockers aft of the cockpit for a bit more stowage, and being longer it couldn't possibly sail anything but better. But it would require that the existing molds be bastardized, and who could do this sort of work?

I think I mentioned this before – I never hired a draftsman who wasn't a skilled boatbuilder. And a "new" design meant new customers, which meant more royalties. Tom knew this and offered me the job of rebuilding the molds.

A few years before when I had a shop that burned to the ground I was faced with choosing what I would do for the rest of my life. I chose to design yachts or starve, and faced with a winter with nothing to do I'd decided to learn to fly. If I ever became a successful designer I thought I could use that skill to service my customers more quickly, and if not it was another potential avenue toward a new career.

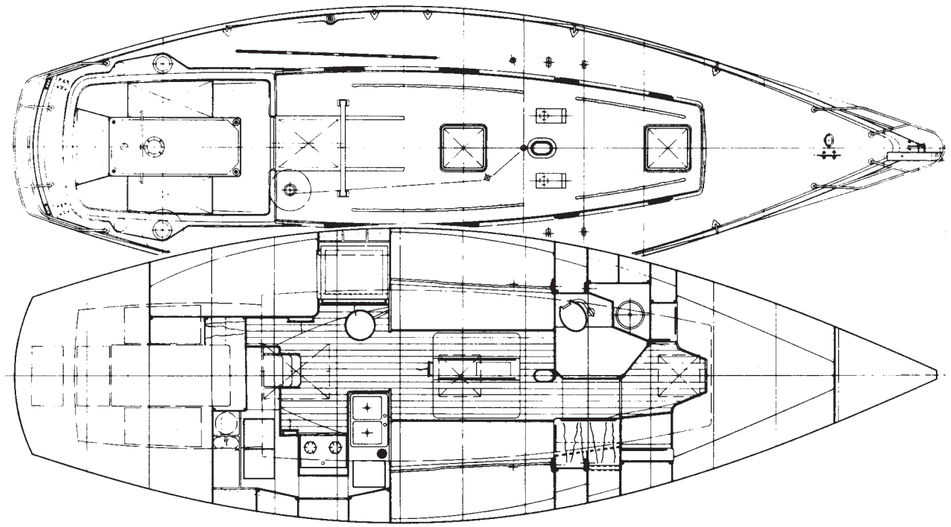
Tom hired me to do the "stretch." (And in the passage of time one of my draftsmen and I would do the "stretch" of the *MORRIS 32* to 34, 40 to 42, and 44 to 46). We would meet at Rockland airport at seven in the morning. Our "commute" to Bar Harbor Airport would take 35 minutes barring a headwind. Had we gone by car it would have been 2½ hours each way. I kept a clapped-out old Volkswagen Rabbit at Bar Harbor Airport for the remainder of the drive.

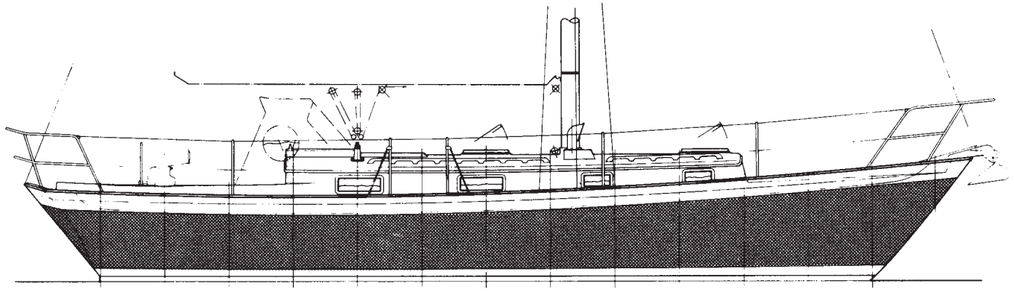
I'd have done the preflight planning the previous evening, We'd load a couple of heavy toolboxes into the back seat of a Cessna 152 or Cherokee 140, having done the weight and balance calculations the night before, and head off into the wild blue yonder.

I bored holes in the sky countless times to help Tom develop new boats. I remember one mid-winter evening when we had been discussing a potential new design, and it got on towards or maybe past midnight and he drove me back to the airport. It was way beyond what you'd call cold. He stood by in the red glow of the left navigation light to see me safely off, and it being a really frigid night, I gave her five squirts of raw prime in hopes that the engine might be made to start. It slowly cranked and coughed and backfired a few times but failed to ignite when I noticed Tom frantically waving his arms.

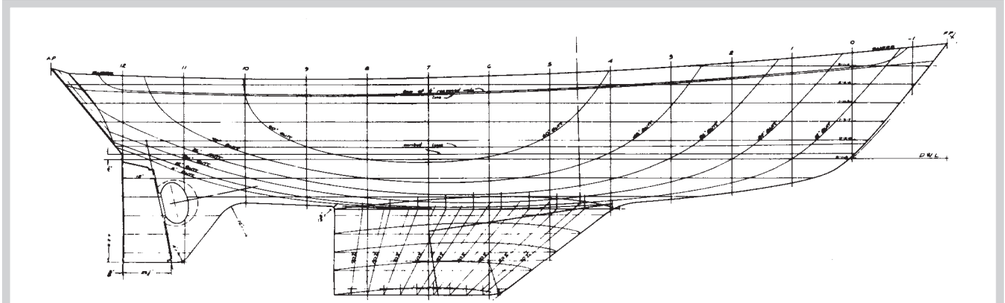
Clearly something was wrong. I opened the tiny pilot's side window and before I could say anything he yelled – "You're on fire!" All that prime plus the backfire had ignited the air filter. When this happens there is nothing you can do but hope that the fire goes out on its own or unfasten your safety harness as fast as you can and get out and watch it burn, taking solace in the fact that you are at least, warm.

Such, in my case, is the life of a would-be yacht designer. Like countless times before I spent the night at Tom and Tina's, and the plane was there, undamaged, in the morning.





The slant of the transom balanced that of the bow. I always loved designs where some of the house-side "hid" behind the bulwarks like this.



This shows the later, deep keel version. The keel looks too far aft on the hull, but it isn't Like any other good boat she'll develop a bit of weather helm if you carry too much sail in a blow.

The vertical house-sides meant the windows functioned like windows, not skylights as is true on so many "modern" styled designs.

The little drinks cabinet at the end of the settee was a typical Tom Morris touch.

She's so stiff you can go out in anything. *Onne van der Wal photo*

BLEMISHES.

The slanted transom works great under sail. When she heels over the transom lifts out of the water about the same amount as the quarter wave. But under power at anything over 6 knots the quarter wave climbs about a quarter of the way up the transom and leaves a sooty stain. This great design has stood the test of time. The deep keel boats go to windward better than the Scheel Keel boats, of course.

36' Expanded ANNIE

Expannie

A classic beauty. The custom stern rail incorporates the dinghy davits and Bimini. She's just big enough to be a whole lot of fun without requiring a large crew – she would be the ideal single- or double-hander.

L.O.A.:	36'-3"
L.W.L.:	30'-0"
BEAM:	11'-8"
DRAFT	5'-2"
DISP:	18125 Lb.
BALLAST:	7000 Lb.
SAIL AREA:	672Sq. Ft.

I BEGAN DESIGNING *EXPANNIE* near the end of my career. The idea was that I would work until I was 65, then take all the money I had earned, plus the proceeds of selling C.W. Paine Yacht Design, Inc., and have an *EXPANNIE* built and spend my sunset years cruising around the tropics with my wife.

Mine was a rags to riches story. I had been born into a situation where I was surrounded by a lot of love, but no money. I lived in an unfinished shack nowhere near the water for the first seven years of my life, and helped my mother dig clams so we could eat. We knew nothing of yachts except that the wealthy Philadelphians who lived in mansions on the waterfront at the south end of our island all had one. But my mother taught me to work hard – I had my first paper route when I was 10 years old, and never stopped working from then on. I was lucky and won a scholarship by doing well on a test, and got an Ivy-League education for free. And when I saw my main chance at age 29 I went for it by starting a yacht design company. My firm created designs from which over 1000 yachts were built, with a combined value of over $350,000,000.

In 2007 when I had a five-man design office humming along and had turned 63, I had my helpmates begin the design of my retirement cruiser. I had owned an *ANNIE* for two years and loved it. I knew how to fix the problems it had… too much weather helm, and it was just a bit too small to be comfortable cruising the oceans. 36 feet was perfect, and I knew that when I sold my company I would be able to afford it. A respected businessman friend told me with its annual revenues of $400,000 I should be able to get close to a million dollars for it.

What did *ANNIE l*ack that *EXPANNIE* would provide? I've mentioned the weather helm. This could easily be cured on either design by fitting wheel steering, but I prefer the feel of a tiller and the instant knowledge of what direction the rudder is pointing, which in missing with a wheel. By shortening the keel, especially at its front, and fitting a partially balanced carbon fiber rudder by using the F.F.A. (if you paid attention earlier you'll know what this is), and moving the sailplan a little further forward, the helm could be made light as a feather.

By this time I had owned a succession of cruising boats and had chartered many times in the Caribbean. The thing I liked most about chartering was that you could live on a boat and stay clean at the same time, for they all had shower stalls and lots of tankage for fresh water. There's nothing like coming up on deck for your sundown cocktails feeling fresh as a daisy after spending the day trying to escape the heat of the Grenadines competing with everyone else on board for a shady spot under the Bimini. So *EXPANNIE* would have a Bimini and huge tankage for fresh water, and a rain-catchment system to keep it topped up, and a good-sized shower stall. Since ventilation is so important in southern latitudes, the house sides would be vertical (to let in more wind than rain), and all of the ports would be opening. And since I love to swim, and value my life, the cockpit would extend all the way aft to the stern and a portion of the transom would hinge down on one side of the rudder to provide a stairway to, and out of, the sea.

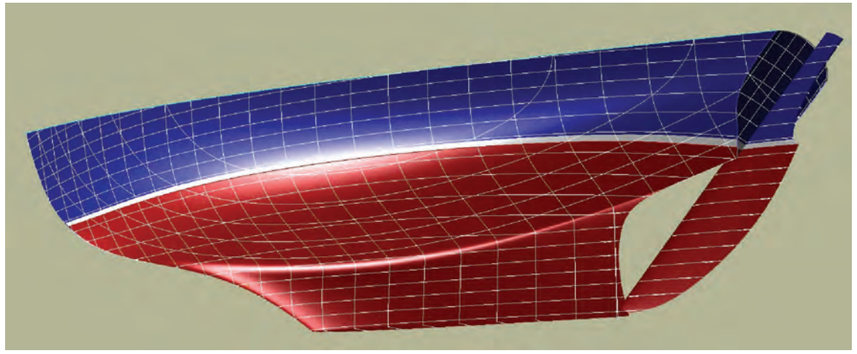
There was still the matter of paying for it. But I had finally learned the lesson that so many of my customers had learned that had made them rich. Real estate!

It was my job as chief sales person to go to all the big boat shows and one of them was in Oakland, California. I had heard this story so many times in recent years that I'll repeat it here. A guy would come up to me and we'd have a chat and I'd try to sell him a custom-designed yacht. He'd say, "Well, I'd love to, but thing is I own five houses now and if I can convince the bank I'm going to buy another one- so I can't buy a yacht right now. I used to be a (long list of high-skill occupations) but I made $200,000 a year and each of the five houses I own appreciates in value by that much so why would I ever spend my time working when I can earn a lot more money by buying and flipping houses?"

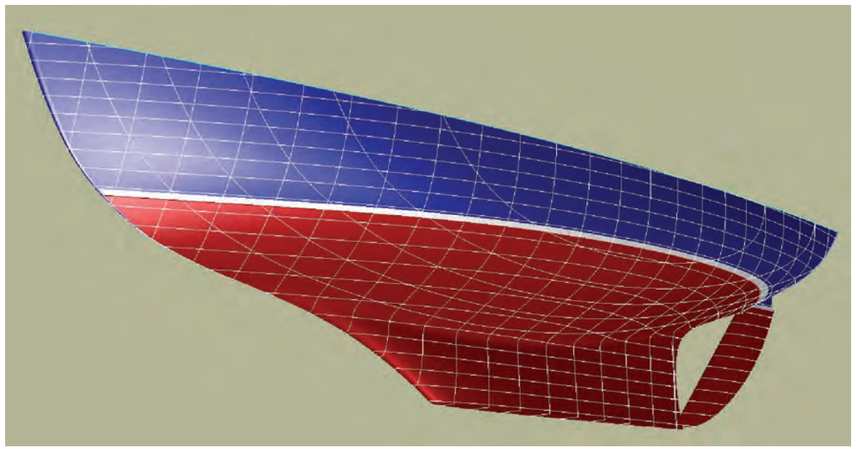
So I finally, late in my life, got it. I had friends who lived in a nice waterfront housing development in Florida. We would stay with them for a week in the winter, year after year, and every year they would say, "You really ought to buy a lot in this development. They're a fantastic investment, even if you never build." And indeed every year the price of a lot went up by another $20,000 or more, so they weren't lying. I figured, I'll buy one and after a couple of years I'll sell it and the money I'll have made will help me pay for my *EXPANNIE*. So, belatedly, I bought a lot, for $117,500. This was in 2005. Two years later people were asking $195,000 for the same lots. Meaning that by the end of 2008, my lot should be worth $250k!

In the beginning of October, 2008 my office had more work laid on than ever before in our history. Two of our customers were quite literally, billionaires. In one more year, I'd retire. Then something strange happened. The world's economy crashed! By the end of that same month, every one of my customers had canceled his order, and we had nothing to do!

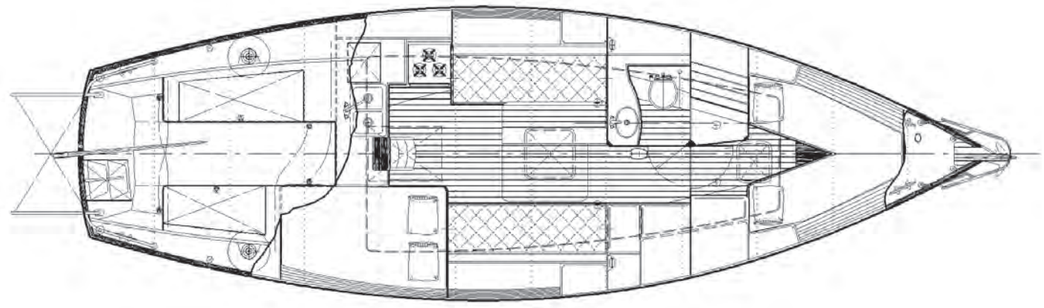
I had no choice but to shut down. It looked like nobody would ever commission a custom designed yacht again. I did sell my business, though. To my employees. For $1.00. Today my lot in Florida that I paid $117,500 for is worth $20,000. So, sad to say, that's why *EXPANNIE* never got built. But if you're a lot smarter than me and you sold your real estate holdings in 2007, you really should have an *EXPANNIE.*



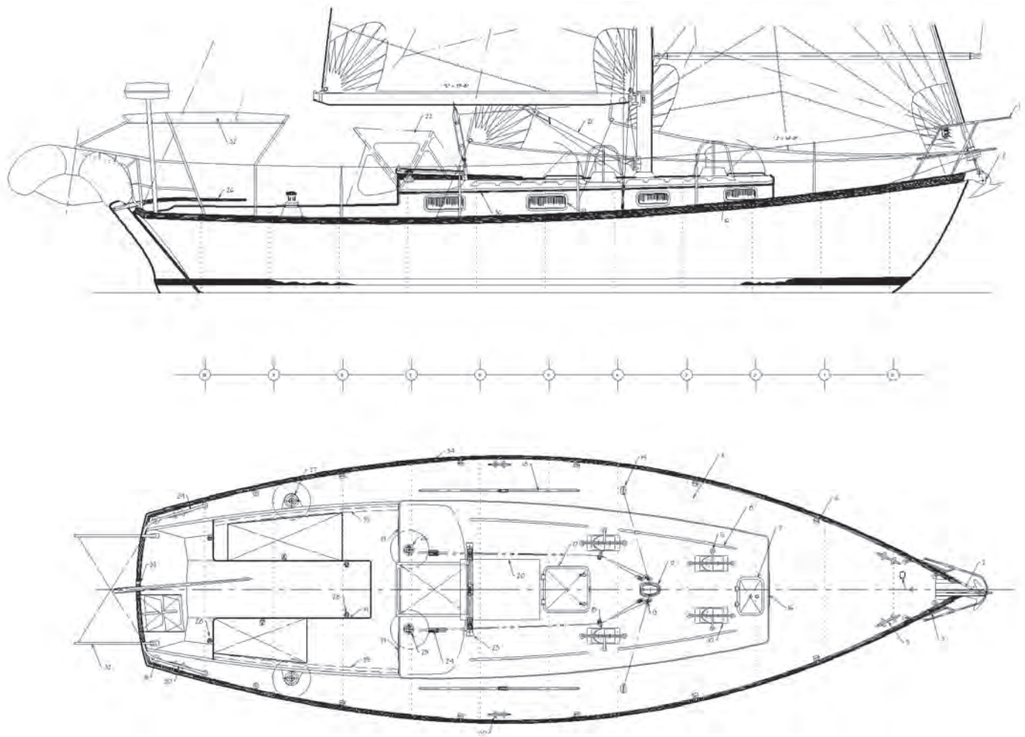
EXPANNIE's sweet hull – a few tweaks of ANNIE'slovely lines and a rudder you could probably turn without using the tiller just by grabbing the rudder head. The rudder will be made of carbon fiber to be extremely light. Part of the effort of steering a boat involves overcoming the inertial forces of the rudder's mass. Newton's first law of motion states, "An object at rest tends to stay at rest". The effort required to articulate a stationary object, including a rudder, is proportional to its mass – meaning its weight. Hence carbon fiber.



The forefoot profile is severely cut away to reduce weather helm. Note how sharply veed the forward sections are—a necessity if a small yacht is to be reasonably comfortable going to windward offshore.

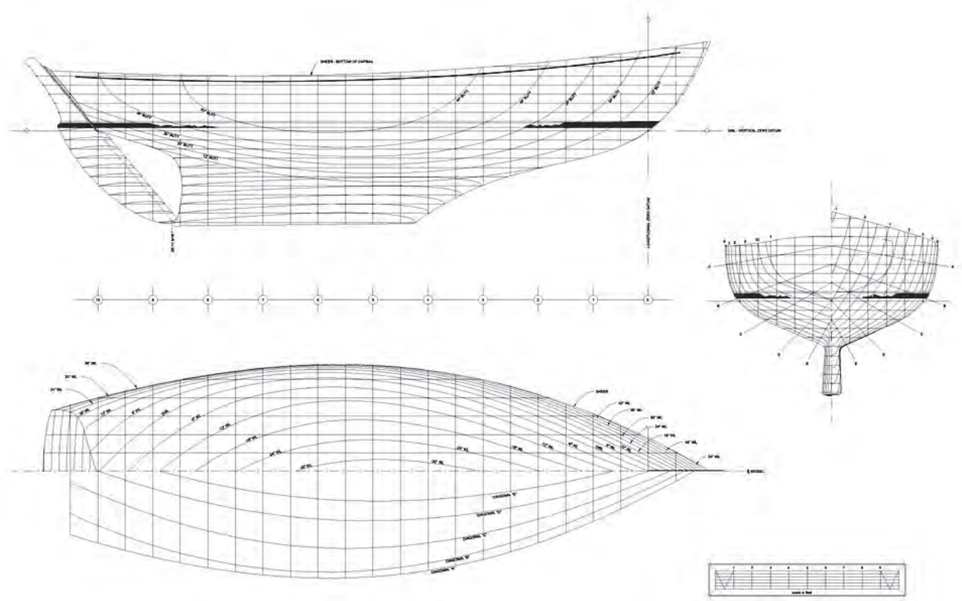


The berths in the main cabin will be gimbaled so to stay level when the yacht is heeling. The quarter berth is intended to offer the captain a bit of luxury commensurate with his rank, though honeymooners might call it a double. The head also includes a separate shower stall.

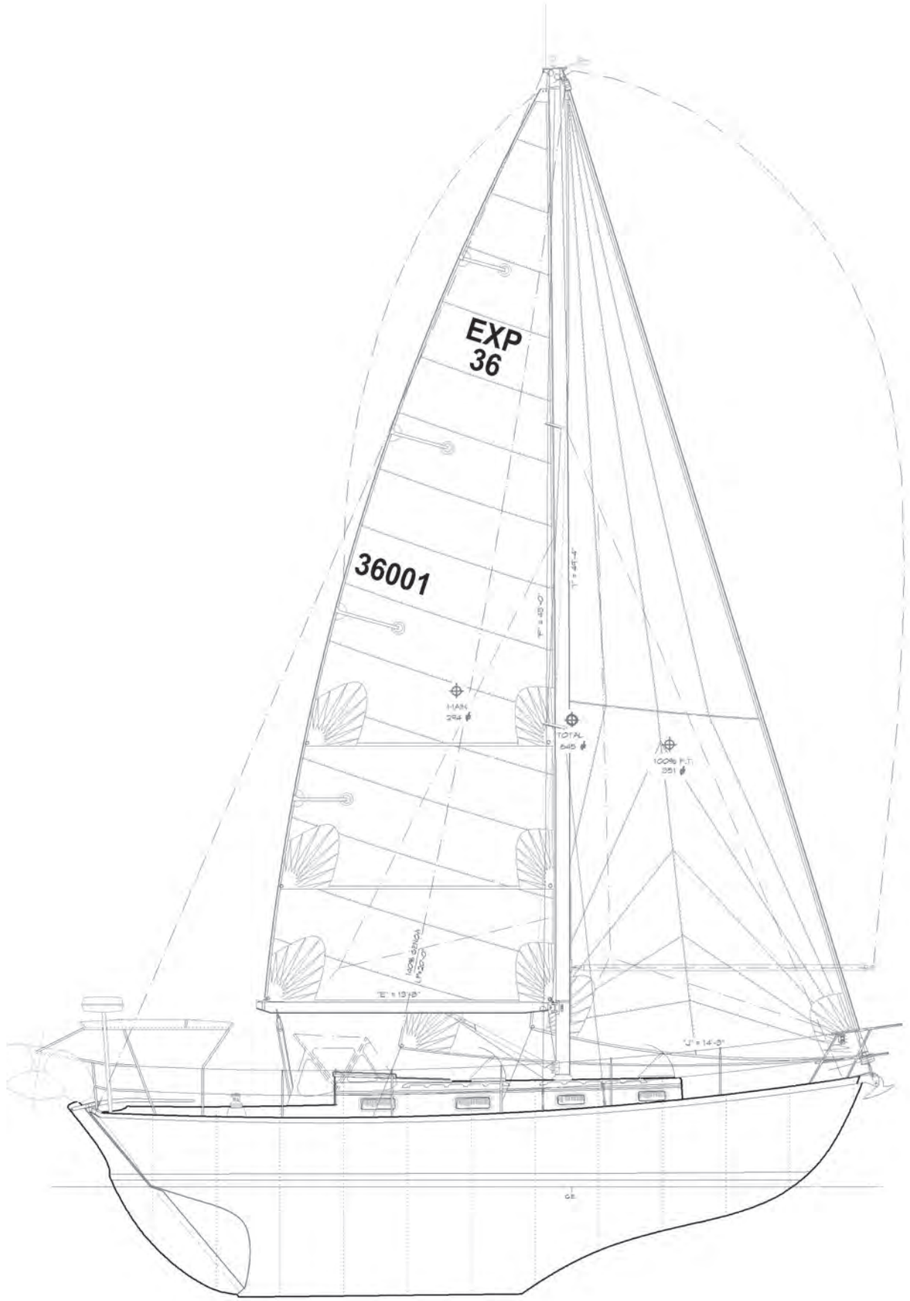


The aft end of the cockpit is what I call "the bathing beach". It's true – there is a lot of cockpit volume. But the cockpit sole is well above the waterline, and the drains will be sized above ABYC standards so as to drain it relatively quickly if pooped.

"PUNCHING TO WINDWARD" was painted before I revised the cockpit. The colors are right, though.



EXPANNIE's lovely hull lines. The essence of moderation in every respect.



A big rig, pretty far forward on the hull. By the end of my career I was using three separate algorithms to get the balance right. It was no longer done by eye, but by mathematics. This big rig will carry a 140% genoa in summer, when light airs prevail, and a 110% jib when on the open ocean.

39' Fast Cruiser

Paine 39

L.O.A.:	38'-5"
L.W.L.:	32'-1"
BEAM:	11'-11"
DRAFT	5'-5"
DISP:	16158 Lb.
BALLAST:	7000 Lb.
SAIL AREA:	707 Sq. Ft.

JESSICA carried a 150% genoa when racing.

***JESSICA* WAS COMMISSIONED BY** my father-in-law Frank –a world famous surgeon from Boston. She was built by Roger Morse of Thomaston, Maine before his name formed the latter half of Lyman-Morse boatbuilding company. Frank loved to cruise farther downeast, and he would take *JESSICA* up the St. John river one year, and along the south coast of Nova Scotia the next, year after year. And that became my summer vacation. He was retired so he could skipper her in both directions. I was working hard trying to keep my yacht design business going, so he'd let me do the "easy" part–the downwind romp from often sunny Maine into the murky miasma of fogbound Canada.

The first few years were before radar filtered down from Navy ships to yachts, then there was "Whistler" radar which consisted of a large white plastic suitcase you'd hang around your neck and point into the murk, pretending that by the changing pitch of its note you could sense something was there. Frank wanted a true offshore cruiser–stable, safe and comfortable, but he also wanted to race it. For the first few years she was reasonably competitive, but with time the competition got lighter and lighter and more willing to trade crew on the windward rail all night long for fixed lead ballast, and we gave it up. *JESSICA* is now 35 years old and still going exceedingly strong (admittedly after a couple of refits), while those lightweight cockleshells have been long in the boneyard.

We raced *JESSICA* three times in the Marion-Bermuda race. Although she always went like blazes with her big genoas–and we were always ready to set a spinnaker when the wind was aft (which as luck would have it, was basically never), we failed to get near the winner's circle. But the motion of the boat, being heavier than virtually all of our competitors, was delightful, and there was never more than a couple of hours' difference between our corrected time and the winners. And I began to re-learn the difference between racing designs and cruising designs.

Back at Dick Carter's office we spent weeks playing on the time-shared computer with the stability (more tender gave lower rating), and the hull proportions ("bumped" beam lowered rating) and with minor hull distortions ahead of the rudder (more distortion– lower rating), and once you added all these tweaks together, in Dick's case you still got a good-looking boat that went through the water plenty fast, but with a handicap rating that made her look slow to the IOR rule.

I did none of these things when I designed *JESSICA*. I copied the things that made Carter's boats fast through the water, and I didn't copy the things that gave her a lower rating. Now, with the IOR rule a thing of the past, she is still a great boat and still plenty fast, but more important, she is still around.

Scott Layton photos

JESSICA was recently bought by a Brazilian who intends to spend the rest of his life living aboard and seeing the world. We have become friends – he is living in my home while doing the refit, and to my delight he is doing everything I would do to give the boat a second life.

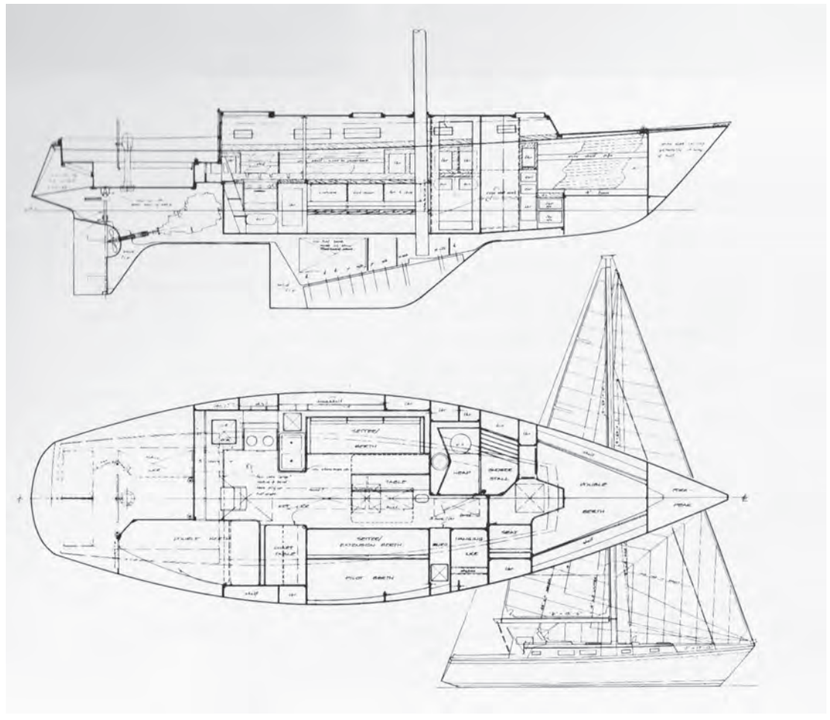
When he bought the boat he had it surveyed, of course, and the surveyor found that both the side-decks and the entire cockpit had become punky. So in addition to all of the other things one should do to renew a thirty-year old boat, these major issues had to be addressed.

My friend bought the boat for $60,000. Since the cost of a brand new boat, at $50.00 per pound, would be $807,900.00, this is 7.4% of replacement – a bit under my 10 to 20% rule of thumb. He predicts that he will put another $225,000 into it to bring it up to "like new" condition. If so, he will have paid $285.000 for a first class refit *JESSICA,* or 35.3% the cost of building new. Could he have done it for less?

Of course he could. But then he would have neglected to do some of the items on my list at the outset of this book. And you ignore items on that list at your peril. *JESSICA* will become the ideal floating home for Carlo. She is stiff, fast, comfortable, easy to steer, well ventilated for all of the large ports you see are opening – and very nearly "as good as new." She has many times in my recollection reeled off 150-mile days, often several at a stretch and in cruising mode meaning without the spinnaker.

Okay, maybe you don't have $285,000 to spend on a boat. Then go back to the front of this book and start reading again. You can't cross oceans in a *PAINE 14*, but you can in a *LEIGH* or an *ANNIE*. The alternative is... staying home. My grandfather had a saying which he loved to repeat, "Home is where you go when you've been everywhere else."

Get going. And get going in one of my classic designs – you really can't do much better.



JESSICA was built back in the days of crosscut sails. These narrow panel sails by Hood were the finest you could get.

Carlo's new home.

Scott Layton photo

BLEMISHES.

I can't think of much that could be changed to improve *JESSICA*, even after all these years. I suppose if someone were to build a new one I would devise some way to hinge a portion of the transom down so as to permit boarding and swimming–it would not be all that difficult to do. And I would definitely move the mainsheet traveler forward to the cabin top rather than the bridge deck, as it is a dangerous piece of equipment and should be relocated out of harm's way.

40' Offshore Cruiser

Bowman 40

The BOWMAN 40 is bloody stiff! *Beken of Cowes photo*

L.O.A.:	40'-0"
L.W.L.:	32-0"
BEAM:	12'-7"
DRAFT	4'-11"
DISP:	21400 Lb.
BALLAST:	7110 Lb.
SAIL AREA:	748 Sq. Ft.

I HAD BEEN ATTENDING two English boat shows every year helping sell the *VICTORIA 26, 30* and *34*. As chief salesman for Paine Yacht Design I was always looking for new customers. There was a company in Southampton that I had my sights on called Rival Yachts. They built just the sort of heavy offshore cruiser that I most admired, all designed by their in-house designer Peter Brett. Then I heard that Peter Brett had died. It was only a matter of time before Rival yachts was going to need a new designer.

For the 1983 London boat show Peter Gregory —the finest boat promoter I have ever encountered—came up with the idea of having me on display, actually designing boats at a drafting table and ready to chat up any serious customers. He had even lined up a couple of television spots with his Yankee upstart drawing away in front of thousands of potential customers. Stuck as I was at that drafting table enduring the cloud of cigarette smoke that descended ever lower with each passing day in Earls Court Exhibition Centre, I thought it would be less of a waste of my time if I worked on a preliminary sketch of something new for Rival Yachts.

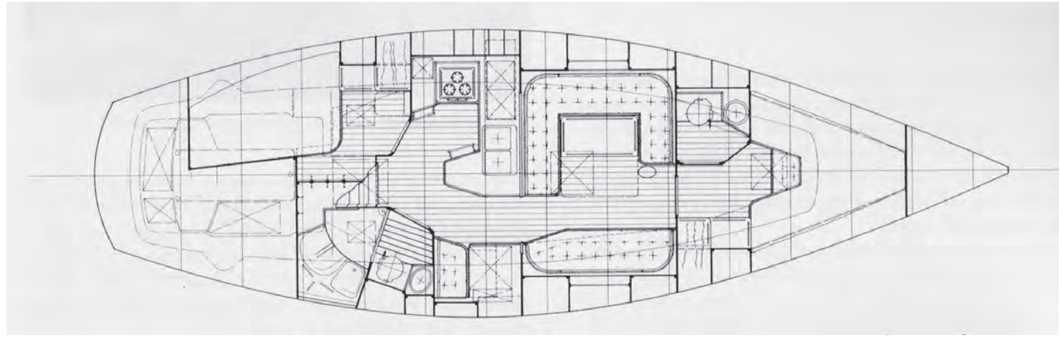
I had never had the courage to introduce myself to Charles Maunder, the managing director of Rival Yachts. It was a little too cheeky, even for me, just after the death of Peter Brett – too much like being an ambulance chaser. But I couldn't wait too long. Some other designer might get his foot in the door.

The problem solved itself when two well-dressed "city types" (the London equivalent of Wall-Streeters), came over to my table and glanced at my drawing. "That's nice", they both said, "What is it?" I explained the whole story – that I designed boats for Victoria Yachts and maybe someday I might interest Rival Yachts in building this forty-footer. They said, "We both own Rival 36s and are looking for a larger boat. Can we take you over and introduce you to Charles and Keith?"

And that's how the *BOWMAN 40* got started. Rival had just been bought out by Bowman Yachts; they were indeed looking for a new design, and here were two first customers both of whom agreed to put money down on the spot, as long as the new yacht was the boat being sketched by this clever Yank. I came home and Chris and I drew like fiends to get the drawings done on time.

The first *BOWMAN 40* was introduced at London Boat Show a year later. I had already seen it earlier that Fall, when I flew over for sea trials. They had that first boat in the water and the first thing Charles said is, "It floats two inches deeper than you said it would." I said, "It can't possibly." But I took the freeboards and he was right. I had done all my laborious calculations including a Visicalc-based weight estimate in excruciating detail – how could it be that much heavier? They explained that of course they could not build the boat to the scantlings I had shown on my American-style construction plans. "We can't build boats as lightly as your drawings showed – to sell boats in Britain we have to use Lloyds scantlings." And that was the answer. Lloyds scantlings assumed the use of more fiberglass mat and less woven roving than we were used to using in America. And since mat is weaker than roving, you have to use more of it to achieve adequate strength. I even considered making some concession to Charles on the royalty to compensate for my failure to estimate the weight correctly, but fortunately I held my tongue.

Then we sailed the boat. It was windy, as it always is on the Solent in the Fall, and the boat stood up to all that wind beautifully and went like a freight train on rails. Charles was overjoyed with the way it sailed – much faster than the former Brett designs. The boottop was repainted two inches higher on the hull, the displacement figure was changed on the sales brochures, and Bowman Yachts went on to build more than fifty of the boats, and came back to me for three more designs.



The engine is beneath that counter. A bit noisy I suppose. It gives good access, though The joinerwork was lovely.

43' Fast Cutter

Anasazi

L.O.A.:	42'- 9"
L.W.L.:	33'-7"
BEAM:	9'-7"
DRAFT	12'-5"
DISP:	29489 Lb.
BALLAST:	11000 Lb.
SAIL AREA:	356 Sq. Ft.

A big rig atop a hull with a lot of stability = SPEED! *Photo: Maura Rogers*

Launching day.

A simple, traditional interior.

***ANASAZI* IS A HEAVY** displacement long-keel design based on the work of John Alden. John had a reputation of designing boats that despite their prodigious weight could go like hell, and indeed his designs have won the prestigious Bermuda Race. The owner came into the office unannounced one day and began by bemoaning the loss of his previous Alden-designed yacht. It had been built plank-on-frame in the traditional manner, but had gotten to the age where its deterioration outpaced any attempts at maintenance, and it had very nearly sunk.

So a new boat was necessary. The customer said that he would happily go back to Alden for the design of his new boat, but we both knew that I had an important advantage over John, in that I was still alive.

They had grown tired of owning a boat that required stuffing various things into what amounted to a significant fraction of a mile of seams in order to try to keep it afloat. So the new boat would be built using cold-molded construction–no seams! I designed *ANASAZI* in 1992. She was built on Cape Cod by Damian McLaughlin, Jr.

When the Gougeon Brothers' book on WEST System construction came out in 1979, nobody knew how strong the stuff was. There were a few engineering test results in the book, but there was no standard codebook for cold-molded construction as there is today. So we put our heads together in the office and came to the conclusion that if we built it at least to the scantlings for carvel construction, being obviously a lot stronger, that would be enough. And in this design we were lucky–she was of such heavy displacement that we could do anything we could dream up to make her stronger and it would just help to push her down in the water to where she needed to float.

Which is why she's still going strong today. The hull was 1¼" thick, and there were large wooden floors both in way of the keel and extending well into the ends. When you consider that cold molded yachts are built on a massive deadwood which lends a lot of strength all by itself, this vessel is what they call "hell for stout." The mast and boom were hollow four-stave Douglas fir sections built by Basil Day of Thomaston, Maine–the last mast built by one of Maine's finest. Her standing rigging was galvanized plow steel with hand spliced eyes, about as old fashioned as it gets. I hope by now it has been replaced at least once. *ANASAZI* has ranged all over the Atlantic Ocean including far south along the coast of South America.

One of the things to learn from *ANASAZI* is that heavy displacement does not have to be construed as a synonym for slow. It is the ratio between Sail Area and Displacement that determines fast or slow, and this design had a very large sailplan. She had a SA/DISP ratio of 18.46 so she was like some of those Aston-Martins and Bentleys out there–a big vehicle, but with a big engine to propel it.

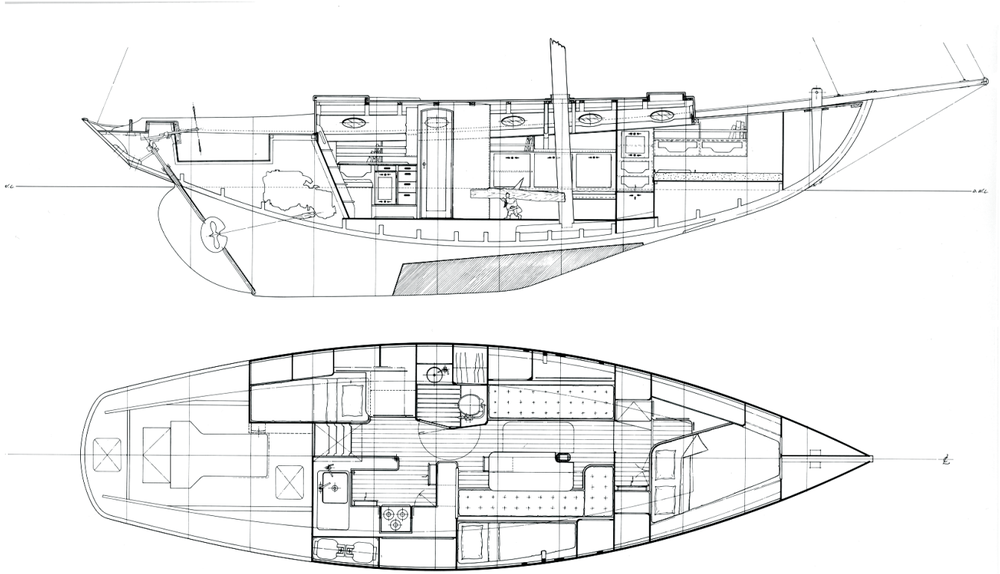
The interior was simply finished, and there were very few luxuries, which are of course the first things that can go wrong and ruin a cruise. There were both kerosene lamps and a few electric fixtures for lighting, and minimum electronics, which reduced battery drain to near nil. Since there were only the owner and his wife as crew, one quite large head was enough and I wouldn't change this even today, though one thing I would do would be to sacrifice most of the chart table and extend the head aft with a separate shower stall. l.

The one thing I don't like about the design—and there is no way to change it—is that the engine is so far aft that it requires a vee-drive to connect to the propeller. I am well known as hating vee-drives, because the stern gland ends up under the engine where it is difficult to see and to maintain. When you realize that the item most likely to let the ocean into a boat is a malfunctioning stern gland, you can understand my prejudice. The best you can do is to make sure that there is absolutely clear access to it on the starboard side, without moving the contents of a locker out of the way to get to it. I'd even put a placard there emblazoned, "No item is to be placed in this location for any reason."

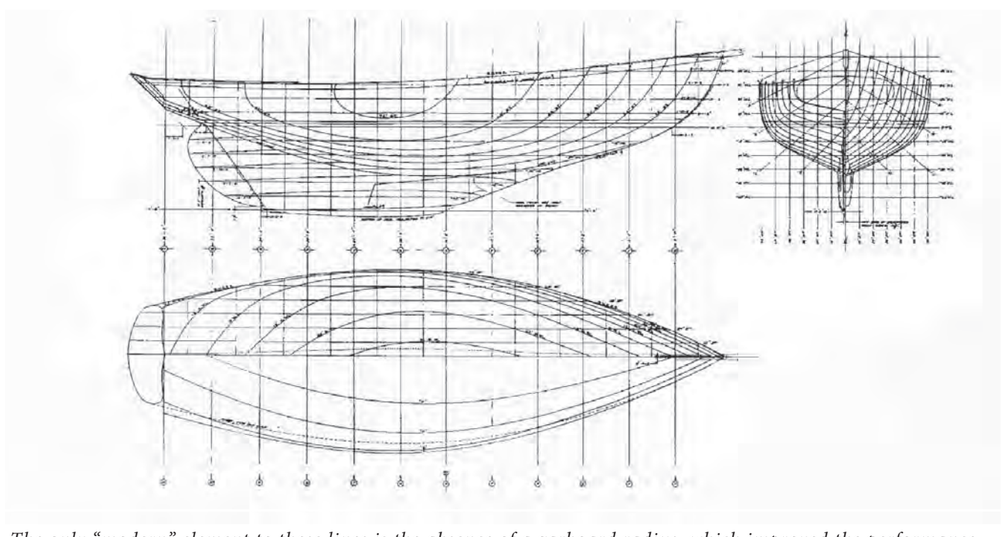
ANASAZI was an inspired design, and more of them certainly should be built.

BLEMISHES.

A high-cut Yankee on a roller-furler would keep you off he widowmaker. I'd keep the non-boomed staysail, though. Like all cold-molded boats, she should have a "bucket" for the bilge pumps fashioned into the deadwood to receive any bilgewater.



An interior unlike any we ever designed, before or since. For those rare few who know the rhythm of life lived far from land, it works. The captain has captainly responsibilities, and at times must separate himself from his companion and ensconce himself near the companionway, and near his celestial computations. The cook is the crew-member upon whose skills a voyage succeeds or fails, and secured within her own private nook, she is enabled to perform. At the end of a successful voyage, they can enjoy each others' company in a double-berth forward. Unusual as it may be, this arrangement is hard to beat.



The only "modern" element to these lines is the absence of a garboard radius, which improved the performance and made the cold molded construction a little easier.

BLEMISHES.

ANASAZI was one of my earliest designs, so logically she should have lots of early flaws. But not so. Maybe it was what they call "beginner's luck." After all these years I can't think of a thing I would change. Go figure! Except to somehow convince ten aspiring vagabonds to throw away their iPads, kiss their sex-buddies goodbye, and strike out and discover the world.

CONCLUSION

FOR FORTY YEARS OF my life I devoted my efforts to the design of the finest yachts it was given me by divine providence to invent. It is the sailboats that interested me most, as they were most beautiful to my eye and that were capable of covering long distances at sea. And this book contains twenty of the best of them.

Along the way I have met many fascinating people, and the most fascinating of all were the ones who were born without an inheritance and decided early on to work like dogs so that they could spend the latter half of their lives traversing the oceans of our blue planet and discovering new cultures on the other side.

I have had the privilege to sail thousands of miles on quite a few of my designs, and by doing so I learned of their motions at sea, how much they heeled in a given wind, how easy they were to steer, how much leeway they made, and how I could make the next design that little bit better. I have done open ocean passages on a *FRANCES*, an *ANNIE*, and *JESSICA*, and have crossed the Atlantic from North to South on a larger yacht of my design not included here, and from West to East on a Pearson Invicta, designed by Bill Tripp Sr. I have owned, and have very much enjoyed owning, *SCRATCH*, a *PAINE 14*, a *HERRESHOFF 12½*, a *FRANCES*, an *ANNIE*, and *JESSICA*. I've learned to find my position using a sextant and the stars, and I've learned that nature does not listen to whining, and that you must learn a few skills and be reliant upon yourself, because at sea there's no safety net. I love the sport of sailing, and I love being on the ocean. Life ashore these days seems to be fraught with new worries–terrorism, financial uncertainty, a rapid redistribution of wealth that will surely spawn the next revolution, the disappearance of meaningful jobs, exposure of our children to porno on the Internet, rampant proliferations of guns–at least in America, and a loss of social interaction thanks to cellphones, texting and sexting. If you have a boat, you have the means to put all these troubles behind you, and just sail away.

During my long career I designed wonderful, new yachts for the top end of the customer pool. My firm did not have a brokerage department, as virtually all yacht design firms do now, and I could not design used boats so my designs were expensive compared to anything on the used boat market. But every customer, bar none, thought that his brand new boat was worth what he paid.

Having broached that prosaic subject, let me talk about money. Why do new boats cost so much? As I mentioned in my introduction, new boats continued to inflate in price for years after inflation in general fell to zero.

I believe it was because society wisely chose (at least in "The West"–America, Europe and Japan), to place a higher value upon the health of the environment, and the health and safety of workers, than the production of goods—or at least yachts—at a cheap price. And since the production of a yacht involves chemicals that emit noxious gases as a product of the curing process, which gases are also hazardous to the health of nearby workers, all sorts of expensive devices and processes and laws have been put in place to mitigate these harmful byproducts of production. No longer can large factories spew styrene into the upper atmosphere and their neighborhood and their workers' lungs. It is true that the production of "things" and the attendant pollution has merely been shifted to China, but soon enough the Chinese will also abandon their abuses, and in the meantime their lack of affinity for the sport of sailing and the sizable shipping costs from there to the western market have prevented "life as usual" in the marine field.

The shift from inflation to stable prices and even deflation has only accelerated the decline in the prices of used boats. Hey, you optimists, let's look at this from the buyer's point of view and not the seller's. Never in yachting history have you been able to buy and own so much boat for so little money! The dream of owning a yacht for your weekends and holidays, or to set sail for distant shores, has never been so affordable.

So where are you, my next generation of nautical adventurers? I've shown you a few of the finest classic sailing yachts ever designed, and yes, every one has a blemish or two, just like you and me. But you will never have so much fun as when you find an old boat and restore it, or build a new one if you can, and set sail.