Good Old Boat

The sailing magazine for the rest of us!

July/August 2001
Issue 19
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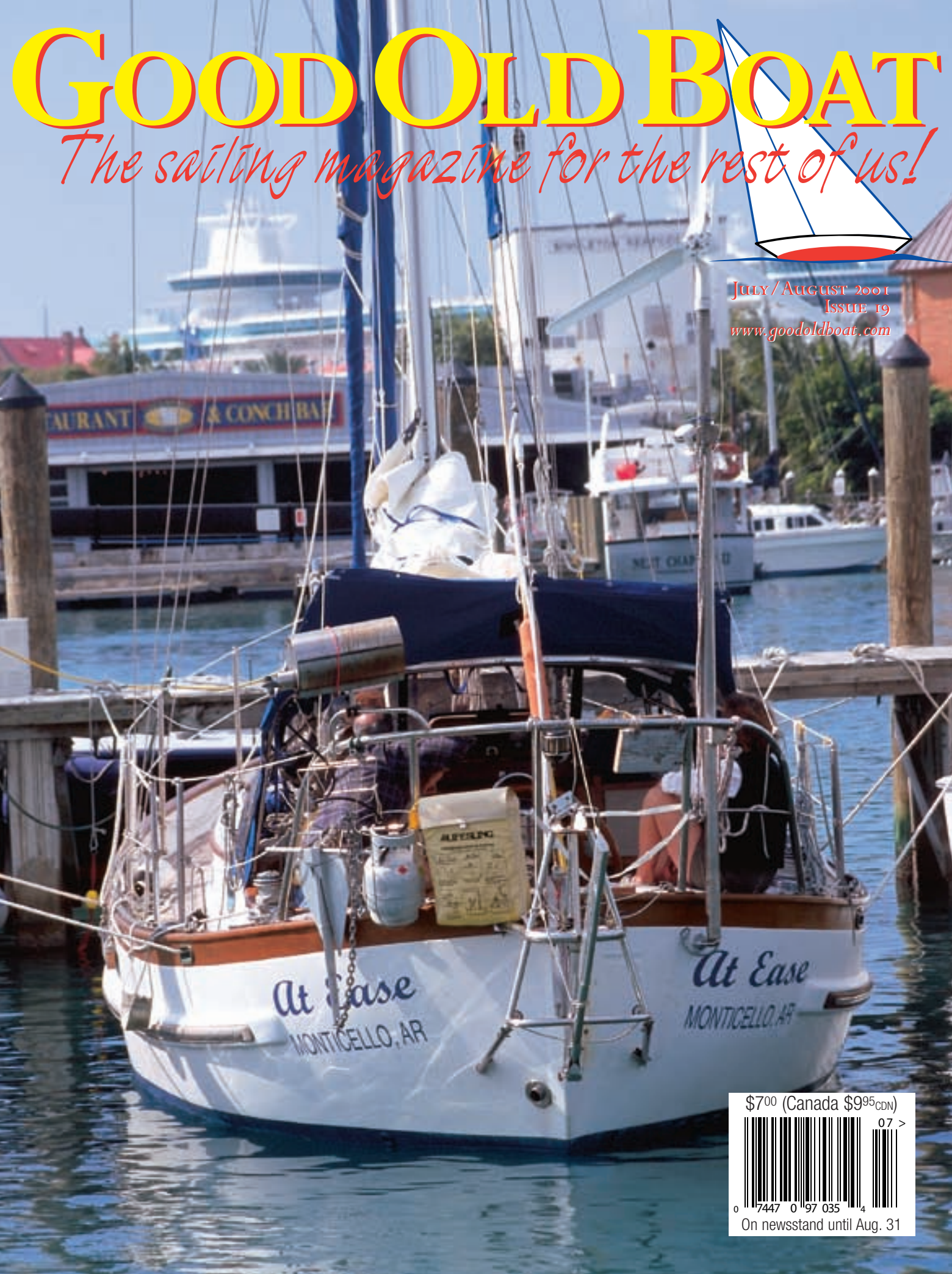

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This Issue

About the cover ...

Bob and Mary Drake caught up with cruisers Bill and Shirley Martin in southern Florida before these Lord Nelson sailers wandered farther into the tropics. Bob's cover photo of their salty-looking 35-footer, *At Ease*, captures the essence of offshore cruising. More about the Martins and their boat on Page 35. You've seen the cover. Here's a photo of Saylor, their boat dog, pretty much at ease.

Good Old Boat

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The view from here

A quiet assertion

by Karen Larson

No one has ever mentioned the lack of text all over the cover of *Good Old Boat*. We hear from readers regularly about our paper stock. (Yes, really! Some say it's too heavy and expensive; we should save money and weight. Others say it's impressive paper and just right for archiving issues of the magazine.) We hear about many issues that we think are internal considerations: reader service cards, subscription cards, mailing labels, polybagging, and so on.

But no one has ever said, "Why *don't* you have text all over the cover, tantalizing newsstand prospects with promises of content within?" No one. And no one has ever said, "Thanks for not shouting at us and spreading stupid text all over the cover photo." No one.

I'm wondering why. Is it possible that no one's noticed that, in this one detail at least, we are distinctly different from the others? Ironically, we did make a weak attempt at promotional cover text on our premier issue in June 1998. We had such a naive concept of publishing at that time we actually believed that we should put text on there because that's what magazines do and because the magazine might just be sold on the newsstands (magically somehow). We are on the newsstands now, of course, but it took another year and a half before we appeared there. By then we'd decided to forgo the cover shouting and posturing. It's not our style.

Our covers are meant to be a quiet invitation to enter our world. Sailing takes us all to a pleasant and quiet place. This is never so noticeable as just after we shut off the engine. Ah! Peace. Serenity.

We hope it will be a comfortable experience when you open our pages. We hope you'll come back. We think of you as a friend. We believe that, as a reader, you have a brain of your own and know how to use it. We don't think it's our job to manipulate you into a buying frenzy for the products advertised within or for the magazine itself. If you want to buy something, you will. You don't need to be goaded into action, shouted at, or manipulated.

Our role is to gather and present information you need, to entertain in some cases, and to reassure. Got an older boat? It doesn't have all the latest gadgets? It's not the biggest on the dock? Join the club of good old boaters. We're actually in the majority.

No cover text? No shouting? No manipulation? It's a subtle thing, perhaps. Still, I thought someone would have mentioned it by now.

Don't ask how he knows

If you decide to follow Jerry (Powlas') instructions to improve the stability of the toilet seat in your head and you mount those two plastic shims on the underside of the seat (as printed in the January 2001 issue), a word of caution. Of course you will be careful not to drill the holes too deep. But if you are tempted to then go that extra step and add epoxy to the screw holes during the final assembly, just to be sure those screws *never* come out in a seaway — don't. Turns out that the epoxy might not have anywhere to go and that the screw might just hydraulically force the epoxy right out through the top side of the seat that you have been so careful not to mess up. And how might I know this? Let's just say this past weekend at the boatyard could have been better.

Steve Christensen
Midland, Mich.

Smith & Co. products

Several people called wondering how to contact Smith & Co. to get that "five-year solution" for dealing with teak mentioned in the Cheoy Lee Offshore 40 article in the May 2001 issue. Call 800-234-0330 or visit: <http://www.smithandcompany.org> and tell Steve Smith we sent you!

Keep it straight

The fine article on tenders (March 2001 issue) is followed by Ted Brewer's excellent article on fore-and-aft rigs. Therefore, I feel that I should point out that the Chesapeake Light Craft pram is a lug rig, not a gaff rig. A lug rig, like its cousin the junk rig, does have a yard at the mastpeak, but that is the only similarity to the gaff rig. The lug has a single halyard (attached to the yard). The gaff rig has two halyards, one for the luff of the sail and one for the yard. The gaff sail is attached to the mast by rings or mast track; the lug rig is attached to the boom and yard only. Thus the gaff rig is only on one side of the mast, while the lug rig projects on both sides of the mast (great for downwind!). Just a fine point in this sloop-dominated pastime.

Doug Cameron
Sewanee, Tenn.

Thanks to Bill

Once again we get another excellent article from Bill Sandifer, this one titled "Stemming the Flow" on through-hulls, seacocks, hoses, and hose clamps (September 2000). Last spring I did much of what Bill recommended on our 1981 Panda 40. The through-hulls and seacocks were in pretty good shape, not the horrible messes that were presented in the article, and I did it largely as a precautionary measure, given the age of our boat. I have a few comments based on my experience.

First, I used the Forespar Marelon combination through-hull/seacocks (which must be used as a pair) and during my preliminary research discovered conflicting opinions regarding whether or not any maintenance is needed. So I talked to Forespar and found that the older versions do indeed require periodic lubrication as mentioned by Bill, but the newer ones I installed do not. They only require exercising at least once a month. Notice that I used the word "require." The Forespar engineer I talked to was very adamant on this.

This brings up my second comment, namely that all seacocks on any boat, of any type or age, should be periodically opened and closed, regardless of what position they are left in. I have three massive bronze seacocks on cockpit drain and bilge pump through-hulls that are frozen open; in other words completely useless. I've tried all sorts of techniques to free them, but none have worked *(see Page 58 on this subject)*.

My third comment is about the use of 5200 adhesive to install the through-hulls. I used it also and agree with Bill. The assurance that I have used something so incredibly powerful helps me sleep at night. Furthermore, the fitting can still be removed if, for some obscure reason, it ever needs to be. 5200 may be one super-tough adhesive, but it can always be cut. I know. I've had to do it.

My last comment concerns the use of double hose clamps on all below-water connections. An excellent idea, but it's too bad many of the manufacturers of the things we're trying to clamp hoses to haven't heard it! From what I have been able to glean, the recommended placement is a clamp width in from the end of the barb and a hose and a half to a full clamp width in between. In other words, ideally you need a barb almost 5 clamp widths long. I'm sure far less than half of the new things I installed had barbs that met this requirement. Some only have room for one clamp, period. But most are in between: you can get two on, but only by having their edges uncomfortably close to each other and/or the ends of the hose and barb. In several of these in-between cases, I elected to put on only a single clamp on the theory that a single, well-placed clamp is better than two dubiously-placed ones. I always use the more expensive 316 unperforated clamps that Bill mentioned, so this helps to justify the use of only one. Does Bill have any comments on this not-uncommon dilemma that I am sure most of us have faced?

Steven Hodge
Auburn, Wash.

Bill responds

I agree that the barbs on most fittings are too short for two clamps properly spaced. You're doing the only possible thing. The purpose of a second hose clamp is to provide backup in case the first fails. It is often impossible to have enough room for two properly spaced hose clamps. The preferable way around the problem is to use a single non-perforated 316 stainless steel clamp and routinely check it. (This should ***not*** *be something from the auto parts store or Wal-Mart!) This way you can see if it is corroding or leaking. Use a dental mirror to inspect the back of any clamp you can't see behind. A person who knowingly uses only one clamp is more likely to be diligent about checking that clamp than a person who puts two on and never checks them, figuring on having a backup.*

Bill Sandifer
Diamondhead, Miss.

Continued on 72

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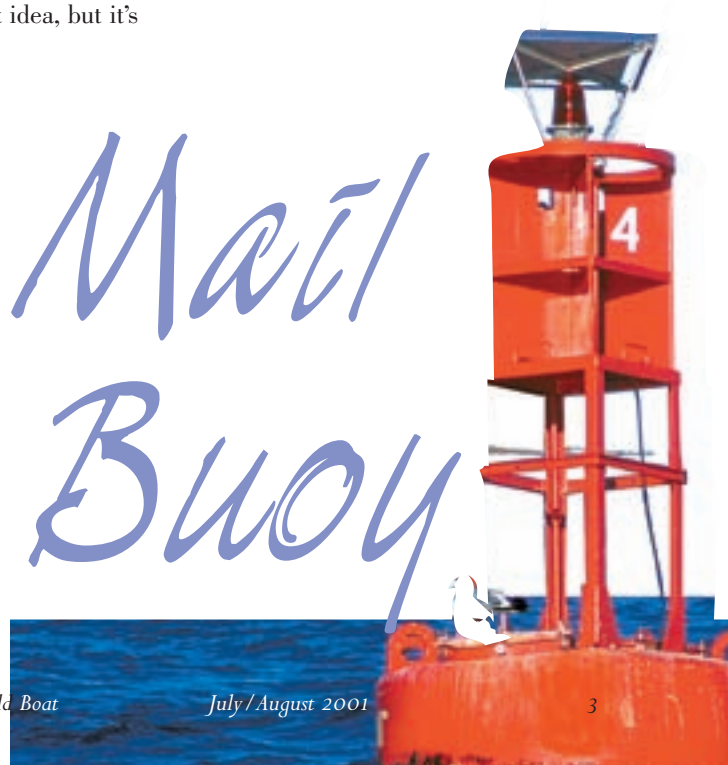
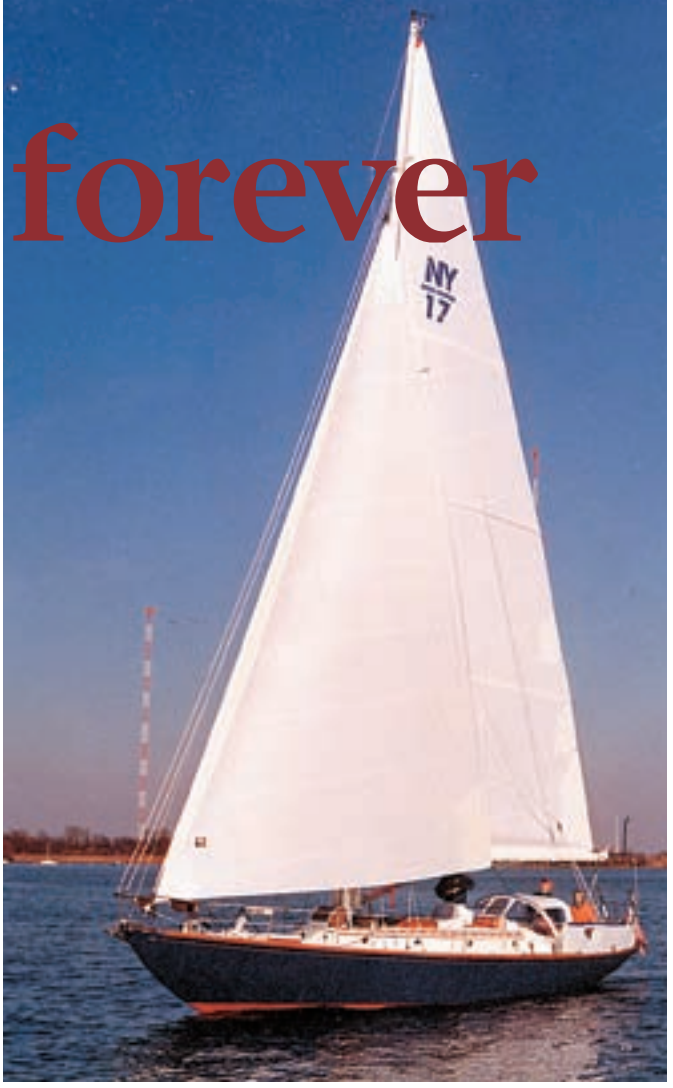


Mustang forever

Modern technology brings new life to a wooden classic



by Brian and Christine King

"Well, fiberglass it, then!" These were unexpected words from the late Rod Stephens, Jr. We were discussing *Mustang's* deck and cabintop leaks and the risk of rot these created. This apparently casual conversation initiated a renovation project that ultimately lasted for more than a decade. *Mustang* is a New York 32 designed by Sparkman & Stephens and built by Nevins in 1936. Launched as *Revonoc* for Harvey Conover, she was one of 20 New York 32s commissioned for members of the New York Yacht Club. Built at a cost of $11,000 each, they replaced the slightly smaller Nathaniel Herreshoff-designed "Thirties" that had been the club's class boat for many years.

Designed as an all-weather offshore racing cruiser, the New York 32 proved to be one of Sparkman & Stephens most successful designs. They measure 45 feet 4 inches overall with a 32-foot waterline, a beam of 10 feet 7 inches, a draft of 6-feet 6 inches, and a working sail area of 950 square feet. More than 60 years later, there are at least 16 NY32s in commission. This is a fitting tribute to its design and to the quality of materials and workmanship that went into each boat.

Having participated in the design, and sailed 32s in many races and cruises, Rod Stephens was delighted to acquire *Revonoc* from Harvey Conover in 1946. He renamed the yacht *Mustang*, ignoring the myth that renaming a boat brings the new owner bad luck. For 23 years he and his family, supported by many now-nostalgic crewmembers, raced and cruised her extensively.

Years of fun

In the spring of 1969, Rod sold *Mustang* to W. Marlon Dickerson, who was commodore of the New York Yacht Club at the time. Unfortunately, he died aboard *Mustang* later that summer. *Mustang* was then sold again, this time to a Philadelphia doctor from whom we purchased her in 1973.

Our early years of ownership were fun times. *Mustang* was in excellent condition and required little maintenance. With our three young sons, we cruised our home waters of the Chesapeake Bay extensively. As the years passed, we realized that we not only owned a comfortable and safe yacht, but had also incurred the responsibility of caring for a classic piece of American yachting history. While cruising, a day seldom passed without our being asked, "Is that Rod Stephens' old *Mustang*?" We also became accustomed to the statement, "She still looks as good as when I raced (or cruised) aboard her with Rod."

By 1981 our sons and their friends had grown beyond spending weekends and holidays with us aboard *Mustang*. We agreed that she would eventually become our retirement cruising home. Thus, instead of selling her, we committed to an extensive renovation program of improvements and upgrades to prepare her for extensive cruising.

One of our first concerns was to rectify the annoying leaks in the canvas-covered deck and cabintop. Rod had stated categorically in an article he had written about *Mustang*: "Water below decks is inexcusable. It dampens everything, including the spirits of all aboard." So with this in mind, we called him for advice. He replied promptly and definitely: "If you want a permanent cure to the leaking deck and cabintop problem, fiberglass them. Just make sure you do a proper job!"

Astounded

We were astounded that Rod would suggest such a blasphemous thing. After careful consideration though, we realized he was right. With proper materials and careful workmanship, we could permanently resolve this problem. Despite the many expressions of "doom and gloom" by dockside experts, we prepared to fiberglass *Mustang's* entire deck, cabintop, and cockpit. Removing all the old canvas and deck fittings, including stanchion bases and toerails, before fiberglassing was not easy but with some help from family and friends we had the job completed within six months. The results, after more than 16 years, are still very gratifying. No deck leaks, wet cushions, or bedding. Rod was right. Not only

had we cured the leak problem, but also the spirits of all aboard were "undampened."

Following completion of the deck-sealing project, we took an extended cruise aboard *Mustang*. In November 1982, we left the Chesapeake Bay for a leisurely and enjoyable cruise to the Florida Keys, Dry Tortugas, and throughout much of the Bahamas. During these nine months of living and sailing aboard *Mustang*, our faith and trust in our "cruising home" was fully justified. She felt like an old slipper, perhaps a little worn, but totally friendly and comfortable. Now we could accurately identify the additional improvements and upgrades necessary to fulfill our ultimate ambition of "sailing off into the sunset" in a well-found, safe, and comfortable boat.

Improvement list

The initial list of improvements was extensive. Top priorities were:

1. Eliminate the old fastenings and ensure a hull that would safely withstand the most severe weather conditions during extended cruising.
2. Repair or replace the original wooden mast and boom. Concurrently, replace all standing rigging and old sails, some of which were more than 30 years old.
3. Replace the old Gray Marine gasoline engine with a more powerful and reliable diesel engine.
4. Install a cockpit dodger for protection against wind and spray.
5. Modify the below-decks accommodations to better suit a liveaboard cruising couple, rather than a crew of seven. Included in this renovation would be the conversion of an old icebox to a refrigerator.

These priorities represented only a few of the hundreds of tasks we set for ourselves. Our equipment requirements list would bring smiles to many marine storeowners. However, none of our renovation and upgrade plans would make any sense unless we could accomplish our main goal of a completely secure and low-maintenance hull.

We were fairly confident that the original 1 ¼-inch Philippine mahogany planking on 1 ⅝-inch white oak frames at 8-inch centers was sound. But the need for frequent attention to garboard strakes and butt block joints indicated that fastenings needed replacing. We also had an undetermined number of cracked frames. These circumstances would not make for long-term, worry-free cruising. A safe and secure hull was our number-one priority. We had several ideas of how this might be accomplished. But whatever we did had to be within our limited financial resources, which meant that we must be able to do the physical work ourselves. Besides, we wanted the satisfaction of doing the job ourselves and knowing that it had been done properly.

Alternatives

We evaluated these alternatives:

1. Renovate the hull in the traditional manner. This would entail a lot of work including dealing with cracked frames, probably by sistering these. Before setting off on our first extended cruise to the Bahamas we had replaced several planks at the waterline. This project required sistering four or five cracked frames. A very experienced ship's carpenter did most of the work, and we saw just how much skill, as well as the many special

At top, old fastenings meant frequent attention to seams below the waterline. By the time the entire hull was stripped, center photo, the Kings had been working for six months, devoting all weekends, holidays, and vacation days to* Mustang. *At that point, they had begun to understand the immensity of the project. At bottom, seams were cleaned and filled with thickened epoxy.

All through-hull and other hull fittings were removed, above. Many were sawn out when 50-year-old bronze screws refused to budge. These holes were plugged and backed. At bottom, the first veneers were positioned at a 45-degree angle to the hull. Temporary staples held the veneers in position while they were marked for splining. Trimming to these marks would ensure a matching fit without overlapping or leaving gaps.

tools, this work required. Refastening and any required replanking would be a long, difficult, and expensive process, and we doubted whether it would provide a viable, long-term solution to our objective of providing a maximum-strength, low-maintenance hull for *Mustang*.

2. Fiberglass over the old hull. An excellent book by Allen Vaites told us that this had been done on many types of hulls with apparently good results. Allen advocated multiple layers of fiberglass cloth embedded in polyester resin, with the resultant sheath being mechanically fastened to the old hull. We concluded that this process, while basically sound, had been outdated by newer techniques and more sophisticated resins.

3. Sheath the hull with an epoxy-embedded cold molding of wood veneer. This cold molding construction method had proven to be immensely strong and comparatively light for new hulls. We knew that good results had been obtained by "do-it-yourself amateurs" and concluded that the same principle, applied to *Mustang*, would strengthen the hull and provide a durable and practically maintenance-free finish.

Ultimately, we decided to combine all the above alternatives: refasten the old planking, cold mold a sheath over the old hull, mechanically fasten the sheath to the old hull, and fiberglass the entire hull. By our estimation, six months of spare-time labor and $10,000 would accomplish the sheathing project.

The project begins

Heeding Rod's earlier advice about doing the job "properly," we committed to the project, which was to involve 11 phases:

1. Strip off all the old paint and inspect the hull for rot. We were able to deal with the topsides while *Mustang* was still in the water. As the stripping process advanced and the exposed wood dried, we saturated it with epoxy. After we completed the topsides, we had *Mustang* hauled and blocked so that we could continue the stripping process on the bottom. Grinding off the old bottom paint was laborious and hazardous. We wore protective clothing including mask, goggles, and gloves for this and many other phases of the renovation process.

2. Allow the old hull to dry. Extensive reading of relevant literature told us that the moisture content of the hull would need to be reduced to 12 to 14 percent before the sheathing process could begin. Drying the hull inside a custom-fabricated shed took three months. The amount of water yielded from the old wood was incredible. We eventually found this to be equal to the total weight of all new materials added to the hull. In drying, the planks shrank and left wide-open seams from which all the old filling compound could be easily removed.

3. Refasten the old planks. To stiffen up the hull and ensure its long-term integrity, we reinforced the old fastenings by driving more than 2,000 2½-inch stainless steel screws through the original planking and into the oak frames. In effect, we used one new stainless steel screw for each two of the old bronze fastenings. Results were impressive. The hull became more rigid and stiffer than it had been since being built more than 50 years earlier.

4. Remove all the old through-hull fittings. We removed the through-hull fittings, including the stuffing box and shaft strut. Then we plugged and backed the holes to ensure that hull strength was not compromised. Cleaning, inspecting, and overhauling the old fittings for

their reinstallation became a "spare time" job.

5. Seal the old planking and provide a fair surface. We began by filling the seams and screw holes with a thickened mixture of epoxy, followed by careful coarse sanding. This gave the hull a fair surface. Repeated applications of epoxy diluted with acetone ensured that the now dry planking was saturated with a complete exterior moisture barrier. This provided a sound foundation for our cold-molding process.

6. Obtain and prepare the veneers for layup. After calculating the amount of veneer required to provide three layers over the entire hull, including a 20-percent allowance for trimming waste and spoilage, we committed to the shipment of ⅛-inch mahogany veneer from an Oregon supplier. We learned that this would be delivered in random widths and lengths. With five or six different dimensions to choose from, careful sorting enabled us to utilize the veneers most economically and effectively. Wide, long pieces were allocated to midships sections, with shorter narrower pieces being reserved for the ends of the hull.

All of the veneers required edge trimming to assure at least one straight side. After trimming, individual veneer strips were positioned at 45 degrees to the hull planking and temporarily held in position by staples. To facilitate their removal, we "tacked" these staples, leaving their heads exposed. As successive veneers were positioned, each was marked for required shaping or splining to secure a snug fit to the preceding veneer. Many veneers required multiple markings and splinings before a satisfactory fit could be achieved.

7. Begin the layup of veneers. After splining and clearly identifying each strip's position, the veneers were removed from their temporary fastenings and coated on both sides with epoxy. Using a serrated trowel of the kind used with tile adhesive, we applied a thickened mixture of epoxy to the hull. This resulted in an adhesive base with the consistency of thick cream, into which the veneer would be embedded. Using ¾-inch galvanized staples fired from a pneumatic gun, we forced the veneers to conform to the complex contours of the hull.

This stapling process guaranteed a close bond of the veneers to the epoxy-coated hull and eliminated any voids or air pockets under the veneers. It was important to take care to shoot the staples perfectly. Too little pressure left the staple heads protruding to be ground off during the fairing process; too much pressure forced the staple through the veneer, eliminating its vital fastening function.

Of equal importance was the consistency and volume of the thickened epoxy applied to the hull. Too thin a consistency or insufficient volume resulted in air pockets and a weak bond; too thick a consistency or volume produced an uneven surface that was difficult to grind fair without cutting through the thin veneers.

The veneers extended from deck level down over the lead keel to which they were again attached with epoxy adhesive and staples. After completing the first layer, we filled the gaps and coarse-sanded the hull. The first layer of veneers was followed by a second, applied at 90 degrees to the preceding layer. The third and final layer followed these, which below the waterline were again positioned at 90 degrees to the preceding layer. Above the waterline veneers were laid up "fore and aft" to ensure that if any eventual "show through" occurred, *Mustang* would still maintain a traditional "planked" appearance.

8. Mechanically fasten the new sheathing to the old hull. With the combination of epoxy and ¾-inch galvanized staples, we felt confident that the new hull was securely bonded to the old hull. However, we ensured this by driving approximately 5,000 1¼-inch stainless steel ring nails through the triple veneer sheath into the original planking. After nailing, we filled and faired the hull in preparation for the next phase.

9. Ensure complete watertight integrity of the cold-molded hull. The long-term integrity of the cold-molded sheath depended on eliminating the risk of moisture penetration. This moisture invasion

The Kings sanded the surface smooth, at top, before applying the second layer of veneers. These were positioned at 90 degrees to the first layer. Those in the third layer (above the waterline) were positioned horizontally. They laid one layer of fiberglass above the waterline, two below the waterline, three from the turn of the bilge, and four around the forefoot and keel.

would not occur under normal circumstances. However, a major grounding or collision could expose the wood veneer, potentially creating a major problem. We decided to eliminate this by fiberglassing the entire hull with 25-ounce biaxial mat/roving fiberglass material, one layer of material above the waterline, two below the waterline, with yet a third at the turn of the bilge. With each layer wrapped completely under the hull and brought up several feet on the opposite side, we had six layers of material under the forefoot and transom. Additional layers applied under and around the keel area provided extra strength and protection in this area. *Mustang* was now an icebreaker!

10. The finishing process begins. Fairing the hull required endless days of filling and sanding. There seemed to be no end to this, and it was often difficult to maintain a positive attitude toward the task. After many weeks, we finally felt close to having the hull smooth and fair enough to start applying and sanding coat after coat of priming/filling paint.

11. Final details are important. Although the actual sheathing process was now largely complete, there were countless final details requiring our attention. The major ones included sealing the rudder shaft tube, which passed through the wooden rudderpost; repairing the rudder, which had rotted; reinstalling the original, now overhauled, through-hull fittings; repositioning the shaft strut to allow for the thicker hull dimension; installing new through-hull transducers for our upgraded depth and speed instruments; installing a rubrail; tightening the keel-bolt nuts; and sealing the inside of the hull with epoxy.

12. Strive for a proper yacht finish to the new hull. Preparing the topsides of the new hull for a final custom-color coat of Awlgrip paint became another major phase of the project. Every time we thought we had a blemish-free primer base, we would discover minor, but noticeable defects requiring attention. Finally, we were satisfied and enlisted the boatyard experts to apply the Awlgrip topcoat and a final ultraviolet clear coating.

At last we could stand back and admire *Mustang's* shape, finish and, above all, the strong, enduring hull that we had created. Worth it? In our minds, an unequivocal "Yes." However, in our opinion, the cost, time, and efforts of cold molding and sheathing the hull of an older wooden vessel can be justified only on an emotional, rather than an economical, basis. We certainly do not advocate the sheathing of an old wooden hull as being a "quick-fix" solution.

Even though we performed 95 percent of the work ourselves, the costs were high. Our first estimate of cost proved to be 50 percent low, with tools, materials, and related expenses alone totaling approximately $20,000. Our time estimate was even more inaccurate. Six months became 20 months, but this included many additional tasks that had not been included in our initial project planning. During those 20 months we estimate that, between us, we spent some 3,500 hours working on the project. Perhaps a competent boatyard would have done the job in less time. But would it have been done so well? Even if it had, the project cost could have easily exceeded $100,000.

For us it was a long, often tedious, but always deeply satisfying project. We are proud of our "new" *Mustang* and know that she will bring us safely to any port of our choice.

Brian and Christine moved their family of five to the U.S. from England in 1968. They shipped Spica*, a 50-foot Van DeStadt wooden cutter as part of the move. A back injury caused the sale of that boat. As Brian was recovering, the Kings saw and fell in love with* Mustang*. They spent a year in the Bahamas in 1983, began the restoration explained here, and have since sailed 5,000 miles between Maine and Guatemala.*

Glassing *Mustang*

Fiberglassing continues, top facing page. The Kings used 25-oz coaxial mat/roving for strength, impact resistance, and watertight integrity. Full lengths of fiberglass were held temporarily with wooden battens. Through-hulls were replaced in locations different from their original positions. The shaft strut, center facing page, was a real challenge, as positioning it was critical to aligning the shaft to the engine. There was bad news with the rudder, center facing page: the original wood had rotted under a fiberglass sheath applied years before. Bottom facing page, Christine and Brian enjoy the rewards. This page above, after removing the shed which had been* Mustang's *home for two years, the Kings were able to admire their work. Her hull was now stronger than when she was launched more than 50 years earlier.

Should you consider doing this work to a wooden boat? A 1996 editorial in a sailing magazine I rather like, spoke favorably of the sheathing and glassing of *Mustang's* hull and drew a lot of fire for it. The criticisms were philosophical, emotional, and technical. So were the remarks in support of the work.

It is fortunate that we live in a time and place where the maintenance and repair of pleasure boats is not highly regulated. Without regulation, the range of quality in the work will be wider, and the methods and materials employed will be more numerous. All this allows more room for innovation, but at the price of a wider range of quality in the outcome. Good.

Along with the manuscript for this article, the Kings sent copies of many letters responding to the 1996 editorial. At one end of the philosophical and emotional spectrum were persons who thought that a traditional plank-on-frame wooden boat should only be repaired using traditional methods. They offered philosophical, emotional, and technical reasons for their position. Their bias toward traditional plank-on-frame wooden boats was clear. At the other end of the spectrum were those who would consider any method of boat construction or repair using any materials that could be effective. Their philosophical, emotional, and technical reasoning tended to be quite different.

External to the *Mustang* controversy, and in a more general case, is the same spectrum of attitudes. There are those who only fix boats because they want to go sailing. This issue is all about biases so I must inform you, Dear Reader, that your technical editor is one of those. I begrudge no one, purist or pragmatist, that position. Indeed, in reviewing the comments this controversial modification evoked, some of the plank-on-frame advocates asserted that traditional repair is, in fact, the most pragmatic repair. Also, while I claim that I only fix boats to sail in them, I must acknowledge that without the emotional and philosophical content, there is little point in sailing at all.

The technical aspects of this modification will be confusing unless you clearly state the goal of the work. Even then it is critical to remember that a traditional plank-on-frame boat is only watertight because its planking is swollen with water. In contrast, the kind of modification made to *Mustang* will only work if all the wood planking and sheathing is kept dry. This contrast in technique and method makes it difficult for the two groups of advocates to find common ground.

by Jerry Powlas

This was not a restoration in the strictest sense. The boat is now different. It was, instead, a modification thoughtfully chosen by the owners of the boat to keep her in service. They chose to do much of the work themselves and probably chose methods they were comfortable using. Their sweat, their boat, their choice. They have taken some heat for their choice, but they can handle it. Will it work? Will it produce a functional boat that sails well and pleases those who sail in her? So far, yes. It is difficult to argue with the seven years of liveaboard cruising the Kings have enjoyed since this modification was made. Brian writes: "The bilges are sweet; there is no sign of rot; and the hull is as fair as when we completed the restoration.

I asked a naval architect, whom I respect, what he thought of the process. He said it made sense to him. I said I didn't think they needed to nail the sheathing to the planking. He said it probably was an OK thing to do. I asked about their choice of metals for the fasteners and the possibility that the original bronze fasteners, new stainless screws and ring nails, and the galvanized staples would form an electrolytic cell, and he said the sheathing has to keep the wood dry or that might be a problem.

So in the end it goes back to some fundamentals in the relationship between mankind and boats. Throughout most of the history we know of, man has built boats using local methods and local materials. The real validity of these traditional designs was that they were built "to a price" in terms of valuable labor and precious materials "to do a job." Designs and methods evolved against these tough criteria. Better solutions were adopted as they were discovered. The process may have been slow but it was not static. Still, for all that, the fundamental problem is to keep the water out of the boat.

Jerry is Good Old Boat *technical editor.*

In search of shoal draft

Solutions to the problem of sailing in thin water

by Ted Brewer

One answer to obtaining both shoal draft and good sailing performance is the centerboard, and boards have been fitted to every type of yacht, from dinghies to workboats to ocean racers. Like modern fins, the centerboard comes in all types: long shoal boards such as those fitted in sharpies; deep narrow boards; slab-sided boards; streamlined boards; daggerboards; ballasted boards; and twin centerboards. They've all been tried. Even the drop keel, seen on many trailersailers, is simply a heavy, shaped centerboard and, usually, a high-aspect-ratio type for better windward ability.

The efficiency of a board, like that of the fin, depends on its aspect ratio and shape. Streamlined, high-aspect-ratio boards provide the most lift and least resistance for their area and are the choice when maximum performance is required. Slab-sided boards, whether of wood or metal, are simpler and less costly but not as efficient for their area, although probably the majority of centerboards are of this type. Long, shallow boards lose efficiency due to their low-aspect ratio but, again, there are reasons for using them. They create less strain on the centerboard trunk and can usually be operated with simpler mechanisms than the high-aspect type.

The centerboard has always posed maintenance problems, particularly for larger craft that remain afloat and not on a trailer. It is difficult to paint the board, as the boat has to be raised with slings. Even then you cannot get at the part of the board that remains inside the trunk, where all the barnacles grow. The inside of the trunk is even harder to paint so on a steel boat there is the danger of rust, and on a wood boat there is the danger of worm damage or (in fresh water) rot. It can wind up being a continual source of weeping and minor leaks and may require major repairs eventually.

A few larger yachts have ballasted boards that add to stability when lowered, but they require mechanical or hydraulic means to get them up and down. High-aspect-ratio centerboards create another problem, particularly if they are streamlined and moderately thick. That is the drag of the big open slot when the board is lowered.

Racers have tried to close this off with neoprene strips and other systems, but it still adds up to one more nuisance and expense.

Another obvious problem of the centerboard is that it can be jammed in place by rocks or clay if you go aground, and boards can be bent by a grounding so they won't retract. They may even be broken off completely. This happened to one of my 42s in the western Pacific on an around-the-world cruise. The owner, a Mr. Brewer (no relation) simply completed his circumnavigation sans centerboard! The daggerboard is even more fragile, and in a hard grounding the case may be damaged so severely that the vessel is endangered.

The centerboard does have its drawbacks, but these can be partly overcome with intelligent design. Look for a positive stop, so the board cannot swing wildly at sea if the pendant breaks, along with generally sturdy construction of the board, the pin, the trunk and, indeed, every part of the assembly. A pendant that can be inspected and easily replaced (even when afloat) is desirable. The pivot pin should be a stout one and replaceable without major surgery; and a board that can be removed without having to lift the boat or dig a deep hole, can be an advantage. On larger yachts the board, or the trunk, should have rubber "bumpers" to keep the board from banging back and forth when running or in harbor. It's difficult to get all these features in any one design, but the more the merrier.

Twin centerboards have been used on a few designs. This usually consists of a large board in the normal position or slightly forward of that and a smaller board aft. The combination can work well as the smaller board is used to balance various rig combinations or by itself when running free to provide good directional stability. Needless to say, the conflict between an aft centerboard trunk and a centerline propeller shaft can pose its own design problems, as I once found to my dismay.

A point to note if you are ever caught out in a squall in a small centerboarder: when you lower the board you increase the distance between the center of sail effort and the center of lateral resistance. This increases the heeling moment, yet an unballasted board adds little or no stability. So unless you absolutely have to beat to weather, reef down and raise the board to reduce the heeling moment as much as possible. You'll make more leeway, but you'll be safer.

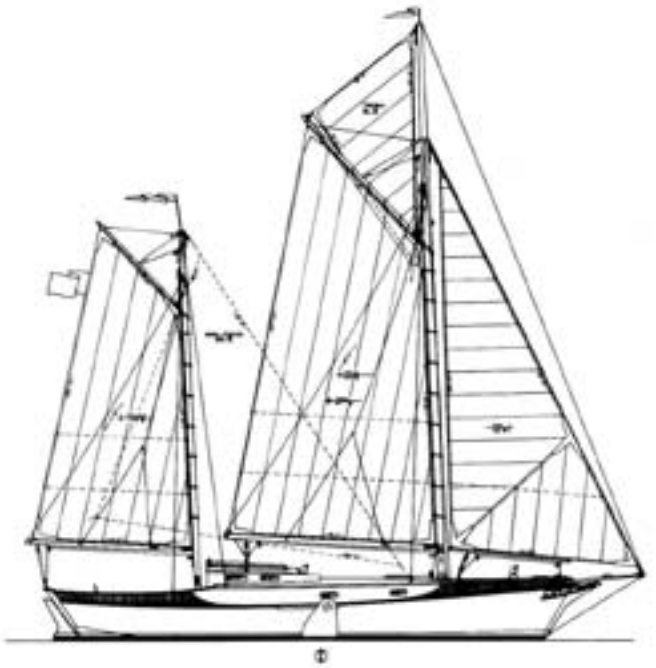
Leeboards

A simple way to eliminate the headaches of the centerboard is to use leeboards. These have never been popular in North America but have long been used in Holland. L.-Francis Herreshoff's *Meadowlark* is one of the few U.S. leeboard designs to achieve popularity, and Phil Bolger is the only American designer who has used leeboards to any great extent. I've only designed one leeboard yacht, the 34-foot sharpie, *Centennial*, but the original owners still have her after 20 years so there must be some merit to them. In any case, I do believe that leeboards warrant attention as they have their own advantages.

The initial cost is low compared to a centerboard and trunk; there is no trunk to leak or jam; maintenance is simple; the pendant can be inspected and replaced easily; and there is no trunk to break up the interior of the cabin. Performance does not suffer greatly either if the leeboards and their mountings are well designed, as the boat doesn't care if its board is on the centerline or on the side. There may be a small loss in efficiency due to ventilation, but some boards are angled out 10 degrees or so from the vertical and thus may improve in efficiency as the boat heels. The well-designed leeboard is one that is asymmetrical with a flat side outboard and the streamlined shape on the inboard side, thus adding lift. They can be toed in a few degrees to increase the angle of attack; this also improves efficiency.

In shape, leeboards can be of fairly high-aspect ratio for efficiency or, like those shown on the Dutch Boeier yachts in the September 2000 issue of *Good Old Boat*, wide and fan-shaped for minimal draft, even with the board down.

So, why are so many shoal-draft North American yachts centerboarders instead of leeboarders? The answer is simple: aesthetics! The leeboard breaks up the clean lines of the yacht and, unlike the Dutch, we have not become accustomed to seeing them for the past 300 years. Too, the boards should be shifted when the boat tacks, although many are designed so they can be left down in a pinch when on short tacks with a small crew. Still, shifting a leeboard when tacking has to be a breeze compared to tacking a 140- or 150-percent genoa, and many sailors do that routinely and think nothing of it.



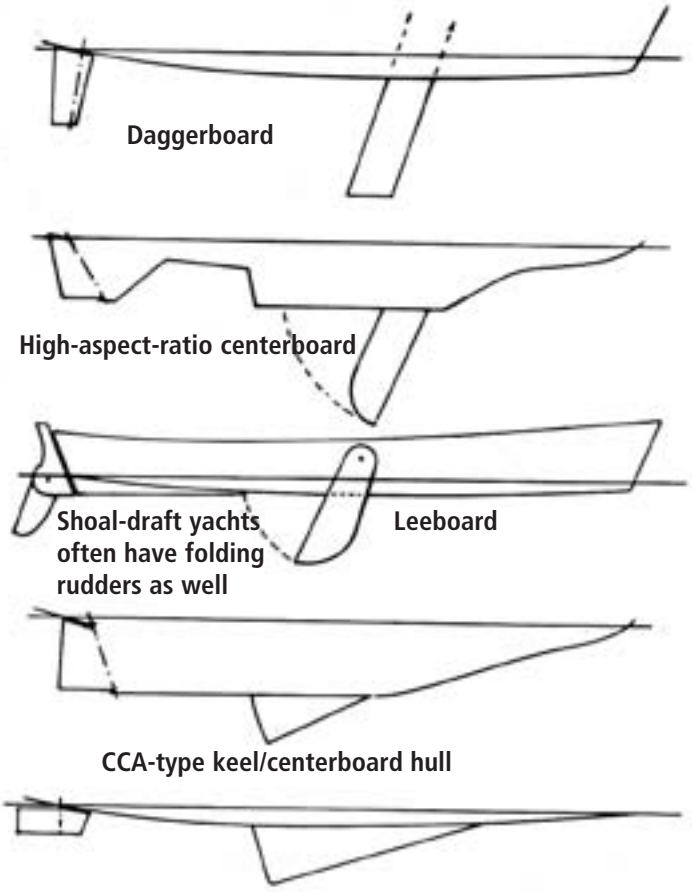
The 34-foot sharpie*, Centennial, *above, a leeboard yacht. On facing page*, Millenium Falcon, *a 60-foot three-masted schooner with bilge fins, glides beneath the Golden Gate Bridge. With the twin fins, she draws just 5 feet 9 inches.

Bilgeboards

Bilgeboards are simply leeboards fitted in two board trunks, one on each side of the centerline, usually forming

the face of the settee berths. They are high-aspect-ratio boards, generally asymmetrically shaped and fitted so that, when down, they are angled outboard at about a 15-degree angle. Because of their shape and angle, they can be very efficient indeed. However they have all the disadvantages of the centerboard when it comes to maintenance — double that because there are two of them.

Furthermore, bilge boards double the initial installation cost and, with that and their added maintenance, the advantages are not sufficient enough that they have ever become popular.



Centerboards and leeboards

Bilge fins

Bilge-fin sailing yachts represent another answer to the quest for shoal draft — one which has never caught on in North America and is not all that popular on the other side of the Atlantic either, particularly in the larger boats. *Bluebird of Thorne*, a 50-foot bilge-fin ketch, was designed by Arthur Robb in the 1950s, I believe. She was quite successful, made several Atlantic passages, was written up in all the yachting magazines of the time, and was reviewed in *The Proper Yacht*, a book by Arthur Beiser. Still, bilge fins failed to attract much interest from sailors. Except for a few small sailing craft, such as the 17- to 21-foot chine-hulled sloops imported from the UK in the late 1950s and, in later years, the larger Westerly yachts, bilge-fin craft have been rather rare in North America. Even rarer have been the bilge-fin craft built here.

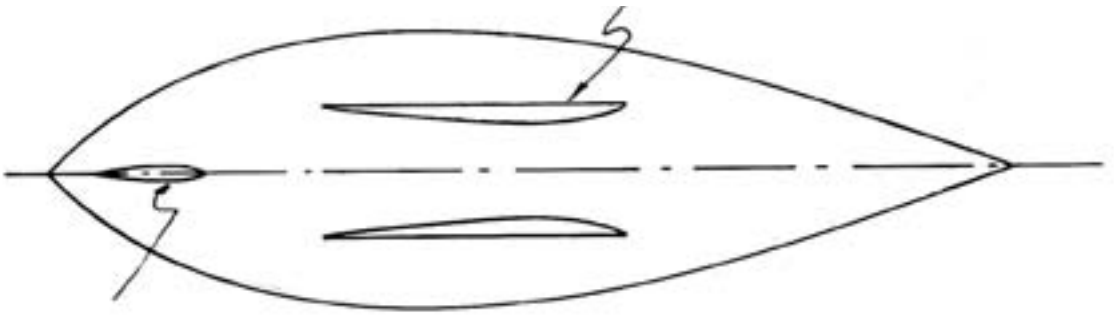
My work with bilge fins started in the mid 1980s with a husky 38-foot sloop. This design, almost a motorsailer, had to be seaworthy enough for bluewater passages yet with shoal draft for cruising the European canals. The owner preferred bilge fins to the complexity of a centerboard and also wanted the benefit of remaining upright when drying out at low tide. But when I began to research bilge fins for the project, I found that information was sadly lacking except for the little in Beiser's sketchy writeup on *Bluebird*. I had no choice but to start from scratch.

The 38 had a shoal, ballasted, central keel as well as the bilge fins and, for some reason, it occurred to me that the fins should be asymmetrical, absolutely flat on the outside and shaped on the inside, like an airplane's wing, quite unlike any other fins I had seen. The results both surprised and pleased me. The yacht sailed better than I had dared hope: pointing nicely, tacking positively, making reasonable leeway and having surprisingly good speed even in light air. Armed with this happy result, I began to take a more serious look at bilge fins and their several advantages.

Then a client came to me for a shoal-draft 60 footer, and I talked him into bilge fins using, basically, the following arguments:

1. The bilge-fin yacht can have the same shoal draft as a centerboarder but avoids the problems inherent in centerboards. The difficult job of painting the board and inside the board trunk is eliminated. There are no more

Fins are flat on outboard side, shaped on inboard side.



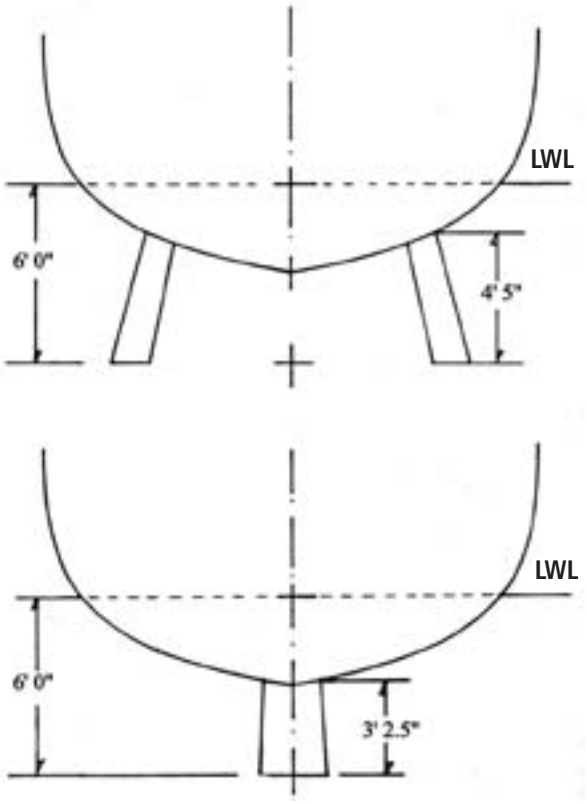
Rudder foil is symmetrical, of course.

Twin-fin hull with asymmetrical fins

broken pendants and no sleepless nights with the board banging back and forth inside the trunk.

2. The boat can dry out on her bilge fins and take the ground in a level position. In tidal waters this allows the skipper to clean and even paint the bottom and is a big advantage in some areas of Europe where it is common for moored boats to dry out at low tide. The fins eliminate the need for an expensive cradle for haulout and can also simplify shipping.

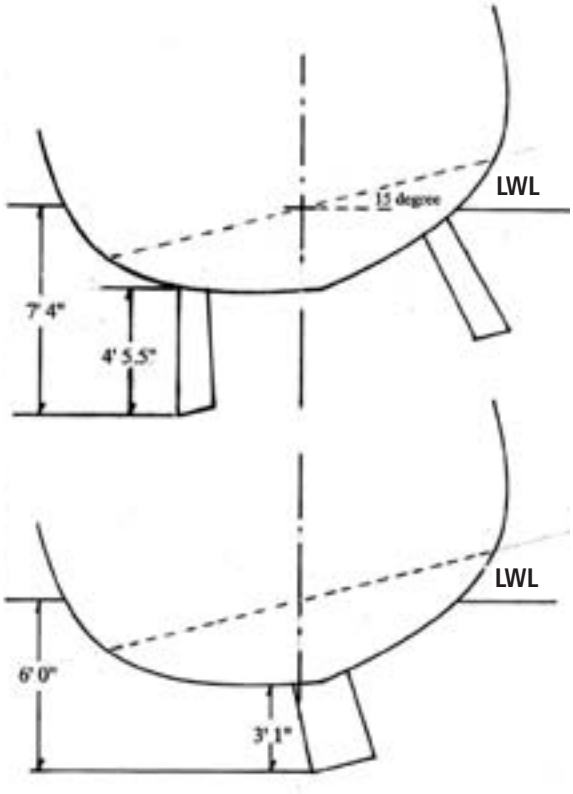
3. There is no loss of stability as the center of gravity of a bilge-fin yacht is about the same as that of a keel-centerboarder or single-fin hull of equal draft. In a serious knockdown the stability actually increases the moment the weather fin clears the water as the heeled center of buoyancy will then shift slightly to leeward.



4. On a normal moderate-displacement yacht, the bilge fin can be more efficient than a shoal-draft single fin. The drawings on this page show both bilge- and single-fin hulls of 6-foot draft. Note in the drawing below that the depth of the single fin below the hull is only 3 feet 1-inch while the bilge fin extends 4 feet 5½ inches. Obviously the latter is of higher aspect ratio for a given area and thus more efficient.

5. The draft increases with heel angle so, if you grounded under sail, you could reduce draft and get her off simply by letting go the sheets. The draft of a 6-foot bilge-fin yacht can increase to 7 feet 4 inches as she heels to 15 degrees. Of course, going aground under power is a no-no as you cannot reduce draft by heeling her. If you absolutely must go aground with a bilge-fin yacht, do it under sail!

6. Since bilge fins are angled outboard at about 15 degrees, the fin becomes more vertical when under sail and, obviously, more efficient in resisting leeway. Also, as pointed out earlier, the draft increases on the bilge-fin hull while the draft remains the same, or even decreases, on a single-fin hull. Modern wing keels on single-fin yachts can also increase the draft as the vessel heels but are far more fragile in a grounding. We could put wings on bilge fins, too, but I prefer a simple "foot plate" that extends outboard of the fin a few inches to reduce cross flow and vortices, with their resultant drag.



7. While the leeward fin is providing lift to reduce leeway, the weather fin is providing lift to increase stability and reduce heel angle. I'm certain this conflict increases resistance slightly, but I feel that the reduced heel angle increases the efficiency of the sails and may offset any added drag to a large degree.

8. Bilge-fin yachts appear to have excellent directional stability and are very steady on the helm. Surprisingly, they seem to steer better in reverse than a full-keel yacht.

The downside

All is not gravy, of course, and the twin fins have their disadvantages. The primary one is added wetted surface over a single-fin yacht of similar draft, about 15 percent more on one design I did. This is of major concern in a racing yacht, obviously, but not to a cruising skipper who is likely to start the engine when the breeze falters or raise a whopper of a light sail that would be "illegal" under the racing rules.

Construction can pose a problem also. The typical yacht has a central keel or reinforced centerline structure where it is in an ideal position to support a fin. With bilge fins it is necessary to fit hefty structural reinforcing outboard of the centerline, and this adds weight and cost.

In sum, the bilge-fin (or twin-fin) yacht has considerable merit and deserves full consideration by the serious cruising sailor. It may not be the perfect answer to the search for shoal draft, but it can provide good performance and, at the same time, eliminate the problems associated with centerboards. That's reason enough to think about a bilge-fin cruiser if you sail in areas where the water is thin.

Ted is one of North America's best-known yacht designers, having worked on the America's Cup boats American Eagle *and* Weatherly, *as well as boats that won the Olympics, the Gold Cup, and dozens of celebrated ocean races. He also is the man who designed scores of good old boats . . . the ones still sailing after all these years.*

Restoration relived

Fitting bronze

At top: Remove old fixed lights and grind a large bevel. The sharp edge of the bevel should be paper thin. Center: Cover Plexiglas with mold release and attach to outside of boat with tape. Paint gelcoat onto inside surface. At bottom: fiberglass in old opening.

After buying our old 1965 Alberg 30, Mary and I knew that part of the renovation program would be the replacement of the old fixed windows with operating bronze portlights. There were several reasons for this, and not the least was good evidence that the old windows leaked. The old Plexiglas was scratched, and someone had already replaced three of the small windows with bronze portlights. "Why only three?" we wondered. Mary and I also thought that the bronze portlights would give our old boat a "salty" look.

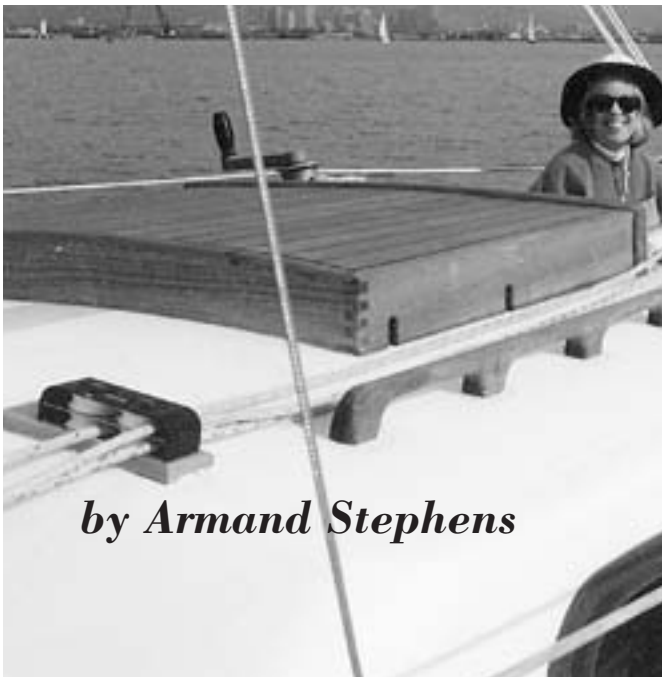
We ordered our portlights from Marine Depot in Chino, Calif. The small portlights cost $160 each, and the very large ones were $280 each. We had the portlights in hand before starting this project.

Removing the old fixed windows was easy and probably made easier because we were not trying to save any of the old window parts.

I have spent many hours working on my boat, and I can honestly say that I have enjoyed every minute of it *except* for the grinding of old fiberglass. I don't care what kind of dust mask, cap, or goggles you put on, a certain amount of ground up fiberglass will find "home" under your armpit or down your underwear! Let the itching begin.

Grinding a 3-inch bevel around the old windows was a nasty job using a body grinder with 36-grit sandpaper. Plexiglas was coated with paste wax and attached to the outside of the window opening, wax side facing in. We used duct tape to secure the Plexiglas. Then we mixed up gelcoat and brushed it onto the wax-coated Plexiglas. Next were three layers of fiberglass cloth and resin. Fiberglass mat was then used in alternate layers with the cloth.

This process continued until the old window opening was flush with the surrounding cabin wall. We used 80-grit sandpaper to even out the surface.



by Armand Stephens

portlights

Swap your old plastic windows for salty new ports

We removed the wax-coated Plexiglas and cut out new oval openings using a portable electric jigsaw.

We painted the inside of the cabin before installing the new portlights.

May you have good views and fresh air through your new portlights.

Armand is a retired schoolteacher (high school woodworking). Immediately after they retired, he and Mary bought a 1965 Alberg 30 and spent 10 months bringing Quest *to a better-than-new state. The Stephens have been sailing on San Francisco Bay for more than 30 years.*

Resources for ports

Beckson Marine, Plastic parts for ports, 203-333-1412, <http://www.beckson.com>

Bristol Bronze, Bronze port glass retainers (non-opening ports), 401-625-5224, <http://www.bristolbronze.com>

New Found Metals, Bronze and stainless steel ports, 888-437-5512, <http://www.newfoundmetals.com>

Rostand RI, Inc., Bronze opening ports 401-949-4268

Taylor Made Systems, Aluminum, stainless, and plastic opening ports and replacement parts, flat and curved tempered safety glass, 518-773-0636 <http://www.taylormarine.com>

At top: Fill in low spots with epoxy filler. Cut new opening with portable electric jigsaw. Center: Paint interior and drill bolt holes to secure new portlight. Caulk around the portlight and install portlight with bolts. At left and bottom: Go sailing and enjoy your new ports, which look as if they've always been there.

Plastic Classic

"Cows Week West" celebrates good old boats

by Karen Larson

Californians have long been informally acknowledged as the nation's trendsetters, and so it is only fitting that a full-scale celebration of good old boats should begin on the Left Coast. What began as a grumble in a bar in 1984 became the Plastic Classic — a regatta and concours d'élégance — the following year, and it continued to gain momentum in the ensuing years. This year's Plastic Classic on July 21 will draw San Francisco Bay sailors and others from neighboring states who will compete among their peers for racing and "beauty" honors.

But first a trip back in time to the Golden Gate Yacht Club bar, where a pair of sailors were lamenting the lack of respect for older boats — not woodies, but rather the sandwiched group that was designed prior to 1970 and built of fiberglass. These boats were no longer being invited to the officially sponsored racing events and the corresponding award banquets and parties. In 1984, the new racing fleets included the lighter-weight racers such as J24s, Moore 24s, and the Santa Cruz 27s.

Left out were John Super, an Islander Bahama sailor, and Don Waldear, a Gladiator sailor. John recalls, "We could think of several fleets of boats which were dead or dying. These fleets weren't being invited to the regattas anymore. So an idea was born." The two sailors agreed to start their own event, which became increasingly fantastic with each beer. It would be a regatta: one-designs, PHRF, spinnaker, non-spinnaker. It would include cruising boats, with awards for other achievements. It would use a celebrity to draw attention to the event. It would celebrate good old boats . . . a certain kind of good old boats . . . why not call them plastic classic boats?

Not too long after the hangover wore off, Don sold his Gladiator, but John went forward with gusto. He has maintained that initial momentum for 16 years of Plastic Classic events with a 17th soon to become history as well. That first event in 1985 set the tone for the decades that followed.

Carol Doda — a local topless go-go dancer who in 1964 did much to enhance her self-image as well as the future of plastic surgery — presided at the awards event. Prizes and hugs were handed out freely. Adult beverages flowed. The band played golden oldies. Protests were discouraged. Racing rules were informal. There was an Olympic awards theme with medals hung around the necks of winners who proudly stood on a multi-tiered beer case platform.

Over the years, members of the Bay View Boat Club, a laid-back organization, hosted the events and provided increasingly outlandish decorations for a platform situated 200 yards offshore. Known as Mark T, a small barge serves as the weather mark and, according to John, forms one side of the starting line. It also provides one side of the finish line for the course which must be rounded twice in order to complete the 10- to 12-mile race.

This mark has been decorated for years with cast-off plywood farm figures, primarily cows, relics salvaged from an area county fair. Painted in bright colors and wearing sunglasses (this is California, remember), these bovine statues have given the regatta a new subtitle: Cows Week West. Bawdy activities on this barge/mark involving varying levels of dress and undress, distract serious sailors, encourage the rest, and in general make light of the race.

Don't want to miss the party?

Contact the Bay View Boat Club after 5 p.m. Pacific time: 415-495-9500; call John Super: 415-243-0426; or email him: calnorth@pacbell.net.

John Super

The prettiest of the classics await judging at the dock, at left. The race is on, above.

Regatta

If all this seems a bit informal to the "real" racers among us, it should be pointed out that this event was a giant leap forward from sailboat racing as it had been previously defined by members of the Bay View Boat Club. Prior to hosting the Plastic Classic, these folks held beer can races that had no starting or finishing gun. Members sailed around a mark and back to the bar. First one back bought the beer for the rest.

These days, the race is a U.S. Sailing-sanctioned event. As few as two boats of the same design can get their own start, but generally fleets of as many as seven to 10 sister ships participate. Typical Plastic Classic participants — designed before 1970 and built of fiberglass — include Pearsons (Electras, Vanguards, Tritons, Ariels), Columbias (the 26 and the Challenger), Cals (20 and 34), Islander Bahamas, Gladiators, Rhodes 19s, Santana 22s, International Folkboats, Coronado 25s, Alberg 30s, Excaliburs, Quarter Tonners, Newport 30s, Chris-Craft Cherokees, and Thunderbirds. Thunderbirds? Fiberglass? While a plywood design, these boats qualify for the race and concours events because they're finished with glass cloth and resin.

Race events include starts for boats of the same design and two PHRF divisions (spinnaker and non-spinnaker). A trophy is awarded for the fastest boat of the day on PHRF-corrected time, and honors go to the top first through third places (depending upon the total number of boats racing) in the individual fleets.

Concours events include trophies for prettiest overall and for the boat owned by the same owner for the longest time. First-, second-, and third-place honors also go to the boats with the nicest interiors, the simplest single-handers, and the most "stock" boats (also known to some as the "Gee-you-haven't-spent-a-dime-on-your-boat-in-20-years award"). If you think the concours events are more straightforward than the wacky racing rules, consider this: these boats are judged by a team of wooden-boat owners (ostensibly so they will be impartial). And this: sailors whose boats are on display for judging "thoughtfully" leave wine-and-cheese snacks for the judges, who are likely to be overworked and in need of refreshment.

As the founder and powerhouse behind the organizational details, John Super is the guy who maintains the event's party atmosphere and who makes the rules. With the passage of time, of course, many of those boats previously racing as the "modern yachts," which once excluded the plastic classic boats, have now also been excluded as "older boats." They have certainly become good old boats by this magazine's definition of 10 years old and older. Will they be allowed to compete in the Plastic Classic events, we wondered?

"Once they've suffered enough, we might open the events to Hunters and others," John says with a grin. "They're the guys who wouldn't let us into their regattas."

Karen is editor of Good Old Boat.

Racers seem serious enough even while rounding the legendary Mark T, center photo. But wait! Isn't that a pink flamingo on the stern of the boat pictured at bottom?

Time out!

Coordinated universal time and the mystery of the vanishing 13 seconds

by Roy Kiesling

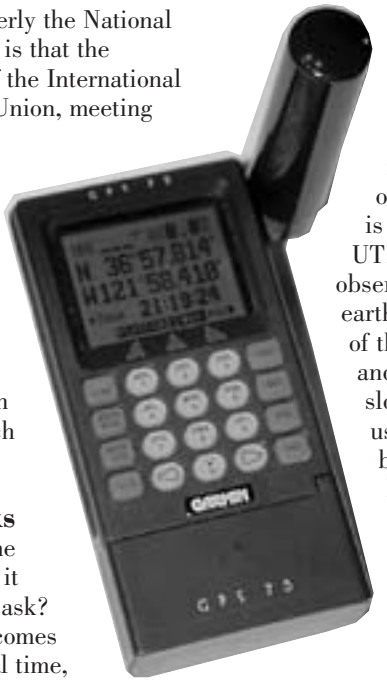
The biggest disappointment of my early life, after the Santa Claus thing, was the discovery that "Time Service" in Houston, Texas, in the 1940s was typically in error by 10 or 15 seconds. When you dialed Capitol 7171, you reached a lady sitting at a desk who, when the 20 or so phone lines filled up, looked up at an electric wall clock and announced the time. Worse, she fudged it a few seconds to give you time to walk back to your kitchen and get down the wall clock and reset it.

I learned this from a high-school friend, the one for whom the word "nerd" could have been invented, who had a Hallicrafters shortwave radio and was a regular listener to WWV, source of the U.S. Naval Observatory official time. Since that searing moment I have tried never to be without a suitable radio. My current one is the Grundig Yacht Boy 400PE, which has digital tuning, AM/FM reception, and single-sideband capability — you can receive high-seas amateur traffic and weather fax signals on it — and as much sensitivity and selectivity as you can get for $200.

Still best game

If you don't need better than one-second accuracy, WWV is probably still the best game in town. It broadcasts continuously on five frequencies from two locations. The frequencies are 2.5, 5, 10, 15, and 20 MHz from WWV in Fort Collins, Colorado, and all but the 20 MHz from WWVH on Kauai, Hawaii. Since there are occasions when both stations can be heard, the announcements from Colorado use a male voice; from Hawaii, the voice is female; and no, they don't talk at the same time. Both transmit the same "time ticks," accurate to within less than one microsecond (millionth of a second) when they leave the transmitter. The signals will wander around in the ether for a while before they reach your receiver, but you can probably count on accuracy of less than a hundredth of a second (10 milliseconds). There is also a 440 Hz audio tone, in case you want to tune a piano.

The time that they are announcing is Coordinated Universal Time, the time on which both the Nautical Almanac and the Air Almanac are based, and the time that you will want to use for celestial navigation. Why, you may ask, is Coordinated Universal Time abbreviated UTC instead of CUT? The answer, on the authority of the National Institute for Standards and Technology (formerly the National Bureau of Standards), is that the advisory committee of the International Telecommunications Union, meeting in 1970 to establish a standard technology and finding themselves deadlocked between the English CUT and the French TUC, declared "a plague on both your houses" and settled on the neutral form, which was neither.



Battery of clocks

But where does it come from and with what is it coordinated, you may ask? The answer is that it comes from the "real" official time, maintained by a battery of clocks in Paris and Washington, that count periods of the radiation corresponding to the transition between the two hyperfine levels of the ground state of the cesium atom, hence the name "atomic clocks."

But how can clocks located on opposite sides of the Atlantic be compared and kept in unison with accuracies of near-infinitesimal parts of a second? The answer, of course, is that they can't. The process always lags a couple of weeks behind the time, as it were, and involves travel between France and the United States, highly technical discussions of intricate recorded data and, one hopes, the drinking of a certain amount of wine under pleasant circumstances in a collegial atmosphere.

But the esoteric dance between the atomic clocks has little to do with navigating a vessel, and that is where the coordination comes in. For celestial calculations you must have a time that is rooted in celestial observations, and that is the one now called UT1, the time derived from observation of the rotating earth itself. But the rotation of the earth is irregular, and it is known to be slowing, which brings us at last to my favorite bureaucracy, the Paris-based International Earth Rotation Service (IERS).

It's serious

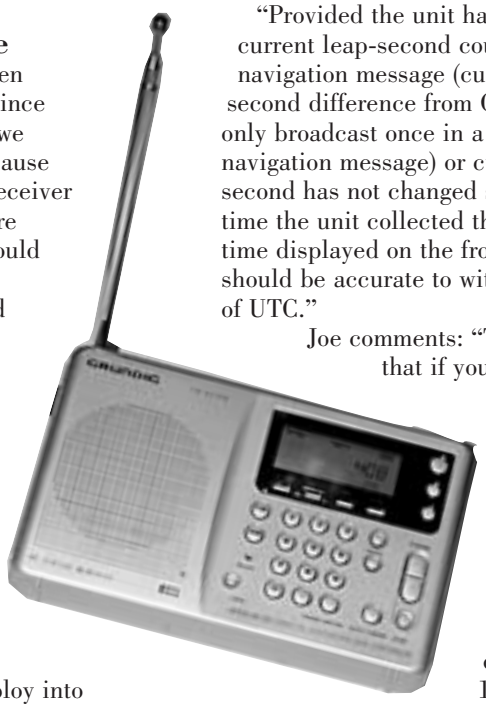
I am not making this up. You can visit their Web site: <http://hpiers.obspm.fr/>. Their mission is to monitor the slowing of the earth's rotation, which we know from analysis of very early eclipse observations has been going on for some time now. To give a tangible example of the rate, the last year in which the day lasted exactly 86,400 seconds (as the second is currently defined) was about 1820. In the 180 years since then, the day has lengthened by two milliseconds because of the earth's overall slowing trend.

That makes it easy to understand why at two milliseconds (thousandths of a second) per day, it takes just about 500 days for the error to accumulate to a full second.

This is the point where the IERS steps in, after biding its time for months and months. It is deemed intolerable for the discrepancy between the two times to equal or exceed a second, so when the error reaches nine tenths of a second, a leap second is declared. Since the earth itself is out of our control here, the second is "added" to the time of the atomic clock. By convention, it takes place, when required, at midnight of December 31 or June 30. (The last leap second was declared on Dec. 31, 1998; there was no leap second planned for June 30, 2001.)

Nothing available

Leap seconds have been declared at intervals since 1972, so why haven't we noticed? Probably because until the cheap GPS receiver became available, there was nothing that we could afford to buy and hold in our hand that would tell us. (You could have listened for the anomalous tick on WWV at midnight on New Year's Eve, but it would have been a peculiar hobby.) Once the GPS system time clock was started, at midnight on June 5, 1980, and the satellites began to deploy into their orbits, there was no way to call them back and reset their clocks any more than we could reset the earth. There have been enough leap seconds since then that GPS time has "gotten ahead" of UTC by 13 seconds, enough to make a difference if you need a time source for celestial navigation. The much-discussed "rollover" of the GPS week calendar, which took place at GPS midnight on August 21/22, 1999, actually happened at 23:59:47 UTC.



Since writing that sentence I have taken both of my GPS receivers, together with the shortwave radio, out of doors to see it once more for myself. To my surprise, the first of the receivers was indicating a time precisely on the mark with WWV, which is not what I remember from previous occasions when it clearly showed the 11-, 12-, or 13-second discrepancy.

The explanation

Taking the question to one of the most informative GPS-oriented Internet sites, maintained by Joe Mehaffey, <http://joe.mehaffey.com/>, I found the explanation, which should put us further on our guard, if anything. Quoting from Garmin, it is summarized as follows:

"Provided the unit has collected current leap-second count from the navigation message (current leap-second difference from GPS time is only broadcast once in a 12.5-minute navigation message) or current leap second has not changed since the last time the unit collected this variable, the time displayed on the front of the unit should be accurate to within 1 second of UTC."

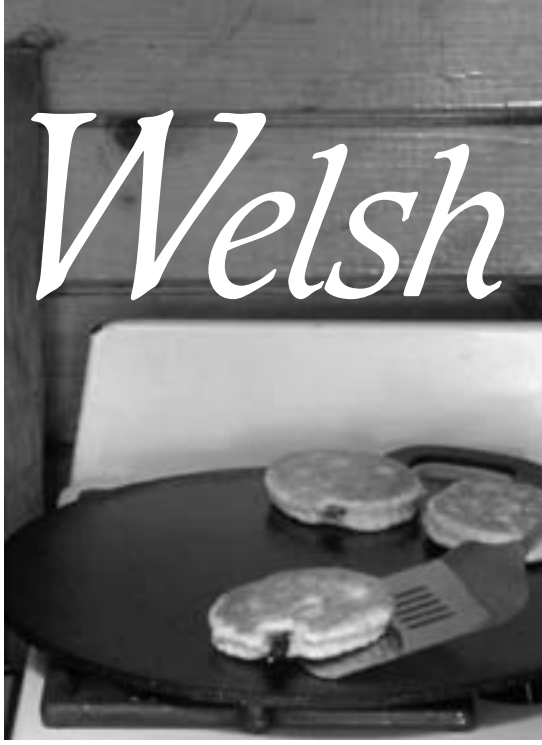
Joe comments: "This means that if your GPS does not have (or does not save) the leap-second offset from the last time it was operated, your time may be off by perhaps 12 seconds (today it would be 13) until the complete navigation message is received by the GPS. Jack and I have observed that, typically, Garmin GPS receivers display time that is delayed from about ½ to 1 second behind UTC. Lowrance GPS receivers are usually between 1 and 2 seconds delayed behind UTC. In both cases, this is a result of the display-driver subroutine having low priority, as the GPS internal clock is within a few nanoseconds of correct."

Turning on my second, and older, model, it refused to find but two satellites, taking far too long to accomplish it, and showed a time some five minutes in error. It will shortly be on its way back to the factory, but its unexpected failure points up the admonition of one mariner on the Internet, that if you are going to carry a backup GPS, let it be a Gray Plastic Sextant. That same mariner had a suggestion that I find beguiling for those unwilling to pay for a genuine chronometer and suspicious of total dependence on a radio: buy 10 drugstore quartz watches, run them at home for a month against WWV time, and take the best three with you on the voyage.

Thus the question of where the 13 seconds might be lurking turns out to be less clear than I expected it to be when I started this article. I had intended to warn that some GPS makers might have tailored their software to compensate for it, and some might not have. It now appears that the current leap-second count is transmitted from the satellites to your receiver as part of a message that is 12.5 minutes in length, and your receiver may not have heard it to the end recently. If you are going to use the time readout on your GPS receiver for celestial navigation, take the trouble to find out how it relates to UTC and the leap-second count: compare it with WWV before you leave, or talk to the maker of the GPS, and make certain.

Roy was introduced to sailing on San Francisco Bay in J24s and later crewed regularly on Monterey Bay on a C&C 30. He crews on passages between Santa Cruz and Seattle whenever he gets a chance. He spent a few years operating high-altitude satellites for Lockheed and has been senior product advisor for West Marine Catalog.

The art of Welsh



Every place has its Cape Horn. At port Cardigan, on the west coast of Wales, where I am an auxiliary harbormaster, it is the estuary bar. The channel shifts in storms and is seldom buoyed. Admiralty charts are outdated as soon as they are printed. Now a sleepy little market town, back in the days of sail, Cardigan was a thriving seaport the tonnage of which competed keenly with Liverpool, Bristol, and Cardiff.

The bar was a dangerous place then, too, and it has left us its legacy of bones . . . the bones of ships and men under the mud and sand. At night when I stand outside my isolated cottage and hear the mournful sound of the seals calling to each other, it is easy to slip into thoughts of ghosts. The local church has only one bell. It should have had two, but the other was lost when the ship carrying it went down on the bar.

Few yachts visit, and those that do risk grounding. I recall a couple of years ago a little carvel-built cutter sailed in, cut a corner too fine, and touched on the bar. She was a centerboarder, and her crew quickly lifted her board. For a while it looked like they might make it, but they were hard on a lee shore, and with the board up they could not claw off. The Royal National Lifeboat Institution launched the inshore rescue boat, but it was too late. The yacht would be there until the next tide.

There was no harm done. Fortune had served up calm conditions, but her position was not to be envied. As the tide receded, she was surrounded by the better part of a mile of sand. Knowing her crew would be feeling vulnerable, perhaps shocked and cold, I bagged some cakes I had just baked, pulled on my boots, and trudged out to see what I might do. A young married couple and their baby were aboard. They were grateful for the warm cakes.

The yacht was likely to refloat during the night, but that place is notorious for rapidly changing conditions, so we made a plan. I helped them lay out some anchors and suggested the wife and baby stay with us at the cottage for the evening while a couple of young lifeboat crewmembers would help the skipper bring the yacht in to my mooring, with the RNLI boat standing by.

Happily, all went without incident and we still receive Christmas cards from that family. They learned two important things on that visit . . . to distrust the chart and to carry a griddle aboard to cook Welsh cakes.

First, the griddle

Welsh cakes are an economical and simple dish to prepare quickly and easily on a single flame, provided one has the tool for the job. In Welsh it is known as a maen (which should be pronounced "mine" but is, colloquially in some regions, pronounced "marn"). In the north it is called "planc" (pronounced "plank"). Maen is Welsh for "stone" and I would guess derives from the ancient use of a hot bakestone for cooking. I use my grandmother's, which may well have been inherited by her and could easily date from the 19th century.

You can sometimes buy these griddles in country hardware shops, or one can be made in a metal workshop. It is a simple plate of steel or iron, a disk of up to about 12 inches in diameter, usually somewhat less, and 3⁄16 inch to ¼ inch thick. Conventionally, it is shaped to include an integral handle guaranteed to burn the fingers or, rarely, a wooden handle like that of a frying pan, which is much better. Properly cared for, it will temper and improve with age with a polished surface; indeed, you can try these cakes in an old-fashioned iron frying pan, if you like.

While they may not save the day, they certainly help brighten it

by Geoffrey Toye

Stovetop baking at its best: Welsh cakes and the traditional bakestone called a maen (shown on stove above).

Cakes

Next, the recipe

Recipes for Welsh cakes vary, but mine is more or less as follows. I am vague because you can experiment with the ingredients; it is the method that is critical.

Sift 12 to 16 ounces (1½ to 2 cups) of white self-rising flour into a mixing bowl. Add ground cinnamon to taste; I like it a lot and use a heaped teaspoon. Mix it in thoroughly, a job done well with a wire "balloon" whisk.

Add some light brown sugar. I use about 3 ounces and mix well. Traditional recipes would give half fat to flour but, with modern light margarines/spreads, that can be halved, so I use about 4 ounces and rub it well through the mix. This is not a job to undertake after handling the anchor chain. One well-known British chef back in the 1950s used to warn that hands should be meticulously scrubbed because, if they were not clean before mixing pastry, they would be spotless afterward!

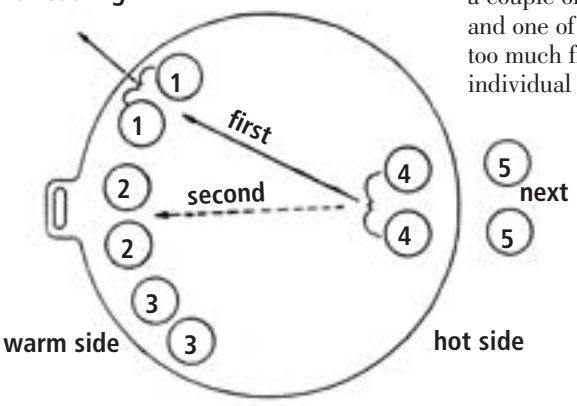
Back to the galley. The mix will be very dry and crumbly. Beat up an egg and with it a vital ingredient that is recommended on good authority . . . I happened to be in a local hardware shop buying a maen for a friend, an ex-patriot Welshman living in London and pining for the old Welsh cakes back home. As I examined the device in question, an elderly lady of small but fearsome demeanor approached and bade me listen carefully.

"The secret," said she, getting my attention by prodding me painfully in the chest with a bony finger, "is to add a spoonful of syrup and, you just listen carefully now, good boy," *(I have turned 50, by the way)*, "BEAT *(prod)* IT *(prod)* INTO *(prod)* the EGG! *(superprod)*." By this time, my back was against a wall, I could retreat no further, but I would clasp that expert advice to my bosom long after my shattered ribs came out of plaster.

Now, without fail, I beat in a good teaspoon of golden syrup until it is dissolved into the egg. This ensures the cakes will be as they should: moist and chewy. *(Golden syrup is available in the U.S. We've also substituted maple syrup and Karo syrup. Either one will do.* **-ed.***)*

Add it to the cake mix — proper recipes would say fold it in — and add a little milk, if necessary, to make a firm, moist dough. Reconstituted dried milk is fine, and you will be unlikely to need more than a couple or three dessert-spoons (teaspoons), depending on the size of the egg.

At this point add some chopped mixed peel of the type used in fruit cakes, and some sultanas. Quantities vary with taste, but the received wisdom is not to be overly generous with the fruit . . . say a couple of dessertspoons of sultanas and one of mixed peel, or there will be too much fruit to permit cutting into individual cakes, which is what happens next. *(Sultanas are a yellow seedless raisin. Any raisin will work. We've used grated orange peel for the chopped peel* **-ed.***)*



First pair is removed from bakestone and fourth pair moves to the warm side. Fifth pair is added to hot side. You get into a rhythm . . .

Skill plays a role

Roll out to about a quarter of an inch thick and cut (cookie-cutter style) into rounds 2½ inches to 3 inches in diameter. Place to one side. Now the real test of skill begins: put the griddle on the flame and move it around to warm it uniformly at first. When the whole griddle is warm, draw it off to one side slightly so half of the griddle gets hot, while the other half remains warm. Put a drop of cooking oil on the hot part and use a kitchen towel to wipe the oil all over the surface in a very thin layer.

Drop a couple of rounds on the hot part. They should hiss just audibly as they go on. After about half a minute, flip them over to cook the other side, repeating if necessary until they are lightly browned. They are still not cooked through, so now transfer them to the other side of the griddle, the warm side. Drop another two onto the hot part and repeat the operation, working down the other side of the griddle like the figures on a clock. Drop on a third pair. As the fourth pair go on to the hot part, it will be time for the very first two you cooked to come off. They will have risen. Put them to cool on a sheet of paper, and let the fourth pair take their place. If they have developed a hard crust, you've left them on too long.

This process continues methodically, first browning the cakes on the hot side, then placing them on the warm side to finish cooking and rise. You get into a rhythm. The aroma is such that the temptation to eat the cakes hot is almost irresistible, but if you weaken you may pay with indigestion. *(We admit to impatience: we ate them warm.* **-ed.***)*

When they are cool, store them in a tin. They can be eaten plain with preserves and are good with fresh fruit, particularly apples. They do not need to be buttered. They are excellent in heavy weather or on a long night watch.

The technology is simple, the tradition long, the results well worth the pleasant interlude cooking, perhaps helping to pass a stormy afternoon in harbor. The maen, as well as being a piece of Celtic folklore, is an easily stowed (well away from the compass) and highly practical tool in the galley, even more so if there is no oven. It is good for flapjacks and pancakes; there is even a traditional bread that can be cooked on it. So often, simple is good.

Geoffrey lives in a beach house near Cardigan on the west coast of Wales. He's been involved with small craft for more than 40 years. A writer and journalist, he just finished his second novel.

Metal corrosion

What happens when metals corrode, first of two parts — stainless steel corrosion details

All boats have metal fasteners and fittings, and usually some kind of metal is used for the really tough jobs on board, such as handling heavy loads while being immersed in salt water. If a metal fitting fails, be it the rudder post, a chainplate, or a seacock, the results are usually serious. For that reason, all boatowners should make it their business to know something about how metals behave in marine environments.

Moisture, salt, and heat

Corrosion is a complicated subject, and it would seem simpler to forget the details and just use a material that has a good reputation for corrosion resistance, such as a marine grade of stainless steel. Tempting as that is, it will set you up for trouble down the road. For example, Type 302 stainless steel, which performs reasonably well as boat rigging, isn't a good choice for chainplates. Type 316 stainless, which might be acceptable for a chainplate on the Great Lakes, still isn't a great choice for chainplates in the tropics; boats in the tropics should really use bronze. Getting confused? Avoiding problems isn't hard if you start at the beginning with an understanding of why and how metals are corroding in the first place.

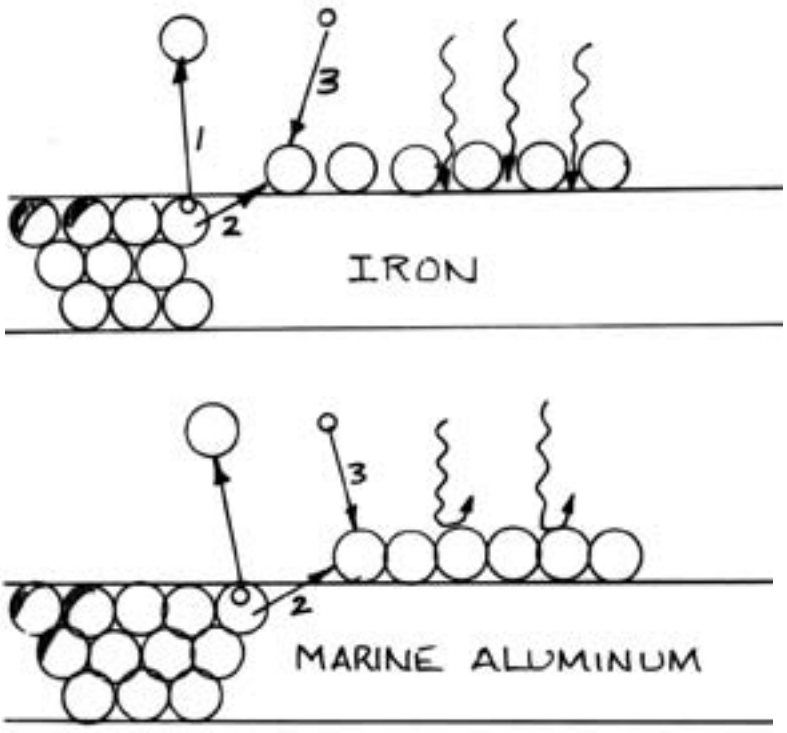
Imagine a piece of bare steel — say a newly sharpened wood chisel. In the desert you could leave it lying around for weeks and come back to find little or no rust. Bring it aboard a boat, and it's likely to be rusty in a day or two. Chuck it in a bucket of salt water, and it'll rust almost before your eyes.

Why the different rates of rusting? Because of changes in the environment: the more moisture and salt present, the faster the rate of corrosion. The rate of corrosion in metals is also dependent on temperature. Cool, dry environments will have the lowest rate of corrosion, while the worst place for corrosion is the tropics, where warm temperatures and high humidity work together to accelerate the process.

Why metals corrode

Most metallic elements are found naturally in the form of an oxide, sulfide, or carbonate. To make the metals we commonly use (such as iron, copper, and steel), these elements are refined, a process that separates the metal and the oxide. Refining metallic elements consumes lots of energy, and the metals that result are in a high-energy state, one that they constantly seek to escape through the process of corrosion. These metals are considered reactive, in that they will readily form reactions with substances in the surrounding environment. Exceptions to this rule are "noble" metals such as gold and platinum, which don't require refining, and are naturally stable and non-reactive.

Metal corrosion involves a transfer of particles from the metal to the surrounding environment. Metals — and all other substances — are composed of atoms, which have a nucleus surrounded by a number of electrons; the latter are much like planets in orbit around the sun. As long as the electrons stay in their orbit around the nucleus, the metal will be in a stable condition and won't corrode. Corrosion takes place



Above, formation of an oxide film. Corrosion of the iron begins with the escape of an electron (1) which leaves to join a nearby chloride ion. The remaining iron ion (2) combines with oxygen (3) to form ferric oxide. This coating is permeable. Below, the marine aluminum alloy corrodes in a similar manner, but the aluminum oxide forms a tough, impermeable barrier.

by Mark Smaalders

when metal atoms lose electrons. Electrons don't simply drop out of orbit, but are wooed by positively charged particles in the surrounding environment (electrons themselves have a negative charge). When these positively charged particles (called positive ions) come calling, they draw electrons away from the metal atoms. That leaves the original atom short of electrons (meaning it is now a positively charged particle). The positive metal ion that's left behind follows the electron's lead and jumps ship itself, and corrosion has begun.

Electrochemical corrosion

The process that we're describing is called "electrochemical corrosion," as it involves both chemical and electrical reactions. Electrochemical corrosion is a fact of life with just about all metals, but they don't all corrode at the same rate. Those that corrode slowly — such as silicon bronze, marine-grade aluminum, and stainless steel — do so because they protect themselves from the relentless loss of electrons by forming a special coating. The coating is called an oxide film and is a combination of an element within the metal (the positive metal ion described above) and an oxygen ion from either the air or water. Mild steel and iron also produce an oxide coating when they corrode — the brown, scaly stuff we call rust — but the coating for these metals is permeable to oxygen and water and doesn't stop corrosion. Metals with an effective oxide film still slowly corrode, but the process may take many decades rather than days or months.

In order for electrochemical corrosion to occur, metals must be in the presence of an electrolyte, which is a fluid that enables the transfer of ions between one or more metals and any corrosive agents (such as oxygen, salt, acid, and so on). The most prevalent electrolyte for most marine sailors is sea water, which contains an abundance of dissolved salts and is thus loaded with positive ions looking for an electron. Freshwater sailors are better off, as the electrolyte in which they sail has far fewer positive ions, due to the lack of salts. But corrosion is not limited to those metals that are immersed in the ocean or another water body; all metals are affected to some degree by atmospheric corrosion.

Atmospheric corrosion also relies on an electrolyte, but it is a very thin film, all but invisible, that forms on metallic surfaces once a critical level of relative humidity is reached. What constitutes a critical level varies with the metal and the level of atmospheric pollution. Corrosion is more rapid in the presence of pollution. In the absence of pollution, atmospheric corrosion of iron begins when relative humidity reaches about 60 percent. If there are large amounts of salt or pollutants present, atmospheric

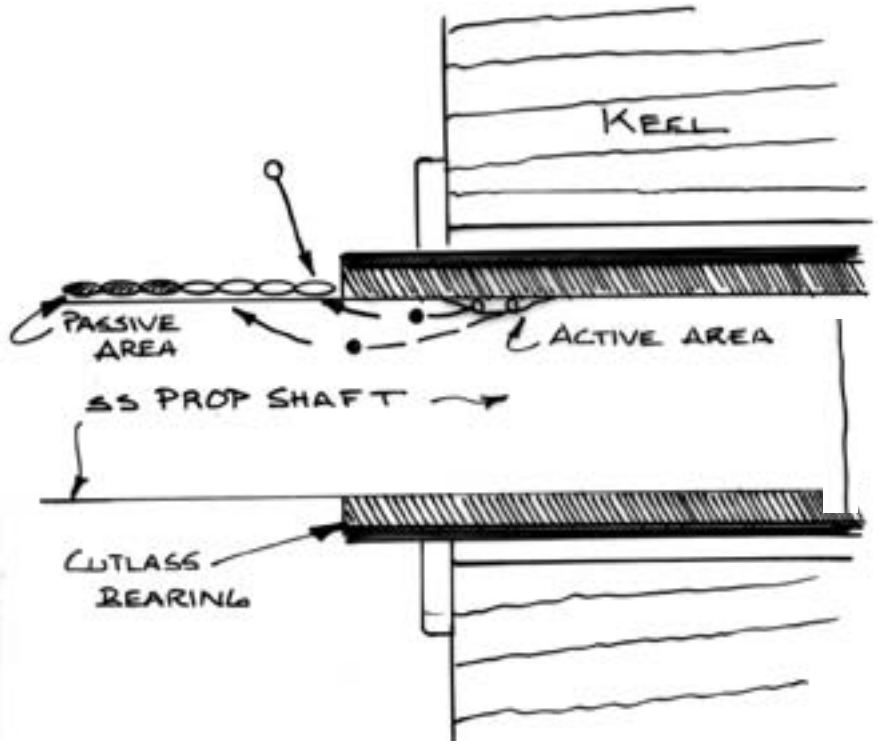
Galvanic series

Anodic or least noble end (Active)	Millivolts (mV)
Magnesium (Mg)	-1730
Magnesium (2% Manganese (Mn))	-1670
Magnesium (9% Aluminum (Al), 1% Mn, 1.5% Zinc (An))	-1580
Galvanized Iron (Hot Dipped)	-1140
Zinc Electroplating	-1130
Cadmium (Cd) Zinc Solder (71%/29%)	-1120
Zinc (Zn)	-1050
Cadmium (Cd)	-860
Cadmium Plated Steel (Cd 0.001 in.)	-860
Aluminum (Marine Alloys 5086, 5083, 6061)	-820
Mild or Structural Steel (A36)	-790
Alloy Steel	-740
Aluminum (Forged Alloy)	-730
Stainless Steel (316, 317, 321, 347, 302, 304—active, oxygen starved)	-550
Tin (Sn)	-500
Manganese Bronze, CA-464 Naval Brass (58% Copper, 39% Zn, 1% Alum, 0.25% Mg)	-450
Naval Brass (60% Copper, 39% Zinc)	-450
Yellow Brass	-450
Admiralty Brass (70% Copper, 29% Zinc)	-360
Copper CA-110 (Cu)	-340
Brass (60% Copper, 40% Zinc)	-330
Gunmetal (88% Copper, +Tin)	-310
Silicon Bronze (96% Copper, 1.5% Silicon)	-260
Tin Bronze	-260
Lead (Pb)	-240
Copper/Nickel (CA-715 - 70% Cu, 30% Ni)	-200
Aluminum Bronze (90% Copper, 10% Aluminum)	-150
Stainless Steel (316, 317, 321, 347, 302, 304 — passive, oxygenated)	-150
Monel 400 & 500	-110
Titanium (Ti)	-100
Silver (Ag)	-80
Graphite and Carbon Fiber (C)	(+250)
Platinum (Pt)	(+260)
Cathodic or most noble end (Passive)	**Millivolts (mV)**

corrosion can be both rapid and severe, and it actually accounts for most of the corrosion experienced worldwide.

Oxidation and reduction

The reactions taking place when a metal corrodes are termed "oxidation" and "reduction" reactions. Oxidation is what happens when a metal atom loses an electron and becomes a metal ion. Reduction occurs when a substance gains an electron; if the electron escaping from the metal atom is attracted to a hydrogen atom, then the hydrogen has been reduced. These processes always act in combination; oxidation cannot take place without reduction. The principle of oxidation and reduction underlies all basic corrosion, and controlling corrosion in a single metal (whether in air or water) is primarily a matter of slowing or eliminating these reactions. This can be achieved through protective coatings (such as zinc or paint on steel), by alloying various elements (combining iron and chromium in stainless steel), or by reducing contact with reduction agents (that's what we do when hosing the salt off of metal fittings after a sail).



Cross-section of a stainless steel prop shaft. The part exposed to sea water is passive, while the part encased in the cutlass bearing is active. The lack of oxygen in the water in the cutlass bearing prevents the shaft from forming a protective oxide coating. The current that is set up flows from the active part of the shaft to the passive area. Because the active and passive areas are electrically connected, the corrosion in the active area is enhanced.

Galvanic corrosion

Galvanic corrosion is a special type of electrochemical corrosion that occurs primarily between two different metals. When immersed in sea water, every metal shows a different level of stability, or tendency to lose electrons. This can be measured as an electrical current, which is just a flow of electrons. The galvanic series lists many common metals and alloys in order of their corrosion potential when immersed in sea water.

Generally speaking, the "nobler" a metal is (that is, the closer to the bottom of the table on Page 23), the more slowly it will corrode. But, more importantly from the perspective of galvanic corrosion, metals that are close together in the series will produce less of a reaction than those that are far apart. When galvanic corrosion occurs, the more noble metal is typically protected from corrosion, or at least corrodes at a slower rate than it normally would, while the metal that is less noble corrodes more rapidly.

Galvanic corrosion won't take place unless the two metals are in direct electrical contact (as they would be if they're bolted together) and are immersed in an electrolyte, such as salt water.

It's possible to take advantage of galvanic corrosion to protect metals. That's what we do when we attach zincs to the bottom of the hull or the prop shaft during a haulout. Zinc corrodes more readily than most commonly used metals. Place the zinc in direct contact with the metal you want to protect (by bolting it to the prop shaft, for example), and the process of galvanic corrosion will take care of the rest: the zinc will corrode, but in so doing will protect the prop shaft from corrosion.

Galvanic corrosion can take place in a single metal if there's a difference in the corrosion potential in two different places on its surface. Such differences can arise in various ways, including simply from imperfections in the metal itself. This is a common cause of problems with stainless steel. If one area of a fitting is protected by an oxide film it will be "passive" with a low corrosion potential (note that passive stainless is near the bottom of the galvanic series). Another area of the same fitting that lacks an oxide coating will have a much higher corrosion potential (the metal here is "active" and is near the top of the table). Being part of the same fitting, the two areas are linked electrically; when immersed in salt water, the area that's passive will be protected, but at the expense of rapid corrosion of the active area.

Problems can also arise with some alloys if one of the constituents is attacked, while the other is not. This happens with brass (made from zinc and copper). When used underwater (such as on a rudder fitting, or a fastener), the brass will "de-zincify;" the zinc corrodes out of the fitting, leaving behind the corrosion-resistant (but much weaker) copper.

With these principles in mind, let's look in detail at how corrosion affects stainless steel, the metal most commonly used on boats these days.

Stainless steel

The term "stainless steel" is applied to many steel alloys, but only a few that contain chromium and nickel in varying amounts are intended or suitable for marine use. The chromium in marine stainless steel reacts with oxygen to form

an oxide film that is tough and protects the underlying metal from corrosion. If enough chromium is used (12 percent or more), then corrosion resistance will be quite good.

Problems with stainless steel arise primarily when the oxide film is either worn away or prevented from forming. This exposes the metal to corrosive elements in the environment. Unfortunately for us, the chloride found in salt water is one of the worst around. What kind of corrosion takes place depends on the type of stainless and how it's used.

Types of stainless steels

In the United States, stainless steel is commonly graded according to an American Iron and Steel Institute (AISI) system whereby each type is given a number. Common marine grades occur within the AISI 300 series. They can be distinguished from non-marine grades because marine grades are not normally magnetic, although fittings made from 304 will often show a slight degree of magnetism. But it's very hard to tell if a fitting is made with 304 or 316, and the difference is important. (See sidebar on Page 26.)

General corrosion of stainless

Widespread corrosion takes place when there's an overall breakdown of the passive film that usually forms. This causes the entire surface to have a sponge-like appearance. The rate of attack varies but goes up dramatically as temperature increases. Some sources indicate a doubling in basic corrosion with an 18°F rise in temperature of either the corrosive agent (say salt water) or the metal part. This doesn't bode well for boats in the tropics and helps explain the high rate of corrosion often experienced with stainless steel exhaust manifolds. In general, though, fittings made from marine grades of stainless steel won't suffer from rapid general corrosion.

Pitting

Pitting takes place when the oxide film is broken only in a few places, instead of over the entire surface, and is a simple example of galvanic corrosion. Because passive stainless is far more noble than active stainless, the areas without a protective film are attacked (they function as an anode), while the rest of the material is protected (acting as a cathode). The large difference in relative area speeds the corrosion and causes the pits to grow. Pitting is common on poorly finished hardware which may have impurities left on the surface that make for a less-than-perfect protective oxide film. It also takes place under O-rings and seals or where stern bearings contact shafts because these can all act to wear away the protective film.

Tests show that 304 stainless steel is relatively unaffected by pitting corrosion in marine environments if temperatures are about 68°F or below; 316 will be relatively immune up to about 86°F, while 318 shows good resistance up to 150°F. That indicates that those of you living up north may get away with using 304, but tropical sailors should avoid it; even 316 is likely to show some pitting in warm climates.

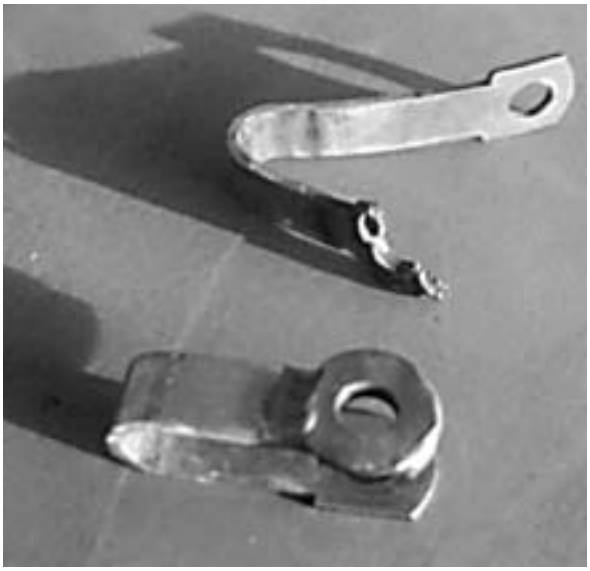
Weld decay

When most marine stainless steels are welded, carbon moves out of the immediate area of the weld while the metal is molten and combines with chrome in the adjoining areas to form chromium carbide. This in turn starves these areas of the chrome they need for corrosion protection. Put the welded part in or near sea water, and the result is galvanic action. The chrome-rich areas are protected, while the chrome-poor areas are attacked. There is normally no sign of trouble (perhaps only a bit of light-brown staining), but weakness develops along the weld, which can lead to sudden failure. The best way to combat weld decay is by using a low-carbon stainless steel (such as 304L or 316L) for any welded fittings.

Crevice corrosion

Crevice corrosion can take place whenever oxygen doesn't reach the surface of the stainless steel. It is especially common in the presence of salt water, because chlorides are ready and waiting to attack the surface of the stainless steel as soon as the protective layer is disturbed. Once that happens, pits form, and the lack of oxygen prevents the protective layer from reforming. Under the right (or rather the wrong) conditions, crevice corrosion can destroy metal very quickly, and it does so in places that can't be seen without taking fittings apart or removing fasteners. Examples of where crevice corrosion is likely to occur include wet wood (above and below the waterline), wet fiberglass, and any underwater fittings, such as fastenings for seacocks, struts, and shaft logs.

Crevice corrosion in sea water starts at temperatures around 20 to 30°F below those at which pitting occurs. That rules out the use of 304 under the water in all marine environments and makes 316 an unwise choice except in very cold waters. Type 318 should be free of problems below about 120°F.



These stainless steel rigging fittings incorporate washers welded to the tang in an effort to increase the bearing surface. The result was weld decay; the fitting that broke was on the headstay. It let go during a rough offshore passage to windward. If not for an inner forestay, Mark would have lost the rig.

Stress corrosion

Stainless steel under tensile stress (any fitting that's under tension, such as chainplates and rigging tangs) is especially susceptible to pitting and stress cracking. The biggest contributor to stress corrosion is chloride, which is always present in the marine environment.

Passivated and polished

The passive, protective surface layer on stainless steel is never static (or permanent). The layer is affected by the environment and slowly erodes.

That's not a problem if there's oxygen present, allowing it to re-form. But if there isn't, one of the various types of corrosion we've discussed will likely result. You may hear of companies offering "passivated" stainless, and that would seem a good solution, but unfortunately such coatings are likewise not permanent. Stainless is made passive by immersing it in an acid bath, which removes the oxide film and provides an ideal surface for a new layer to form; this happens as soon as the stainless steel is exposed to oxygen.

Although it was once thought that the acid treatment acted to thicken the subsequent passive film (making the steel more corrosion resistant), it's now known that it has little long-term effect, and that the film will form at the same thickness when exposed to the environment without being treated. The acid can act to remove small bits of iron and other impurities on the surface of the stainless steel, though, and the metal will certainly look better initially. Another technique that improves the appearance of stainless is polishing. In contrast to passivation, polishing can help reduce the chance of future corrosion, as it eliminates roughness that might otherwise lead to pitting or crevice corrosion.

Preventing problems

Duplex stainless steels, such as 318, appear to be largely free of many of the corrosion problems that plague 304 and, to a lesser degree, 316. They are very expensive, however, and not easily distinguished except by the manufacturer; you're also unlikely to find any fittings made from duplex stainless, except possibly propeller shafts. As a result, play it safe and stick to the following rules:

- Don't use stainless steel in any location where it will be constantly in contact with salt water, especially in areas where water is trapped or not moving (and may become oxygen-starved). This means stainless steel shouldn't be used for underwater fastenings or fittings, exhaust manifolds, and structural items such as frames, floors, and the like.
- Avoid using stainless where it will be in contact with substances such as wood that might be saturated with salt water.
- Don't use stainless for highly stressed fittings, especially if these are often immersed (a bobstay fitting at the waterline would be a good example).
- Places where stainless steel will work are rigging fittings, rails, stanchions, winches, and shackles. Even then, be sure to buy 316, and keep a close eye on the fitting.
- Make sure that any stainless fitting is well polished, as this may help prevent corrosion. There's no need for a mirror finish, but it should be smooth and even.

Types of stainless steels

Type 302: This grade of stainless steel is also called 18-8, because it's made with 18 percent chromium and 8 percent nickel. Many fasteners are made from this alloy, but it's not suitable for most marine use, except perhaps on boats used in fresh water or in a boat's interior. It is often used for the manufacture of rigging wire.

Type 304: The most common marine grade, and the minimum that should be used in the marine environment, type 304 is suitable for non-critical deck and interior fittings on boats in salt water and for more general use on boats used only in fresh water. It is also commonly used for rigging wire.

Type 316: Containing 2 to 3 percent molybdenum for higher corrosion resistance than 304, type 316 won't readily develop a rust film and is very resistant to pitting in salt air. The material of choice for any important stainless steel deck and rigging fittings.

Type 304-L and 316-L: Extra-low-carbon versions used for welded fabrications to prevent problems with "weld-decay" that can lead to sudden and catastrophic failure in welded fittings. Types 304-L and 316-L should be used for any welded parts, even if these are to be used below decks.

Type 318: A duplex stainless steel, 318 has significantly better corrosion resistance and higher strength than 316. It is expensive and often difficult to obtain.

Types 316 and 316-L offer much better resistance to corrosion than 304 and 304-L and should be used in their place whenever possible. But even 316 is not suitable for use as a fastener in any situation where water may be present but oxygen may not be readily available. *(See discussion on crevice corrosion).* Type 316 is sometimes used for seacocks in aluminum hulls, but they must be well insulated from the hull. Type 316 is also used for propeller shafts, but it must be protected with zinc anodes, and problems with pitting corrosion may still occur; Aquamet or similar alloys may be a better bet.

In Part II, in the September issue, Mark will discuss corrosion in aluminum and copper alloys and review their use in various types of boating equipment.

Since 1993, Mark has been sailing Nomad, *a 35-foot Cheoy Lee Lion, with Kim des-Rochers. They're currently in New Zealand. International Marine will be publishing his book, called* Tropical Cruising Handbook. *Mark studied yacht design and has a Web site at <http://smaalders.net/yacht_design/>.*

Writing about sailing

Morgan Van der Ree

Three female authors promote sailing through publishing

by Herbert Davies II

Two years ago, at the age of 10, Morgan Van der Ree was inspired to write her first article for *GirlsCan* magazine, a Canadian publication for and about young girls. After it was published, this industrious young lady of Royston, British Columbia, wrote two more. One was published, and then the magazine folded after the initial year's run.

The focus of one of Morgan's articles was the construction and sailing of a Sabot, an 8-foot sailing dinghy of the same design her father had built before her, when he was 10.

"As a young boy, I was extremely excited about having my own boat," Morgan's father, Farrell, relates. "My parents were totally engrossed in boats, and this rubbed off on me." He says that his family needed a dinghy for their cruising boat, a 26-foot Thunderbird, so his dad took on the project of building a Sabot. "This turned into my 10th birthday present. I was able to help him during the construction process, and by the time it was launched I was shaking with excitement." Farrell then reportedly attempted to christen the Sabot with a champagne bottle. "We put a dent in it — not the bottle, but the boat!"

Over the years the little boat enjoyed much sailing and rowing, until eventually the plywood hull became too soft for use. "I always thought that one day I might build another one, so we kept the plans, rigging, and sail." This history was repeated 25 years later, almost to the day.

"I had hoped my own kids would have as much fun and learn as much with the boat. So far, it's turning out to be the case. Morgan is now an expert rower and last summer learned to handle sailing on her own. Kayleen (Morgan's younger sister) often acts as first mate as they head off on their excursions."

Learned a lot

Morgan played an instrumental role in the construction of *Splash*, the second dinghy. "I learned a lot of things when building the Sabot," she says. "I got to know the boat and its parts. It was built on a jig, so it was sort of inside out." What was her favorite part of the construction? "The tiller," she says, "because I did it all by myself, spoke planing and all!"

This was also a significant learning experience. "I learned how to cut wood and sand really well, I got pretty good at using a hammer and nails. When rowing the boat, I learned how to tell which way I should go in the wind, what direction to go against the waves, how to push the oars hard so it will go fast, and that you sit backward to row." As an afterthought, Morgan adds, "I learned how to steer myself.

"My friends love my dinghy. They like how small it is and that we are allowed to handle it ourselves. A few of my friends can't do anything with my dinghy because they have trouble getting coordinated." This obviously doesn't deter their adventurous spirits, however.

Morgan wrote for *GirlsCan,* "Learning how to sail my little boat was a lot harder than I thought it would be. Once, when we were on vacation, my sister and I were sailing on Champion Lake. We were having trouble controlling the boat . . . Suddenly the wind gusted, and we tipped so far over that water was coming in over the side . . . Fortunately, we managed to figure things out and make our way back to shore . . . One day we'll even practice this on our own and hopefully get so good at it we won't even get wet."

A small world

Morgan's grandmother, Frieda Van der Ree, has written for *Pacific Yachting* magazine and has also authored a book, *Exploring the Coast by Boat*, which Morgan finds quite amusing when it turns up on bookshelves and in boats she sees.

Could Morgan, now 12, be following in her grandmother's footsteps? "I plan to write in the future. I hope to be an author writing children's novels." Already working toward these ends, she says, "Right now I write stories for school, and I have started a journal for *April Point*, our new 'old' boat. I like writing because it gives me some time to myself and it uses my imagination.

"When my article was published in *GirlsCan* magazine, everybody was happy for me. We got the magazine into the school library, and my classmates were surprised that I had done something like that. When I saw my article in print I was very happy and proud."

April Point, a 28-foot Tollycraft displacement cruiser, is the Van der Rees' form of weekend recreation during the summer, cruising the Georgia Strait and Baynes Sound on the east side of Vancouver Island. *April Point* is large enough to sleep four

and their traveling companions, two "big, mucky dogs." One of Morgan's favorite activities was setting crab traps. "I was excited at the thought of crabs for dinner," she says. "I was disappointed the next day. There was not even a single piece of seaweed inside!"

Morgan says, "I've read lots of good books, and I dream about writing like those authors some day." Watch for articles and books by Morgan Van der Ree in the years ahead.

Theresa Fort

Presently living in Titusville, Florida, and the mother of two, Theresa Fort spends her time juggling homeschooling, working on the boat, keeping up with daily household responsibilities, and writing.

"My difficulties are mainly time constraints. The kids and Chuck have always helped with the running of the house and boat, but there doesn't ever seem like there's time to fit in everything we want to do."

Theresa, Chuck, and Amie and Alex (9 and 6 at the time), left Everett, Wash., May 1, 1995. Since then the family has seen Alaska, California, Mexico, Guatemala, Honduras, Costa Rica, Panama, much of the Caribbean, Belize, and Florida.

The children had always been home-schooled, but Theresa felt she needed supplemental material to fortify their educational diet while underway. "When you are out there cruising," says Theresa, "you and your kids are together 24 hours seven days a week. School is not the only part of the day.

"Aside from help with boat maintenance, other positive activities are needed to keep your boat and relationships running smoothly," Theresa continues. "If it involves an activity that ties into your learning at the time, or helps the kids become better sailors, so much the better."

Alex, she says, is a very active kid who loves to be working on projects from sunup to sundown. "Imagining a bored Alex is a scary thought. I've seen it on our longer passages." It involves pacing. Amie, on the other hand, can handle a greater degree of boredom without requiring such pacing. "On one of our longer passages, she once covered her whole face with stickers to see what she would look like. Kids and adults really need ideas to keep them going in a positive direction. Once kids become readers, their downtime can be spent reading, and reading, and reading." This isn't the total answer, however, Theresa says, and other activities are required to round out a day and keep everyone upbeat.

Fun Afloat!

Despite the Forts' best efforts, they couldn't find any specific books with boating activities for their children's home-schooling and entertainment, so Theresa began to modify closely related activities and to create others as they occurred to her. When the Fort family reached Florida and decided to refit the boat and save up money for their next venture, she began writing her own activity book.

The idea for an activity book— not just for cruising sailors but for all boaters with kids aboard — slowly took shape. "We met many families who seemed unhappy with their cruising experience at times; it seemed like they needed to have their children more involved with the day-to-day work onboard and to have more of their children's activities in school related to their cruising lifestyle."

The result is a book with more than 60 activities for children and parents. Each activity helps open their minds to the world around them while helping them to learn about boating and navigation. Activities include making a plankton net, designing your own postcards, fish dissection, figuring your boat's speed, making a print of a fish, and so forth.

"It's difficult watching the kids grow up," Theresa says. "It is a heartwrenching experience that I both enjoy and bemoan. We had so much fun when they were younger and have a great deal of fun now, but it's different because they are becoming their own people, stretching out and away slowly."

Theresa and her family are eagerly planning their next adventure. "It's a fine line we walk as we look ahead to our future sailing life traveling aboard a boat again. Our children are 15 and 12 years old now, so we will have two mostly teenagers when we set out again. We are looking forward to it because we will have so much help with watches!" Theresa says.

Unsettled future

"Chuck and I have learned that we are travelers at heart. Whether or not we will settle down will be decided later," she continues. The two have dreams to go on several very different adventures, including a drive from the Arctic Circle to the equator, a trip aboard the Alaska ferry, and a cross-country biking excursion. "It could be that we do these things in between cruising or that we never do them. Who is to know? But, we do know that if we set our minds to it, we could do it all."

She says cruising has helped develop her self-confidence. "We were already quite self-sufficient, but we grew even more so. It helped Chuck realize that there is no thing called 'security' on land or out cruising . . . that security comes from within ourselves . . . In terms of the children, it is an awesome thing to be part of a goal like this. It can't help but teach them that they can do anything they set their minds on. That is a very powerful realization. They also learned that the

U.S. is not the end-all and that life is very different in other countries.

"We also understand our responsibility to our children. As they become older, it may be that they will want to stop traveling, that they will want a more settled existence." Amie hosts a marine conservation Web site: <http://delphinus.fortworks.com> and has plans to become a marine biologist, while Alex is taking an interest in robotics and airplanes. "If they ever do ask to have a home on land again, we will honor that need and make the best of it, enjoying that part of life as well," Theresa says.

Fun Afloat!, a family project really, is available on the Good Old Bookshelf (see Page 65).

Jahnn Gibson

Jahnn Gibson might just be proof that sailing is, truly, in the blood. Her family has a long history of maritime tradition, dating back to her great-grandfather, a Norwegian sea captain who used to pilot a 22-foot 1910 Long Island Sandbagger. Keeping up the tradition, her daughter, Becky, took fourth place in her first attempt at racing several years ago.

Jahnn and her husband, Dave, sail their Hallberg-Rassy 33 Mistral, *Hotspur*, on the Sacandaga Lake in the southern foothills of the Adirondak Mountains in upstate New York. It's a 30-mile long reservoir," she says matter-of-factly, "They just call it the Great Sacandaga Lake for the tourists. Actually, it's quite a pretty lake with mountains in the background and a pretty dairy farm on a nearby hill."

A while back, Jahnn helped deliver a boat from Rhode Island to Delaware and lost her job due to the time she had to take off. After the trip and during the two-month interim while she was looking for work, she got the idea for a book. "I just felt so much more creative, not having to report in for nursing duty from 11 to 7 every night."

The manuscript she has written, *Susan's Sailing Adventures*, covers the adventures of a fictitious 13-year-old girl, Susan, and her sailing experiences from the Chesapeake to Rhode Island with many stops in between. In the course of her journey, she learns many things, including what a Fresnel lens is (while sailing in the Chesapeake), about Benedict Arnold and the Battle of Valcour (while on Lake Chaplain), and about Hell Gate as she sails through.

Informative and entertaining

Jahnn, a self-proclaimed history enthusiast, wanted to ensure that her young readers would enjoy their reading and learn a little as they went along. "I think that a book should inform, as well as entertain, especially for young folk. Learning need not be a chore. If it's done correctly, the reader does not even realize that he or she is learning." An excerpt about a race Susan attends:

"The start of a sailboat race is not like the start of any other race. In other races, the contestants start from a dead standstill. Sailboats can't just stop at the starting line and then start up when the gun goes off, because the wind is always moving them. This is how they do it: There is a 10-minute sequence, during which time the boats sail around behind the starting line, jockeying for position and deciding how far away and on what course they want to be when they finally turn and run for the line. Their goal is to be right at the line when the gun sounds. If a boat is over early, it has to turn around and go back to restart. However, the skipper of each boat also has to decide where on the line he wants to be — upwind is generally favored — and on what tack he wants to be … starboard tack boats have right-of-way over port tack boats … this leads to some very interesting situations and frequently a lot of yelling."

Jahnn didn't set out to write a book that teaches youth. "It just happened," she says. "The books I read are books from which I can learn something, including history, biography and, for frivolous fun, historical fiction." She goes on to say that she enjoys reading books written in different eras, such as her mother's *Outdoor Girls* books. "Frivolous as they were when they were written, they are really loaded with information about the early 1900s and imbued with the attitudes of the people at that time." This, she says, is an education in itself.

Susan's Sailing Adventures concerns a girl "basically because I let the child in me relate the story, and that child happens to be a girl. However, it would not be difficult for me to change Susan into Eric if I had to. I would let the publisher decide." The target audience for the manuscript is around 10 to 14 years old, as the protagonist is 13.

Of this book, Jahnn says, "To tell the truth, I have no idea if it will ever be published. I'm sending it off to three big publishing houses and will work toward the boating-oriented publishers, should I not succeed with these three."

Going cruising

"What we really want to do," she says, "is take off and cruise. We each realize that we're not getting any younger, and we want to cruise while we still can."

A Hallberg-Rassy Web site is hosted by her husband, Dave, at <http://www.fultoncomputer.com/classic/classic.htm>. "I'm just enjoying three of my favorite things," he proclaims, "namely boats, people, and computers. In that order."

Herbert Davies II is 19 years old and hails from Manchester, England. He has been traveling all his life, having crossed the Atlantic Ocean five times by the age of 13. His ultimate dream is to be a sailing writer. He lives in Maryland aboard his family's ketch Ojala, *a 40-foot 1967 Mason.*

Big beds on small boats

Spoil yourselves and get a really good night's sleep while aboard

by Donald Bodemann

Have you ever wondered what you have to do to get a boat with a decent-size bed? My wife, Cheryl, and I searched for six years for the perfect cruising boat. The number-one criterion was that it must include a bed we both can be comfortable on and thus get a good night's sleep.

You might be imagining a pair of sumo wrestlers trying to crawl into the V-berth of a Catalina 22, but excessive width is not the issue. The problem lies in my height of 6 feet 3 inches. It seems that unless you're looking at something like a $250,000 Hunter 450 Passage with a palatial aft stateroom, you will be hard pressed to find a small or midsize cruiser with a bed adequate for a couple which includes at least one large person, especially if your budget dictates that you look only at older boats less than 40 feet long.

The standard land-based bed is approximately 76 inches or longer, and if you measure the king- or queen-size mattress that most of us sleep on these days, you will find it to be 80 inches or longer. But when it comes to berths in the average older sailboat, 74 inches is more often the norm.

Cheryl and I came to this conclusion: if you can't buy one, make one. On our last boat, a lovely 1980 Hunter 27, all the berths were inadequate, so we decided to make what we call "the Big Bed Mod." This entailed converting the saloon area, with its two opposing settees, into one large bed. This cabin arrangement is fairly common in boats of this size and smaller. It lends itself nicely to a modification of this type.

First we needed a way to span the distance between the two settees. Our Hunter had two pieces of teak trim to hold the settee cushions in place. I'll call these "side rails." The five new braces that span the center and support the middle of the bed I'll call "stringers." Some folks have made similar beds utilizing stringers with metal hooks on each end that hook on the top of the existing rails.

A few problems

I considered this method but there are a few problems, as I see it. The first is I like my interior wood to be varnished

The Hunter 27 project came first and was such a success that Don did it all over again with the next, and larger, Hunter 33.

and to look good. Placing metal hooks on the rails repeatedly and then loading them with my 200-pound weight and my wife's weight (no, I won't go there, but you get the picture), these rails would definitely take a beating. I decided to rout pockets into the rails for the stringers to rest in.

When examining the existing ⅝-inch x 3½-inch rails, I realized there was not enough wood to rout a pocket for a stringer that would be big enough to support the anticipated weight. My solution was to make new, larger, rails that were a little thicker (one full inch) and deeper (approximately 5 inches). I used mahogany since it is a wood that is similar to teak and, at least for me, much more available and therefore cheaper.

After the rails and stringers were in place, we measured the spanned area and cut a piece of ⅜-inch plywood to lie on top of the frame. I then cut the plywood in half, making two matching pieces that could be stowed when not in use.

The final step was to make cushions which fill in between the settees. For this we turned to our local upholsterer. He did a beautiful job and even found some outdated brown plaid that generally matched the original plaid used by Hunter when building these boats. The two cushions, along with the stringers, are easily stowed in the V-berth when not in use, and the two pieces of plywood fit perfectly under the existing settee cushions when not in use.

Cheryl and I took a two-week cruise to Long Island Sound last summer, and we slept wonderfully with all the comfort of home. This was no small feat, considering we are both spoiled rotten with a king-size waterbed at home. If sleeping onboard is something you endure, rather than enjoy, consider making a Big Bed Mod for your boat.

Don is a certified ASE Master Auto Technician and an amateur musician (bass and 6-string guitar) who also designs, builds, and flies giant-scale radio-controlled model airplanes and has a private pilot's license. Flying got expensive, so he bought a Sunfish, then an O'Day 17, then a Catalina 22, then a Hunter 27, then a Hunter 33 . . .

Déjà vu all over again: the Hunter 33 project. The photo at top shows the portside leeboard folded flat for stowage. This board can be secured vertically to make a sea berth. It is extended in the center photo. And the bed is complete in bottom photo.

Matella Manufacturing
Stanchions: Safe, salty,

Sailor Ron Bohannon fell in love with a Phil Rhodes Chesapeake 32. As is often the case with older boats, she needed work. But he loved the lines and bought the boat before he came to his senses. Later, when he considered the extent of the project and the time he had available, Ron put the boat back on the market. But he owes this boat a debt of gratitude. She led to a new sideline for his business …one that is gradually becoming a major focus of Matella Manufacturing.

The Rhodes Chesapeake had aging cast-bronze stanchion bases and stainless steel stanchions. Reflecting on this setup, Ron was sure this vital safety equipment was not up to the job of keeping kids, dogs, and adults aboard. He notes, "People are spending their money on the wrong stuff: man-overboard systems, strobe lights, and so on. They should spend it staying on the boat in the first place.

"I wanted to replace the stanchions with something that was lightweight, low maintenance, and good looking," Ron says. He didn't see the solution he was looking for on the market. No matter. Ron had something most sailors don't: a fully equipped machine shop and the skills to develop an alternate solution. That was in 1998. Soon afterward, Matella Manufacturing, a provider of intricate, high-quality parts exclusively for the aerospace industry, turned its attention toward the marine industry after comparing Ron's high-tech solution with other products on the market.

His solution? A solid aluminum stanchion and base, polished and heavily anodized, machined from solid blocks of metal, with large studs, full-sized backing plates and O-ring seals, capable of withstanding terrific forces. When *Practical Sailor* rated stanchions and bases in December 2000, it recognized this new addition to an already crowded market as the best of the lot. But then Ron and his partner, Jim Strain, already knew this. That's why they agreed to introduce Ron's development as a product in a market they had not yet entered.

In addition to withstanding greater forces, these stanchions are available in taller sizes (30 inches is the tallest), so sailors don't have to experience that sneaking feeling that they would more likely be tripped and thrown overboard headlong than saved from falling by their boat's lifelines.

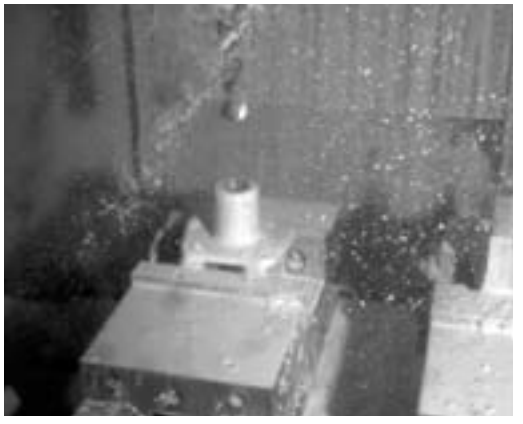
by Karen Larson

A series of sailboats ran through Ron's life. Before he turned 18 there were a Sabot and a Malibu outrigger owned by a friend. After high school he worked for Hobie Cat and sailed these boats extensively. Then there was an older lapstrake Folkboat, a 34-foot wooden Rhodes cutter, and a 24-foot boat of Swedish origin but otherwise unknown heritage. As life improved for Ron and family, he bought a Sparkman & Stephens Yankee Dolphin, which he loved and fussed over until selling it in pristine condition because it was a bit small for a family.

The Rhodes Chesapeake project boat came into his life as an attempt to replace the Dolphin. In late 2000, while looking once again for a replacement boat, Ron came upon a Cheoy Lee Offshore 31, which has Herreshoff 28 lines and is likely to remain in the family for many years to come. After only a few months in Ron's care, this new boat, *Minuet*, is already decked out in Matella's stanchions and a new super-strong aluminum lifeline Matella has just introduced.

Big Bear City, in the mountains of California, is a two-and-a-half-hour drive from the Redondo Beach (Los Angeles) marina where Ron keeps *Minuet*. It may seem an unlikely place for a business manufacturing sailboat stanchions. But Ron and his wife, Colleen, moved his aerospace parts business from Los Angeles to the mountains when the first of three children reached grade-school age. In their estimation, Big Bear City is a more wholesome place in which to grow up. Sailing was still just a hobby anyway. Ron moved his small shop next to another small company run by Jim Strain. Jim's machining business was called Matella Manufacturing. These two eventually merged their companies and selected Matella Manufacturing as the joint name. Jim is not a sailor, but he may yet catch Ron's enthusiasm.

While stanchions aren't the sort of thing that wear out first on older boats, they can be broken or experience failures, particularly at the base. Jerry and I are not the only good old boaters who cringe when people grab



sturdy

our stanchions when offering docking assistance. We know these relics from 1976 are not mounted firmly from below. We know each stanchion is fastened to its base with one screw assisted by a tiny setscrew. And we're aware that the stanchions themselves are thin-walled stainless steel tubes. That they have lasted as long as they have is testimony to the good care our boat has received over the years. To avoid the eventual replacement costs, we typically ask (even insist) that a shroud be used when others grab at something on our boat.

Perhaps now that the ultimate replacement is available, we'll be less likely to shout, "Please don't pull on that stanchion!" In fact, the cost of replacement is not as shocking as might be imagined for the quality of this product. A typical 26-inch Matella stanchion costs $80 as compared with $85 for another major brand available from one of the large marine catalog companies. And the Matella product comes complete with the base and all necessary hardware. There's a good reason for the lower cost. Matella sells these stanchions directly to the consumer, rather than through a third party, since this would typically double the manufacturer's price. Going it alone means that Matella depends, more than most, on word of mouth. Once the word's out, however, it won't be long before it will spread through dockside conversations and via email discussion lists.

Karen is editor of Good Old Boat *magazine.*

On facing page, the birth of a stanchion base. From far left: Every surface of the finished base is shaped by the CNC milling machine. The part and the tool are flooded with fluid that lubricates and cools to control tool wear and thermal distortion. A precise hole is drilled in the base for the stanchion. This page, above, Ron sails* Minuet *with his stanchions and new stainless lifeline. At left, Ron starts a base in one of five computer-controlled milling centers.

It's his business to be fussy

by Jerry Powlas

Ron Bohannon is a fussy guy. The world needs fussy people, those more inclined to say "that's not good enough." Ron looked at the lifeline stanchions on the market and said he wanted something better on his boat.

"Good enough" is not a concept at Matella Manufacturing. Until recently, his customers were primarily aerospace manufacturers, customers who knew precisely what they wanted. When machining parts for these customers, the easy parts are made to a tolerance of ±0.0005 inches (half a thousandth of an inch), while the difficult parts can have a tolerance of ±0.0002 inches. The thickness of the page you are now reading is 0.0025 inches, 12 times thicker than the closer tolerance. Holding a micrometer in your hand for a few minutes will warm it from room temperature and introduce errors greater than 0.0001 inches, so very special measuring equipment is needed for this kind of work. There is no policy for the disposition of out-of-spec parts at Matella. Parts per print are shipped to customers; out-of-spec parts are shipped to the scrap buyer along with the chips and shavings. You have to be fussy to do this kind of work.

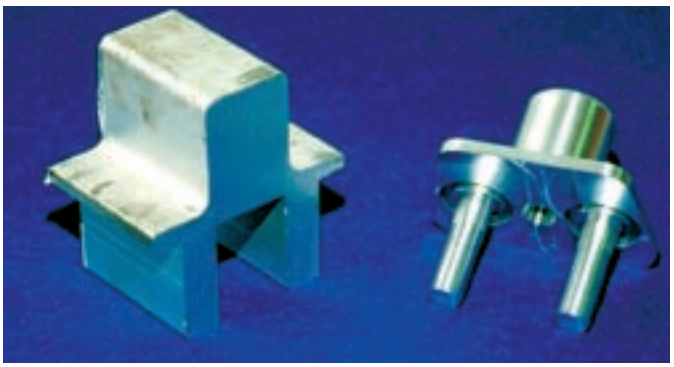
The Matella operation is on two floors of a 5,000-square-foot building. The ground floor houses five computer-controlled milling centers, a computer-controlled lathe, and several manually operated machines. The stanchion bases are machined in the milling centers, and the stanchions are turned in the lathe and drilled and tapped in the mills. The bases are milled from saw-cut sections of a custom extrusion that is oversized enough to allow the mill to cut all surfaces of the finished part.

The machine operator clamps the extrusion in a vise, shifts the previously milled part to another vise next to it (so the bottom can be milled), closes the door and starts the milling from the adjacent control panel. The machine selects a tool from a rotary magazine of tools, chucks it in the three-axis milling head, and goes to work on the extrusion according to programmed instructions. As the mill executes the program, it selects tools from the tool holder as needed, while a nozzle sprays a coolant/lubricant on the tool and surface being cut.

Ron designs the parts on a desktop CAD computer and writes the machining programs based on the 3D designs in another software. He says "People think CAD/CAM means you feed a print of a part into the machine and it makes the part. Actually, if you don't know how to machine the part, the computer won't help you," Ron notes. "Even with CAD/CAM you have to be a good machinist, or you make bad parts."

All the stanchion parts are made from 6061 T6 aluminum, which is a corrosion-resistant marine-grade alloy. Finished parts are polished and mil-spec anodized to produce a tough, corrosion-resistant surface. The

Continued on Page 63



One-part base from start to finish, above, and installed on Ron's boat, at right.

A new life afloat

Couple rejects professional life for peace, simplicity

by Mary Maynard Drake

Photos by Bob Drake

FULL SAILS DRAW AS THE CUTTER rhythmically dips and rises in the swells. Moonlight sparkles on the water, then gives way to the pink- and orange-streaked sky that signals a new day. The aroma of fresh coffee wafts from the cabin, and Bill Martin knows breakfast isn't far behind. And a new harbor is just over the horizon.

This is the life Bill and his wife, Shirley, have chosen. Last fall, the Arkansas couple quit their jobs, cut their land ties, and moved aboard a 1986 Lord Nelson 35 with their golden retriever, Saylor. They first headed east on the Gulf Intracoastal Waterway from Biloxi, Miss., to Pensacola, Fla. "It's boring where the Waterway's just a big ditch, though Pirates Cove in Perdido, Ala., was a neat cruising stop," they recall.

Their voyage across the Gulf of Mexico from Pensacola to Tampa began perfectly under a full moon.

Homey touches make this salty boat warm and comfortable: real dishes, fluffy pillows, books, photos, and its teak-and-rosewood joinery. The head is tiled and the countertop is of marble. The table in the main salon also has a marble inlay. Instead of this centerpiece, the salon table of some of the 35s was inlaid with a marble chessboard.

They alternated four-hour night watches while the autopilot and GPS maintained the course. From a cushioned chair by the companionway the helmsman followed their progress on the computer screen in the main cabin. Dolphins swam so close alongside that the Martins could hear their breathing and were sometimes spattered when they blew. Their presence unnerved Saylor, who considers the cockpit her territory. "She went bonkers: barking, quivering, and shaking, but we loved watching the dolphins," says Shirley.

"After 38 hours of perfect sailing, we paid our dues. The last 18 hours were stormy and miserable," says Bill, a relaxed, agile 59-year-old. Adrenaline kept them alert and neither got seasick. Reefing was simple, because sheets, halyards, reefing, and roller-furling lines run to the cockpit. Luckily, conditions never deteriorated enough to deploy the 300-foot drogue with 120 tiny parachutes they had made.

After Tampa's massive commercial harbor, they relished gunkholing down Florida's southwest coast. "We found we liked the self-sufficiency of being at anchor," says Bill. While anchored in the Little Shark River's mangrove wilderness, Shirley produced a full traditional Thanksgiving dinner on their gimbaled two-burner propane stove. In Key West, they were surprised to find another Lord Nelson 35 anchored nearby, for only 36 or 37 were ever built. The companionship of Canadians Per and Kay Hansen aboard *Change of Pace* outweighed the discomfort of 15- to 25-knot north winds buffeting the anchorage for days. "Every dinghy ride was a salt-water shower," Bill recalls.

We caught up with Bill and Shirley at Key West Marina, where they were preparing for a voyage to the Bahamas and beyond. Cruising wasn't a spur-of-the-moment decision for Bill, who grew up messing about in boats on the Ohio River. "I realized as a child that I liked to fish only because I was out in a boat," he says. He sailed a bit some 25 years ago, but life intervened — marriage, two children, a house, Naval Reserve duties, and his career as a clinical psychologist.

Fifteen years ago, Bill began sailing again and loved it. He bought a 25-foot MacGregor, then a 28-foot O'Day and honed his skills. "Soon it became 'hurry up and retire so I can cruise full-time,'" he says. Luckily, Shirley, 53, whom he met on a friend's boat in 1991, liked the idea. Though she had never sailed before, she became an eager partner. Shortly after their marriage in April 1994, they found the perfect cruising boat in Houston, Texas: Lord Nelson 35 hull #17, a solid fiberglass cutter with extensive interior teak-and-rosewood joinery.

"The boat's history was sketchy and hard to unearth until we met Loren and Lani Hart in the Bahamas," says Bill. "Loren was a partner in the Hans Christian company, but disagreed with the design of the 33-footer and left to start the Lord Nelson company in the 1980s. He designed the 35-foot Lord Nelson, plus the interior of the 41-footer. The three dozen or so Lord Nelson 35s and about 90 41-footers were built in Ocean Eagle Yard, Taiwan, from about 1981 till 1990. Loren Hart still owns the molds."

Before embarking on a sea voyage, Bill wanted to get comfortable with life aboard *At Ease,* a name encompassing both military and civilian meanings. For five years, they lived aboard almost every weekend on DeGray

Shirley is comfortable in the U-shaped galley and can produce a full Thanksgiving dinner there, but she enjoys operating the boat as well. Having a dedicated nav station gives Bill an "office" of sorts which he jealously guards and admits to keeping it as cluttered as his office of yesteryear.

Lake, near Arkadelphia, Ark. "We sailed in all conditions, year-round," says Shirley. "We'd see a storm coming up and sail out to see what the boat could do. We found it was real stiff and would sail upright under full main in 20 knots of wind. The time we sailed eight hours in 25 to 30 knots we were exhausted, but the boat handled it real well. Once we had a knockdown, and water poured into the cockpit and through the portlights. Before I could get below, the pump had sucked the cabin dry," she says. "Now I shut all portlights before sailing."

In July 2000, Bill closed his psychology practice and retired as a Naval Reserve captain with 30 years of service. Now they have no land base, only a self-storage room of books. They communicate with a cell phone, mail service, email, and single-sideband radio. The more Bill sails *At Ease,* the greater his admiration for what he calls their wonderful bluewater boat. He points out the external rubrail molded into the solid fiberglass hull, adding structural strength. Bolts and screws for the teak deck fasten into fiberglass bedding plates or battens and do not penetrate the hull. The cabin, above the deck, is balsa-cored to reduce weight. A layer of foam between the hull and interior teak ceiling reduces condensation and adds insulation. They have three independent steering systems: manual wheel, a Monitor windvane, and an electric self-steering gear connected to the main GPS and the computerized charts of The Captain mapping software. (Backup is a hand-held GPS.)

Their wind generator and two new 3.1-amp solar panels aid in charging the batteries. The 44-hp Yanmar diesel has an isolated 12-volt starting battery. Four 6-volt golf-cart batteries power the windlass, electronics, and all the comforts of home: lights, hot running water, a 30-gallon-a-day watermaker, refrigerator/freezer, stereo, TV/VCR, and computer.

"The two share helm duties. Bill steers while Shirley drops the anchor. She steers while he raises it."

"Living aboard is more similar to a house than I expected, and I am learning to put things away securely so they don't bang around," says Shirley. "I love the simplicity of living on a boat. The sails are of manageable size for the two of us, yet we have plenty of room to spread out below." Shirley, who graduated from college after two decades as a homemaker and mother, found leaving her three children and their families difficult. Leaving her job was even more difficult. "I was in charge of a program placing 130 senior volunteers as reading tutors in area school systems, a program with travel, prestige, and national recognition," she says. "I loved my work and being the boss. To move to a boat that has a single captain was a challenge. I had to find how to be creative, be useful, and have my own domain — and not just in traditional 'woman's work.'"

The two share helm duties. Bill steers while Shirley drops the anchor. She steers while he raises it. Her other jobs include checking the batteries, keeping the teak shipshape, and sheeting the headsails. A self-professed Internet and digital-camera addict, Shirley wants to be a knowledgeable first mate, so she is learning about the engine, GPS, radar, and how to operate the boat in an emergency. Bill teaches with clear explanations, without panic or shouting, even if things don't go perfectly, as when the new fully battened main hung up in the topping lift. Later, as they tacked across Key West's busy channel, he said, "We're going in to the slip now. Let's talk about it. The worst thing is to ram the dock.

So, as we enter very slowly, I'll just kiss the starboard piling, and you loop that line over it. That will stop us. Then I'll go forward to secure the bow lines."

An apt student, Shirley listened, repeated her duties, then slipped the line over the piling as requested. The boat slowed and stopped, inches from the dock. Bill went forward, "Well done, Shirley." Once secured, he set up the cockpit awning that extends aft from the custom hardtop dodger protecting the companionway. "We can sail with the awning up, but not coming in to port," he says. Detachable side screens stop 90 percent of sun and blowing rain.

The Martins have grown accustomed to their floating home away from home. They note that designer Loren Hart is an avid reader and therefore built reading lights everywhere. He insisted on having settees that were long enough to accommodate adults who like to stretch out and read in comfort, as Bill and Shirley do.

Below, homey touches — real dishes, books, photos, and fluffy pillows — soften the teak-lined main cabin and U-shaped galley. "Loren Hart told us the interior teak was milled from the same log to ensure consistent color and grain, then finished with seven or eight coats of two-part epoxy, which has stood up remarkably well over time," says Bill. "Our boat is one of only two with the center folding table Loren Hart prefers. The others have a U-shaped settee. He said the engine and all tanks can be removed without damaging the interior joinery. Also shelves, hand holds, and fixtures were designed so that a 220-pound man could fall against them and not structurally damage the boat."

The Martins rave about the cutter's well-engineered details. These include a grating-topped removable pan beneath the companionway for catching sand and drips. Mirrored doors. The double-berth cabin separating the main saloon from the tiled, teak-trimmed head in the forepeak. Ample drawers, lockers, and cupboards. Nooks and crannies for all needed spares. A cabinet for Bill's Sailrite sewing machine. Adequate space in the main saloon's nav station for the laptop computer and electronics.

They mention a few weaknesses. When the main is broad off, it rubs on the shrouds. The electric autopilot is inadequate. The cramped engine space has poor access.

"We depend on our dinghy for freedom," says Bill, adding, "I'd like to replace our 9-foot inflatable and 5-hp outboard with a larger rigid bottom inflatable and bigger motor." They're planning to cruise the Bahamas this winter, possibly with their sistership or other new friends. At present, they're thinking of summer in the Chesapeake Bay, next winter in the Caribbean and Venezuela. But the cruising life, not the destinations, is most important.

"Our dog makes lots of friends for us, especially when Shirley calls down the dock, 'Saylor, come here,'" says Bill. "So does Shirley's guitar playing." A songwriter, folksinger, and longtime Gospel singer, Shirley frequently performs for friends. Bill "just watches her adoringly."

"I meet such interesting people boating, and I enjoy the heck out of it," says Bill, who especially enjoys being "just a person, not a psychologist." In his previous land life he didn't socialize with neighbors, for they might be or become his patients. "Here I meet people from all walks of life, many of whom I wouldn't meet ashore, because land society is stratified. Boaters have a commonality — a love of boats, so they have more similarities than differences. College professors on sabbatical, carpenters, retired engineers . . . their diversity enriches the boating community."

Bill and Shirley relish that richness of experience. "We've had so many great times aboard," he says. "Particularly at sunset, when the temperature is just right, the drinks are just right, and everything is peaceful, I know life doesn't get any better than this."

After ocean voyaging separately with their respective families for years, Bob and Mary Drake returned home to Connecticut where they married and sailed their Cape Dory Typhoon and 23-foot Sailmaster on Fishers Island Sound. They now summer in Maine and winter in the Florida Keys. Mary does the writing. Bob is the photographer.

Resources for Lord Nelson sailors

Lord Nelson 41
Brad Gislason
861 #2 Schoolhouse Rd
Friday Harbor, WA 98250
360-378-4860
bradgis@rockisland.com
http://www.rockisland.com/~bradgis/

Lord Nelson 35
Bill and Shirley Martin
ateasemartin@aol.com

The Lord Nelson 35

by Ted Brewer

I ALWAYS FELT THAT LORD NELSON was a rather inept and unimaginative name for this line of boats since that great British sailor and admiral never sailed aboard, nor even saw, a vessel that could remotely resemble any of the Lord Nelson yachts. Indeed, it seems to me that Captain Cooke would have been a better choice for a series of rugged cruising boats but still, "a rose by any other name," etc.

The builders of the Lord Nelsons jumped on the bandwagon originally started by Bob Berg in the late '70s when he commissioned Robert Perry to design the Baba line of husky, full-keel, fiberglass, Danish-style double-enders. They were built by the score in Taiwan and the popularity of these yachts resulted in a number of imitators, such as Hans Christian, Panda, Union and, of course, Lord Nelson. Still, when it comes to designing nicely balanced ends and sheer lines, few of the imitators had the Perry touch, at least to my eye.

I've never sailed any of these husky double-enders so we'll have to look at the numbers to see how the Lord Nelson 35 stacks up. We couldn't find complete data and/or drawings on much of the competition but were able to come up with two Perry designs in the general size range, and the computer also spit out another design with the same waterline, beam, and displacement as the 35. Much to my surprise, it was a design of mine for a steel cutter! About a half dozen were built in Maine as semi-custom yachts, so I'll include it as an interesting anomaly.

I was surprised when I worked out the ratios to see how close these vessels were in many regards. If you simply look at the numbers, it can appear that there's not much to differentiate them. The main difference that I can see is that the Lord Nelson 35 has a moderate ballast ratio, even lower than the Kaiulani with its fully framed and heavy steel construction. Given her displacement, I would have expected the LN 35 to carry another 1,000 pounds of ballast and have a ratio closer to 40 percent. Either her fiberglass is unusually thick or her weighty teak trim is incredibly heavy and complete.

I have no drawing of the Tashiba underbody, but she is another Robert Perry design so I'd expect her lateral plane to be similar to the Baba, and that is cut away a bit more than the very full-keeled LN 35. The Kaiulani's lateral plane is the most cut away so she might have an edge in light air, but the high ballast ratio of the Perry designs will help to keep them upright and moving in a real gear buster. Overall, I'd expect the LN 35's performance to be less than sparkling with her very long keel and modest ballast but the difference, compared to the others, will be slight in a normal voyage.

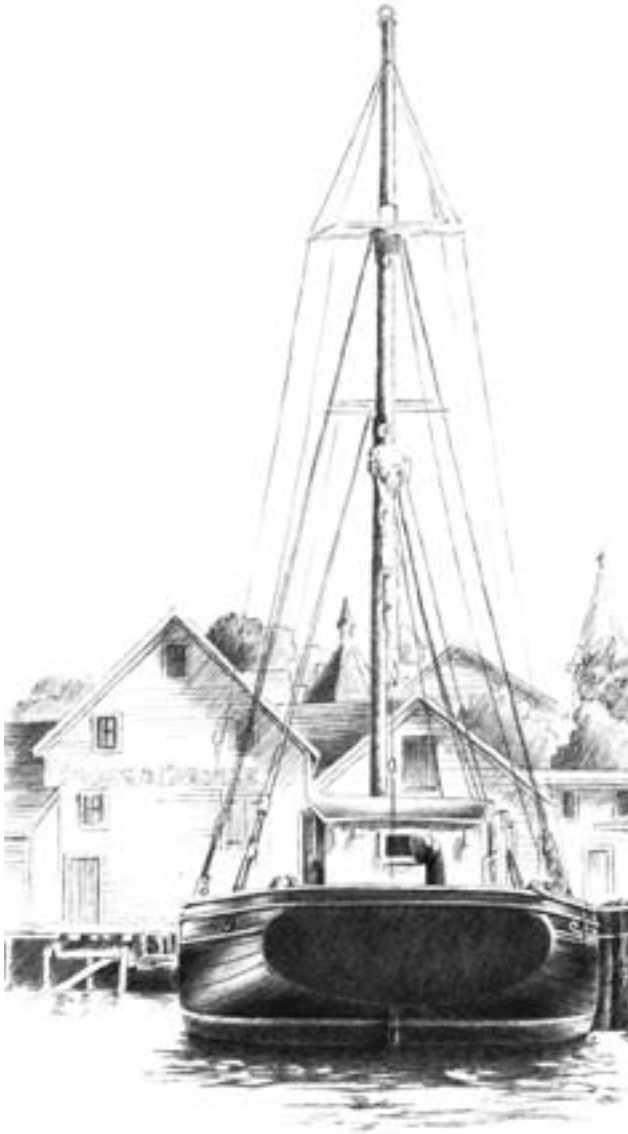
In any case, none of these four yachts will break any performance records. They are intended to be long distance, "go-anywhere" voyagers; yachts that will take you out and bring you back in comfort and safety. Their comfort ratios and capsize screening factors are definite evidence of this intent, and the voyages that many of them have made bear further witness to the purpose of their design.

As far as that goes, if it takes you a day or two longer to get to Tahiti, what do you really care as long as the rum holds out and you're enjoying the cruise?

Ted ts a Good Old Boat *contributing editor. His bio appears on Page 13.*

	Lord Nelson 35	Baba 35	Tashiba 36	Kaiulani 38
Length on deck	35'11"	34'10"	35'11"	38'0"
LWL	31'4"	29'7"	30'5"	31'4"
Beam	11'10"	11'2"	11'10"	11'10"
Draft	5'4"	5'6"	5'6"	5'0"
Displacement (pounds)	20500	19000	20350	20500
Ballast (pounds)	7000	8600	8740	7400
Sail area (square ft)	725	716	703	748
Beam/LWL ratio	.378	.378	.389	.378
Disp/length ratio	297.6	327.7	322.7	297.6
Ballast/disp ratio	34.1%	45.3%	42.4%	36.1%
Sail Area/disp ratio	15.49	16.1	15.1	15.9
Capsize screening factor	1.73	1.67	1.73	1.73
Comfort ratio	37.3	39.6	38.2	37.3

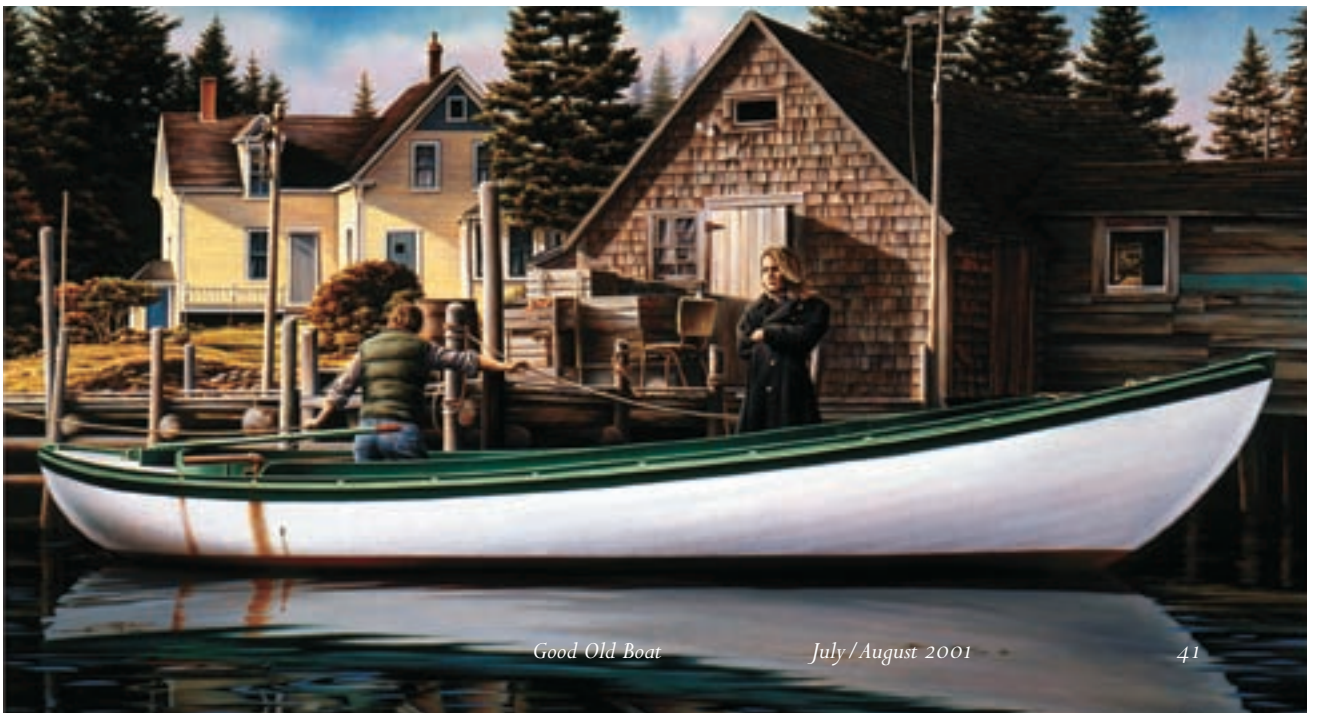
The fine art of Paul Kelley



Paul Kelley lives and has his art studio in Broad Cove, Nova Scotia. His love of the Atlantic Coast and the boats that are a part of its heritage is one of Paul's principal themes, along with his artistic passion for the sensuous grace of the human form. To see more of Paul's art, visit his Web site at: <http://www.adventartinc.com>.

***Titles clockwise from top: Lunenburg Harbor, B Morning Burnoff, Leaving Home, Adams and K* The Who Cares, *and* Wind Wagon.**

oat in Cradle,
nickle Wharf,



Small-budget cruising

Going NOW means holding the line on costs

by Leslie Fournier

We cruised for three years aboard our 1973 Islander 34, *Kestrel*. In order to leave when we did (in our mid-30s) we were willing to give up our careers, travel in a smaller boat, and do without some of the "stuff" many people insist is "vital for cruising."

To our surprise, most of the cruisers we met were older, usually retired, and owned larger, better-equipped boats. Younger cruisers in small boats with small budgets were few and far between. We wondered why there were not more young cruisers out there. One reason may be the belief that you need a big boat with lots of safety features and most of the conveniences of home in order to cruise.

Currently Spartan

Our boat would have been considered a luxury cruiser 15 or 20 years ago. But it seems Spartan by current standards. Many of the items we did without were on the majority of cruising boats we encountered in our travels. But we believed the initial cost of these luxuries could delay our departure, and subsequent maintenance costs could become a budget buster.

When we decided to go cruising we each had a sailboat, I had a San Juan 24, and Jay had an Islander 37. We had read, "The perfect cruising boat is the one you now own." People have cruised in 24-foot boats, but they probably were smaller than Jay's 6 foot 2 inches. The Islander 37 was an option, but it would require many costly upgrades before it was ready for offshore cruising. Paying off the mortgage of the 37-footer and the cost of "beefing it up" would have whittled away our cruising kitty to just one year's cruising. We decided to buy a smaller boat that was already set up for cruising.

Older and smaller

Before we bought *Kestrel*, we had a list of 36 items we hoped to have on our dream cruising boat. Our budget for purchase was about $25,000 in 1998, limiting us to older, smaller boats. When we found *Kestrel*, it was love at first sight. She met 28 of our 36 wish list items. More importantly, she "spoke" to us. We made an offer that afternoon. The biggest problem? We had been planning to start our cruise in Florida, but *Kestrel* was in Seattle. Instead of getting our feet wet with warm Caribbean island-hopping in the trades, we were faced with the West Coast of North America: 2,000 miles of big seas, nasty capes, and freezing ocean. We didn't don swimsuits and shorts until we reached Cabo San Lucas and entered the cruising ground of the Sea of Cortez, six months after we left Portland, Oregon.

No watermaker? No problem

When we pulled into Bahia Magdalena, Baja California, a couple in a large power yacht whom we'd helped at a previous anchorage invited us over for showers. What luxury: a real warm-water shower! Having a watermaker made that offer possible.

We had decided against buying and installing a watermaker primarily because of cost. While occasionally envious of other cruisers, we have never regretted that decision. In the U.S. it's a simple matter of pulling up to a dock to fill water tanks. In Mexico and Central America it's often necessary to carry the water to the boat in jerry jugs.

Of course, without a watermaker we are much more consumption-conscious. We usually bathe in the ocean (unless we're anchored in a dirty bay), then we do a final rinse using fresh water warmed in a solar shower. This usually consumes less than one gallon for both of us. Full showers using fresh water can use up to three gallons apiece. And we don't bathe every day. Baby wipes are great for a body-wash without water.

We wash our dishes with salt water and rinse with fresh. We have friends who use a spray bottle to rinse their dishes, using even less water for rinsing. We use manual foot pumps in the galley. For ocean crossings, I am considering

measuring our daily ration of two gallons into gallon jugs to better monitor usage. *Kestrel* carries 60 gallons in her two tanks, and we can carry another 24 gallons in jerry jugs.

Not exactly refrigeration

We started our travels with an old worn out cold plate in our icebox. Eventually the system lost its charge. The icebox was not well insulated. To overcome the heat of Baja California, the compressor ran constantly. It was an amp hour hog, and one of us despised being a slave to the refrigerator: "We need to charge the batteries so let's motor the first hour or so." "But there's wind. I want to sail!"

When the compressor died, we gladly tore it out and now use the icebox for canned food storage. While in San Diego after a sailboat delivery, Jay bought a thermal electric cooler for $99. We use it like a cooler to keep leftovers cool and to chill beverages for the end of the day. We turn it off and on as needed. Used this way, it is more economical.

All-bands receiver

We pulled into Bahia Culebra, Costa Rica, and were surprised when asked, "Are you northbound? We don't know of you because we haven't heard your boat name on any of the nets." These cruisers assumed that all cruisers have ham or a single-sideband (SSB) transceiver. We are not radio enthusiasts. When anchored, we often turn off our VHF radio as we prefer the quiet to the "social engagement central and the coconut telegraph." We responded that we were traveling south and do not have an SSB nor ham radio transceiver, though we do listen in on the nets when we are preparing for passages or underway.

We have a small, portable "all-bands" receiver, which has served us well and cost $140. We can pick up the nets for weather and other information, time ticks, the international high seas weather stations, and weatherfax. Instead of an SSB for emergency, we have a 406 MHz EPIRB. Our portable's reception isn't as great as many transceivers with elaborate antenna setups, but we've gotten by with our little portable. We can pick up most SSB and ham frequencies. We use a scrap piece of wire with alligator clips on each end to make up a small jumper cable. We clip one end of the jumper to the radio's antenna and the other to one of our chainplates. The whole shroud then becomes the antenna, and reception improves considerably. A drawback is interference from other systems on the boat. Our diesel engine does not interfere much, but other systems have to be shut down to get clear reception.

Manual backups

We know of a boat whose captain removed the main compass because he had all of his electronic charts, GPS, radar, depth sounder, and so forth networked electronically at the steering pedestal. Hearing this sent shivers down our spines. We both left computer-industry jobs. Knowing what we know about computers and electronics, we don't trust them!

With that said, we have and use electronics quite a bit on *Kestrel*. But we also have manual backups for those things that are necessary for safe navigation: we have a sextant (and know how to use it), and a lead line lives in the bilge. Radar was not a high priority on our dreamboat wish list. To our benefit, *Kestrel* was sold with radar. We are glad we have the radar as it has helped us tremendously in navigating out of Gray's Harbor channel in Washington state in the fog and several times brought us safely into open-bay anchorages at night. It shows squalls and helps us pick our way through commercial shipping traffic. But we do not see the radar as a necessity. We use it to enhance navigation and not often at that.

Other electronic items we use are the depth sounder (ours is a fish finder) and the GPS. We have a main GPS unit and a back-up hand-held unit, which is kept in the abandon-ship bag. We have a wind meter, which we consider to be optional. And we have a knot log, but the impeller is often jammed full of crustaceans and other sea life.

Supplemental charging

Gasoline-powered generators, wind generators, towed generators, and solar panels are among the most common supplemental charging devices. Our motto is, "If you don't use the amp hours in the first place, you don't need additional power." We have a 400-amp-hour house battery bank. For additional charging we have two 45-watt solar panels. Even during the wet season in Costa Rica, we had more than enough electrical energy to keep up with daily usage if we controlled the use of our cooler. The solar panels are nice, as they are quiet. We bought them used for $250. We don't have a regulator for the solar panels. While cruising, overcharging was never a problem.

Kestrel came with an 800-watt inverter, and we didn't have an opinion one way or another about these devices when we bought her. Now that we have the inverter, it's hard to imagine living without it. We admit it: it's easy to get accustomed to luxuries. We use the inverter to recharge our cordless tools and to supply power to the computer. Since we use the computer for weatherfax, we don't think we'd give it up. You can get the same weather information on the high seas as voice forecasts, but we prefer visual images. Given our

Leslie and Jay take in the view from the pyramids near Mexico City.

Young El Salvadorans in a dugout canoe visit* Kestrel *and crew off the town of La Union in the Bay of Fonseca.

usage, we could get by with a 140-watt inverter, which costs only $40.

Windvane steering

When we sailed 600 miles from San Diego, California, to Asuncion, Baja California, the windvane steered for the entire five-day passage. It even steered us through a gale. We were very thankful for the helping hand, as I was sick during the first couple of days of the voyage while Jay ran the boat singlehanded. This made for a tired crew, and the windvane was indispensable.

Kestrel did not come with a windvane, but we noticed mounting brackets for one and asked. The previous owner still had the windvane and sold it to us for $500. Now we say, "don't leave home without one." It is a godsend during passages, though we are still learning about fine-tuning two years later.

Kestrel also has an autopilot which has served us flawlessly. The previous owner used it during his cruises to Mexico and up into Canada, so it has seen a lot of use. We use this autopilot when motoring, when the winds are too light for the windvane, and when the seas are too lumpy for the windvane.

As a backup, we have a spare electric tiller pilot set up reversed for the windvane trimtab. We've met a few boats with neither a windvane nor an autopilot, but most boats have both. Surprisingly, some people admit they have never learned how to use their windvane. We like the quiet of the windvane and its lack of appetite for electrical power. If we had to choose, we'd opt for the windvane before the autopilot.

Bite the bullet

We imagine most boats carry insurance, especially when the owners sold everything to "take the leap" into cruising or when the yacht was a $250-million investment. Instead, we bought a relatively inexpensive boat and agreed to bite the bullet and take the loss if we lose *Kestrel*. Good seamanship and hefty ground tackle are *Kestrel's* insurance.

Used rowing dinghy

We think the type of dinghy you choose is a very personal decision, and we couldn't justify buying the latest and greatest rigid inflatable boat. Instead, we went to a boat swap meet and paid $350 for a used 8-foot fiberglass rowing dinghy manufactured by Gig Harbor. We love our dinghy, *Rockhopper*, and wouldn't give it up for anything.

We left Oregon with two dinghies: *Rockhopper* and an old inflatable stuffed in the lazarette. We carried the inflatable for nearly a year before we decided to compare it with the hard dinghy. We tried it for a week and decided the hard dinghy was our dinghy of choice, hands down. The inflatable required pumping up and assembly. It was wet and seemed to require more work than the hard dinghy. It was more stable, but that was the only advantage it had over the hard dink. We sold the inflatable.

Some factors for our decision to buy a hard dinghy were: initial low cost; ease of bringing the dink aboard and launching by hand; durability, in that it doesn't deteriorate as readily in the sun; ease of rowing; light weight (about 60 pounds) so dragging up the beach is no problem; no dinghy wheels required; ease of repair; less prone to theft; and far greater resistance to accidental groundings.

Exploring anchorages

We initially did not have an outboard, but bought a used 2.5-hp outboard in La Paz for $250 because we wanted the extra range it provided. The small outboard pushes the dinghy beyond hull speed and is especially useful when we're jerry jugging water or fuel. Even if you have an inflatable, a big engine is not necessary if you can live without speed. We prefer to row the majority of the time even after buying the outboard. We enjoy the tranquillity of rowing.

Engine oversight

We feel strongly there should be no compromies made on the engine. Ours was used and turned out to be trouble-some. If we were to do it again, we'd buy a boat with a brand-new or nearly new engine. Even though we motor 40 to 50 percent of the time, we sail considerably more than most cruisers we've met.

Although we preach that there should be no compromises with the engine, in our experience a cruiser does not need to have all the latest and greatest equipment to get out there. Neither does a cruiser need a $100,000 boat. An older, well-found and well-equipped boat is not hard to find, though a little dock walking may be in order. The latest gadgets are not necessities.

By purchasing only the minimal gear you need, you will save a considerable amount of cash that can be put toward the cruising kitty. We found many reasonably priced, used items in good condition by checking out swap meets and marine consignment shops *(For a list of these, see the classified ad page on the* Good Old Boat *Web site.* **-Ed.***)*. We also bought equipment through regional sailing magazine classifieds. If you're deciding whether or not to purchase a big-ticket item think of ways in which you can compromise your cruising life to live without it.

Leslie Fournier and Jay Fraser left Scappoose, Oregon, in 1998. Over the next three years they sailed north to Canada and then south as far as Costa Rica before returning to Oregon. They live aboard Kestrel *while saving for the next cruise.*

Catalina 27

A roomy good-looker

by John Vigor

It might come as a surprise to find the Catalina 27 described as seaworthy enough to sail around the world. I can think of some dedicated traditionalists who would faint dead away at the very suggestion.

But she is included (in the book *Twenty Small Boats to Take You Anywhere*) for some very practical reasons. First, a lot of people are going to be tempted to take the Catalina 27 offshore. They should know what her limitations are. Second, Catalina 27s have sailed around the world very successfully. Prospective adventurers need to know how that success was achieved. Third, Catalina 27s are very available. They're belly-button boats. Everyone seems to have one. And they're cheap. More than 6,000 27s have been produced since Frank Butler started building them in California in 1971. It's the largest production run of a 27-foot sailboat in the history of boatbuilding.

Perhaps it's important to state the obvious right at the beginning: a good sailor could sail around the world in almost anything. Just because the Catalina 27 has made circumnavigations, it doesn't make her anything like the ideal boat. Nevertheless, her weak points are well known, and she is capable of being improved substantially by enthusiastic amateurs. She's not the kind of boat you'd want to take around Cape Horn in winter, but with a lot of caution and seamanlike preparation you could sail her around the Cape of Good Hope in summer.

Before you rush out and start looking at secondhand Catalina 27s, be aware that there are several different models, some more suitable than others for ocean work. There are models with deep keels and shoal-draft keels. Some have tall rigs, and others have standard rigs. About half have outboard engines, and the rest have inboard engines. The two standard interior designs are the traditional version, with the galley located aft, and the dinette version, which has the galley amidships.

For our purposes, the deep-keel, tall-rig, aft-galley, outboard engine version is most suitable. With a tall rig, you can fly plenty of sail to get you through calms. Why an outboard? We'll come to that in a bit.

The original displacement of the deep-keel outboard model was about 5,600 pounds, while the shoal-draft 27 displaced about 6,100 pounds, the extra 500 pounds being carried as added ballast in the keel.

But as the years have rolled by, the Catalina 27 has put on weight along with the rest of us. Displacement of later boats has crept up to 6,800 pounds or more as the interior has become more sophisticated and loaded down with inboard engines and the paraphernalia of sewage holding tanks, Y-valves, fuel tanks, and so on.

An older, lighter boat is probably the best bet for an extended sea voyage. You're going to add plenty of weight

Page 45:* Antebellum, *a C27 tall-rig, sails Georgia waters with Brad and Stephanie Coy aboard.
This page: Bill and Kathe Foster's* Manu'iwa *shows the C27's fin keel and free-standing rudder.* Manu'iwa *is Hawaiian for a large frigate bird known as a man-o-war. The Foster's boat was named by the previous owner, a hang-gliding enthusiast.

in the form of food and water, and you don't want to destroy this boat's main asset — her speed and sailing ability — by burdening her too much.

Basic design

The first thing you could say about the Catalina 27 is that she was designed to be affordable. That is, cheap. There is no expensive overbuilding here, no redundant overlapping systems, no salty bronze opening ports at more than $100 a smack. She was designed for a purpose, and she fulfills that purpose well. Let's just not kid ourselves that she was designed to sail around the world.

The Catalina 27 is a fin-keeler with a free-standing rudder extending aft underwater beneath the transom. There is no support from a skeg. The first thing you notice about her is that she handles like a dinghy, which is hardly surprising since that's what she basically is — a dinghy with delusions of grandeur.

She's light and beamy. The tall rig is skinny and efficient. She is reasonably stiff and stands up well to her canvas. All this makes her a fast, maneuverable, and easily controlled boat, but it doesn't do much for seaworthiness.

With a beam of 8 feet 6 inches (later increased to 8 feet 10 inches) the hull needs to be fairly shallow, so as not to increase displacement and underwater resistance. That, in turn, limits the space inside for accommodations and stowage. But what the Catalina 27 lacks below the waterline is more than compensated for by what's above it. This boat is a good example of nautical trompe-l'oeil. She deceives the eye. Her topsides are deep and her cabintop high, so that her interior is actually about the biggest you'll find on any boat with a 22-foot waterline. But you wouldn't think so by just looking at her from the outside. Through some cunning design, or by pure luck, Frank Butler happened on a bulky design that is not aesthetically offensive. Far from it. She's not a bad looker at all. The deep crown in the cabintop helps considerably, and the fairly straight sheerline gives her a look of modern sleekness. But there's something else at work there, too, some magic mingling of line, curve, and proportion that brings pleasure to the eye.

The decks and cockpits of older boats were what you might call uncluttered, even with essentials such as a bow roller, but that can be an advantage, too. Sometimes it's easier to start with a clean sheet and add your own custom fittings. Incidentally, in the beginning there were no backing plates on the fittings that were supplied. That kind of pennypinching inevitably leads to cracked gelcoats and possible delamination of the GRP around the bases of stanchions, cleats, and rails. Happily, things changed for the better on later boats.

The 27's cockpit is fairly large and lacks a proper bridge deck to stop heavy water from entering the saloon. There are ways around this problem that we will discuss later, but they bring with them the usual penalties — inconvenience and the need for constant vigilance.

A little earlier we asked why an outboard engine is the type recommended for an extended voyage. The answer is simple. Although about half of all Catalina 27s are fitted with inboard engines, they shouldn't be. It's possible to squeeze one of those sweet-running little Universal 14-hp twins into the space aft of the saloon, and then bolt the deck and cockpit on top of it, but there's practically no way to get to it after that. You might as well kiss it goodbye.

As a result of poor access and the consequent problems of routine servicing, the inboard engine of a used boat is likely to have been neglected unless the previous owner was double-jointed and could change the oil by feel alone.

The outboard-engined versions of the 27 free up a lot of stowage space down below and avoid most of the problems of servicing, although they're

The Fosters bought* Manu'iwa *with an outboard motor well in the "wet lazarette." They enlarged this space and modified the lid to accommodate their new 8-hp Mercury.

The Fosters added a new faucet and counter in the galley. They also replaced the head and constructed a support for the overhanging base. And they added anti-siphon loops to the inlet and outlet lines.

not exactly easy to manhandle in and out of the well at the aft end of the cockpit. In fact, if you're planning to cross an ocean, it would be better to mount the outboard on a bracket attached to the outer face of the transom. That further frees up valuable lazarette space.

A 9.9-hp outboard is about the right size for the Catalina 27, though you can go as low as 5 hp if you intend to motor only when there's not enough wind to sail. And then you could use the same engine on your inflatable dinghy. The Catalina 27 can't carry much gasoline, of course, so her range under power will be limited, but she sails so well that you'll only need the engine for getting through the odd pass in a coral reef or for maneuvering in port.

Accommodations

There's hardly another 27-footer around that compares with the Catalina 27 for a feeling of bright airiness and space down below. Despite her faults, and they are many, this boat offers so much in the way of accommodations that owners are prepared to overlook the rest.

The companionway hatch is responsible for much of the spacious feeling. It's very wide. When it's fully opened, the heavens appear to invade the boat's interior, letting in light, air, and the sweet smell of the sea. At the same time, a large hatch is a danger at sea, not only because it is structurally weaker than a smaller one, but also because of the vast volume of water it would admit if the boat were suddenly capsized while it was open.

There is standing headroom of 6-feet 1 inch in the main cabin, but it tapers down as you move forward. Still, for a 27-footer, it's very generous.

The traditional aft-galley layout supports six berths. They aren't all comfortable to sleep in — the two in the forecabin and the one on the port side of the main cabin are short — but nobody should even contemplate sleeping six adults in a Catalina 27 anyway. The settee berth on the starboard side converts into a double bed for cozy cuddling in port, but the only really decent sea bed is the starboard quarterberth.

Just aft of the forecabin, on the starboard side, there's an enclosed head that is reasonably comfortable to use. As is usual on a boat of this size, there's precious little locker space, although many owners have found that they can open up extra stowage pockets by cutting into the plastic interior liner in strategic places.

The original galley equipment was a two-burner alcohol stove, which can be recommended only if you have plenty of time on your hands and enjoy spending a lot of money on a little heat. Propane is quicker, easier, and more efficient. It can also be dangerous. But then, so can going to sea in a Catalina 27. Traditionalists will change over to kerosene, which is smellier, messier, and more trouble, but safer and cheaper.

Over the years, the Catalina 27's rather austere looks down below have been softened by the addition of more wooden trim, but its side effects are detrimental, both on the speed of the boat and the checkbook of the owner. This boat will never look like a Hinckley or a Hallberg-Rassy, no matter how much trim is added.

The rig

The Catalina 27 is not dressed for the sea. Her rig is weak and needs to be beefed up. Shrouds and stays should be replaced with wire at least one size bigger. The chainplates for the aft lower shrouds should be strengthened, too. Owners of older boats like to tell how they watched the deck bowing upward at the chainplates in heavy weather. Some bolted new stainless steel chainplates through the topsides, as was the fashion in the good old days, and fastened the shrouds to them. It means the jib won't sheet at such a narrow angle, but it's a good trade for keeping the mast up.

Change the spreader sockets, too. The old ones were made of cast aluminum, which has a reputation of cracking under stress. You can get new stainless steel ones from the factory.

Otherwise, the rig is pretty simple and efficient — a single-spreader masthead sloop of 340 square feet with the sail area fairly evenly divided between the main and foretriangle. The spars are aluminum, of course, and she uses jiffy reefing on the mainsail.

Performance

The tall-rig, deep-keel, outboard-engined Catalina 27 that is best suited to deep-sea work is also the best performer. The secret of making fast passages in this boat is to keep her light. She will not only sail faster and go to windward better, but she'll

Antebellum's *home port is the Isle of Hope, Georgia. At the dock, she displays an uncluttered deck and Frank Butler's sleek lines.*

be safer because she'll put less strain on her hull and rigging. When she's pounded by a wave, a boat like this must be able to give way fast. She hasn't got the strength to resist like a solid rock taking everything that comes. She must submit. Her narrow keel helps her to slip sideways through the water, reducing the force of the blow, but too much weight will sink her lower, slow her responses, and punish her accordingly. A Catalina 27 must be lively to live.

So be careful how you load her. Take only enough food and water for the passage in hand. Resist the temptation to stock up on canned goods for three years because your local supermarket is having the sale of a lifetime. Keep that weight down.

The outboard version is faster than the inboard version for two reasons: an outboard is a fraction of the weight of an inboard engine, and you can raise an outboard's propeller out of the water to avoid drag.

Under sail she's lively, but you can control her with one finger on the tiller until it really starts to blow. She won't hold her course faithfully for 10 minutes while you clean up the mess the anchor made on the foredeck, of course, although she tracks better than you might expect from a fin keeler. The lightness of the helm is an advantage in at least one respect: you can use a small self-steering windvane, such as the Navik, which weighs only 41 pounds.

Like most beamy little lightweights, she tends to gather weather helm as the wind rises and makes her heel excessively. Weather helm describes a sailboat's continuous attempt to gripe, or turn into the wind, which must be counteracted by pulling the tiller to weather.

There are ways to deal with excessive weather helm, either by varying the amount of sail fore and aft, so that she is forced to turn away from the wind by more sail area forward, or by changing the depth of draft in a sail. But the best way to reduce weather helm and maintain control on a boat like the Catalina 27 is to reef down. As soon as she comes more upright, the tendency to gripe is greatly reduced.

You can try this for yourself in the bathtub with a model yacht. If you push the mast from directly behind when she's dead upright, the yacht will go straight ahead. If you push in the same spot while she's heeled over to starboard, she'll spin around to port. The mast acts as a sideways lever to screw her into the wind. And the more she heels, the more effective that lever is.

So keep your Catalina 27 upright — or at least reduce that excessive angle of heel — by reefing down as soon as you experience that feeling that she's getting out of control.

Known weaknesses

We've already mentioned the backing plates for deck fittings, the standing rigging, the chainplates, and the spreader sockets.

The lack of a bridge deck means you'll have to keep one or more hatchboards in place in the companionway, and you must be sure they're solidly fixed in place so you won't lose them in a capsize. They will hamper your access to the cockpit — you will have to high-step over them every darned time you come and go — but it's a small penalty to pay for the security they provide.

Check the seacocks. You must have a bronze seacock on every through-hull opening. Some of the original through-hull fittings on the Catalina 27 were simply pipe nipples glassed into the hull. Change them for proper flanged, bolt-through bronze through-hulls. And if your boat has gate valves fitted to the through-hulls instead of seacocks, change them, too. Gate valves, no matter what material they're made of, are not seagoing fittings. Change them for bronze ball seacocks, or the traditional tapered barrel type. Check the icebox drain. There have been reports of water running back into the box when the boat heels over. Fit a seacock to the through-hull.

Owner's opinion

I once tested a Catalina 27 for a week for *Cruising World* magazine and found her quite free of vices under sail and power. I didn't have the opportunity to test her in extreme conditions at sea, but I discovered a man who did. He's Patrick Childress, of Newport, Rhode Island, who sailed his secondhand Catalina 27, *Juggernaut,* around the world alone in the 1980s.

He experienced the worst weather of his trip in the cantankerous and unpredictable Indian Ocean. During a particularly bad storm he stripped *Juggernaut* down to a storm jib. He then sheeted it in tightly and set his Navik windvane self-steering gear to keep *Juggernaut* close on the wind.

With the boat heeled well over, even under the tiny jib, she gained weather helm, so there was not much work for the Navik to do to keep her heading about 45 degrees into the waves as she forged slowly ahead. This is a classic hove-to position, but very few classic boats ever manage to achieve it, and it's ironic that a boat normally considered unsuitable for deep-sea work should be able to heave to so well in extreme conditions.

She occasionally got lifted up by an extra-big wave and dumped down sideways, but she always recovered quickly, so Childress left her at it until the storm blew itself out.

Childress got his boat very cheaply

Resources for Catalina 27 sailors

Catalina 27 Association
http://www.catalina27.org

Catalina 27 National Association
John Ebell
312 Severn Ave. E-311
Annapolis, MD 21403
410-295-9244

and worked full-time for three months to make her fit for sea. Here are some of the major changes he made:

He stiffened the hull by installing mini-bulkheads in all storage areas beneath the berths. This also divided the stowage into more conveniently sized compartments, of course.

He installed a 1-inch-thick mahogany plank inside the starboard side of the transom as a stiffener and backing plate for an outboard engine bracket.

He improved cockpit drainage by installing four large hoses leading downward between the aft end of the cockpit and the transom. There were through-hull fittings at each end of each pipe.

He stopped water from forcing its way through the front and sides of the closed main hatch by making new, tighter-fitting runners. He also fixed plastic tabs on the front of the hatch.

He bolted new chainplates through the hull.

He changed the stove burners from alcohol to kerosene. The threads are the same, so it is a simple matter of unscrewing the old burner and screwing in the new one.

He installed double headstays.

He fitted heavier topmast shrouds and aft lower shrouds. The forward lower shrouds stayed the same.

He installed open-faced, stronger turnbuckles.

He installed double backstays, with a backstay adjuster.

He removed the forward bolt on the rudder bracket, the one that goes through the tiller, and replaced it with two stainless steel hose clamps.

He installed a ½-inch bolt through the rudderpost cap, where the cap attaches to the rudder stock. The original bolt is too small and will eventually wear an oblong hole.

He installed a medium-duty electric bilge pump in the bilge, fitted with a float switch and manual override. He also installed a large-capacity electric pump with a float switch in the protected area under the cockpit for extreme emergencies in case the cabin became flooded. (He used a solar panel to charge his one battery, aided occasionally by a small-capacity generator on his outboard motor.)

He caulked the hull-deck joint with 3M-5200 sealant to fill the void behind the rubrail, which was leaking.

He boarded over the outboard engine well and fitted his Navik self-steering gear there.

Conclusion

We live in an age when it is both fashionable and legally advisable to warn people about the many ways in which they can harm or kill themselves. One is forced to wonder how people ever managed to survive before this fashion was all the rage and how the human population of the world ever managed to grow to the record level it is at today.

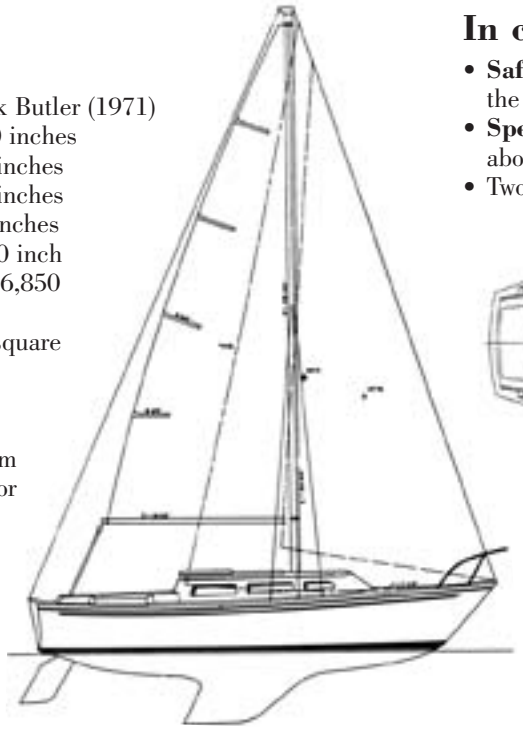
So while it is correct to say that going to sea in a Catalina 27 can be harmful to your health, one always harbors the hope that anyone imbued with the human spirit of adventure and the need to explore will deem the risks necessary, even invigorating.

Of course you shouldn't go to sea in a Catalina 27 if you're an absolute beginner with no knowledge of sailing or navigation. But if you're a reasonably experienced sailor with a good deal of common sense and are prepared to work to get the boat right and to study to make sure you're in the right places at the right seasons, there's no practical reason why you shouldn't sail an old Catalina 27 around the world as others have before you. And a whole lot of us would cheer you on.

John Vigor has sailed for more than 40 years and logged some 15,000 miles of ocean voyaging. In 1987 he and his wife, June, and their 17-year-old-son sailed their 31-foot sloop from South Africa to the U.S. This and other reviews are reprinted from John Vigor's book, Twenty Small Sailboats to Take You Anywhere. *Also see his book,* The Seaworthy Offshore Sailboat, *which devotes a chapter to beefing up a Catalina 27 for offshore sailing. Both books are available from the Good Old Bookshelf. See Page 65 for more information.*

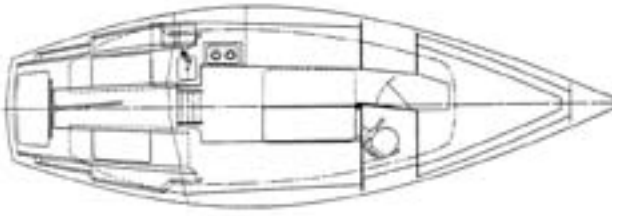
Catalina 27 In short

Designer: Frank Butler (1971)
LOA: 26 feet 10 inches
LWL: 21 feet 9 inches
Beam: 8 feet 6 inches
Draft: 3 feet 5 inches (shoal) or 4 feet 0 inch
Displacement: 6,850 pounds
Sail area: 340 square feet
Ballast: 2,700 pounds
Spars: Aluminum
Auxiliary: Gas or diesel, inboard or outboard
Designed as: Entry-level daysailer and coastal cruiser/racer



In comparison

- **Safety-at-sea factor:** 4 (Rated out of 10, with 10 being the safest.)
- **Speed rating:** Relatively fast. Average PHRF rating about 200.
- Two adults in a small degree of comfort.



Mainsail tamers

The easiest way for the shorthanded sailor to control the mainsail when reefing or stowing is a set of well-fitted lazy-jacks. Lazy-jacks are made from a set of fixed or movable lines led from the upper section of the mast to the boom, with lines on each side. They guide the sail onto the top of the boom when reefing or dousing it and keep it there to be tied up at the crew's leisure.

When properly installed, a lazy-jack system adds to safety and sail control. Lazy-jacks function well with sails with no battens, half battens, or full battens. When installed and used correctly, they prevent chafe and tearing. A well-thought-out installation makes the lazy-jacks convenient to use, puts them out of the way when stowed, and does not require expensive alterations of sails or sail covers.

There are several varieties of lazy-jacks. The fixed systems permanently attach to the mast and are not stowed. These require altering the sail cover, may chafe the sail while sailing, and sail battens may catch in the lazy-jacks, making hoisting difficult. The better systems allow the lazy-jacks to be stowed and are deployed only when the sail is being doused or reefed.

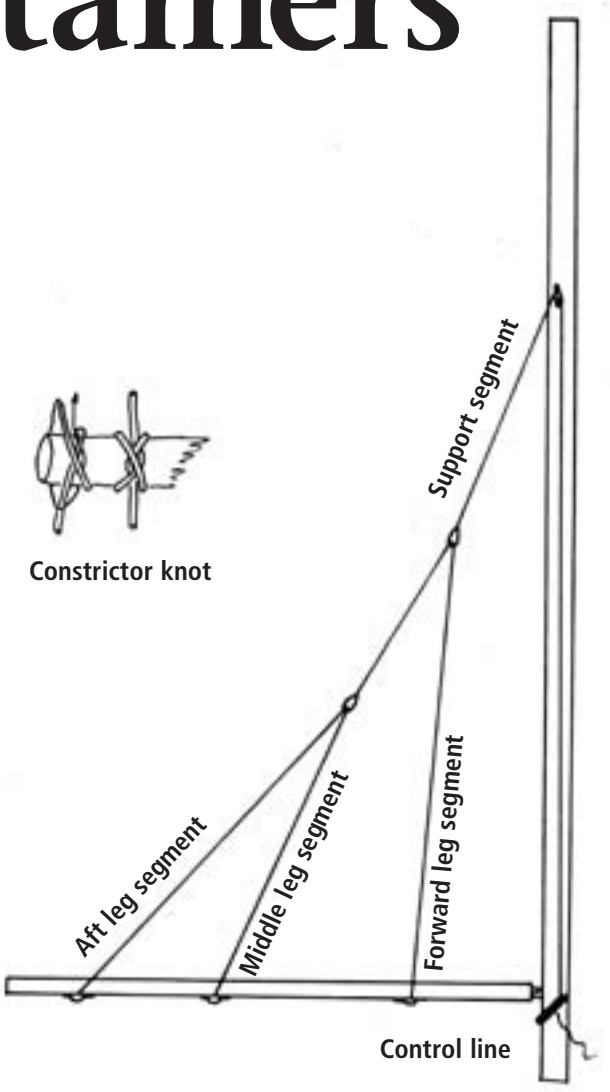
Off-the-shelf and custom-built lazy-jack systems are available. Sail-loft versions start at $200; mid-range systems cost about $400; and high-end systems can cost $1,500 or so if professionally installed. A scratch-built system can be fabricated for less than the cheapest off-the-shelf systems, and has some advantages in the way it fits and functions with your boat.

Not always better

The off-the-shelf systems are not necessarily better designs. Most off-the-shelf systems use blocks at their segment junction points. When stowed, these blocks may bang on the mast. Correcting this situation requires the installation of hooks on the mast or boom and sections of shock cord to pull the support segment away from the mast. The need for blocks at the segment junctions is questionable, and they are more costly than thimbles.

Systems that use a line through the sail can cause sail chafe and require modifications to the sail and cover. Since the average do-it-yourself sailor can't perform these modifications, the work can be expensive. These lines can also interfere with the shape of the sail when set. Changing the sail requires re-threading the lines through the sail each time it is changed or removed, neither a quick nor an easy task.

Some systems use shock cords to support the leg segments of the lazy-jacks. However, the shock cord provides too much stretch, and the sail may fall out of the lazy-jacks. Most of these systems use a plastic clip-on fitting to secure the lazy-jacks to the boom and mast. This plastic deteriorates in sunlight and often fails within a season or two.



With about an hour more than you would invest in the installation of an off-the-shelf lazy-jack system, you can make your own custom set, tailored to your boat. By buying the individual components, you can create a custom system for less than $175 *(see parts list on Page 51)*.

Four choices

The line you select should match your splicing abilities and rig construction. There are four types to choose from: three-strand nylon; three-strand Dacron, standard double yacht braid, and more exotic fibers, such as Sta-Set X or Spectra line. Lazy-jacks made of three-strand nylon for the average boat can be assembled for about $91. The same lazy-jacks in Sta-Set would cost about $160. Don't let cost be the only deciding factor; each line has advantages and disadvantages.

Three-strand nylon is simple to splice, requiring no tools and little knowledge. It's inexpensive and available from most chandlers for 13 cents a foot or less for ¼-inch diameter. However it is stretchy, so it is not as well-suited for high-aspect-ratio rigs where the stretch could allow the sail to fall off of the top of the boom. It's susceptible to chafing where it contacts other lines, and it may cause twisting when deploying the lazy-jacks, necessitating the untwisting of the support lines.

While this is the cheapest line, with the most disadvantages, it served well on my 39-foot racer/cruiser for more than five years, until recent replacement

by Guy Stevens

Take the pain out of the main, make your own lazy-jacks

with double yacht braid. I've constructed a number of lazy-jack systems using three-strand nylon for people who wanted to spend as little as possible on the initial trial of the lazy-jack system. Each system I created with three-strand nylon has occasionally required some intervention to untwist the support lines. Using this line, you could first build a three-legged system, expand to a four-legged system, or experiment with other aspects. As it is the least expensive material, making radical changes in lazy-jack rigging rarely involves more than a $30 expense.

Less stretch

Three-strand Dacron is as easy to work with as three-strand nylon. It is less expensive than yacht braid or exotic fibers and has significantly less stretch than nylon: 4.2 percent compared to 16 percent when loaded to 15 percent of breaking strength. This makes lazy-jack deployment and tensioning easier. It has less tendency to twist than nylon, lasts longer, and is significantly less prone to chafe. It is also 10 to 20 percent stronger than the same-sized nylon. It looks great on traditionally rigged vessels on which the rest of the rigging is three-strand and costs about 18 cents a foot. A system constructed with three-strand Dacron for an average boat costs about $106.

Double yacht braid line has still less stretch than three-strand Dacron — only 2.4 percent. It is less prone to chafe than either of the three-strand lines and looks a lot more at home on a boat with braided running rigging. It is more difficult to splice than three-strand line, and splicing requires the use of a fid and pusher like those produced by Samson or the Splicing Wand from Brion Toss. Both come with excellent directions. Double yacht braid eliminates twist. It costs about 36 cents a foot. A system would cost about $160 for an average boat.

The exotic lines are more expensive, and there is no need to make your lazy-jack system out of these because lazy-jacks are not normally subject to the kinds of loads these lines are meant to handle. They do rate a single mention. Should your boat have an extremely high-aspect-ratio mainsail, you might wish to make the support segments out of Sta-Set X. This line is harder to splice but has the advantage of the least stretch for the money, at 1.6 percent stretch and about 59 cents per foot. This would reduce any tendency of the high-aspect-ratio sail to stretch out the lazy-jacks and fall off the top of the boom. An alternative to splicing might be a good seizing job; it's almost as strong and a whole lot easier.

Parts and price list

300 feet double yacht braid	$108.00
4 stainless steel thimbles	$6.76
3 eye straps for boom	$8.07
2 cleats for mast	$2.78
2 eye straps for spreaders	$5.38
2 Harken swivel blocks	$24.18
1 pkg fasteners for eye straps 10 x 24 x 1.5 inch	$3.49
1 pkg fasteners for cleats 10 x 24 x 0.5 inch	$1.79
Anti-seize compound (on hand)	
Light machine oil (on hand)	
Total expenditure:	**$160.45**

Excessive chafe

With the exception of a turning block for the support segment, blocks are not well suited to use in lazy-jacks; they cause excessive chafe on the sail and bang on any surface they contact. They also add unnecessary expense to the installation. They're prone to jamming when deploying the lazy-jacks and to sunlight damage to their sheaves. Blocks are meant to make adjusting a line under load easier, but in deploying your lazy-jacks there shouldn't be any load. The weight of the sail is placed on the lazy-jacks after they have been deployed and adjusted.

There are three types of thimbles available. These are used for the inserts that go into the eye splices to reduce the chafe and friction where the segments of the lazy-jacks meet.

Galvanized steel thimbles are really cheap, but they rust quickly and make a mess of the sails, mast, and anything else they contact. Nylon thimbles are cheaper than stainless steel, are a nice white color, and won't remove the surface coating of the mast should they come into contact with it. However, they do chafe more easily and are subject to degradation in sunlight, often being the first part of a lazy-jack system to fail. Stainless-steel thimbles last longer than nylon thimbles and have the least friction. If allowed to bang on the mast, they make a racket and remove the surface coating. I use them only when I'm certain they're not going to contact the mast. They will outlast the rest of the lazy-jack system and probably even the boat itself.

Chafe on the mast is an issue because of noise and wear.

Stainless wire

Most off-the-shelf systems use vinyl-coated stainless wire for support segments. The wires are

mounted to pad-eyes on the mast. Since both ends of the support segment are next to the mast when the unit is stowed, the segment bangs against the mast in rolly or windy conditions. A fixed-support segment requires lazy-jacks to be adjusted, stowed, and deployed from a spot on the boom. The disadvantage is that you have to adjust them from the center of the boom. If you position the lazy-jack controls on the mast, it's much easier to deploy them when the boom is moving or not centered on the boat.

Mounting control lines on the mast also makes it possible to mount the support segment blocks 6 to 8 inches out on the spreaders. This prevents banging on the mast. Mounting the support segment blocks on the spreaders works best on the upper spreader of double-spreader rigs. If your boat has a single-spreader rig, or if you are mounting to the lower spreader, three-strand nylon may stretch too much and let the sail fall off of the boom. In these cases, the easiest solution is to use a stiffer line.

For free-standing rigs, a general rule for the placement of the support segment blocks is: the higher the better. About 70 to 75 percent of the height of the mast off the deck provides a good angle. If the support segment blocks are too low, the tension is more forward than upward. In this situation, the sail pushes the lazy-jacks out of the way and falls off of the boom when it is lowered.

Spreader blocks

The parts list on the previous page is for a 40-foot boat I recently equipped with lazy-jacks. On this boat I was able to use spreader-mounted blocks for the support segment. The rig is modern, so we used ¼-inch double yacht braid for the installation. Since the support segments were spreader-mounted, I used stainless-steel thimbles. If we had not been able to use the spreaders for the support segment blocks, I would have used two Harken 092 cheek blocks at a cost of about $8.79 each.

The first step in the installation is cutting the lines for the support segments. If you're installing lazy-jacks on a double-spreader rig and are able to use the spreaders as a mount for the support segment, measure the height of the second set of spreaders to the deck. Double this measurement and add 3 feet for splicing room. You will need to cut two lines this length for the support segments, one for each side of the mast.

If you are unable to use the spreaders as a mount for the support segments, you will want to mount the support segment blocks about 70 percent of the way up the mast. Measure this spot on the mast by using a long tape and a halyard. Make sure the area is clear of other fittings and there is sufficient room to mount the cheek blocks.

If you're mounting the support segment blocks to the bottom of the spreaders, position them about 8 inches from the base of the spreaders at the mast. Double-check the location. If there are spreader lights, they must be far enough away that the line for the support segments will not chafe on them. Make sure the drill does not hit the spreader-light wiring.

Small dimple

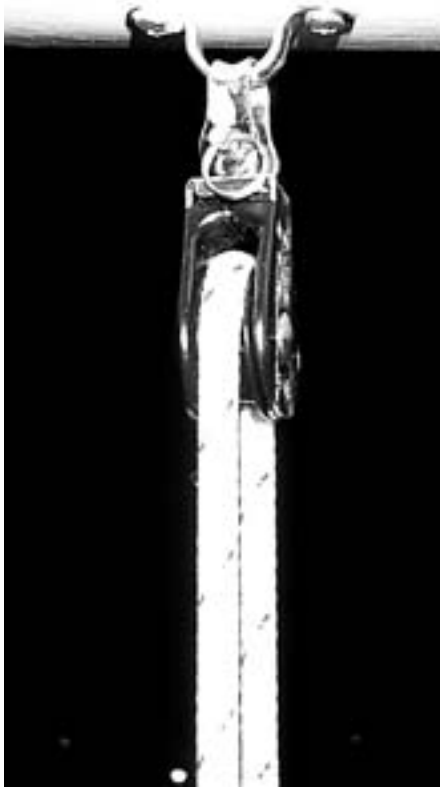
Once you are certain there are no obstacles, use a center punch to make a small dimple as the mark for the first hole. Drill the hole, using a little light oil on the bit. Then lightly oil the tap and tap the hole, being careful to start and keep the tap perpendicular to the bottom of the spreader. With each turn you should turn the tap back a quarter of a turn. This helps to avoid breaking the tap off in the hole because it clears the chips from the tap. When the hole is tapped, spread some Ultra Tef-Gel or anti-seize on the screw, and screw

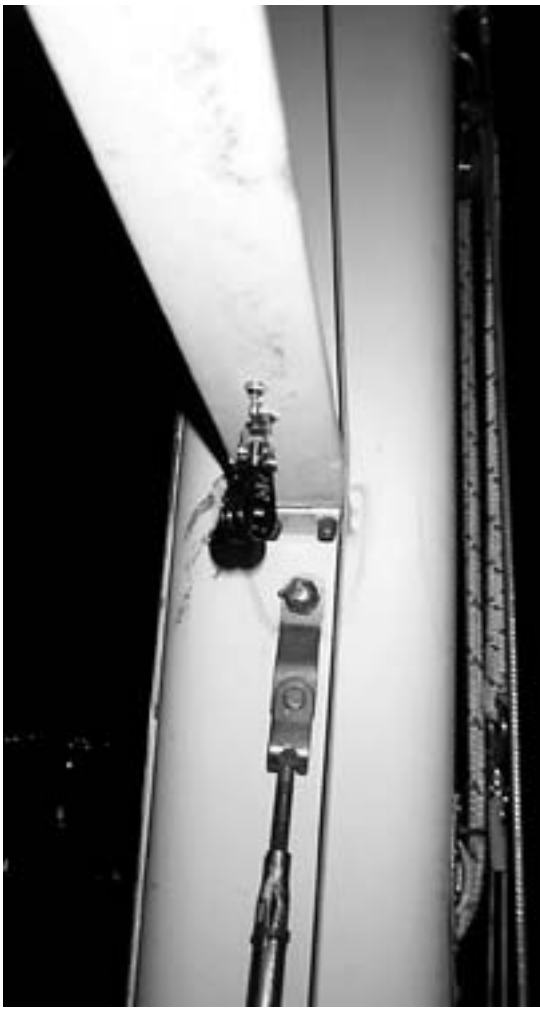
Readers' comments

What about sail containment systems:

In preparation for this issue we asked our readers what their thoughts and experiences were with sail hoisting, dousing, and reefing systems. These are some of the remarks we received.

- **Don Launer, of Forked River, N. J.,** has lazy-jacks on the jib, foresail, and mainsail of his Ted Brewer-designed Lazy Jack Schooner *(what else, right?)*. All three lazy-jack systems are simple two-legged arrangements that do not stow. Don reports that all work well, but he needs to go head-to-wind to hoist the Marconi mainsail.
- **Ron Bohannon, of Big Bear City, Calif.,** says his previous boat, a Phil Rhodes Chesapeake 32, had a roller-furling main. (This is the older rolling-boom type of reefing where the sail stows around the boom, rather than inside of it.) He says this system works fine as long as a main is cut properly and the topping lift is adjusted correctly. He adds, "It sure is simpler than any other system."
- **Fred Bauer, of Marblehead, Mass.**, says, "I have a classic boat with old-fashioned lazy-jacks, but don't miss the Hood Stow-away system." He points out that Dodge Morgan had the Hood system on *American Promise* when he sailed around the world in her. Fred says, "It's by far the easiest and most precise way to trim sails to the power of the wind I've ever used."
- **Patrick Matthiesen, of London, England,** sent a detailed opinion of the Hood Stoboom. He thinks it may work well with short booms but did not work well on the 22-foot-long boom of his Sparkman & Stevens CCA 47 yawl. He would not have another one.
- **Gary Heinrich, of Chippewa Falls, Wis.,** said that he has slab reefing on his S2 9.2 with "no furling system for the main, other than the arms of those available and, in a pinch, the deck and lifelines, followed by sail ties." He has no plans to change his S2, but has chartered larger boats with lazy-jacks and sailcovers built into the sail. On these boats it was necessary to go head-to-wind to hoist the sail, and it took more than one person to do it.
- **Larry Helber, of Rochester, N.Y.,** said he had installed a Schaefer lazy-jack system on his Grampian 28. He liked the leather-covered blocks and the one-cleat design for





Stainless steel thimbles have low friction and long life. Keep them from chafing by mounting the support segment turning blocks on the spreaders.

lazy-jacks and furlers?

storing the lines. He felt the hardware supplied was of good quality. He did say, however, that the system turned out to be a very poor design and cited problems with raising the sail and jamming of the jacks where they pass under the boom. A friend of his bought the cheapest set of lazy-jacks he could find in a catalog, and they worked better. "I would do it again (install lazy-jacks), but I would choose the cheaper version," he says.

- **Bruce Goldman, of Southfield, Mich.,** reminds us that almost every aspect of sailing is some kind of compromise. "We have an in-mast ProFurl system on our Beneteau Oceanis 300. The convenience, ease of sail handling, and ease of setting and striking the main and genoa more than compensate for the sad sail shape (and resulting poor performance). We had some initial trouble with the furling line, but a good wash and ample Sailcote solved that problem."
- **Jerry Powlas and Karen Larson, of Maple Grove, Minn.,** wondered "how complicated does all this have to be?" Our 20-foot Flying Scot had a longer boom than our C&C 30. With such a short boom, our high-aspect-ratio mainsail couldn't get in much trouble when we dropped it. It was not control that we needed, it was order. We wanted the main to flake neatly over the boom. Obviously a neat flake has alternating panels to port and starboard. We made a very neat flake in calm conditions and then marked the luff of the main with red and green permanent markers to show which side of the boom the sail should fall on at that point on the luff. We did the same for the roach.

  Now when we lower, the person at the halyard at the base of the mast guides the panels to port and starboard as they fall. The roach can be made neat at the same time by another person or later by the same person. Once the luff is laid down correctly, the roach can be made to follow with minimal effort. The main was soon so well-trained that it almost always falls correctly and unaided. We think the sail is too small to require extra gear to control it. We use the same red-green markings on our heavy 110-percent jib to help us get it flaked prior to bagging it. It works so well, we will probably mark all our jibs that way.

one end of the eye strap into place just barely tight. Use the other end hole as a guide. Center punch on this mark, drill, and tap it as before. But before inserting the screw, slide the block onto the eye strap. String one of the two support-segment lines thorough the block, one end on each side of the lower spreader.

If you are mounting the support-segment cheek blocks to the mast, the procedure is much the same, except you are going to measure up to the position you determined earlier and mark in the middle of the side of the mast. Using the cheek block for a pattern, drill and tap each hole. Exercise caution while drilling in the mast; go slowly so as not to over-drill and damage wire or lines in the mast. Thread the support-segment lines through the blocks, keeping one end on each side of the spreaders below you (if any).

Next, mount the cleats on the mast. They should be about level with the end of the boom, on the side of the mast. Make sure they are not going to interfere with other control lines on the mast. If they do interfere, moving the cleats up or down several inches might solve the problem. If the area on the mast is too cluttered, you can mount them about a foot or so aft on the boom, making sure you lead the support-segment control lines aft of any spreaders to avoid chafe and noise. I've found that moving the bottom of the cleat slightly toward the bow of the boat makes cleating the support segments a lot easier than an absolutely vertical cleat.

Various effects

Boom length, batten length, and the hand of the sail cloth all have an effect on the perfect number and placement of the leg segments for the lazy-jacks. I have had excellent performance with three-legged systems with booms up to 16 feet. Many rigs have mainsails that are shorter on the foot than the length of the boom. In these cases the sail's foot length is the critical measurement. The best way to determine the number and placement of the legs is trial and error; every rig is slightly different.

Here are some good starting points for placement, but they are only starting points; 20 minutes of testing will make sure that the lazy-jacks are dialed in perfectly for your boat. Measure 25 percent of the length of the foot of the sail, back from the gooseneck on the boom. Mark this position on the bottom of the boom. Repeat at 60 and 85 percent of the length of the foot of the sail, and mark the bottom of the boom for these points. These will be the starting position for the legs on a three-legged system.

Both the forward leg segment and the single line that makes up the middle and aft segments should initially be 2.5 times the length of the boom. The forward leg segment passes under the boom at the mark closest to the mast and is hoisted by the eyes spliced in the support segments. It, in turn, supports the after and center leg sections in a three-legged system.

The luff of the sail is held to the mast by the sail slides, so when adjusting the forward leg segment keep in mind that it should attach to the boom at about the most forward point where the sail first starts to fall off of the boom. About 25 percent of the sail's foot length aft of the mast is a good starting point. Too far

forward, and the leg provides no support for the center section of the sail; too far aft, and the top of the sail tends to fall off the boom.

Through thimbles

The aft and center leg sections in a three-legged system make a loop. They are supported by the forward leg segments where they pass through the thimbles spliced to the ends of the forward segment. The center leg segment supports the large belly of the sail so that the sail does not spill off the boom. Slight adjustments of the center segment fore and aft can have large results.

The aft leg attachment point is generally the first place to start adjusting the system. If the sail falls out the end of the lazy-jacks, you will need to move it aft; if the center section needs more support, try moving it forward to add some support to the center section.

When you are roughing in the system and testing it, attach the middle of one of these lines to the aftmost mark on the bottom of the boom, using a constrictor knot or some good tape wrapped a couple of times around the boom. Lead the ends forward to the center mark on the boom. Tie them together making a loop out of this line. Secure it to the boom with a constrictor knot or tape. You can use a loose bowline in place of all of the thimbles while testing.

On sails that have slides on the foot, it is often possible to use these slides as mounts for the leg segments of the lazy-jacks. This does, however, limit the options for placement, and does not function well in all cases. It also means that you will have to remove the leg segments from the boom to remove the sail.

Attached to boom

Now you have a roughed in lazy-jack system. The legs should be attached to the boom well enough that you can hoist and drop the sail into them. Hoist the sail on a calm day, drop it into the lazy-jacks, and adjust until the sail stays stacked on top of the boom.

Should you have a boom over 16 feet long and the sail falls out of the middle no matter what adjustments you make, you may need a four-legged system. A simple addition to the system you already are working on makes the transformation an easy one. Instead of the forward leg supporting the center and aft leg loop, as it does in a three-legged system, it is going to become a loop just like the one between the two aft segments. Connecting the two loops are two pieces of line, each about half the length of the boom, one on each side, that are supported by the support segment. Good starting positions for the boom attachment points on a four-legged system are at about 24 percent, 45 percent, 55 percent, and 84 percent of the boom length, measured aft from the gooseneck.

Once you have tested to make sure you have the legs roughly where you want them, test to see if the system stows cleanly away. To put the system in the stowed position, ease the support segments and place the aft side of the segments under the cleats on the mast, then tension the support segment halyard. At this point you may have to shorten the forward or aft leg segments to remove any excess line that drapes below the boom. Do this by simply retying your bowline on one side of the aft or forward section. The leg sections should lie parallel to the boom when stowed.

Naturally, this may change the way the segments support the sail, so hoist the sail again and drop it into the lazy-jacks, making sure that everything still looks correct before splicing the thimbles in the ends and attaching the eye straps. This is the trial-and-error part.

Anti-seize compound

Mount the eye straps that hold the leg segments, with the holes fore and aft, using machine screws drilled and tapped into the bottom of the boom. Remember to put the lines through them before attaching the second screw. Some riggers use pop rivets for these attachments, however I have not found them to hold up as well as properly tapped screws coated with anti-seize compound.

Tie a small knot on each side of the center of the leg segments under the boom to prevent having to readjust the system periodically. Alternately, a couple of stitches through the line and around each of the eye straps looks neater and serves the same function.

Splice thimbles into all of the segments where there are bowlines. Make sure that you place the line going through the thimble in the thimble to be spliced before making each of the splices.

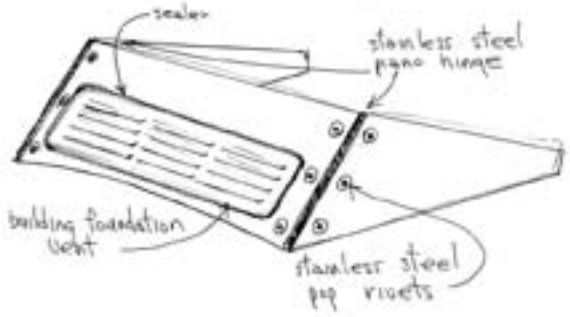
Using the system is straightforward: simply ease the support segment halyards on the mast, remove the leg segments from the cleat bottoms, and tension the support segment halyards. The lazy-jacks are ready for use.

Deploying the lazy-jacks allows you to drop the mainsail any time the wind is on or forward of the beam. I have used them when picking up a mooring and when sliding into a slip under sail. Simply let the mainsheet out and drop the sail. Pull the mainsheet back in when the sail falls into the lazy-jacks and you have quickly de-powered without having to head into the wind.

If your sail should hang on the track and refuse to allow the sail to drop easily, check for bent sail slides, and lubricate the track and slides with a dry Teflon lubricant.

Guy and his wife, Melissa, are working on a circumnavigation aboard Pneuma, *their good old 1973 Ericson 39. Currently they're in the Marquesas.*

Quick and Easy



Breathe easy: Ventilation helps

by Lorne Shantz

My wife, Colleen, and I cruise our Danish-built LM 27 each year from the middle of June until the end of August. Normally we explore the wilderness coast of British Columbia, which we feel is probably the best cruising area in the world. We have also spent time in the San Juan Islands and have gone as far as Alaska.

Because we're on our boat for long periods of time, we find it convenient to sleep in the V-berth. This way it's not necessary to take apart our bed each day. The only problem we had was excessive condensation forming overnight on the overhead. To correct this problem, I constructed a very simple vent that fits into the forward hatch.

I wanted one that would fold up and store out of the way when we were traveling. The vent I built can be made easily using common materials. First, get some cardboard and make a full-size template to fit under your hatch, making sure to take into account any curvature of the deck. Purchase the necessary ¼-inch plastic sheet from any plastic supply shop, lay out your template, and cut the three pieces. Cut a piece of stainless steel piano hinge to size, position it on either side of the center piece, drill the holes, and pop rivet the hinges in place with stainless steel pop rivets. Next, pop rivet the side pieces to the other half of the hinge. I purchased a building foundation vent from a building supply store. Make sure it's the correct size to fit on the center panel and that it has a fine screen on the inside to keep out unwanted bugs. With a steel cutting blade in your jigsaw, cut a hole in the center panel, lay a bead of sealer around the opening, and screw the vent in place.

That's it. Enjoy many nights of restful sleep.

Lorne and Colleen cruise the northwest North American continent on their LM 27, Shaunsea.

Seacock coiffure: Hair dryer does a dazzling job

Consider for a moment ball valves and seacocks . . . the plastic variety, specifically, the stuck plastic variety. What do you do when you buy a boat with stuck plastic ball valves/seacocks on the through-hulls? Your first thought may be to replace them with bronze. But wait a minute. The specs on Marelon valves are impressive. The big advantage is that they don't suffer from corrosion in salt water. And, if they're mounted on plastic through-hulls, you're going to do quite a bit of yard work to switch back to bronze.

You could replace them with new plastic valves. If yours are the pre-Forespar model, the valve stems are a bit weak anyway. But first try just one more thing. You'll need a couple of tools probably not currently in your toolbox – unless you're a hairdresser who moonlights as a salad chef. Stop at your local discount store and buy a hair dryer. Then swing by the supermarket and pick up a bottle of vegetable oil.

What you are dealing with is friction. Plastic, even Marelon, is slightly hydroscopic. It makes the ball swell inside the socket. Because of the limited tolerance inside a valve, slightly is too much, unless the valve is exercised periodically. Exercising the valve polishes the two surfaces against each other. The plastic surface is not uniformly dense, and if the valve is not turned periodically, each surface tends to push into the other ever so slightly.

Now, to free the ball, try heat to expand the valve socket ever so slightly. The expansion will cancel out the swelling, and you can turn the valve handle without breaking it. A dose of water-soluble lubricant between the two surfaces, and you will have a functioning valve without all that Travelift and wrench stuff.

Heat the valve until it's almost too hot to touch. Heat that does not go beyond the surface of the valve body will tighten the socket on the ball. You're trying to penetrate the body of the valve to the socket. Don't worry about melting it. It's made of tougher stuff than the hair dryer.

Have your it your way: A cockpit table you can actually use

by Charles Duhon

Many boats with pedestal steering systems have small tables mounted on their steering columns. If yours is like the table which came on our boat, you're lucky if you can get a bag of chips and a bowl of dip on it.

Our table was approximately 1 foot by 2 feet . . . a nice sturdy piece of ¾-inch teak. My goal was to design something low cost, simple to build, and removable so we still could use the smaller table if we preferred. I decided to build a slip-on enlargement of sorts, something that would stow easily in the cockpit, under a bunk cushion, or behind a seat back.

The first step is determining the largest possible size, keeping in mind that you need access to the companionway (to serve dinner of course) and to be able to stow it after use. To visualize this, I cut a large piece of cardboard to the size I wanted and rounded the corners. By positioning the cardboard on the little table, I was able to refine it into the perfect shape and size for our boat.

The second step is selecting a ½- or ⅝-inch piece of wood (teak, marine plywood, or any wood you like) and cutting it to fit the cardboard pattern. After this, place your new wood table on top of your existing table taking care to position the existing table squarely in the center of the larger table. Then draw a pencil outline of the smaller table on the underside of the larger table. This will serve as a guide to position the slot pieces beneath the larger table.

The third step is fixing 1 x 1-inch strips of wood to the underside to build the slot on three sides of the guidelines you drew on the underside of the larger table (see top photo). You'll need to increase the size of the slot about ⅛ inch all around to leave room for cloth buffer material and to make it easier to slide on and off. The slot should be about half the length of the small table so you can lift the add-on table before its forward end hits the main hatch.

The fourth step is gluing a sheet of felt or other soft thin cloth on the underside of the new table and inside the slot where the existing table will rub. After a test fitting, if the table slides easily on and off, screw on two 2-inch wide strips of 1/16-inch thick aluminum along the length of the slot.

Test the fit once again and, if it's acceptable, it's time to sand the tabletop and stain or varnish it to match the other wood on the boat.

The next time the weather is nice, have your dinner in your cockpit under the stars!

Charles has been an artist and sailor in the Dallas, Texas, area for more than 20 years. He dreams of retiring to paint and sail.

Besides, you're going to replace it if this doesn't work, anyway.

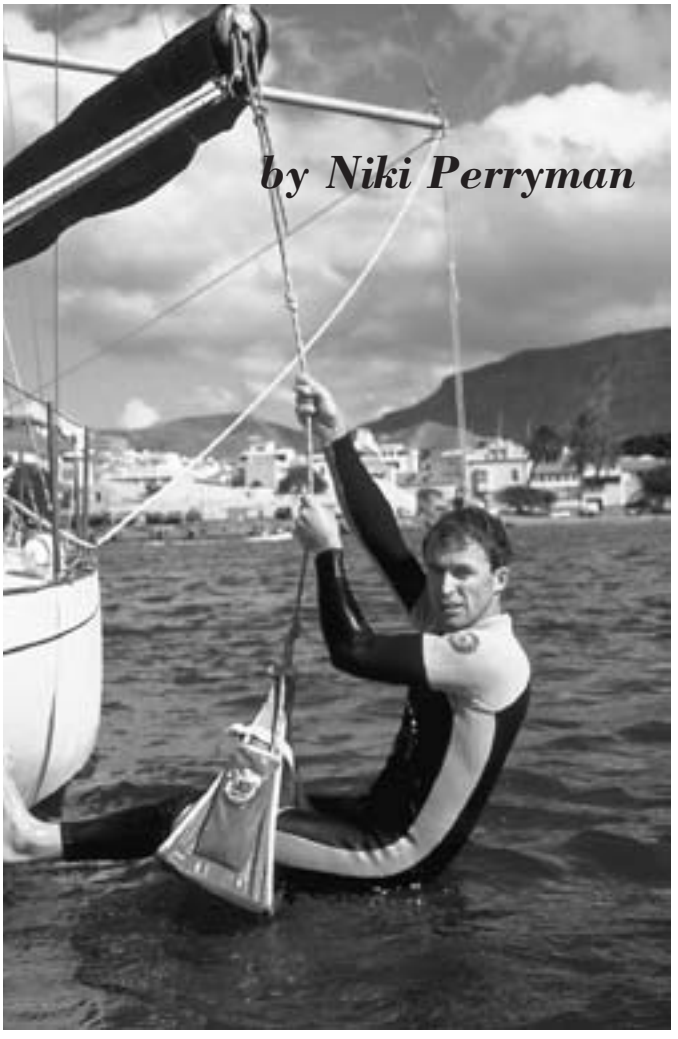
Heat the body of the valve on both sides of the stem. That is where the ball has the greatest surface contact with the body. I used a 1,500-watt unit with the heat set on high and the air set on low. I freed three pre-Forespar one-inch valves with several heat cycles. Try to turn the handle periodically as you heat the valve. Take into account the weaker valve stems on the early valves. Exercise a working plastic valve if you want to see how much pressure it takes to turn a normal valve.

Lubricate the valve as soon as it is freed up. Use something EPA-safe and plastic-friendly. Corn oil works fine. Once the valve is free, remember that the manufacturer's recommended maintenance schedule assumes that you have normal valve surfaces. The book suggests you rotate the valves every six months, but the surfaces of your valve are not polished. They need regular exercise. I turn mine every time I'm on the boat.

Now walk down the dock with the hair dryer. No one is going to be able to resist asking what you're up to. Offer to tell them the story for a beer. You'll drink a lot of free beer on this one. You might even sell someone that hair dryer. You don't think that you're the only one with a stuck valve, do you?

Peter raced Lightnings during his formative years. Now he's returning a Newport 27 MK II to like-new condition.

Climbing aboard: Forget the plastic ladder



by Niki Perryman

On a small boat, especially a skinny one like ours, storage space is a precious commodity. For several years we carried a rigid swim-ladder — a wonderful bit of gear for those odd occasions when we found ourselves in waters clean and warm enough to lure us over the side, but a complete waste of space the remaining 99 percent of the year. More often than not, when we *did* fancy a dip, the thought of disentangling it from a tightly-packed quarterberth was enough to make us change our minds.

One day, through sheer laziness, we pulled the boom out to the side, rigged the bosun's chair to the end of it on a length of line, and used the solid seat of the chair as a ladder step. It proved such an easy way to get back on board after a swim, we immediately gave away our plastic swim-ladder and filled the hole in the quarterberth with something more useful. We keep the bosun's chair in a highly accessible locker for emergency mast-climbing, so we no longer have to weigh up the hassle-factor if we feel like a swim.

For a truly graceful exit from the water, you need to make sure the boom is held rigid to the boat. On our boat, the boom-end is already supported by the topping-lift. We use a deck-preventer to pull the boom outboard, and we firm up the mainsheet for final stability. Through trial and error we've found the best height for the chair seat is just on the surface of the water. A series of knots in the line connecting the chair to the boom are a help when we haul ourselves up to a standing position. Although it takes a couple of tries to master the technique, the whole procedure requires little physical strength. If you have an adjustable topping-lift, you can actually winch someone into or out of the water seated in the bosun's chair, using the boom as a derrick.

Niki Perryman and Jamie Morrison left Australia in 1992 to cruise in their 35-foot Lion-class sloop, Siandra. *After crossing the Indian Ocean, they spent several years exploring Europe, including an icy winter in Arctic Norway. They plan to spend this summer in Maine.*

Jamie Morrison makes climbing aboard look easy.

Book reviews

How the *Fantome* was lost at sea

The Ship and the Storm, by Jim Carrier (McGraw-Hill/International Marine, 2000; 272 pages; $24.95.)
Review by Reese Palley, Key West, Fla.

The loss of the schooner *Fantome*, in which 31 people died, is a tragedy that has become painted with passion and prejudice. It is hard to imagine that a book could be written that would not fall into a posture of obfuscatory defense or egregious attack. She was lost in Hurricane Mitch in October 1998, the worst hurricane ever recorded in terms of lives and property destroyed. Mitch sank the *Fantome* and erased the physical progress that Hondurans took a generation to build.

This story, in which opinions of responsibility and judgment are widely divergent, could only be chronicled with an even hand by a mature and able journalist trained to report, not to judge. I confess that I could not give the devil his due, whether the devil be the human owners, as some believe, or whether, as others claim, that it was that old devil the Sea itself that called the dirge. But Jim Carrier, in his exhaustive and even-handed reportage of the death of the *Fantome* in his book, *The Ship and the Storm*, carefully records the lessons that must be learned from this tragedy. The book reads with the force and flow of a work of fiction. The people, both on and off the beleaguered vessel, are three-dimensional, real blood-and-muscle folk with families, hopes, and husbanded Christmas gifts gone now to the deep with them.

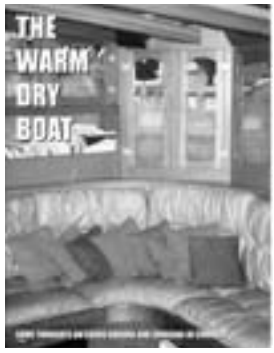
The vessel, built by an English duke, never achieved the nobility that had been built into her. When she was lost, she had been reduced to the fakery and the fantasy of pale and pulpy landlubbers desperately reaching for adventure. The ship is revealed in the book so exquisitely that the reader can walk through her decks and companionways as through a hologram and follow the desperate movements of officers and crew attempting to save an unsaveable ship.

What is best reported in *The Ship and The Storm* is the coalescence of bad judgment and bad luck. All who watched and waited on shore prayed to the very last random twist of the blindly malicious storm that the vessel might somehow have survived. In the end, the *Fantome* sank somewhere off the coast of Honduras, where she was inexorably blown into shoal water. With the winds shrieking at 150 miles an hour and seas pushed up vertically to heights that could have topped the masts of the 300-foot vessel, she went down so suddenly that no cry for help was heard. It is a cautionary tale for charterers who put their lives in the hands of others who may well be businessmen and absentee landlords.

But it is also a book that should be read for the sheer power of a sea tale of horror, greed, ineptitude, screaming winds, and towering bad luck. There will be other books on this subject, but there is not likely to be another that tells the tale so fully, so graphically, and so free of judgment.

Two essential features for successful cruising

The Warm Dry Boat, by Roger McAfee (McAfee publisher, 2001; 120 pages; $24.95.)
Review by Bob Wood, Hinsdale, N.Y.



If you're willing to dig a little, this book contains a wealth of practical knowledge on creating a comfortable boat. Its composition and structure are slightly different from the average non-fiction work, and there are a few awkward passages reflecting the author's concentration on substance rather than style and polish. These only serve to emphasize the no-nonsense, real-world experiences of a lifetime on the water. For those who are going down to the sea for a weekend or a season, this book will make your bobbing world a whole lot better.

This book is a large format (8½ x 11 inches), soft-bound, with 120 pages. Its style is elementary and straightforward in its sequencing. At first glance, it appears quite basic, but look further. There is actually a lot of information for you, whether you're a world cruiser or merely contemplating a boat purchase.

Roger's premise is excellent: that a warm and dry boat is the key to successful cruising in temperate and in tropical climates. The book sets forth a comprehensive stem-to-stern course of action to reach that goal. Additionally, it covers several ancillary comforts like water systems and appliances.

Through the step-like chapters, design elements such as construction, shade, heating, cooling, ventilation, and retro-fitting are covered. Many of the author's experiences are used to illustrate the solutions. You'll find solid, basic instructions on components often overlooked in the rush to the sea: neglected gaskets on windows, hatches, and doors are excellent examples.

There are innovative topics like fiberglass insulation and water heating that will make you pause and rethink your boat's abilities. And there are concepts like foredeck shading and evaporative cooling that suddenly make a lot of sense. Several of Roger's observations and remedies are unique; you won't find them anywhere else. The rationale is clear, and the methodology is invaluable.

I could find just two minor points to disagree with. The first is his wholehearted embrace of diesel-fueled stoves … my experience has not been nearly as favorable. The second is not including a section on ozone or ion generators for combating mildew.

If you're looking for a frothy digital-wireless-techno-speak piece, it's not here. However, if you want an instructional book that will save you literally hundreds of groaning hours battling stifling humidity and creeping mildew, I'd recommend *The Warm Dry Boat* for your workbench. This one is not for gathering dust on the bookshelf but will be useful as your personal trainer to make happen all the good things that are cruising.

Updated guide to warm-water cruising

Cruising Guide to the Florida Keys, with Florida West Coast Supplement, by Capt. Frank Papy. (Papy publisher, revised 11th edition, 2001; 260 pages; $19.95.)

Review by Roland Barth and Barbara Bauman, Tavernier, Fla.

"We went sailing not to escape from life but to keep life from escaping us."

These opening words in Frank Papy's latest edition of his *Cruising Guide to the Florida Keys*, with an accompanying photo of his wife at the wheel, capture perfectly the essence of sailing the marvelous blue-green waters of the Florida Keys.

This comprehensive 11th edition builds solidly upon the accumulated rich experience of Capt. Papy's 24 years of cruising the Keys from Miami to the Dry Tortugas, and up the west coast of Florida.

We have lived and sailed in the Keys for many years. On our passages, we have relied on a salt-soaked 5th edition of the guide. So we are intimately familiar with the waters and the book. Why indulge in this revised 11th edition? Well, because in the Keys, the beauty and the waters are eternal; but civilization, like the sandy channels, is ephemeral.

In addition to the usual detailed charts and information on anchorages, currents, bridge heights, and compass bearings, we find that we now should ask for Kay Carter instead of Lynda Gargano at the Holiday Isle Marina on Windley Key when calling ahead to the dockmaster for reservations. Other useful additions include a table of GPS waypoints for the Keys, a listing of where one can swim with the dolphins, instructions on how to anchor Bahamian style (useful when one needs to limit swinging in a crowded anchorage) and tide tables for Miami and Key West harbors, with a separate table for corrections for the upper Keys, Flamingo and Everglades National Park, and the Lower Keys.

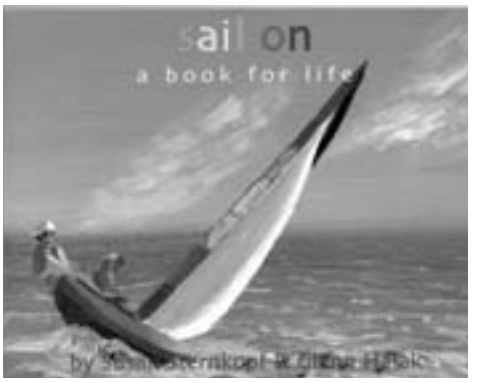
The guide is a stunning collection of aerial photographs of the Keys. The photos of watercolors by Islamorada artist Millard Wells provide as good a rendering of the colors of wildlife and waters as can be had without actually seeing them yourself. Details that would take mariners years to discover for themselves are presented clearly: courses and passages for 4-foot- and 6-foot-draft vessels; possible one-, three-, and multi-day cruises, and numerous tips from other helpful sailors.

We're glad the guide has little to say about the skinny waters and mudbanks out in the far reaches of Florida Bay. Happily, these remain the province of a very small band of self-guided cruisers and a very large band of waterfowl and sea creatures.

Like the rest of life in the Keys, there are a few funky aspects to the guide. It is evident that part of the updated text includes material that has been either cut-and-pasted or scanned in from another source. This can be somewhat jarring visually, or even confusing when the text seems not to fit the rest of the content. We found the ads in the volume distracting and unfortunate. However, these are minor considerations in an otherwise excellent guide.

If the reader takes away nothing else from this guide, the captain's three rules for sailing are enough: Never be in a hurry. Don't spit into the wind. Don't sail where the trees grow.

Roland wrote Cruising Rules, a *collection of short tales for those in a relationship, in a boat, or both. Contact him at RSB44@aol.com.*



Condensed wisdom about the real facts of life

Sail On: A Book for Life, by Susan Sternkopf with illustrations by Glenn Halak (Sternkopf and Halak publishers, 2000; 16 pages; $9.95. Call 262-691-3082, 303-816-2115, or email Susansternkopf@aol.com.)

Review by Karen Larson, Minneapolis, Minn.

With this new book, author Susan Sternkopf and illustrator Glenn Halak teach children (and their adult friends) the facts of life. *But wait!* This colorful book is not about reproduction — it's about having a positive attitude in the face of adversity, about appreciating the beauty that surrounds us, about the realization that life will have its ups and downs.

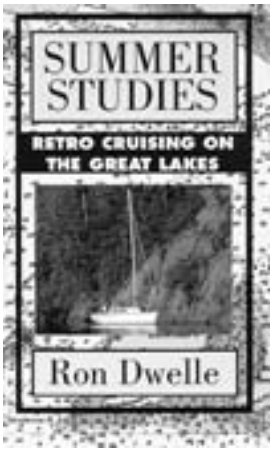
Sailing makes a good metaphor for a lifetime of smooth and rough experiences, pleasure and discomfort, hope and fear. An example: "You can count on a few hard knocks, you'll be pushed back by wind and tide. You'll learn to take it all in stride . . . sail on."

Susan Sternkopf is a Colorado elementary-school teacher who has developed sailing programs for children with a focus not so much on racing as on building self-reliance, sportsmanship, and a love of wind and water. She believes these lessons can guide children through tough times. With simple and charming rhymes illustrated by bold and colorful strokes, *Sail On* is a lovely reminder to all of us about the true facts of life.

Author Ron Dwelle finds his own sailing heaven

Summer Studies: Retro Cruising on the Great Lakes, by Ron Dwelle (Xlibris, 2000; 405 pages; $16 paperback, $25 hardback.)

Review by Karen Larson, Minneapolis, Minn.



For many of us, sailing is an introspective activity. This is certainly true for Ron Dwelle. In this book, Ron tells of cruising for 20 years on lakes Michigan and Huron … meandering from port to port and anchorage to anchorage and moseying in a similar way through the byways of his mind from rumination to rumination. Call it Ron's sentimental journey — a sentimental journey home. The Great Lakes are home for this sailor.

Ron is not one to follow the crowds or to do what everyone else is doing. He is one of those rare Great Lakes cruisers who does *not* dream of escape to the Caribbean. Each summer he turns the bow of his boat north and writes of his cruises in the colder and more remote waters he has grown to love. He compares his Great Lakes sailing with experiences racing offshore and cruising the East Coast and comes to the conclusion that he grew up sailing in the world's best cruising grounds.

In doing so, Ron reassures Great Lakes sailors that their sailing experiences are as challenging, memorable, and valid as those experienced by sailors on both coasts. Ron has been there, done that, earned the T-shirt, and returned home. Likewise, he gives credence to coastal cruising as a pastime and to cruisers as individuals who go for the pleasure of the voyage as well as for the destination: "Cruising is about passagemaking. No sooner does someone learn how to sail than they want to go some place … More and more, I've come to regard only the true cruisers as serious sailors, and the passages are the paradigm of their existence."

Indeed, *Summer Studies* is a passage in many ways, a look inside the head of one Great Lakes sailor who genuinely enjoys the activity and the locale. While you may not agree with all his conclusions, the introspection is worth the voyage.

Matella continued from Page 34

customer has a choice of type 2 anodizing or type 3 hard anodizing. The type 2 clear anodizing looks like stainless steel, or it can also be applied in several colors. Type 3 hard anodizing yields a medium-gray color and the most corrosion-resistant surface.

The Matella stanchions were tested against other stanchions on the market. The objective was to make stiffer, stronger parts that were no heavier. Milling the bases from extruded aluminum, instead of using castings or weldments, and milling the oversize threaded fasteners right onto the bottom of the base, instead of making them as separate parts, is what gives the bases superior strength. Making the stanchions from solid, extruded, round-bar stock instead of tubing gives them superior stiffness and strength and prevents them from kinking under extreme bending deflection. Ron notes, "If you can't do chin-ups on them, what good are they?"

The stanchion is permanently attached to the base with a screw made by Matella from a matching alloy. The stanchion and base are a precise fit and are sealed to prevent moisture entry. Two massive 5/8-inch studs are machined from the saw-cut extrusion onto the bottom of the finished base. These are designed to pass through a thick backing plate and to be fastened by large aluminum nuts also machined by Matella for this specific assembly. All parts are made from the same alloy and anodized to prevent galvanic corrosion.

The resulting assembly is the stiffest and strongest available but is comparable in weight to other stanchions. Destructive bending tests run by Matella, and later by *Practical Sailor,* confirmed that no other product reaches the same level of stiffness and strength. A 28-inch Matella stanchion bent at 440 pounds, while a comparable stanchion kinked and failed at 181 pounds. In the failure mode (anything can be loaded to failure), the solid aluminum stanchions retain a very high loading as they deflect, while tubular stainless stanchions kink at a lower deflection, and their stiffness falls off rapidly. On a dark and rainy night in a pounding sea, all this helps a tired sailor stay on the boat.

Maybe you have to be fussy to make a quantum leap like this.

Jerry is technical editor of Good Old Boat *magazine.*

Beth Leonard and Nigel Calder

Beth Leonard and Evans Starzinger headed offshore from Newport, Rhode Island, in June 1992 in search of a new way of being. As they passed under the Newport Bridge, neither Beth nor their boat had ever been offshore. By June 1995 they were once again sailing under the Newport Bridge. They spent three years ashore rebuilding the cruising kitty and building a boat capable of sailing higher latitudes. In May of 1998, they left aboard their 47-foot Van de Stadt sloop, *Hawk*. This trip is open-ended; their itinerary consists of a list of places they'd like to visit over the next several years.

	Price	Quantity	Extended price
 **The Voyager's Handbook** – Everything Beth Leonard says she wishes she had known before setting off on her first circumnavigation with Evans Starzinger. Her "how-to book," as she puts it. – $34.95.	$34.95	____	_____
 **Following Seas** – Beth's story in words and pictures of that first circumnavigation aboard *Silk*, a Shannon ketch. When comparing this with *The Voyager's Handbook*, Beth says this is the "why-to book." – $19.95.	$19.95	____	_____
	Subtotal		_____

(carry over to Page 65)

Years ago, Nigel Calder and his wife, Terrie, built their own 39-foot Indrid cutter from a bare hull and cruised the Caribbean extensively with their two children, including producing cruising guides to the Northwest Caribbean and Cuba. They recently sold the Ingrid and purchased a heavily customized Pacific Seacraft 40. Nigel's book, *The Boatowner's Mechanical and Electrical Manual*, is a perennial bestseller. His newest book was just released by International Marine in April 2001: *Nigel Calder's Cruising Handbook: A Compendium for Coastal and Offshore Sailors*.

	Price	Quantity	Extended price
 **New! Nigel Calder's Cruising Handbook: A Compendium for Coastal and Offshore Sailors –** An indispensible resource for experienced and beginning cruisers. Features 1,000+ drawings and photos for coastal and offshore cruisers. – $49.95.	$49.95	____	_____
 **Marine Diesel Engines** – Second edition. A trusted reference. New sections cover larger turbo-charged engines and all new troubleshooting maintenance charts. 50 new illustrations. – $24.95.	$24.95	____	_____
 **Boatowner's Mechanical and Electrical Manual** – How to maintain, repair, and improve all of a boat's essential systems: electrical, propulsion, plumbing, rigging, steering, more. Many illustrations, charts, and tables – $49.95.	$49.95	____	_____
 **Refrigeration for Pleasureboats** – Covers in detail everything a boatowner needs for refrigeration self-sufficiency, component by component. Choosing hardware, installation, maintenance, troubleshooting, and repair. – $27.95.	$27.95	____	_____
 **Cruising Guide to the Northwest Caribbean** – $29.95.	$29.95	____	_____

Out of print but sometimes available:
Nigel's *Repairs at Sea* and *Cuba: A Cruising Guide*.
Just ask BookMark: 763-420-8923.

Subtotal		_____

(carry over to Page 65)

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	Price	Quantity	Extended price
Theresa Fort			
Fun Afloat! – An exciting activity book for boating kids. (See Page 28).	$19.95	___	_____
Reese Palley			
There Be No Dragons– Charming and witty. Encourages beginners to set sail.	$24.95	___	_____
And others			
John Rousmaniere			
Annapolis Book of Seamanship – Every topic sailors must know.	$40.00	___	_____
And others			
Hal and Margaret Roth			
We Followed Odysseus – Retracing an epic adventure in the Mediterranean.	$27.95	___	_____
And others			
Lin and Larry Pardey			
NEW! Cruising in Sesraffyn (25th anniversary) – Beautiful. Additional photos.	$21.95	___	_____
The Cost-Conscious Cruiser – Equipment plans, maintenance to control costs, more.	$29.95	___	_____
The Self-Sufficient Sailor – Sailing in comfort and safety while simplifying your life.	$29.95	___	_____
The Capable Cruiser – Cruise preparation, staying healthy, and more.	$32.00	___	_____
Details of Classic Boat Construction – The Hull – Step-by-step boatbuilding.	$49.95	___	_____
And others			
Don Casey			
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GOOD OLD BOAT
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Good old classifieds

Pearson 18
1986. 18-foot weekender or daysailer with cuddy cabin and V-berth. Cushions in V-berth. Sleeps 2. Swing keel: 6" draft with keel up, 3' draft with keel down. Mainsail and jib. Motor mount. 2-hp outboard just tuned. Single-handed launch. Galv. Escort trailer. Boat, motor, trailer in excellent condition. Bought a larger boat. $3,795.

Bryan Kufus
651-429-7295
612-685-0402
bkufus@worldnet.att.net

Durbeck Gulfstream 26
Rare find! Hull #2. 1972. Restoration started on exterior of hull with barrier coat and paint. Newer VHF and compass, 2 good batteries, main and 120% genoa, 18-hp Evinrude. Sailable and sound but needs more work to be beautiful. Time and money constraints of my new business and growing family force her sale. My loss is your gain. $3,500 firm. At Treasure Island, St. Petersburg, Fla. Pictures by email.

Robert Lucas
941-915-1855
PropertyDoctor@juno.com

Classic Hunter 25
On trailer. New 15-hp Johnson, sails newly reconditioned. New interior and head. Slip available on Grand Traverse Bay, Mich. Stored indoors. Make an offer fast!

Phil von Voigtlander
231-386-7922
Philfvon@aol.com

Pearson Tritons
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Erik Lie-Nielsen
Toll free 888-530-2628.
alaskaboatandmarine@gci.net

Westerly 25
1966. Twin keel, roller furling, Mercury 9.9 runs. Overall good, but needs an owner. Keels have some rust, but are OK. No sails. $500. Marina needs quick sale.

Michael Yelland
703-553-3844
yelland_Michael@prc.com

Pearson 365
Beautiful 1979 ketch, hull #295. Many upgrades. Fresh water until last 4 years. Asking $55,000. In Wickford, RI.

Jim Wiggin
941-350-7471
jjwiggin@attglobal.net

Gulf 29 Pilothouse
1991. By Capital Yachts. Fresh water only. New fully battened main, new upholstery, 23-hp Universal, swim platform, roller furling, AC, heat, hot water, shower, propane stove. Like-new condition, sleeps 5. LOA 28'8", Beam 9'4", draft 5'2", displ. 7,500 lbs. Beautiful boat. $27,900. Lying Duluth, Minn.

Kevin Schmitz
651-501-5613
kevlaurschmitz@yahoo.com

Newporter 40
Classic pilothouse cutter-rigged ketch. Hull #91. Documented. Excellent condition. Good liveaboard or cruising boat. Built by Stowman Ship in Dorchester, N.J. LOA 48, LOD 40, Beam 12' 8". Full keel, 14 tons. Sleeps 6. Full-sized double bed in main cabin. All sails, Dyer sailing dinghy on davits. 4-108 Perkins diesel with 135-gal tank. 19x16 three-bladed prop. 135-gal water. VHF, depth, loran, 2 handheld GPS units. USCG-compliant holding tank. Adler Barber refrig/freez; Force 10 stove/ oven; dive compressor and dive scooter. Other equipment also. New in 2000: Balmar 90-amp alternator; batteries; mahogany caprail and taffrail; painted topsides; refinished 'sprit, booms, masts; twin-groove ProFurl roller furling on headstay; twin hydraulic helm stations; wiring; extensive renovation. New 2001: 3 offshore life jackets; 2 Stearns survival suits; flare kit; EPIRB; charts. $60,000. Lying South Beach, Ore.

Peter and Roberta Fynn
503-868-7174
peterfynn@aol.com

Two good old boats for sale
Marriage forces the sale of our two boats. One is a 1977 Ericson 36-C, as featured Nov. 2000 GOB. Hull #66. Very clean and shows pride of ownership. Kept in fresh water 14 years stored under cover on the hard in winter. Asking $54,000. The second is 1980 French-built steel hull, 45' cutter-rigged sloop. She's cruised the world and is equipped with a 45-hp Volvo engine, ham radio and VHF, two autohelm systems, radar, and an electric windlass. Her shoal draft is 4'4" and with

centerboard down draws 8'6". New bottom paint. $72,000.

Karie Horst
619-843-0407
karie@gte.net

Columbia 24
Classic cruiser. Needs interior work. Good hull, spars, and sails. Owner retiring.

Lou Diamond
631-267-2113

Deben 4-Tonner
Classic British cutter; 24 ft x 7 ft x 3.5 ft; full 4/4 teak planking on oak frames on 6-inch centers; copper-riveted. Volvo MD1 diesel (approx. 100 hrs since rebuild); genoa and staysail roller furling; staysail self-tending; all lines lead aft to cockpit for single-handing. Manual windlass, 100-ft chain; Delta-style anchor. Very sound; no leaks/no rot. $6,000, lying Annapolis. More info and photos at http://www.mindspring.com/~bublynski/home.html.

Jumahl and Lynda Folwick
301-270-6102
bublynski@mindspring.com

Columbia 28
1968 sloop #53. Several improvements have been made to this solidly built and spacious boat: Harken traveller, Lewmar self-tailing winches, Garhauer vang, 15-hp Evinrude in good order. Edson wheel steering. Spinnaker and gear, storm jib, jib, genoa, main. Danforth and CQR. VHS, AM/FM tape. Binnacle-mounted Ritchie compass. Headmate. Kenyon Keny alcohol stove, 2 pumps, 2.5-hp outboard for a dinghy. All original booklets and manual. In Cranston R.I. $7,200. Take a look, she will be sold.

Bob Bartro
401-765-1978
bartror@aol.com

Day sailer
17-foot double-headsail sloop. Classic character boat with wineglass transom, bowsprit with trailboards, trimmed in varnished teak. Spruce spars with spruce parrels, marlin spikes, bullet blocks, etc. Main, club-footed jib, and staysail. Hull is fiberglass: 15' on deck, 5' beam, 2' draft. 2-hp Honda outboard and one pair oars, locks, and removeable rowing seat. Good trailer with new tires and bearings. All are 9 on a scale of 10. Built in 1976, always been garaged and lovingly maintained. Sails well, looks terrific. $3,000. In Gainesville, Fla.

Kate Murray
352-337-9074
roundear@mindspring.com

Wanted

Pearson Rhodes 41
Sloop. Any condition.

George Kingshott
616-469-0213

Furling gear
Looking for furling gear for my Bristol 30.

David Risch
508-748-1745
momdadnokids@aol.com

Winches
Want Barient two-speed #3A, 2-speed halyard winch. This fits mounting #3 single speed winch. Also need two Barient two-speed ratchet handles. Have one #3 Barient reel halyard for sale/trade.

I.W. Stephenson
906-863-8291
istephenson@new.rr.com

Lewmar 43 winch or drum
I've got a Lewmar 43 Wavegrip self-tailing winch with an aluminum (black powder-coated) drum and another that is chrome-plated bronze. I'd like a matching set. Both are in excellent shape but replacement drums are no longer available. Got any solutions for my problem?

Ken Halpen
610-647-5790
KHalpen@aol.com

Gear for sale

Tartan 27 parts
From hull #460: Mast/boom, standing rigging, rudder, centerboard, bow pulpit, hardware, ports, hatches, and more. Also Westerbeke 30 diesel.

Tom King
804-974-2655
tak01@cho.litton-marine.com

Mylar genoa
North 3DL genoa (mylar), produced in Dec. 1998. Like new, used part of one season (1999). Luff: 42.5; leech: 40.94; LPG: 21.7. This sail was part of the inventory with our Raider 33 when we purchased it last year; we don't race (seriously), and have little need for this huge sail. Best offer over $1,500 takes it.

Dale and Shawn Tagg
301-932-5326
flicka73@earthlink.net

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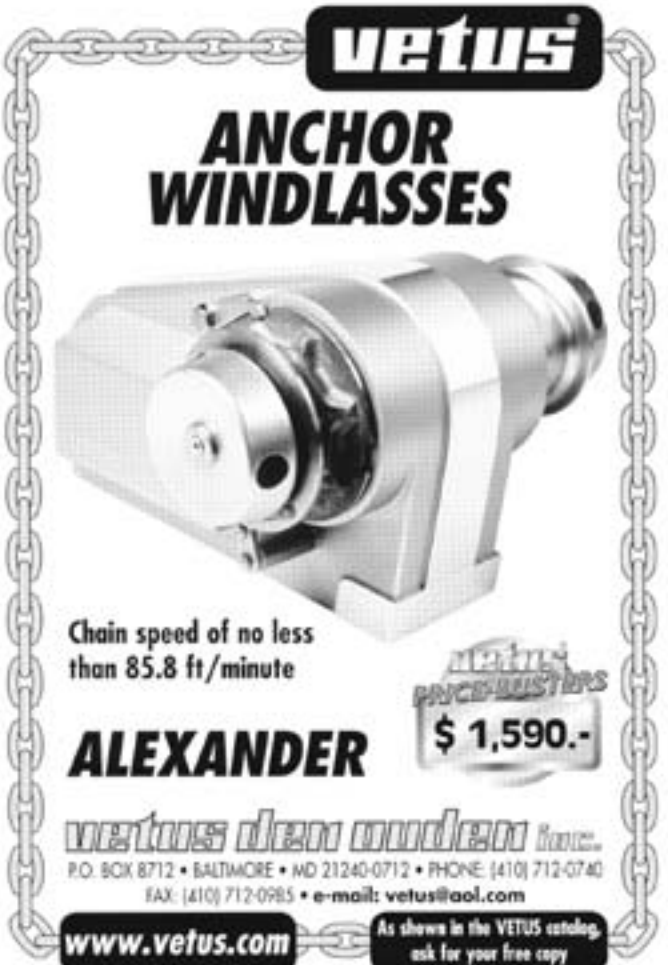

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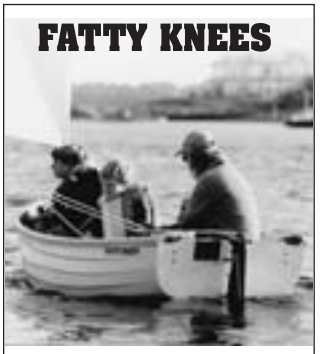

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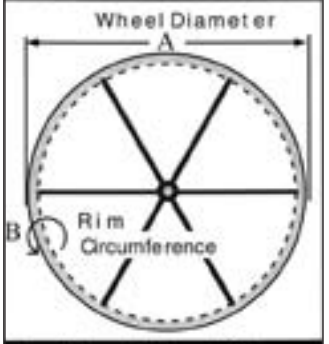

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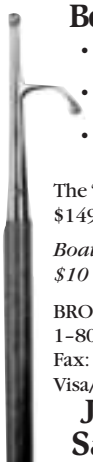

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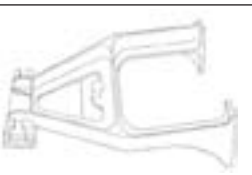

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Continued from Page 3

Another boat exchange
A regular reader, I noticed a letter in the March 2001 issue about boat exchanges in the U.S. as an alternative to chartering. Readers should be informed of another similar service, the Boat and Billet Exchange. We arrange for international exchanges and offer the options of "hosting" someone on your boat in exchange for being hosted on theirs (or in their home). What can be better than having a local guide to the best anchorages, fishing, or diving on board? Interested readers can find the site <http://members.home.net/boatandbillet> or email me pshera@home.com. During 2001, there is no charge for the use of the Boat and Billet Exchange.

Pat Shera
Victoria, British Columbia

Erratum
Oops! The phone number for Bristol Fashion Publications, publisher of White Squall, *reviewed in the March 2001 issue, is really 800-478-7147.*

Southern Cross rendezvous
Remember the lovely Southern Cross in the July 2000 issue? They tell us they've got a get-together coming up: The Southern Cross Owners Association will be holding its annual rendezvous the weekend of Aug. 18 and 19 at the Wickford (R.I.) Marina. For information, contact Carol Bliven: 508-994-2239, bliven@hot mail.com or visit <http://www.southern-cross.org>.

Antique and classic boat rendezvous
Mystic Seaport is also hosting a gathering. This one's for antique and classic boats, in Mystic, Conn. July 28 and 29. Call 888-973-2767 or visit <http://www.mystic seaport.org>.

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Bob Wilson
Whitby, Ontario

Lost Lancers are found
Please tell Lancer owners that, as their contact (on the *Good Old Boat* associations page), we have had two servers go out of business in the last three months resulting in lost contact with Lancer owners. We now have a new address: lancer@willinet.net. Also, we have acquired a few brochures that we can share with owners if they want them.

My wife and I think your magazine is excellent. We have shared it with a number of friends. I hope they subscribe to it and quit borrowing mine. Thanks in advance for your help.

Egon Weaver
Boone, Iowa

New address for Cape Dory site
Ed and Pat Carlson's personal Cape Dory site has moved from the address reported in the May 2001 issue. It is now: <http://members.aol.com/skywindmcm/Home.htm>.

Pearson Vanguard database
We're putting together a database of the 404 Pearson Vanguards produced from 1963 to 1967. It's located at Yahoo groups email list, accessible from within the PearsonVanguard.org Web site. So far, we have located about half of the 404 boats. If you know the location of any Vanguards, please contact webmaster@pearsonvanguard.org.

Fred Fuller
Greendale, Wis.

A need for this
The March issue is great. There certainly seems to be a need for a magazine such as yours to feature the lovely, practical classic yachts. You are fortunate to have Ted Brewer as a regular contributor. I've admired his designs and sensible commentary for many years.

Richard "Jud" Henderson
Gibson Island, Md.

Seal's Spars and Rigging
I have been looking for a rubrail for my Cal T/4 for three years, and nobody at any of the local marinas or suppliers I spoke to had any idea of where to start. I even made email and phone queries all over the country without any luck until I happened onto the phone number on an old Web page.

Steve Seal was a rigger for Jensen/Cal boats and has quite a supply of hard-to-find articles. You might like to check out his Web page at <http://www.members.aol.com/sealsspars>. The phone number is 510-521-7730.

David Parker
Coeur d'Alene, Idaho

One slight modification
As a charter subscriber I look forward to each issue of *Good Old Boat* as well as to

your e-letter. Each issue has a great deal of value to me. Shortly after my wife and I sold our business, a friend asked if I would like to work with him a day or two a week as a yachtbroker. I did a double take and asked if he was suggesting that I could get paid for talking about sailboats. When he answered in the affirmative, I knew that my retirement was going to be put on hold. Today I work nearly full time, in work that I love: helping to put buyers and sellers together.

So it was with interest that I read Robert Doty's article on the "Nine Steps to Boat Ownership" in the March 2001 issue. I would like to suggest an amendment to Step 2. Robert correctly outlines how to qualify a broker. But then he suggests that the potential buyer work simultaneously with *several* brokers. Today's qualified yachtbroker works within a network. The broker is aware of most, if not all, of the boats available in the area. With the various available networks, we have access to boats anywhere in the world.

The best way to work with a broker is just that: work with *a broker (just one)*. Find a broker with whom you are comfortable and in whom you have confidence. It may be me. It may be another broker. Either way, the time invested by the broker in learning about your desires and interests can be supported by the commission earned when the broker is able to connect you with the right seller and the right boat. Even if your broker refers you to another broker, your broker will get some commission from the sale. And you have been saved the need to go through the whole qualifying business with two or more brokers.

In the process, it is possible that you may get a better boat, as good used boats are moving very quickly in today's market. Find a broker who inspires your confidence. Then work with that broker. Be open about your ability to pay for a boat. Be thorough in describing your sailing experience and your needs in a boat. Be honest about your time horizon. Do you want a boat for this season, or are you really thinking about next season after you get the next installment on your inheritance? Then be prepared for a good experience. Good hunting!

Peter Allen, Sr.
Navy Point Yacht Sales
Rochester, Sodus Bay, and Sackets Harbor, New York

The Mail Buoy gets letters! Sometimes it's the contents that astound us. Sometimes it's the wrappers. This envelope was drawn by William Ricky Scalf.

In the *trash*?

I received a sample issue of your mag, and I found a wet issue in a garbage can at the Annapolis Boat Show. I dried it out with a hair dryer and read the whole thing. I wanted to tell you what a great mag you have here. I collect old trailersailers and rework them to get them sailing again. A mag like yours is nice to have around. I do have one negative. I think a year's subscription is a bit steep. $40 a year for a mag that's supposed to be about old boats and keeping them alive seems to be counterthinking. I just can't bring myself to subscribe for $40. You do have a great mag though. Keep up the good work. I'll just have to wait for the next Annapolis Boat Show.

Mike Turdo
Bethlehem, Pa.

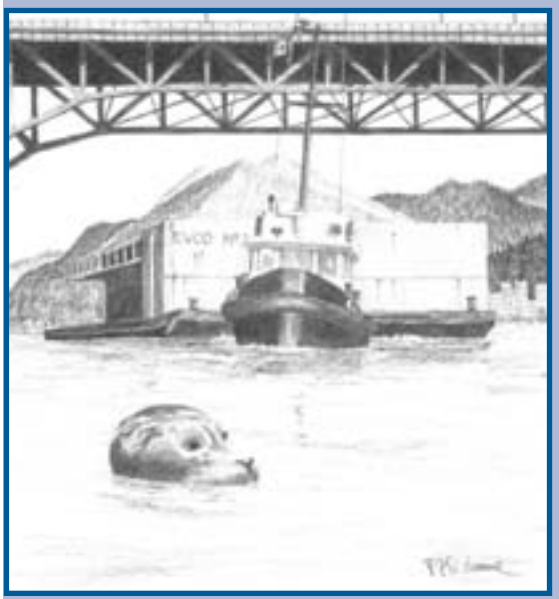
Mike, we'll see you there. We hope it doesn't rain so hard so you can get a dry copy. This is a low-budget startup, much like your own business. If our prices were any lower, we'd never have remained in business for the past three years. We consider it nothing short of a miracle that, as we sometimes put it, "We're still

Continued on Page 76

www.goodoldboat.com/

Marine wildlife and lighthouses . . .

Like so many things at* Good Old Boat, *we didn't plan to sell "Stuff" on our Web site, it just sort of evolved. First we offered a few books because we liked them. Then we made some art available because we liked it. We've even got some navigation equipment because it seems essential. Who knows where this will lead? But it goes nowhere unless we tell others it's there. So we're telling you: have a look around the* Good Old Boat *Web site, and check out our marine art in particular! If you're not online, but you'd like to know more, call us: 763-420-8923.



Peter Kiidumae sketches those furred and feathered neighbors which inhabit our marine environment. His signed and numbered prints are 11 x 14 and sell for $30-35. Greeting cards with these scenes are 12 for $15.

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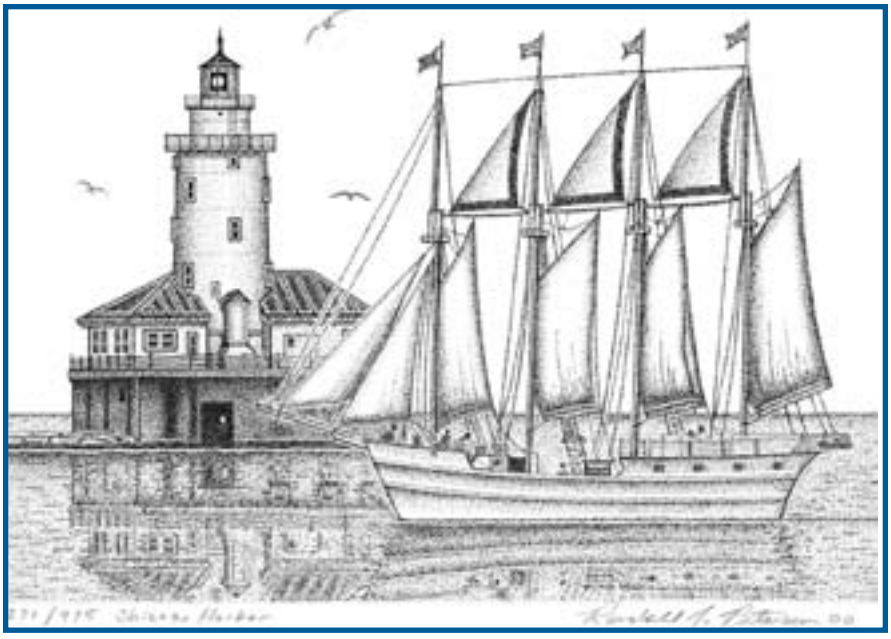
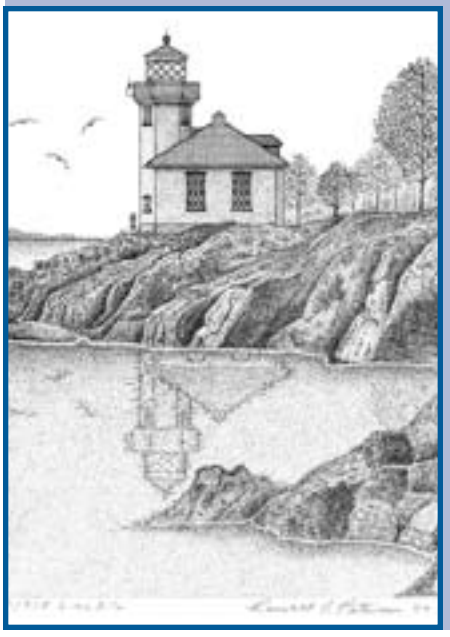
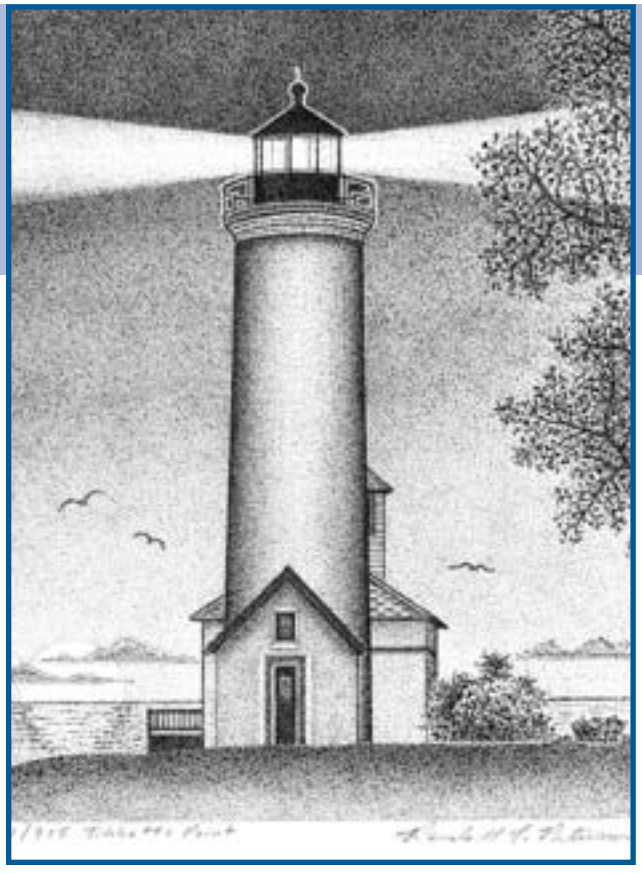
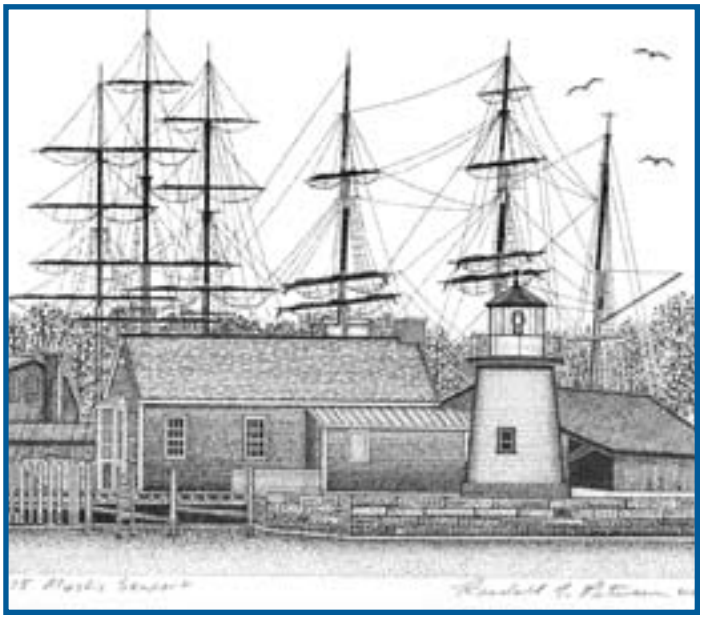






Randy Peterson's lighthouse collection grows all the time. See our site for your favorite aid to navigation. Prints (signed and numbered) measure 9¾ x 12¾. $18 unmatted; $32 matted. Also 12 greeting cards for $8. You can make your own selection of cards from Randy's entire collection of lighthouses.



Continued from Page 73

standing!" But things are looking good. Expect to find copies of this magazine here and there for years to come but ***not****, we hope, in the trash!*

Bound junk mail?

Today one of my other sailing magazines was up for renewal. When I sat down to leaf through the April issue of that magazine, I reached page 120 and was out of content and in the beginning of the *Special Advertising Section*. No big deal, except that there are another 100 or so pages left. This is supposed to convince me that I need to renew my subscription . . . to what? A bound edition of junk mail? Long story short is that there is about 35 percent content lost somewhere in 65 percent of advertisements. The content is good, but I'm getting tired of sifting through the fat to find it. What's this got to do with you?

Well, I pick up your mag and see that I don't have to look for content, and I don't get left with the impression that I have a subscription to a glorified piece of monthly junk mail with some editorial material tossed in to make it palatable. So when renewal time comes around for *Good Old Boat*, I don't have to think about it, I reach for the checkbook. While I know you hear a lot about how much it costs, I'm here to tell you that I'm happy to pay your price. That's because you have *the best* magazine I've seen . . . not just sail-related, but overall.

Chris Cable
Rogers, Minn.

Not like the big guys

I have just returned to Florida from my monthly commute to my office in Santa Barbara to find the usual stack of bills, junk

mail, and magazines, the last including *Cruising World, Sail, Ocean Navigator, Blue Water Sailing* and, thankfully, the March issue of *Good Old Boat*. Interestingly, packaged with two of the big ones are dire warnings that my subscriptions have expired and that these will be my last issues. And so they shall.

It is interesting to note that while I was a charter subscriber to all of the foregoing magazines, the only one that now has any relevance to my life and my sailing is *Good Old Boat*. Frankly, I have had enough superficial reviews of multi-thousand dollar electronic systems (that enable even the most inept to navigate themselves into trouble); of multi-hundred thousand dollar yachts that only a few can afford and would take hours to prepare for sea ("Honey, where should I stow the potted plants?"); and of charter vacations to the BVI which are now no less crowded than Santa Monica Beach on a hot summer day.

I have been sailing the same 1976 Cal 2-29 for many years — first in California and now in Florida — and I have grown neither taller nor fatter enough (fortunately) to require a larger boat. She is our good old boat. Accordingly, your magazine has become the most relevant to me and is also to the vast majority of the other sailors I know. Keep up the good work. Don't fall into the big guys' mold — Please!

Scott Kearney
Bradenton, Fla.

Some feel rather stongly about this

We're listening! We get the above message even from new subscribers. Here's an example of a recent note:

It's a good mag. Please don't screw it up!

William O'Donnell
Melbourne Fla.

Appreciate the renewal notice

Thanks for an intelligent, low-impact subscription renewal. This is another small way you set your magazine apart from and above many of your competitors. Keep up the good work.

Quinn McKenna
San Francisco, Calif.

Thanks, Quinn, but just one thing: we don't like to think of the other sailing magazines as competitors. We think we've defined a little niche that's ours alone. After all, until Good Old Boat *showed up on the scene, the other guys weren't paying much attention to older sailboats. That's why we're here.*

Send comments to* Good Old Boat, *7340 Niagara Lane N., Maple Grove, MN 55311-2655, or by email to jerry@goodoldboat.com.

Last tack

Which are good old boats?

by Jerry Powlas

Several years ago we defined the niche for this magazine as "cruising sailboats more than 10 years old." We elaborated by saying that, for our purposes, a cruising sailboat is a boat with a head, galley, and bunks . . . any design, any size, any material, any number of hulls.

More than one sailor has pointed out that within that definition are boats that have attributes that are "not so good." Some are very lightly built and clearly designed to appeal to beginning sailors. Others sail so poorly they can hardly cross a starting line on either tack.

Not often mentioned is that racing boat designs have influenced cruising boat designs, frequently to the detriment of cruising boats. This follows from the difficulty of writing a rating rule that does not confer the advantage to freak boats and from the human tendency to imitate even when it is less than appropriate.

More frequently mentioned is that many more modern designs emphasize dockside living space rather than either sailing qualities or aesthetics. Earlier in these pages we said, "The real validity of traditional designs was that they were built 'to a price' in terms of valuable labor and precious materials 'to do a job.'" Does that suggest that only pleasure boats that are inspired by workboat designs are good old boats?

The term yacht was originally used to distinguish a pleasureboat from a workboat, the former more finely finished, the latter more functional. The usage now is a little fuzzier. Perhaps it carries with it some elitist connotations that make some sailors uncomfortable while appealing to others.

At the really big money and gold-chain end of the docks, we find vessels that are lavishly decked out above and below to spend as much money as possible. For these sailors, length on deck and purchase price are critical status symbols, perhaps the major reason for owning a boat. These craft certainly claim status as yachts. Could they be good old boats?

These issues are sent to us often, with the suggestion that we exclude some craft for one reason or another. We have not done that. Boats designed for beginners are fine for some beginners, racers are fine for racing, and some, once they've been put out to pasture, make acceptable cruisers. Craft inspired by workboats offer an evolved design, even though most recreational sailors do not intend to spend weeks on the Grand Banks and come home with a hold full of tons of fish.

The reality, albeit not politically correct to say openly, is that the would-be male sailor is often confronted with the need to woo his mate to share his passion for sailing, and she may, particularly at the beginning of her sailing experience, be more interested in accommodations than sailing characteristics. This will pertain as well to beginners of either gender who try to judge a vessel while she is sitting upright and at rest in the calm sea of a boat show.

Experience will change the tastes and priorities of a sailor, but even common experiences will not create common tastes and priorities. We sailors vary in what we want and need from our boats, and the boats available vary in response to this.

So what is a good old boat? The definition varies with the sailor. For us, she is an older cruising sailboat that has a head, galley, and bunks. Any material, any size, any design. For you, the definition should be different, certainly more refined.

All we can say is when you have a good old boat, you will know.

Home for the soul

Reflections

by Aaron Reed

I liked the job, and I was beginning to make friends. The sense that I was doing something important, and that Washington was the place where things happen, was still fresh. After six months, I hadn't *begun* to exhaust the capital's many fine museums. Still, something was missing.

I was homesick.

In the middle of the summer I met Winnie. She was rediscovering her love for boats, though she wasn't yet sure that she was a sailor. Just in case, she kept *Senja*, her Beneteau First 235, at Solomon's Island, Md. She liked the idea of being on the water, and she needed a quiet place to write.

I needed to sail.

Soon I was engaged in the happiest of symbiotic relationships. Winnie believed I was doing *her* a favor by teaching her what I knew about sailing; I thought she was doing *me* a favor by letting me.

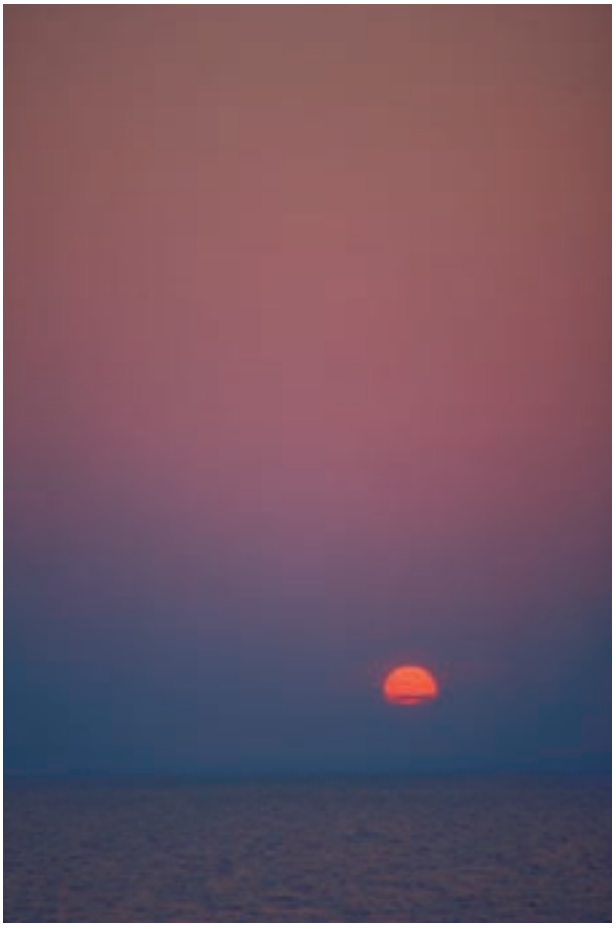
"Whenever I find myself going grim about the mouth; whenever it is a damp, drizzly November in my soul, then I account it high time to get to sea as soon as I can," Ishmael tells us on Page One of Melville's *Moby Dick*.

I can relate.

For as long as I can remember, wind and wave and the stinging salt spray over a plunging bow has been my refuge from life's troubles. The magic of sail provided respite from everything: schoolyard taunts, acne, unrequited love, a lousy grade on my most important midterm, a bad day at work — none could withstand a clear day and a fair breeze.

So, at last, I found myself on the water again. This time on the storied Chesapeake, more than 1,000 miles, four addresses, and half a decade from my boyhood on the Texas Gulf Coast, but undeniably home.

Winnie was generous with *Senja*, and



soon I was on intimate terms with the seascape of John Barth's *Tidewater Tales*, a book that had inspired imaginative reveries years before.

I learned a lot that summer. I learned that Cove Point Light meant *Senja*'s slip was just around the corner and that Tilghman Island didn't mean I was nearly to Oxford, Md. I learned that not all crab-pot markers are visible at night, even in the glare of a spotlight, and that two-foot seas on the Choptank or Patuxent Rivers may easily translate into four-foot seas on the bay.

And I was reminded that I'm still a part of the same community, bound by a common passion and similar experiences that I knew as a boy in Texas.

Henry, a bartender in Oxford, recalled that to me. When I asked where I could provision for my sail back across the bay, he told me. And then, to save me the walk, he suggested I take his truck. "Keys are in it," he said.

Nicki and Tucker, old friends from the sailing club of my youth, reminded me when I ran into them at the Annapolis Boat Show. A charter skipper from Maryland's Eastern Shore reminded me when he recounted meeting those same friends in the Abacos several years before.

As the days became shorter that year in Washington, I grew busier. I didn't have time to sail as I had before the leaves began to fall. Winter descended upon that hospitable coast with a shrug and a hurried step, and its frigid winds brushed past me with all the indifference of a D.C. commuter.

But I knew that in just a few months, those cold winds would rush back to the north country whence they came, and I would again make time for the important things.

I knew this, for that summer taught me one thing more: *wherever there is a boat to carry me, I can always go home again.*

Our selections, worthy of a second glance:

Creating a community

***Good Old Boat* magazine is about:**

Creating a community of sailors – Through our directory of sailing organizations and contacts, we're developing links between sailors.

Offering a resource – By pooling the knowledge of our readers, we're creating a directory of the suppliers of parts and services we all need.

Keeping our boats afloat – Our technical articles focus on maintenance and upgrade issues and give them the space they deserve.

Celebrating older-model sailboats – We emphasize pride of ownership.

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