

Headings

by John Rousmaniere

A Legend Looks to the Future

At 96, Olin Stephens remains a formidable figure in the realm of yacht design. He shares his views on what works, what doesn't, and where design may be headed.

Amid the ongoing euphoria about canting keels, carbon fiber construction, super-tech electronic instruments, and other developments, it seems appropriate to take a reality check regarding the present and future of boat design with Olin J. Stephens, II. He has been a close observer of maritime technology since co-founding the yacht design firm of Sparkman & Stephens in 1929. Although his name is often identified with the America's Cup and other grand-prix events, Stephens was one of the world's most successful and influential designers of cruiser-racers. His family's *Dorade* (his seventh design, built in 1930) was the prototype for a new type of fast cruiser that could go anywhere. Later, he was a pioneer in aluminum construction, the separate rudder configuration, and fiberglass stock boats, and he designed the very popular first generations of Tartans and Swans. After the 1979 Fastnet Race disaster, Stephens co-directed an important scientific study of capsizing by modern keel boats.

Owners of Sparkman & Stephens boats take a lot of pride in their connection with Olin

Stephens and his legacy. Seventy S&S-designed boats and their owners joined him at the firm's 75th anniversary celebration at Mystic Seaport in July this year, among them representatives from 20 fiberglass classes. In the *Concours d'Elegance* competition, the prize for best owner-maintained sailboat built after 1968 was won by a Tartan 34 that had been beautifully restored by Cleveland Heath of Medfield, MA.

Now an active 96, Olin, is still thinking seriously about boats. His design philosophy of moderation and proportion may strike some readers as either conservative or radical. "I tried to be particular about balance between the ends, and, as far as possible, balance throughout," he has written. As this e-mail interview indicates; in Olin Stephens' vocabulary "balance" is much more than a technical term.

John Rousmaniere: At a recent Sparkman & Stephens anniversary event, you said, "I'm a little bit dubious about



JOHN ROUSMANIERE PHOTO

In his 97th year, Stephens takes the helm of Bolero, the elegant yawl he designed in 1948 and often raced.

progress, but I'm certain about change." In that light, Olin, could you say a few words about some recent or ongoing developments, like canting keels, and whether they're good for the average cruising sailor? **Olin Stephens:** First, progress is to me a concept that is dubious in a philosophical sense. In other words, mechanical advances may or may not contribute to pleasure and happiness in life or sailing. To me, sailing used to be more fun than it is now, largely due to the progressive complication of the sport. Since a coin has two sides, I might make an exception for the "toy" aspect of much electronic equipment.

Canting keels and water ballast are unduly complicated and possi-

bly dangerous, so I'd just forget about movable ballast in a cruising boat. This is one example of the great divide between cruisers and racers, but since the potential for remarkable performance is there and the cat is already out of the bag, shifting ballast should be allowed but restricted to record breakers. It should be prohibited in active racing classes.

Rousmaniere: What are the characteristics of a wholesome cruising boat? I know most people want a simple answer, but to quote your favorite author, Claude Worth, in *Yacht Cruising*, "The design of a cruising yacht, like any other work of art, is a harmonious blending of conflicting interests."

Stephens: Yes, every boat represents a compromise between extremes. The deep, heavily ballasted keels and lightweight structures of today's racing types have no place in a cruising yacht. Light displacement also means small space. Room is needed for comfortable living, supplies, water, fuel, spares, tools, and all the gear needed to meet varied conditions.

A design with a separate rudder and no skeg would be my choice today, while recognizing that the full keel has some marginal advantages for self-steering and heaving-to. Whether to have a centerboard depends on the home port and primary cruising grounds, as well as on its effect on positive range of stability.

I would favor a single mast and some form of divided foretriangle. The choice between a sloop rig and a divided rig should depend on the boat's size and the crew. In general I believe simplicity trumps complication largely in terms of upkeep, time, and the cost of personal or professional maintenance. And I also prefer a lack of clutter.

I tend to consider a boat's size in relation to comfort and safety. With existing materials, a very small object can sail and stay afloat. To be safe and provide rest and food, 22 feet in waterline length might suffice. A larger boat will be more sea-



JOHN ROUSMANIERE PHOTO

This photo depicts some of the 16 Tartan 34s attending the Sparkman & Stephens 75th Anniversary celebration at Mystic Seaport in July 2004. One of Stephens' most successful racer-cruisers, there were 525 T-34s built from 1967 to 1978. These boats exhibit the classic S&S balanced look forward and aft, but also show the moderate displacement, higher topsides, and wider beam of the modern cruiser-racer.

kindly and comfortable, have more space for stores and spares, and provide standing headroom. A good length for offshore work might be 32 feet on the waterline and 45 feet over all. Safety is more a matter of preservation afloat and has to do with structure.

I am poorly qualified to discuss multihulls because I have always felt that good windward ability is an essential of cruising ability, and I heard of otherwise acceptable cruising multihulls that could not tack, so had to wear ship. Strong materials and experienced designers and crews have given new multihulls strength suited to their speed, and big cats have made a string of sailing records that demand their acceptance as tremendous racing machines. Some cruisers still seem rather clumsy to me.

Rousmaniere: How important are the two kinds of stability—positive stability (resistance to capsize) and initial stability (resistance to heeling in normal conditions)? And what about sea-

kindliness? It seems to me that because the new boats are hard to slow down, there's the risk that they and the crew can be beaten to pieces. I once heard your brother, Rod, lay down a valuable rule: "There's nothing like taking two knots off a boat to make it seakindly."

Stephens: Stability is all-important in any boat, first of all in terms of positive range of stability. The boat should have the ability to always come back upright after a knockdown. I'd suggest a stability range of around 120 degrees.

Seakindliness is important, too. I have done less cruising than I might have wished, but I have felt that the rough and uncomfortable ride characteristic of sailing in a modern racing boat a few hours a day is more than enough. Getting a comfortable motion calls for judgment and a trade-off with initial stability. It is desirable that a boat not heel much in normal conditions, but only to a point. A beamy hull shape provides good initial stability but also makes for quick motion. Beam is a most important



DAN NERNEY PHOTO

'I tried to be particular about balance between the ends, and, as far as possible, balance throughout,' explained Stephens. Although Bolero, above, is one of Olin Stephens' largest designs at 73' 6" LOA and 51' LWL, her long sweeping overhangs, narrow beam (15'), and heavy displacement (94,000 lbs.) are typical of his early thinking. This shot was taken in July 2004, a year after Bolero was fully restored at great expense.

influence on seakindliness because it is the principal control on the transverse righting moment. As the righting moment increases relative to the transverse radius of gyration, the speed of transverse rotation increases. It can throw you across the deck or the cabin.

Another important influence on seakindliness is displacement. A third is speed, as Rod's point confirms.

Rousmaniere: Olin, would you recommend carbon fiber for a cruising boat? It's the hot building material. Carbon masts improve stability by decreasing weight aloft, carbon hulls are so light they permit heavier keels for a given displacement, and I can tell you from personal experience as a foredeck crew that, thanks to carbon poles, setting a spinnaker no longer has

to be a two-person job.

Stephens: I think the boats that work best are those that are consistent in design, purpose, and construction material. The purpose of racing is well served by carbon fiber throughout hulls and rigs. The popularity of ultra light-displacement racing boats must be predicated on the ability to sail very fast by using materials that combine lightness and strength better than ever before. Asymmetrical spinnakers are to me consistent with light weight and high speed because they are conducive to tacking downwind rather than running dead before the wind.

Except to the extent that they make for greater than normal strength and lighter weight in rigs and other highly stressed parts, there should be no need to use carbon fiber and other new materi-

als in cruising boats. But some older materials are out of date. Today I don't see a reason for lightweight aluminum construction of hulls. Wood is attractive, but costly, first and last.

All that said, despite emphasizing differences, I know that compromise in degree is inevitable. Different individuals and different circumstances have different needs. One concern about using carbon fiber in hulls has to do with doubts about its ability to accept shock. Trouble can be avoided with care in use, but the fact remains that much special gear is unnecessary in the cruiser.

Rousmaniere: You may not agree, but I think that one of the nicest recent advances is the power winch. Maybe it's the tendonitis in my right arm, but I've come to prefer pushing buttons to

spinning winch handles.

Stephens: I have to say that I prefer sailing without stored power. On large boats the use of several hundred horsepower during a tack seems a radical departure from tradition. I have recently been shipmates with some power winches that were highly objectionable to me because of their noise. I like the quietness of sailing.

Rousmaniere: I know you're disappointed by the unwillingness of US SAILING and other organizations to develop a new international measurement racing rule. While this directly concerns racers, it affects cruisers, too, because historically rating rules have greatly influenced the design of cruising boats, if only by requiring strength.

Stephens: You are right in linking cruisers and racers to widely accepted rating rules. The builders of mass-produced boats have used the best racers as a pattern despite the wide differences in purpose. Now, without the guidance of a predominant racing type, builders have been adding accommodations and complexity to a degree that seems opposed to the real standard of comfort at sea that I prefer to think is important.

I see the cruising and the racing types today as separate beasts. As racing boats become lighter and faster, the character of the type appropriate for cruising departs further and further from the type required for racing. I worry that sailing has experienced a deep division between the mainly amateur, unsponsored individual and the new large teams thriving (or so they say) on sponsored, professional participation involving a sort of billionaires' club that can play at the highest level of cost and technical support.

With more hope than confidence, I believe there may be some builders who offer boats with wholesome hull geometry similar to that influenced by the Cruising Club of America (CCA) rule or the early International Measurement System (IMS) types. I accept the criticism of most IOR designs that they are too fine aft, but I

counter with the judgment that many of today's cruising and racing designs also show poorly balanced ends. They seem too full aft for the normally slender forebody, and they have a light, beamy form with a dangerously narrow stability range and quick motion in a sea.

I can cite an example of the ways in which racing and cruising boats have diverged. Although George Coumantaros is not your average cruising sailor, his *Baccarat*, built for racing in 1968, and too heavy for that purpose even then, is an example of a comfortable large cruiser. Although he subsequently built and raced lighter boats, he has kept *Baccarat* for cruising. Other racing boats from that period, such as *Running Tide*, *War Baby* (ex-*Dora IV* and ex-*Tenacious*), and *Ragamuffin*, for me represent the ideal in structural weight and displacement for fast and comfortable cruising.

Rousmaniere: What future developments do you see?

Stephens: Materials will continue to gain strength versus weight, and all forms of electronic and navigation and communications equipment will be improved and continue to take a growing part in the pleasure and interest in sailing. But if I were starting out as a designer today, my efforts would probably center on computer analysis, especially Computational Fluid Dynamics analysis of rigs. CFD could lead to better hulls, but my hunch is that it will teach us much more about rigs.



MARTY WHITE PHOTO

The author, left, and the legend, share a moment in the cockpit on board Bolero. Though retired for almost 25 years, Stephens remains an active and influential member of the yacht design community.

Rousmaniere: You have been speaking of discontinuities over the years since you first became interested in boats. Are there any continuities?

Stephens: There certainly are continuities in sailing. One is the sea and another is the weather. A third is the many friends you make on boats. To those I would add the affection that we all feel for early yachts. The movement to restore so many of them in both Europe and America confirms that there is general appreciation of their beauty and ability. It is very good to see so many of these boats out there on the water. ■

*For more information about the remarkable Mr. Stephens, see his autobiography, *All This and Sailing, Too* (Mystic Seaport, 1999). Also, his chapters on stability and design trends in *Desirable and Undesirable Characteristics of Offshore Yachts*, (W. W. Norton, 1987), offer additional insights.*

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