

Arthur DeFever

# Designs Devoted to Offshore Cruising

THE CHARACTERISTICS of beam-to-length ratios, the deep forefoot and ample displacement, an easy entry, and other factors of hull design from the rugged, deepsea operation of fishing vessels have been blended successfully into the concepts of Naval Architect Arthur De Fever to produce a growing fleet of deepwater-loving, classic yachts.

The purchase of power yachts of this kind has been substantial over the past decade, and far above any figure that the exponent architects and builders on the West Coast could have forecast back in '58 when a few began to switch over.

But by 1970 the popularity had become such that a generic term had formally established itself: *The Offshore Cruiser*. They come from the design board of a number of leading architects, but their common qualities are: the displacement hull, the opposite of a fast, planing hull; diesel-engine power, often single; round-bilge in varying modifications; they classify as 10-knotters, more and less by bits; and most often are in the 38- to 54-foot length-range, though many are much longer and larger.

The trend by those seeking comfort in a long-range ocean cruiser has been notable in Southern California. It is headquarters for the Offshore Cruiser Society, a serious and dedicated group in the exchange of engineering and safety ideas for those with deep-draft cruisers, and that speaks for itself in rating the movement.

Among the many fine versions today, the De Fever stamp is on a noteworthy proportion. Cruisers of his design range up and down the California coastline, fishing offshore, cruising, and reaching out to Alaska, Mexico, Panama and beyond. More than 200 offshore cruisers of his design have been built in the last 10 years, which places him among the foremost in the world today as an exponent of this classification of naval architectures. And considering new designs on order and new cruisers already on their keel blocks, it is realistic to project another 150 of these cruisers from 38' to 123' in the next five years.

De Fever's designs divide into three categories: 1) Custom-stock versions of 38' to 54' that follow a similar

hull mold and above-deck pattern and allow for a choice of arrangements and equipment by the individual owner; 2) Full-custom, one-of-a-kind designs, usually extensively equipped and of enormous range; and 3) The *Alaskan* line of cruisers, more stock cruiser than custom. SEA readers are familiar with his exceptional *La Siesta* for Norman Neely (Dec. '69). And the design-lines of a new 123' cruiser building in Spain for Southern Californian John McNabb will appear soon on these pages.

SEA spent a day with Art De Fever asking him questions, discussing his concepts of these ocean cruisers, above and below the waterline. We were aboard his own *Dul-Sea* at the San Diego YC. There were no comparisons made between his designs and the many fine pleasure boats

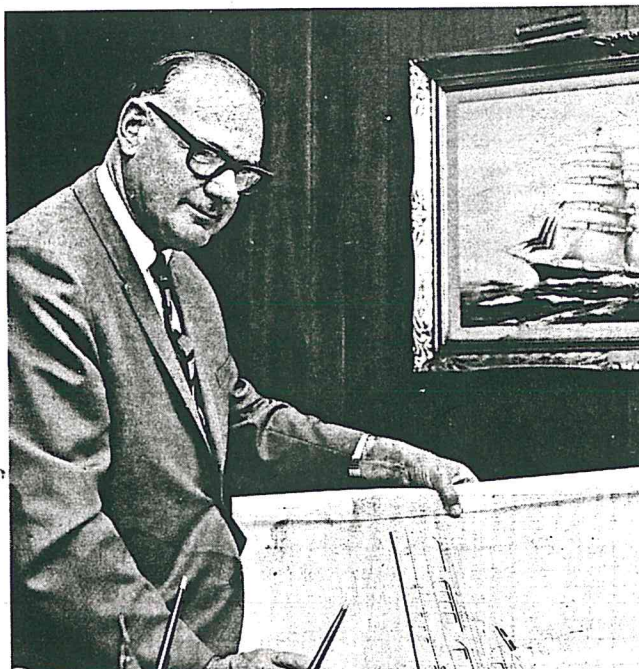
built over the years through the teamwork of other architects and boatbuilders. This is strictly one man's authoritative analysis about the boats he designs, engineers and builds.

*Suggestion: Explain the concepts of your hulls in this Offshore Cruiser category...*

ADF: I call your attention to these two, important ratios: The beam/length ratio and the depth/beam ratio. These bring me right back to fishing vessels. From the outset, the interest in this type of cruiser evolved around West Coast trawlers and other deep sea fishing boats. In our work with them we made constant studies to select and modify their best characteristics. Then we carried forward these beam-to-length and depth-to-beam factors into pleasure boat construction where various modifications

had to be made in dealing with different load factors and distributions. Our hull begins with a fine, easy entrance at the waterline.

With this fine entrance we need, and use, a correspondingly fine exit. This hull fineness is necessary to get better speeds from the stated amount of horsepower propulsion, there is less drag and easier driving. Sea-kindliness and stability are the results. This configuration of a finer hull lessens the required displacement over that of the commercial hull, it improves the trim and that all-important item for the pleasure boat, eye appeal.







— BOB WALTERS

A recent rendezvous of De Fever designed yachts at Catalina Island offered a catalogue of interior and exterior combinations.

For those who like to scan hull lines critically, this *easy entrance* is defined at the load waterline at about 20° to 22° from the stern (this can be less on longer, larger cruisers) and from that station angles in a line that is almost straight, or with a slight convex curve, to the maximum point of waterline beam. This all contributes to cutting easily through the water and leaving a clean wake.

The bow carries a deep forefoot with considerable flare in the lines above the waterline. The former prevents pounding; the flare throws the water out as the boat cuts through it. For one thing, this latter leaves a drier deck, a drier pilothouse exterior, especially when driving into seas and strong winds, and the overall effect is general safety and comfort for many obvious reasons, all the way up to the bridge station. Along with this we have been designing more flare into our later designs because the public wants this added eye-appeal and accepts it very well in this heavier-style cruiser.

The finer exit form that has been stated involves: 1) the *load waterline* being as fine as possible and, 2) an *easy run* to the hull aft to free the water as quickly as possible and to lessen stern drag and any tendencies to "submerge" the stern, which creates turbulence and slows the boat.

*Suggestion: Since the 1958 advent of some of the first of these designs in the pleasure fleet, discuss areas of progression...*

ADF: Among the first, the forerunners, was *Rapparee*, built for Cliff Davidge, and now owned by Ernie Sporleder. An enormous number of ocean miles have been put under her hull up and down both coastlines over the years. Next came Ed Locke's *Pau Hanna*, now used extensively and happily by owner John Wells. *Chickadee* is third, Donald Burnham's cruiser, built by Lindwall, and still cruising out of her home port at the San Diego YC. *Marda* came along and the present owner, Donald Ayres Sr., Los Angeles YC, and friends, enjoyed an extensive cruise a couple of years ago, traveling down the coast, through the Panama Canal and into the Caribbean. It is interesting that she was also built for Giff Davidge.

Another of our boats noted for long distance cruising is Frank Collbohm's *Tonina* which is very similar to *Chickadee*. Our present profiles were beginning to take their shape with these two. *Tonina* was designed to 58', which is 6' longer than Burnham's boat, a fact that simply points out that this basic hull configuration is adapted to longer and shorter cruisers with close similarities.

An interesting point has been raised about Bill Hanna's *Galatea*, located at Long Beach YC (SEA, Dec. '67). Some comment that she looks much beamier than the others in this line, but her beam/length ratio at the waterline is no greater. Each of these hulls is from the same basic mold, with modifi-

cations and adjustments in the ratios mentioned earlier.

The mention of beam points to a trend among prospective owners. They are requesting more of it. A discussion of this immediately requires a definition: beam below and beam above the waterline. Below, and within reasonable limits, we have been able to accomplish this without affecting our hull speed and performance. Yachtsmen are often misled by published figures for the beam of a boat because the one quoted is frequently the maximum amount of beam on deck, and not the waterline beam. The w/l beam relates directly to hull configuration and is the precise beam-to-waterline length that concerns the naval architect with his performance calculations.

This beam at the deck on our cruisers is as much as a foot greater today on the average 45'-to-50' cruiser than it was 10 years ago, yet the hull mold will be very similar. The added flare also increases interior space and clients are seeking more cubic content in the hull interior and in the deckhouse. Call it livability. With proper proportioning, this does not change the sea-keeping qualities.

*Suggestion: Has the modern, lightweight diesel propulsion influenced design trends?*

ADF: We have some freedom in design with the higher-speed, lighter weight diesels. And there is definitely more emphasis by the skipper in desiring more speed from this type of deep draft hull without sacrificing its basic advantages. Speed is relative. We are talking, now, of ½ to 1½ knots of gain in cruising speed under good conditions, but that can be 10 percent and more and that is considerable on a day-long run.

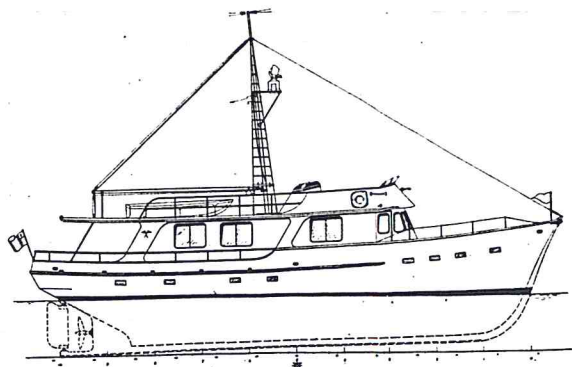
Just as it is with all other modifications to the basic design of a boat, each change requires a compromise.

We have recently designed several yachts to increase the cruising speed to approximately 11 and 12 knots. Another wishes to reach out to something around 13-14 knots (This 66' aluminum cruiser design by De Fever will appear soon in SEA's design section).

So, we have begun with a compromise by saving on weight through reduced fuel and fresh water tankage. This reduces the cruising range from our usual 2200-to-2500 nautical miles to a range of 1000 miles. This is quite ample for these specific owners and, besides, the fresh water capacity can be reduced measurably without penalty to the users through the installation of a water-maker that distills sea water.

Speed now comes right back to the engine selection. By lightening the displacement with other little refinements, a single engine with more horsepower will increase speed. But a hull that is to be relatively much faster often requires twin engines which, besides the horsepower, lessen drag through the reduced skeg dimensions and improve the requirements in length and the propellers' aperture.

However, there are other compromises to attain more hull speed. For some owners with more-speed requirements we are going to a little less displacement and a shallower draft—a hull that tends to semi-displacement but maintains sea-keeping qualities and a reasonably deep forefoot. The bow has the easy entry, but it will fair aft to more of a V in the hull form, granting this shallower draft. There is much less designed-drag



Sagittarius is typical De Fever profile.



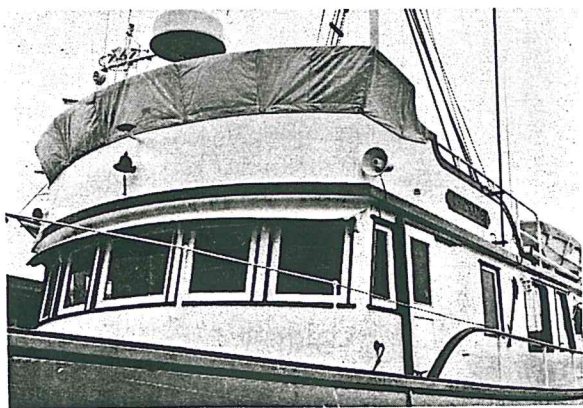
in the keel than in the full-displacement hull. Even so, the required horsepower will be about double.

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*Suggestion: Your comments about the single diesel engine around which your designs have gained popularity...*

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ADF: I must speak from my personal view as owner, designer and skipper of my 50' *Dul-Sea*, my handling of the helm of many of our cruisers, one time or another, and generally what our owners and skippers tell me. Once the helmsman is accustomed to his particular offshore cruiser hull, he can handle the single screw as easily as a twin screw boat during docking and close-quarters maneuvering. The single screw vessel does have a tendency to back down to port, but this is counteracted by using throttle and rudder to thrust the vessel in any direction desired while backing down. With experience one can back into a slip as easily as with a twin screw. When one raises the question of reliability features with twin engines, I reason that



*Don Burnham's Chickadee uses visor over pilothouse windows with open walkaround.*

the diesel engine today is sufficiently reliable that failure is seldom experienced.

There are hundreds of deep sea fishing vessels logging thousands of miles a year, frequently venturing into far-off areas where there is no service, and yet they operate most often with single-screw propulsion. But I am not opposed to dual engines. There is the matter of ease of operation when one is accustomed to twin installations. This is a matter of individual choice.

We use a hookup for the single screw ship so that the propeller can be driven off the generator plant, which becomes a true auxiliary to the propulsion engine. This is also usable for slow speeds during prolonged fishing. The twin screw might have an advantage if there is prop damage if only one of the two props and shafts is harmed. We have proven that our designs do not sacrifice seaworthiness in the twin arrangement and lesser skegs.

The twin engine design has a distinct advantage in cruising areas where the bays and harbors are shallower. This is quite important in certain river areas, on the inland waterways of the East Coast and where moorage depths are limited at a marina.

Certain design arrangements require two engines. The single engine of greater horsepower in most cases requires a longer engine room. Twin engines do in some cases allow for a more compact stern engine-room. With this there is more flexibility for special interior arrangement. *La Siesta* is a good example.

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*Suggestion: "Happiness Afloat" for each member of the family is topical. Relate these items to your offshore cruiser interiors and decks...*

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ADF: We recommend that galley areas be a part of the main deckhouse and not below deck. All of ours follow this pattern. The open and partially-open effect from galley, to main salon,

to wheelhouse is very popular. Besides the companionship for the first mate when she is busy in the galley, there are many utilitarian and safety advantages to this during long runs and in inclement weather. We stress light, airy interiors and ample headroom above and below deck. Light tones in teak and mahogany match well with today's large window-ports. Many new vinyl walls and coverings work well into decorations and are very serviceable.

We create stowage spaces, large and small, every place we can think of. (Note: Specialty little stowage units, knick-knack shelves, book shelves and magazine racks, dual-height salon tables, the roll-out beverage bar and other creative items for interiors have become a De Fever trademark and first mates always comment on these appreciated additions. — Ed.)

One little item that has been well received is the garbage and waste receptacle stowage in the corner of the galley drain-board. It has a lid that is flush with the board and the receptacle is removed through a flush door that opens from the deck walkaround. It is a great convenience. We stress ample generating power for galleys which are becoming more electrified all the time. We often install a remote-station control for switching the light plant on and off which frees the skipper from having to go below when the mate wants to turn the electric range on and off. Use of electronic ovens is on the rise.

Our exterior profiles have evolved into a distinctive pattern. Improvements have increased utility right along with eye-appeal. And the above-deck structures also relate to the interiors and to family comfort afloat. This brings the discussion to the walk-around decks that are covered by the deckhouse overhang. These are now an integral part of our design and construction. Ease of moving about is obvious. Covering in bad weather increases safety and comfort and so we have made the solid, high, bulwark a standard component of this whole flow.

Our cruisers are used extensively in warm, bright climates. The overhangs on the walkways reduce glare, cool the cabins and provide permanent structures for snap-on canvas dodgers that shut out the sun rays, create refreshing breezeways and turn the covered, but open, large cockpits into sheltered lounge areas. The same arrangements work, in reverse, in areas where there is much rain and heavy mist in the weather pattern. In those stout bulwarks that hold down water sloshing during difficult sea runs, we have incorporated a boarding door amidships or on each quarter.

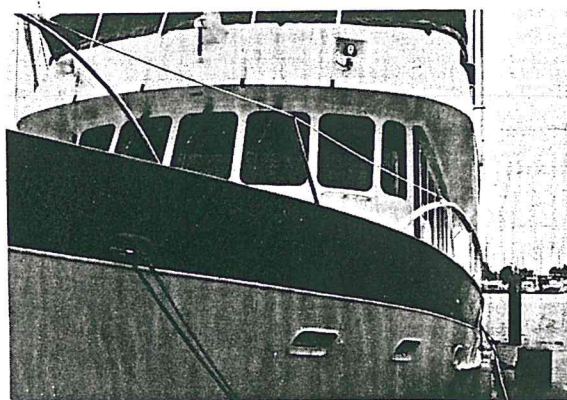
This covers the large overhang on the sides, but we have also increased the overhang fore and aft. Forward, this serves as a permanent pilothouse window shield. Aft it covers the main deck and, topside, the total brings the wheel and venturi forward for good vision over the bow and greatly increases the area for stowing one or more dinghies and for general topdeck livability areas for the crew and guests.

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*Suggestion: Hull material that are preferred...*

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ADF: Our hulls have been predominantly of wooden construction, but many are also successfully of steel and aluminum plate. We are also now doing some work in fiberglass. These materials can all be worked to most hull forms so the choice



*Norm Neely's more recent La Siesta extends flybridge to provide pilot window shading as well as covered walkaround. The device also expands flybridge space.*

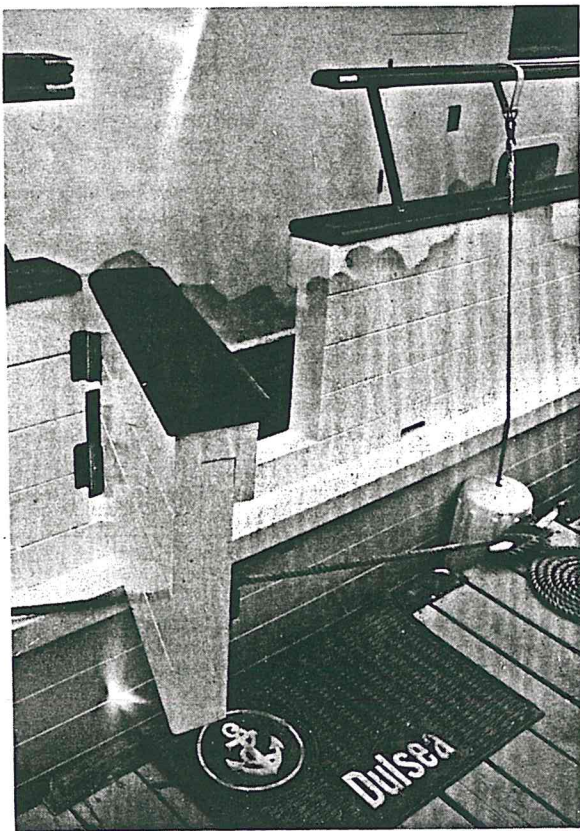


rests with the owner, with certain cost factors, and the experience of the yard selected.

*Suggestion: Any comments about engines, equipment, electronics...*

ADF: This could be a discussion all by itself. Without going into the advantages of our full-headroom engine rooms in the deep-draft hulls, nor any lengthy discussion about engines, gears and controls, I will say that everyone in the business has brought together improved means and materials for dampening sound within the hull. This adds so much to cruising and sleeping comfort. There are new materials to insulate the engine spaces, bulkheads and ceilings. We shock-mount equipment, guard against transmitting vibrations from one area to another and use vibration dampeners on shaft couplings and on pumps.

We are pleased with the progress from research and our use of the findings. Exhaust mufflers are greatly improved. In conjunction, we embody the exhaust augments which functions in connection with the dry exhaust. It is an open venturi type insulated exhaust, approximately twice the diameter of the engine exhaust. It has a perforated stainless-steel inner lining insulated with 3" of high-heat-resistant fiberglass (or equal) and encased in a stainless steel sheet metal cover. Its length is the combined height of the deckhouse and exhaust stack. The engine exhaust is directed at the flared lower end. The exhaust force, natural heat rise and venturi effect produce an excellent forced draft, pulling in fresh air from engine-room vents.



*High solid bulwarks keep decks dry while port and starboard boarding doors offer easy access aboard.*

The dry vs. wet exhaust brings on interesting discussions between owners and we keep studying it. Our experience indicates to us that, comparing sister hulls and power plants, we attain a better boat speed with the same engines with the dry stack, apparently due to the lesser amount of back pressure over the very nature of the wet exhaust, though engine men

say there are ways to cut down on wet exhaust back-pressure, too. Our findings are still inconclusive.

Regardless of sea-kindly features in any hull, there are those days of heavy weather, quartering seas and running with the troughs. At times such as these many skippers have to think of crew and guest comfort, of cooking underway. The use of one system, or several in combination, calls for a decision between the architect and the owner and involves many things, including costs. We deal in steadying sails, bilge-keel rolling chocks, the flopper-stopper and paravanes, and the new electro-mechanical anti-roll devices. Each requires a lengthy, separate discussion if one covers the subject. Each has its place and is successfully used by many skippers.

The new stabilizers or anti-rolling fins are now being designed right into the hull at the time of building. We are also talking of \$5000 to \$10,000 (and up) installations. These also pick up the hull speed as they cut down the roll in unusual seas. For instance, the recently refurbished *Wanderlure II* was on a run to the outside of Catalina Island from San Diego on a day that all seas were up from a tropical storm and strong local winds. Her roll was consistently down to an average of 50, on rare occasion going to 70, which is remarkable. But Bart McAllister in his *Mysoni* made a difficult run to the same destination that day but under rough conditions from Marina del Rey and found the going greatly improved with the good old flopper-stopper. Surprisingly, he had only one paravane in the water on the lee side at that, which will let you debate how he got his best performance that way.

ADF Conclusion: We mentioned *Chickadee* among our earlier boats helping set our general style. Don Burnham tells how Mrs. Burnham (*Chickadee*) found an antique captain's desk, and from there they began the main cabin arrangement, using this as a centerpiece. But more, the Burnhams, coming off years aboard sailing boats, concentrated on cabin comfort. They marked off an area in the garage, set out various chairs and tables, measured vision out of the cabin when seated, and by so doing influenced me in the dimensions of our deckhouse windows.

Burnham says, "*Chickadee* is shorter than I am. We measured the lower area of the windows from the cabin sole and realized that *Chickadee* couldn't see out when seated normally. So we insisted that Art increase the bottom area of the windows. And now this is the pattern for all of his cruisers."

This only points out that the entire family now gives much more thought to interior arrangement and decor. There are more varieties of good materials to choose from: suitable marine use of vinyls, plastics, nylon, dacron and interesting interior hardware. Colors enhance the total beauty. Cushions and chairs are more comfortable with the various foam rubbers.

I should point out the fine interest that has been built up in the Offshore Cruising Society, headed by W. W. (Bill) Shepherd, who cruises his *Angelina* as consistently as any and probably gets into more little harbors than most. He has contributed greatly to the development and the encouragement of good construction and safe practices in offshore cruising. His own is a cruiser conversion of a 49-foot-6 dragger. He learned of the sea-keeping abilities of this class and he added much to the early developments of the offshore cruiser.

— BOB WALTERS

His Career: 1941 associated with Karl H. Scheel, Wilmington; '42-'47 naval architect with Hodgson boatbuilders, Long Beach, then with Hodgson-Greene-Haldeman shipbuilders where he designed the famed Hollywood Cruisers, also had a staff of 25 naval architects and draftsmen... during these periods, worked with N. A. Ted Geary, also designed many government vessels; '47-'50, it was Wilvers & De Fever, and included marine surveying; tuna clipper designing and engineering of note prevailed in this period; since '50, principal design office in San Diego and the development of sturdy offshore cruisers, designing, engineering, supervision nationally and internationally.