

The list of designer Bruce Kirby's sailboats is formidable, headlined by the enormously successful Laser.

by Rob Mazza

Top—Bruce Kirby designed Canada's only modern challenger for the America's Cup. As Canada I, she competed in the 1983 eliminations, and sailed again as Canada II in 1987 following extensive modification. **Above**—Kirby began his sailing career as a magazine editor, learning yacht design on his own as a sideline. The success of the Laser enabled him to pursue designing full time.

ithout even doing the arithmetic, it's safe to say that Bruce Kirby has more boats built to his designs than any designer in sailing history. The 13'(4m) Laser alone accounts for well over 220,000 boats in three different rig configurations sailing in 140 countries. Add the more than 1,200 San Juan 24s (7.3m) that have been built, not to mention the 800 Sonars (23 //7m). However, Kirby's design career and body of work are much more eclectic than these three boats suggest, running the gamut from high-performance International 14

Foot (4.3m) dinghies to America's Cup 12-Meters, with dalliances into traditional cruising sharpies. Then considering Kirby's career in sailing journalism, as well as being one of North America's most talented helmsmen—representing his native Canada in three Olympics, and being an early inductee in the Canadian International 14 Foot Dinghy Hall of Fame, the National Sailing Hall of Fame, the Sailing World Hall of Fame, and an honoree at New York Yacht Club dinners—one quickly realizes that his standing in the sport of

Kirby's original design sketch for the Laser on a yellow legal pad. The 13'7" (4.1m) sailing dinghy, introduced in 1971, wasn't conceived on the proverbial napkin, but close.

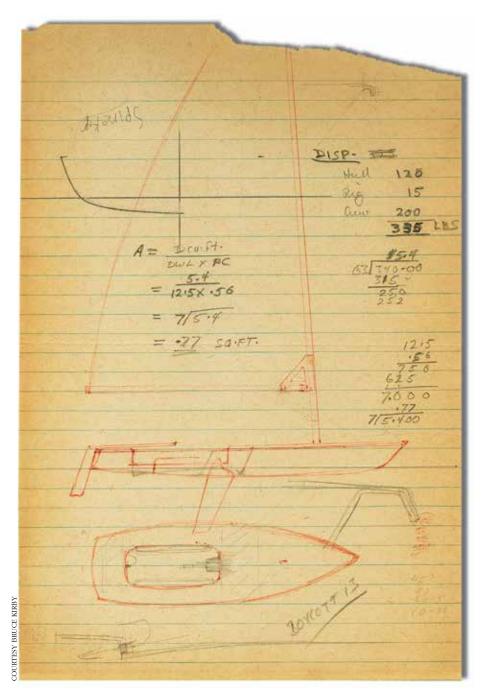
international sailing is matched by very few.

Even more amazing is that as a yacht designer he was entirely selftaught, without the usual apprenticeship program of first working for other designers, or graduating from a known school of naval architecture or any correspondence program in yacht design. Bruce Kirby, by his own admission, was "never any good at math."

## **High-Performance Dinghy** Sailing

Kirby grew up sailing at the Britannia Yacht Club on Lac Deschênes, a widening of the Ottawa River in Ottawa, Canada. It was not long before he graduated to the International 14 Foot Dinghy, (14), then and now the premier high-performance development class in the world, with strong fleets in England, Canada, Australia, New Zealand, and the United States. Kirby was a member of the victorious three-boat Canadian team racing in Cowes, England, in 1958. He returned from that series to design a boat of his own.

The International 14 is known as a restricted class. That is, overall dimensions of the design envelope are established—along with minimum weight and maximum sail area-and anything within those limits is allowed. This amount of design freedom in a rapidly expanding post-war economy attracted the best small-boat sailors and designers in the English-speaking world, and the performance development in the class was remarkable. Stuart Walker's 1969 book, Performance Advances in Small Boat Racing, contained many contributions from topflight sailors, with Kirby writing a chapter on hull design, focusing on the development and evolution of his first three 14 designs, the Kirby I, II, and III. Ian Bruce, a name soon to become inextricably linked with Kirby's through the Kirby III and V and the Laser, wrote a chapter titled "Developments in the International 14 Foot Dinghy Class." Prior to 1958, Kirby had already played with 14



designs by helping fellow 14 sailor Roger Hewson (soon to establish Sabre Yachts) take the lines off a number of existing 14s by other designers of the time, such as Charlie Bourke and Uffa Fox, to establish the envelope in which to work. Kirby's first design, which would become known as the Kirby I —he always referred to it as Torch, the first of a series of "hot" names he applied to his first three 14 designsborrowed the rig, mast, sails, and foils from an existing Bourke design, so only the hull was different. This made it much easier to isolate the performance of the hull alone, a lesson Kirby would apply to many later designs.





Left—Kirby's first designs were for the International 14 Foot class, a high-performance dinghy. He gave each a "hot" name, the first, shown here, being Torch. Right—Kirby grew up sailing on a widening of the Ottawa River west of Ottawa, Ontario, and competed in the Olympics three times, representing his native Canada in the Finn and the Star.

Although not initially designed for production, two hulls were soon sold, with 28 ultimately produced in fiberglass by Montreal catamaran builder Bob Harris. As a multihull builder, Harris was conscious of weight, and the Kirby I was under the then-minimum design weight of 225 lbs (102 kg).

Kirby was a newspaper reporter with little practical knowledge of yacht design or engineering; Torch was almost entirely an intuitive approach to dinghy design, based on what he had seen of the New Zealand boats in England, and on what he had learned with Roger Hewson about earlier successful 14s. However, with his second design, logically referred to as the Kirby II by the 14 world but as Flame by Kirby, he had started to master the basics of elemental yacht design, working with a very early copy of Skene's Elements of Yacht Design that predated the Francis Kinney edition. The Kirby II introduced improvements to the Torch model, including less wetted surface, that gave up a little upwind speed to achieve better planing and reaching performance. This boat, like the Kirby I, also started life in fiberglass, and soon was challenging the Torontobased Buller designs for 14 supremacy in Canada.

By this time Kirby's 14s had also taken hold in England, the heart of the International 14 world, with noted

14 sailor Jeremy Pudney ordering a new Kirby design almost like clockwork every few years. Built in coldmolded mahogany by builders such as Souter and McCutcheon, the British boats were bright finished, and represented a level of wooden small-boat construction seldom seen today. The British 14 legend Stewart Morris won the last of his 10 Prince of Wales trophies in a Mk II. Kirby and fellow Canadian Harry Jemmett, both sailing Kirby IIs, were first and second in the 1963 and '64 Canadian championship regattas. However, as successful as the II was, it was the Kirby III, or Inferno, design that proved the ultimate breakthrough boat for Kirby, with fellow Canadian 14 sailor Ian Bruce winning the coveted Prince of Wales Cup in England two years in a row. This led Bruce to put the Kirby III into production in his Montreal shop, with an interior he designed. The Kirby III, in Bruce's hands, introduced the super-bendy rig and shroud levers to the 14 Class, as well as introducing North Sails to Canada. Kirby never got a chance to sail the III, because by this time he had relocated to Chicago to take over the editorship of One-Design Yachtsman, which eventually evolved into One-Design & Offshore Yachtsman, Yacht Racing, and then Sailing World magazines.

Kirby is the first one to say the success of his boats has as much to do with who chose to sail them as with the design itself, and Kirby was fortunate that some very good sailors recognized early that they could do well with a Kirby design. Even after Kirby departed the class, other 14 sailors of exceptional ability continued to do well with his designs.

The Kirby IV, originally commissioned by Jeremy Pudney and built in England by McCutcheon in a coldmolded mahogany variation, was then put into fiberglass production in Seattle, Washington, by the Clark Boat Company. Garden Tools, Dennis Clark's own Kirby IV, made an impressive debut, winning the International 14 division at CORK that year in Kingston, Ontario. Like partnering the Kirby III with Bruce, partnering the Kirby IV with the Clark brothers would have significant benefits for Kirby in the near future.

With the success of the IV on the race course, Pudney commissioned Kirby to further improve the breed; the result was the V, built in molded wood by McCutcheon. Bruce then put the V into production in fiberglass in Montreal with a new completely molded interior. The V was also the first production 14 to be designed with the newly approved trapeze in mind. From my perspective as a young 14 sailor in the 1960s and '70s, the V was the first of the modern 14s-with a straight line shear, a double bottom

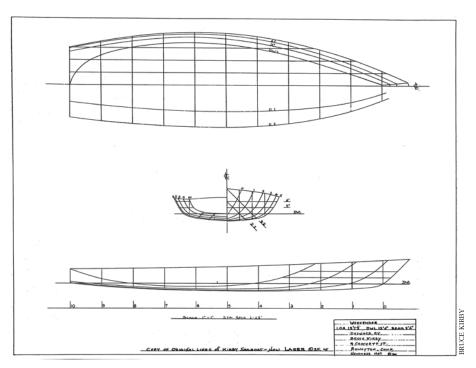
configuration introduced by Ian Bruce, and benefiting from rule changes such as the higher I measurement, long spinnaker pole, much larger spinnaker, and the trapeze. The V set a new standard in small-boat design and performance. In Canada it almost converted the 14 Class to a one-design fleet with all the top 14 sailors quickly trading up to the V.

Building on the success of the V, Pudney commissioned a VI and ultimately a VII, but the high-water mark of Kirby's 14 design career was undoubtedly the V. With other talented designers now entering the frav—Iav Cross in Canada. American Chris Benedict, and Phil Morrison in England—coupled with continued talks between the International 14s and the New Zealand and Australian 14 classes, rule changes would soon take effect that would make obsolete a large number of these older, heavier designs. The 14 has had some impressive design talent associated with it, including Uffa Fox and Ian Proctor. When Proctor's son introduced Kirby to his wife, he said, "My dear, I'd like you to meet the man who put my father out of the 14 business."

#### The Laser

Ian Bruce, an industrial designer by profession, was approached by a customer who wanted to develop a line of leisure products that might include a cartop dinghy for weekend sailing. Ian Bruce commissioned Kirby to design the high-performance cartoppable dinghy, and a prototype produced, but the project did not go beyond that. However, One-Design & Offshore Yachtsman was organizing a promotional regatta at the Playboy Club on Lake Geneva, in Wisconsin, in conjunction with the 1970 America's Cup racing. The race was called "America's Tea Cup," but considering the location of the event, Kirby later quipped that "America's D-Cup" might have been a better designation for the regatta.

The goal of the regatta was to introduce sailboats with retail prices less than \$1,000. Kirby suggested to Bruce that their little cartopper might fit right into those parameters, and Bruce rapidly completed the prototype. While driving through Toronto on the way to Wisconsin, Ian Bruce picked up sailmaker Hans Fogh along with the freestanding mast and sail. When



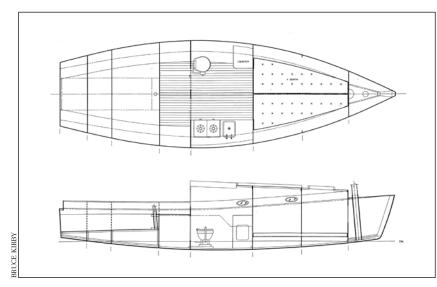
Above—Lines for the Laser. The model quickly became a highly competitive racing dinghy, with fleets now in 121 countries and more than 220,000 units sold. Also an Olympic class, it has men's

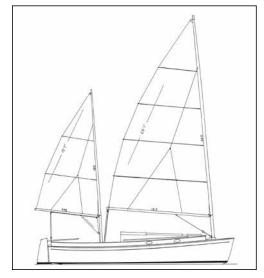
and women's divisions. Right—Australian Michael Blackburn, a Laser World Champion, sailed his Laser 110 miles across the Bass Strait from northern Tasmania to the Australian mainland, averaging more than 8 knots for the voyage and topping out at 19 knots on a few occasions.



they arrived in Lake Geneva they were racing against boats like the first Hobie Cat and the first Windsurfer, which would also go on to revolutionize small-boat sailing. Bruce and Kirby's Weekender, as it was called then, finished second in the first race, and after Fogh recut the sail overnight, won the next race, and was leading on the third day when the race was cancelled due to light air. This was quite respectable considering that rig placement had not been accurately resolved, and excessive weather helm was a problem through the weekend. But popular interest was such that Bruce was willing to take this prototype, with a modified rig location, to the 1971 New York Boat Show.

They still did not have a name for the boat, and certainly nothing resembling a marketing plan. At a dinner at the Royal St. Lawrence Yacht Club in Montreal, where the final testing of the boat was taking place to correct the rig location problem, the question of the name was being bandied about, and Bruce asked a young McGill University engineering student what he thought the name of the boat should be. The young engineer thought it should be something modern and technically oriented that would appeal to youth. Bruce said, "You mean something like 'Laser'?" The student agreed, and Bruce yelled down the table at Kirby: "What do you think of Laser?" Kirby wasn't totally convinced, but over the next







An interest in shoal draft and freestanding rigs led Kirby to design a line of sharpie-type small cruising boats to be built in plywood. He sold hundreds of plans for the home builder or professional, and in all produced five Norwalk Island Sharpie models ranging from 18' to 31' (5.5m to 9.5m).

couple of days the name grew on him, especially the international recognition of the name. Ian Bruce soon adopted the international symbol for the Laser as the class insignia, and the new Laser, built from a new set of tooling, proceeded to the New York Boat Show. At the end of the week, they had orders for 140 boats, a show sales record that Kirby says still stands today. The rest, as they say, is history. Kirby himself took hull No. 1 from the new tooling, and it was this boat that he later donated to Mystic Seaport for preservation.

The class numbers more than 250,000 worldwide, and is now an Olympic class in two rig configurations.

### Full-Time Design

Laser royalties provided enough income from yacht design alone to allow Kirby to safely switch careers from publishing to design. Bruce and his wife, Margo, had already relocated to Rowayton, Connecticut, and purchased a house on the water, where they live to this day, just up the Five Mile River from Long Island Sound.

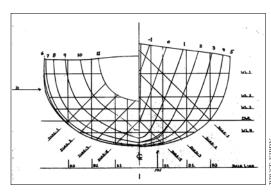
That's when the second benefit of his successful 14 designs came home. The Clark brothers were looking to expand their boatbuilding enterprise to larger boats to take advantage of the surge in cruiser/racer sailboats from the likes of C&C, Ranger, Cal, Pearson, and many other builders of the 1970s. The International Offshore

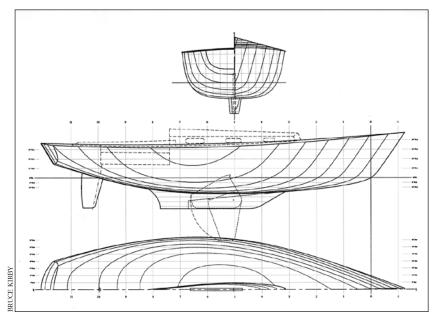
the rating rule of choice, and the Quarter Ton class had just been defined for level racing of IOR boats with ratings of 18' (5.5m) or less. Doug Peterson would soon make his breakthrough with the One Tonner Ganbare, and Ron Holland with the Quarter Tonner Eygthene, but the San Juan 24 predated both. The Clarks wanted a competitive Quarter Tonner, so they turned to the designer who had already provided them with a very competitive 14, little realizing that Kirby had never designed a boat with a keel and ballast, or designed a boat to a design formula. This opened all sorts of questions

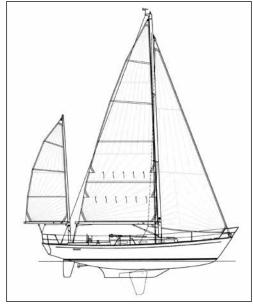
Rule (IOR) had just been adopted as

for Kirby, but a quick study of the IOR, and a phone call to fellow Canadian designer George Cuthbertson, for whom Kirby had sailed a number of C&C designs in the Southern Ocean Racing Conference (SORC), including the first C&C 35 (10.7m), Red Head (with Lars Bergstrom), and the first C&C 61 (18.6m), Sorcery, quickly acquainted Kirby with appropriate righting moments at 1°. Again consulting Skene's, Kirby dived headfirst into the

Sections for the San Juan 24 (7.3m). It was Kirby's first design of a keelboat, and to a design formula—the International Offshore Rule. Introduced at this time, the rule dominated yacht racing during the 1970s. Note the IOR "bumps" at stations 2 and 6. The San Juan 24, designed as a Quarter Tonner, has the largest number of IOR certificates issued of any single design.







The most recent design from Kirby's drawing board is Phebe, a 38' (11.6m) centerboard yawl built by Damian McLaughlin in North Falmouth, Massachusetts, for historian Nathaniel Philbrick, who sails her out of Nantucket. A keel/centerboarder to achieve shoal draft with good stability, Phebe shows a hardening of the bilges for good form stability as well.

intricacies of centers of gravity, ballast lead, and righting moment calculations and measurement. The result was the San Juan 24, which went on to become the boat holding the greatest number of IOR measurement certificates, and a design that quickly defined the form of a competitive IOR boat, with wide maximum beam and pinched ends.

This foray into IOR-level racing led Kirby to design a number of custom Quarter, Half, Three Quarter, and One Tonners, and finally a 40-footer (12.2m) called Runaway. Even though Clark Boats balked at following the San Juan 24 with a larger Half Ton sister, in 1973 Kirby produced the 30' (9.1m) Half Tonner Accolade. Built of



cold-molded cedar, it was the first monohull built by the Gougeon Brothers (also makers of WEST SYSTEM epoxy products). After seeing Accolade's success, the Clarks relented, and in 1974 the boat went into production as the San Juan 30.

This success in IOR-level racing led to the commissioning of the Kirby 25 (7.6m) and Kirby 30 designs by Mirage Boatworks in Montreal in 1974 and 1976. Mirage was looking for a line of cruiser/racer one-designs to take on the rapidly expanding I/Boat line. The Kirbys established several one-design fleets throughout the Eastern Seaboard and the Great Lakes, the 25 being the more popular of the

Kirby's most successful custom oneoff, however, has to be his own Runaway, which he owned in partnership with John Spain. Runaway was designed to compete in the very competitive 40'-size range on Long Island Sound against the many C&C 40s, North American 40s, and New York 40s already racing. Runaway was built by Eric Goetz (Bristol,

Following the San Juan 24, Kirby designed several custom yachts to the IOR, including the 40' (12.2m) Runaway for himself and a partner. Built by Eric Goetz of cold-molded cedar over an Airex foam core, Runaway was a member of Canada's 1981 Admiral's Cup team.

Rhode Island) in cold-molded cedar over an Airex foam core. Kirby feels more comfortable working in wood than in composites, and did most of the structural design himself, although he concedes that Goetz thought she was overbuilt. She did, however, come out right on her lines. Runaway was ultimately selected to be a member of the 1981 Canadian Admiral's Cup team, joining the Petersondesigned Pachina out of Vancouver, and the C&C-designed, Toronto-based Amazing Grace. Runaway led the Canadian team to a respectable sixthplace finish in the 16-team field. Earlier, she had won her class overall on Long Island Sound in 1980 and repeated that success in 1990.

# **Cruising Boats**

Kirby has always been intrigued by shoal draft and centerboards, which in 1979 led to the design of the Nightwind 35' centerboarder, built originally by C.E. Ryder in Rhode Island, and later by Fort Myers (Florida) Yacht & Shipbuilding. Although only 13 were built, a Nightwind was to become Kirby's own boat for several years, kept at the dock behind his house in Rowavton.

Kirby's old 14 compatriots were now getting on in age and were looking for other sailing options, prompting a commission in 1982 from some





Left—A fleet of Ideal 18s rounds a mark. The design has become popular as a club racer at the Royal Canadian Yacht Club and Larchmont (New York) Yacht Club, among others. Right—The Ideal 18 is built by Ontario Yachts in Burlington, Ontario.

Ottawa sailors to design a shoal-draft centerboard cat-ketch with freestanding rig. Called the Georgian 34 (10.4m), and then the Ticon 34, four were built.

The concept of shoal draft and freestanding rigs led Kirby to reexamine the New Haven Sharpie concept, popularized in the late 19th century in Florida by the writings of Commodore Ralph Munroe. Designed for home building in plywood, Kirby's Norwalk Island Sharpie designs come in five sizes from 18' to 31' (5.5m to 9.5m) with all except the smallest being catketches. The sorting, assembly, and mailing of plans was initially done by Kirby and Margo in the basement of their home, but eventually they handed that responsibility over to others. To date, more than 1,000 sets of plans have been sold.

Kirby's latest design, launched in 2010, is a 38' (11.6m) cruising centerboard yawl Phebe for historian and author Nathaniel Philbrick. Built by Damian McLaughlin in North Falmouth, Massachusetts, Phebe sails out of Nantucket.

### **One-Designs**

It is Bruce Kirby's racing background that has stood him in such good stead in yacht design, and nowhere is it more evident than in the number of one-design classes Kirby has designed. After the success of the Laser, it was only a matter of time before he was approached to design a keelboat equivalent, and that request came in 1979 from his own Noroton Yacht Club, the same year that the Nightwind and Runaway were designed. The club had been surveying its members for the parameters of an ideal yacht club racer. They already had Stars, Solings, J/24s, and Tempests in the fleet, but, to increase weeknight racing, they were

looking for the ideal Long Island Sound one-design to best meet the needs of its members. Surveys at other clubs produced similar parameters: between 22' and 24' (6.7m and 7.3m) in length, trailerable, good in light air, reasonably priced, not too physically demanding, comfortable to sail, and having a good turn of speed. Wally Ross, author of Sail Power, stepped forward and said that if Kirby would design it and find a builder, Ross would pay for the tooling and handle the marketing. Based on the submitted criteria, Kirby produced the drawings for the Sonar, and the first hulls were built by Bob Seidelmann in New Jersey, but after a plant fire, production moved to C.E. Ryder Corp. After more than 300 units, production moved to its current builder, Ontario Yachts, in Oakville, Ontario. Recently, the Sonar has entered production in England, which will host





Left—The 23' (7m) Sonar with Kirby at the helm. It's his personal favorite one-design; in fact, even though he is over 80, he still actively races on Long Island Sound and in championship regattas. Above—The Laser Radial was created in the 1980s as an alternative to the standard Laser. It has a shorter mast and less sail area, and is the Olympic singlehander for women.

the Worlds this year. To date, over 800 Sonars have been built, and it now forms the largest one-design keelboat class on Long Island Sound. The Sonar is also Kirby's own choice of racing class, but he admits the talent level in the class is so high that it's difficult to stay at the top.

In 1986 he was asked to design a singlehanded keelboat for older Finn sailors whose backs didn't allow them to hike out so aggressively. The result was the Fox, an 18' cat-rigged keelboat resembling a cross between the Laser and the Sonar. However, though 38 were built, the class did not become established beyond its home base on Long Island Sound.

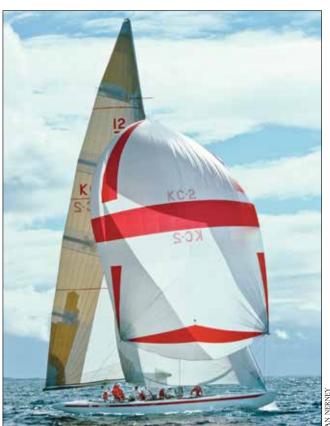
Greater success came in 1988 when Kirby was approached by his old friend Frank Schumway, who was looking for a more modern equivalent to the old Herreshoff 121/2 Bullseye that he could race with his wife. Designed originally on more classic lines, the transom and shear of what would become the Ideal 18 were modified to give it a more contemporary look, although Kirby admits that he would have preferred the original aesthetics. But the basic concept remained the same: to produce an easily sailed boat with a large ballast ratio that does not need to rely on crew weight for stability. A selftacking jib allows the boat to be sailed singlehanded. Like the Sonar, the Ideal was put into production at Ontario Yachts, and its total now tops 300 units. The Ideal 18 has become the backbone of many club-racing programs at places like the Royal Canadian Yacht Club and Larchmont (New York) Yacht Club.

Kirby's latest one-design is the little Pixel, designed primarily for junior sailing, to bridge the performance gap for kids who are too big for the Optimist but not yet ready for the Laser. However, unlike the singlehanded Optimist and Laser, the Pixel has a jib and can take crew on board to better teach teamwork and cooperation at the junior level. Built originally in epoxy in China with a carbon fiber spar, it has now been switched to polyester to allow the use of conventional gelcoat. More than 200 have been sold.

### America's Cup

Right after Kirby returned home from the 1981 Admiral's Cup races, the phone rang. Usually when that happened, Bruce would say in jest, "We'd better get that call. It might be someone looking to design a 12-Meter!" Well, this time it was Canadian Marvin McDill calling from Calgary, Alberta, asking Kirby to do just that. Inspired by both the 1980 America's Cup racing and a feeling of Canadian nationalism, McDill wanted to put together a Canadian challenge. Kirby, as it turned out, had been following Cup racing closely, going back to his reporter days with the Montreal Star when he talked his editors into sending him to Newport to cover the 1962 races. He even had the lines plan for an unsuccessful Sparkman & Stephens 12-Meter he had obtained from a fellow sailing journalist.

So a new set of lines was developed and tested at the National Research Council's towing tank in Ottawa. This tank had been converted to large-model yacht testing with the help of C&C alumnus Steve Killing, who had used it to test the C&C-designed 1978 Canada's Cup winner, Evergreen. A second set of lines was produced to try to improve upwind performance, and it was tested with the desired results. As with his early work in 14s, the goal was not to copy what had been done before, but to build on it and produce original work superior to anything done to date. What would become Canada I was developed from that second set of lines and was built in aluminium by McConnell Marine in Ontario, with construction and engineering specified and supervised by Steve Killing (see "Object Lessons," Professional BoatBuilder No. 13). However, in the 12-Meter class, originality was very difficult, with ultimate performance at any given wind speed ultimately dictated by the choice of waterline length. That was generally true...until the 1983 challenge, when designer Ben Lexcen turned the sailing world upside down with the world's first wing keel and a short waterline (see "The Hydrodynamicist,"



Canada I and Canada II (essentially the same boat but with modifications to keel, displacement, and rig) were developments of Kirby's lifetime interest in the America's Cup. Canada I was refined by extensive testing at the National Research Council towing tank in Ottawa, while Canada II and several other 1987 U.S. challengers were tested in Escondido, California, at a larger facility.

PBB No. 121); the Australians won the challenge, sending the Cup to Perth for the defense in 1987.

Based on what Kirby saw of Australia II's wing keel, he incorporated a wing keel in his 8-Meter design Octavia, which went on to win the 8-Meter World Cup in 1984 against older 8s, and three new boats from Europe with conventional keels. This was the first wing keel to appear in that longstanding class. As Kirby so

eloquently puts it: "I just took a wildeyed swing at it."

For the 1987 America's Cup, Canada I was converted to a wing keel to be a trial horse for the new boat Canada II, but lack of funding precluded building the second boat. After further modifications to the original hull, primarily lengthening the waterline to suit the higher winds expected in Australia, Canada I became Canada II to compete with

Don Green's Steve Killing-designed True North. An elimination trial was held between the two Canadian challengers off Santa Cruz, California, to decide which boat would represent Canada. Canada II won 23 of the 24 races, and was selected to make the long trip to Freemantle, Australia. In its heavier airs, however, the designs with even longer waterlines and with correspondingly less sail area had the advantage, and Canada II was eventually eliminated from the series. Dennis Conner won back the Cup for the U.S. in Stars and Stripes '87. That was the last time the America's Cup would be raced in 12-Meters.

### **Retired in Rowavton**

As other successful designers gain more work, they usually add staff and increase the size of their offices. This is a temptation Kirby has avoided, and is still working on his own in his basement office overlooking the Five Mile River. That is not to say Kirby works entirely alone. Like many established "old school" designers, Kirby has never made the transition to computer-aided design, but he does have a close working relationship with Paul Fuchs, a University of Michigan naval architecture graduate who lives nearby and often translates Kirby's hand-drawn lines plans to computer models for the accurate cutting of frames and to reaffirm the hydrostatic calculations. In the case of his last project, Phebe, Mathew Smith—working with the builder Damian McLaughlin—supplied input and drawings on structural details.

Now in his mid-80s, Kirby no longer feels the need to continue designing, but has not completely ruled out a new project...if it is "interesting enough." Yes, he would certainly consider drawing a new boat for the right people. But looking back on a design career that now spans more than 50 years, Kirby admits in his typically understated fashion: "I was lucky to hit things when they were happening."

About the Author: Rob Mazza is a naval architect and professional engineer with a long design background with C&C Yachts, Mark Ellis Design, and Hunter Marine. He has recently been involved with structural core materials with ATC Chemicals (Corecell) and Baltek.