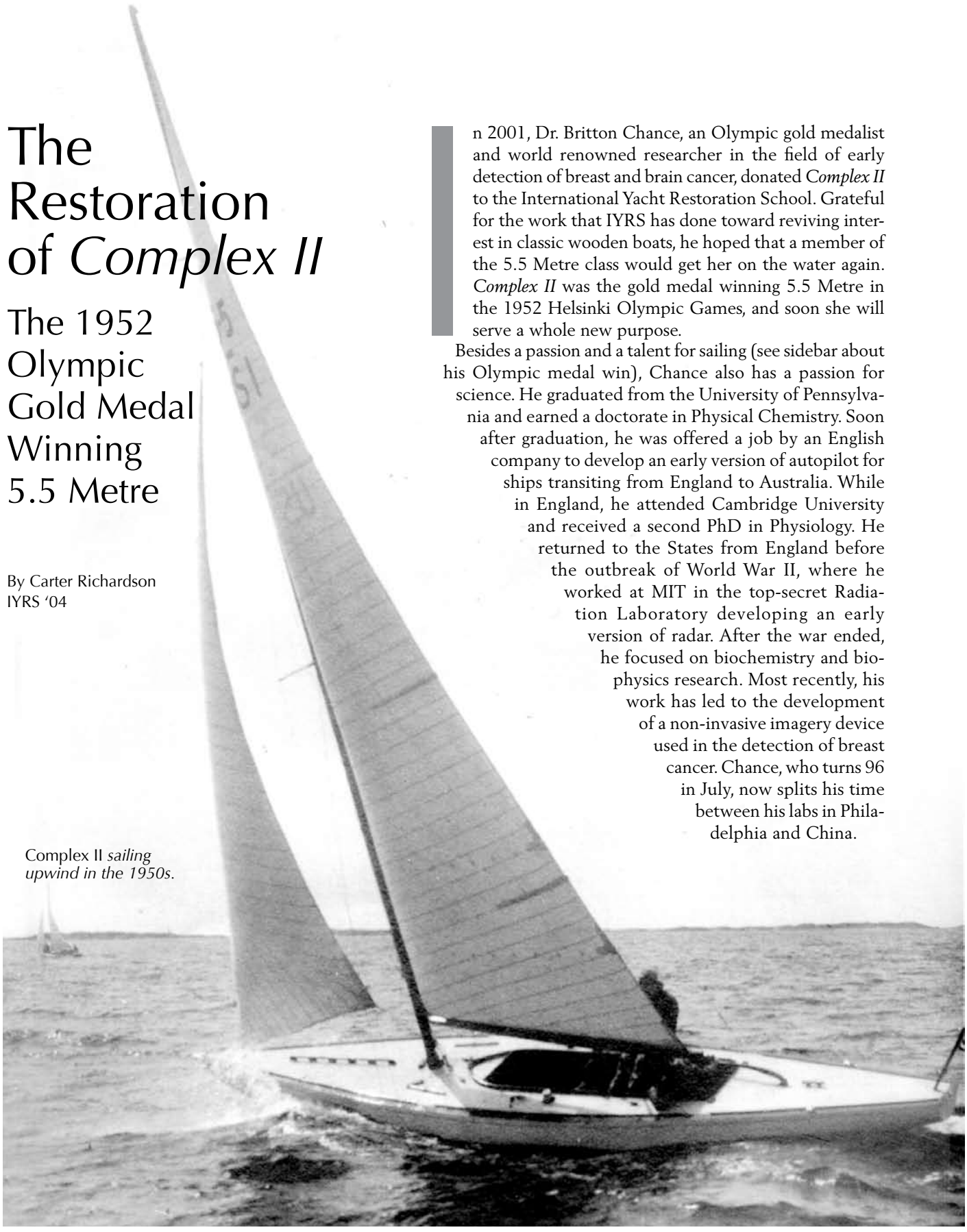
The Restoration of *Complex II*

The 1952 Olympic Gold Medal Winning 5.5 Metre

By Carter Richardson
IYRS '04

In 2001, Dr. Britton Chance, an Olympic gold medalist and world renowned researcher in the field of early detection of breast and brain cancer, donated C*omplex II* to the International Yacht Restoration School. Grateful for the work that IYRS has done toward reviving interest in classic wooden boats, he hoped that a member of the 5.5 Metre class would get her on the water again. C*omplex II* was the gold medal winning 5.5 Metre in the 1952 Helsinki Olympic Games, and soon she will serve a whole new purpose.

Besides a passion and a talent for sailing (see sidebar about his Olympic medal win), Chance also has a passion for science. He graduated from the University of Pennsylvania and earned a doctorate in Physical Chemistry. Soon after graduation, he was offered a job by an English company to develop an early version of autopilot for ships transiting from England to Australia. While in England, he attended Cambridge University and received a second PhD in Physiology. He returned to the States from England before the outbreak of World War II, where he worked at MIT in the top-secret Radiation Laboratory developing an early version of radar. After the war ended, he focused on biochemistry and biophysics research. Most recently, his work has led to the development of a non-invasive imagery device used in the detection of breast cancer. Chance, who turns 96 in July, now splits his time between his labs in Philadelphia and China.



Complex II *sailing upwind in the 1950s.*

Dr. Britton Chance

For seven years, C*omplex II* was one of a dozen or so members of the IYRS wooden boat "boneyard." The varnish was peeling off her bright hull, and the colors of her once-proud Olympic rings were fading with each passing season. Rex Howland, one of thousands of visitors that passed her on Thames Street every year and now the president of The Chance for Life Sailing Foundation, dreamed of restoring the boat to her original glory. In the spring of 2008, he contracted East Passage Boatwrights of Bristol, R.I., to do the job.

SURVEYING THE CLASSIC SIGNS OF AGE

C*omplex II* is planked in mahogany over steam-bent white oak frames, and she has a mahogany transom, covering boards, coamings and interior furniture. The initial survey of C*omplex II* showed the classic signs of an older wooden boat containing broken frames along the hard turn of the bilge and the entire centerline structure rotted from the destructive interaction between oak and iron. The topside planks were in good shape, with the exception of the aft ends, which were

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An Olympic Gold for *Complex II*

AT THE CONCLUSION OF THE 1948 LONDON OLYMPICS, it was apparent that a smaller, more economical alternative to the very popular 6 Metre class was needed. Charles E. Nicholson of Camper & Nicholson was tasked with the design. Different than the International Rule used to measure 6, 8, 10 and 12 Metre boats, the new design was based on a variation of the 1912 Boat Racing Association Formula, where length, beam, sail area and displacement are entered into an equation resulting in a number less than 5.5. The new class, the 5.5 Metre, would be half the cost but nearly the same hull speed as the 6 Metre.

The class made her Olympic debut in the 1952 Helsinki games, and the Scandinavian Gold Cup adopted the design for the prestigious international regatta a year later. The 5.5 Metre remained an Olympic-class boat until the 1968 Mexico City Olympic Games, when the class attracted the same criticism that fueled its origin. It was replaced by the smaller one-design Soling class, and despite losing the Olympic designation, the 5.5 Metre remains very popular in Europe with a scattered following in the United States.

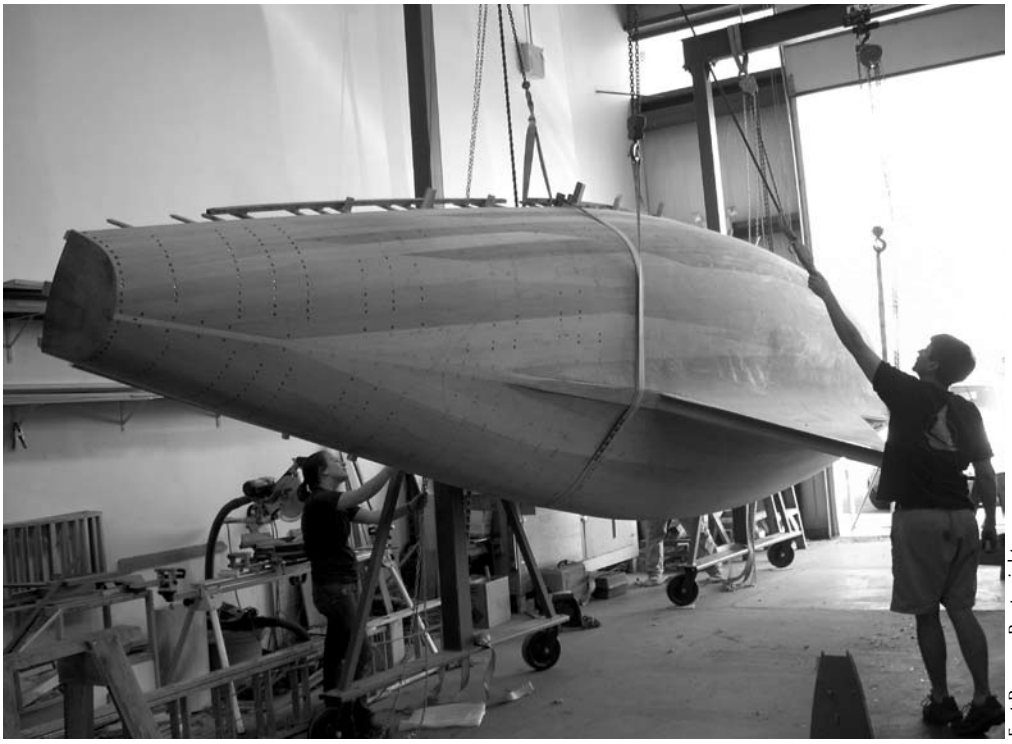
When it was announced that the 5.5 Metre class would be used in the Olympics, Dr. Chance commissioned Arvin Laurin, a noted Swedish designer, to draw up 5.5 US-1 *Complex II*. The hull was quickly christened at an Olympic qualifying race in Genoa, Italy, where she won. Since no other U.S.-owned 5.5 had entered the race, Chance was unchallenged as the American representative for the 1952 Olympics. Along with Chance, *Complex II* was crewed by twin brothers, Edgar and Sumner White. Michael Schoettle, former crew for Chance sailing E-Scows, was selected as an alternate.

PHOTOS FROM TOP
Complex II *finishing a race during the1952 Olympics.*
Complex II *at the start of the Olympic Trials.*
Dr. Chance (third from left) with his Olympic crew.
(Photos courtesy of the Official Report of the XV Olympiad)

The deep waters off the coast of Helsinki were picked for the Olympic races due to the minimal tidal current and absence of freak strong winds created by large wooded islands that dot the Scandinavian coast. The regatta was set up as a series of seven races held over 10 days with the top six results counting toward the final placement.

At the conclusion of the sixth race, the United States was in second place behind Norway's entry *Encore*. The conditions at the starting line of the seventh race were calm seas and 10 knots of winds, decisively in the United States' favor. *Complex II* was designed as a light air boat, where as the Luders-designed *Encore* was a heavy weather boat.

In a 2004 interview, Chance discusses the game plan for the final race. "Our strategy was a typical one: sit on your rival and try to escape when the opportunity arises." *Encore* built a quick lead, leaving *Complex II* well back in the fleet. The Americans began their comeback by passing the Portuguese and Finnish boats, putting themselves in a position to execute their strategy. Chance pulled even with *Encore* and maneuvered to windward, blocking the Norwegian's clean air. The Americans began to pull away and crossed the line more than two minutes in front of the fourth place *Encore*. The time gap was enough to give *Complex II* the gold medal; *Encore* was awarded the silver and Sweden's *Howja* the bronze.



East Passage Boatwrights

Complex II *being flipped right side up after completion of planking.*

Complex II

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thinned from years of sanding, and the sheer planks, which were rotted from freshwater damage.

The original table of offsets was given to Pedrick Yacht Designs of Newport, R.I., to create a 3-D model of the boat that conformed to the strict guidelines of the class. The first model produced from the computer showed that the hull was far from fair and suggests that many changes were made but not recorded when the boat was designed in 1951. After some changes, an updated table of offsets was provided. "It was an interesting mix between new and old," explained Seth Hagen of East Passage Boatwrights. "Even though it was faired on a computer, at full size, the eye picks up on subtle necessary changes." An amended table was sent back for Pedrick to plug into the program again. This process repeated itself until both boat builder and designer agreed on the final product.

One of the goals for the restoration is to reuse as much of the original material where possible. "Structurally, there was a lot of damage to the centerline timbers; it was challenging," said Nick Eide of East Passage Boatwrights. "In many places, there was little to no information that could be used for the manufacturing of a new keel." The new locust stem, used in place of a steam-bent white oak stem because locust is easy to find with a grown sweep, as well as the entire length of the keel will be fastened with silicon bronze bolts eliminating the corrosion that doomed the original keel.

The topside planks were carefully stripped and sanded of years of varnish to reveal beautiful dark brown mahogany. In keeping with original construction methods, the boat will be replanked using glued tight seam construction with Scandinavian or vertical scarves. All the underwater planks will be replaced. Even though photos indicate that originally she was painted white, the hull will instead be varnished.

With the exception of the sheer clamp, the entire deck structure will be replaced with Douglas fir deck beams, a nearly identical species to the original Norwegian pine structure. Because the deck was replaced with a plywood deck during her first restoration in 1975, there is no documentation on the original material. East Passage Boatwrights will use Alaskan white pine planks covered with Sunbrella canvas.

IN ITS NEXT LIFE, COMPLEX II TO RAISE CANCER AWARENESS

Once completed, *Complex II* will serve as a vessel to raise awareness and funds for cancer research and treatments. In December 2006, a close friend of Howland's was diagnosed with Glioblastoma, a form of brain cancer. Two years later, his friend lost his battle to the disease. As Howland started his research into the history of the boat, it became clear to him that the restoration of *Complex II* could serve a bigger purpose. In a remarkable twist of fate, her original owner, Dr.

East Passage Boatwrights

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Carter Richardson, Seth Hagen and Nick Eide of East Passage Boatwrights.

EAST PASSAGE BOATWRIGHTS (EPB) was founded by three IYRS graduates; Nick Eide ('04), Seth Hagen ('02), and Carter Richardson ('04) and opened its doors in September of 2006. The idea of opening a shop is something the three had talked about for a long time. "For Carter and me it started back in our first year at IYRS," Nick recalls about his Beetle Cat® partner. The three picked Bristol, R.I. for its location. According to Hagen, "Being in Bristol is key. We are in the heart of Rhode Island's marine trades district. We have access to the water to launch boats. Everything we need is in the immediate area."

Besides the restoration of *Complex II*, EPB was busy this past winter getting *Skylark*, a 53' 1937 Sparkman and Stephens yawl, ready for the water. EPB has installed deck joinery; including caprails, cockpit well, coamings and deck hatches, located and installed the deck hardware as well as managing the systems installation. EPB was also tasked with building her a new boom. *Skylark* will spend the summer racing and cruising in New England.

Past projects include *Singoalla*, a 1947 International Dragon, and *Sonny*, a 54' 1935 Sparkman & Stephens auxiliary sloop. After being out of the water since the mid 1980s, *Singoalla*'s restoration was completed in 2008 and won an honorable mention in the Professionally Restored Sailboat category at the 2008 Wooden Boat Show in Mystic, Conn. *Sonny* had just returned from the Mediterranean in 2007 when she came to EPB with broken frames and in need of structural enhancement at the mast partner. A total of 20 frames were replaced forward in the galley and foc'sle and a truss system was installed to distribute the massive load placed on the hull by the rig.

EPB purchased *Dolphin*, a Fish Class sloop, from the Herreshoff Marine Museum and is currently looking for an interested party to restore the vessel.

Chance, was not only passionate about the revival of the 5.5 Metre, but he was also an expert in the field of cancer research and treatments.

In honor of his friend, Howland has started The Chance for Life Sailing Foundation (www.chanceforlifesailing.org), a not-for-profit organization dedicated to raising funds to restore *Complex II*. "It is important to note that I did not purchase the boat for my own sailing and keeping," Howland points out. "From day one, I laid out plans for the establishment of a not-for-profit organizational ownership of the boat." The foundation has been established in order to guide and fund the restoration and preservation of *Complex II* and, once restored, to utilize her to "raise awareness and funding on a global basis for cancer research and treatments."

He hopes to use the models of other successful fund-raising organizations to organize and participate in regattas that will serve as a primary form of development. Other fund-raising opportunities will include corporate sponsorship, inclusion in other cancer organizations' silent auctions and renting *Complex II* to companies to use in advertisements.

Howland has spoken to Chance several times and has traveled to Philadelphia to meet with him to talk about the foundation and to research the history of *Complex II*. The former owner is excited to hear that the restoration is underway, and in Howland's last visit, he pointed to a 5.5 Metre hull model of *Complex III*, winner of the 1962 World Championships, hanging in his study. In hopes of a second restoration, Chance has asked Howland to attempt to track down the current location of *Complex III*.

Howland has invited Chance to Newport in hopes that the former owner will be available to attend the rechristening of *Complex II* this summer. She will initially be moored at the Museum of Yachting and will participate in the classic yachting events on Narragansett Bay. When she comes out of the water, she will be moved to her homeport in Greenwich, Conn. Long-term plans for *Complex II* include a trip back to Europe to race as a part of the large and competitive 5.5 fleet.