

Classic



Lightning

From the Desk of the Class Historian

Corky Gray

The NOMINATION of JOHN S. BARNES for the NATIONAL SAILING HALL of FAME



The Executive Board of the International Lightning Class Association has approved a nomination to the National Sailing Hall of Fame for our founding father, John S. Barnes.

Cited as an early promoter of one-design sailboat racing and founder of the Lightning Class, he is responsible for the establishment of the first high-volume production manufacturing company of one-design racing sailboats. Barnes is also recognized for the development and patenting of a vacuum bag molding process for sailboat production.

Barnes has joined the queue, along with Tom Allen, Ed Adams, Bob Bavier, Jim Carson, Dave Dellenbaugh, Skip Etchells, Greg Fisher, Marty O'Meara, and Brad and Ken Reed, to join the fifteen Lightning Class members already inducted into the National Sailing Hall of Fame.

Barnes was born in 1905 to A. E. "Skipper" and Eva Snaith Barnes of Syracuse, New York. His father earned a degree in engineering from Cornell and prospered in the business world. His success enabled him to buy a summer retreat in Henderson Harbor on Lake Ontario, where he based his forty-foot yawl 'Themis.' Henderson Harbor was a summer home to many wealthy families, and sailing was a popular activity. Thomas Edison established a retreat camp for the General Electric employees on Association Island on the Harbor. Young John discovered one-design racing sailing on the waters of Henderson Harbor.

The idea of racing small sailboats of a single design evolved in the early twentieth century. It was common for individual sailing clubs to have small keelboats as a one-design fleet for local competition. The idea of a single design to be raced regionally or nationwide was new. The Star Class in 1911 was the first class to become a class raced in many different parts of the country. Expense was a primary concern, so a hard chined, arced bottom design was used. The simple "box boat" derived from cheaply built fishing craft was the cheapest way to build in wood. This simplicity of the design made construction by amateurs easily done. The Star received a lot of coverage in the press.



The sailors in the Barnes family aboard 'Themis'
(courtesy of Helen Averall)

Magazines being the new access to popular culture would offer pieces on small boat racing.



Stars first appeared in Henderson Harbor in 1926 when the Lake Yacht Racing Association (LYRA) held their Championship on Association Island, racing right in front of the Barnes Compound.



Stars racing. Barnes boathouse to the left, house center right on bluff.

Also, racing were the Canadian 14 foot Class. This was the class that John Barnes would join. Soon, a fleet of the Fourteens grew to eight in the Harbor.



A fleet of 14s still race in 2020 at SLYC on Stony Lake in Ontario.

In 1930, the Barnes family led in forming Henderson Harbor Yacht Club with John as Commodore. He raced the 14 in many regattas around the Lake. Barnes came to the attention of Herbert Stone (NSHF 2019), editor of Yachting magazine, and he invited Barnes to write the lead article for the February 1932 issue. This piece, promoting the concept of one-design sailboat racing, gave him national exposure.



Yachting February 1932

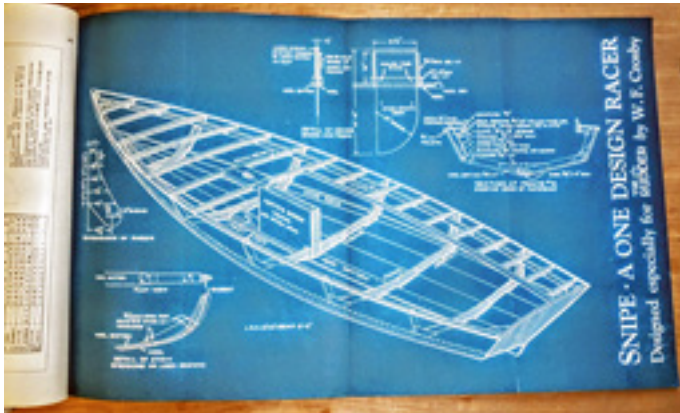
Interest from the Yachting article convinced Barnes to market the 14. To that end, he bought, in partnership with his brother George, an old canoe shop in Skaneateles NY to build the boats. In time, the Skaneateles Boat Co. became the first boat building company to specialize in building one-design racing sailboats in volume.



At first, business was slow. His 14 was a round hull and was expensive to build.

He would only build fourteen of them. Three Stars were built, as were a dozen other sailboats of various designs. The one success that was carrying the shop was the Snipe. Skaneateles would build 114 of these little sloops in the company's first years.

Designed in 1931, Rudder magazine's editor William Crosby promoted trailerable sailboats. From this, the Snipe would make sailboat history as the first class to grow exponentially nationwide. Crosby published the plans in the July 1931 issue of Rudder as the Trailer Sailor with Crosby's own boat to be named 'Snipe.' The insignia on the mainsail was a boat-trailer tire. The magazine sold out immediately, and boats were built from them by home builders and professional boat shops alike. Over 4,000 boats were built in its first ten years. These were unheard of numbers. The Snipe would become the first major class in America and in time would spread worldwide.



Rudder July 1931

Rudder would own the design and would serve as the Class journal. This drove magazine sales, something not lost on Yachting's Herb Stone. Yachting needed a boat of its own.

In its March 1932 issue, Yachting had run a piece on a little sixteen-foot sloop in Maryland designed by 1929 Star Class Champion Lowndes Johnson. Called the Crab, she fit the bill for Stone's boat. He had a model made of the Crab to display at the Yachting booth in the 1933 New York Boatshow, Calling it the "Star Jr," and it attracted much attention, including John Barnes.

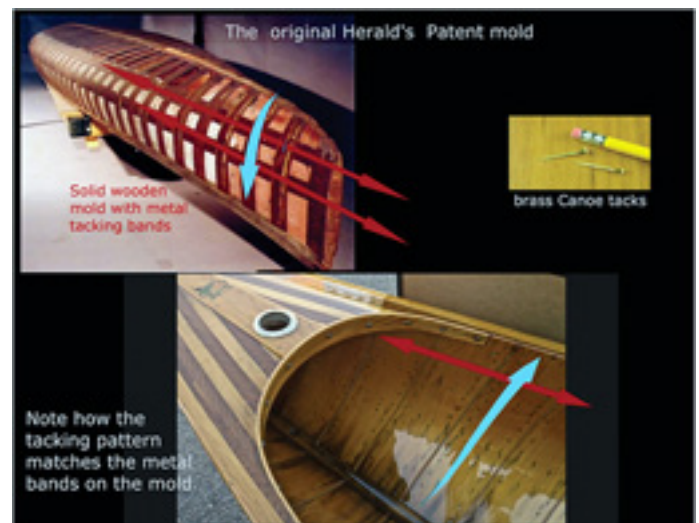
Star sailors, just having been selected for the 1932 Olympics, were not have anything "Junior" So the name 'Comet' was chosen.



Stone suggested to Barnes that this little sloop was just what he needed in his line of sailboats. This proved providential for Skaneateles Boat Company. At first, Barnes would build the Comet in a conventional single plank construction, exactly like all his larger competitors Thompson and Dunphy. The Comet's arc bottom made it more time consuming to build than the flat paneled Snipe, as both required caulking to be watertight. The Comet was lighter, faster and, to some eyes, a nicer looking boat than the Snipe, but the price premium limited its market appeal.

Barnes examined building techniques in the booming wooden canoe market. The original American Canoe Association sailing canoes were beautiful, but expensive single planked boats. A canoe builder in Peterborough, Ontario, Dan Herold, developed a method of building canoes double planked on a solid mold. The boat did not require caulking. The canoe builders in Maine, like Old Town Canoe Company, had developed a similar construction on a solid mold. The mold was metal sheathed to allow the use of a special "canoe tacks" that, when driven into the plank, would strike the metal and self-clinch, speeding construction. This would allow canoes to pop off the mold in one day.

Barnes would combine the best parts of both methods to build the Comet double planked on a solid mold fastened with brass canoe tacks for fasteners. No caulking was needed. Barnes now could build a Comet hull in one day. He could now match the price point of the conventional builders and realize a better margin to boot. The high production building of one-design sailboats was now possible.



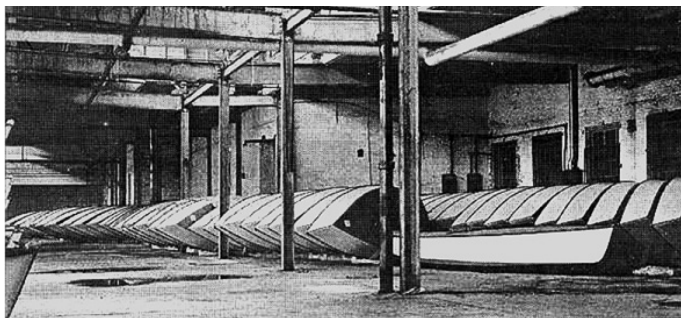
Barnes took a Comet built in this manner to the 1937 New York Boat Show. It was cut in half to expose the technique. It was an instant hit. The Barnes brothers would go on to build more one-design sailboats than any other builder until the coming of fiberglass in the 1960s. They built 1344 Comets before the end of production in the late 1940s.



Barnes sold a fleet of Comets to sailors at the Skaneateles Country Club. While popular, the owners started to talk up a similar but larger hard-chined, arc bottom boat that would accommodate an entire family aboard. Time would prove that a larger inexpensive sailboat would be the boat the country was looking for.

At the time, business was booming for Skaneateles Boat Company. In 1937 the Rumsford Country Club in New Jersey was looking to build a fleet of one-design keelboats. The club hired the young, cutting edge, design firm of Sparkman & Stephens to draw the boat. Young Olin Stephens (NSHF 2011) was the rising star in the field. His brother Rod Stephens (NSHF 2012) was the systems engineer for the firm. Together they designed the Arrow, a 23-foot sloop for the Club. The Club sought a builder for the boats and awarded the contract to Skaneateles Boat Co. This began a designer/builder relationship that led to the most popular S&S design of all time, the Lightning.

The group at the Skaneateles Country Club was headed by Lindsey Nicholson. This was the first time a one-design class was planned with the design to be owned by a class association. Barnes led the discussion of the boat itself, and he guided this group to consider hiring Sparkman & Stephens to draw a boat from the group's ideas. He helped persuade S&S to sell the plans to the new Lightning Class Association. This was something they did not normally do or would ever do again. He put the Class interest first by willing to be open to competition by other builders by encouraging the design to be offered to all builders. He bet on his molding technique to give him an advantage. This proved true. The Lightning grew exponentially like the Snipe. Growing to 4,000 boats in its first ten years, Skaneateles would build nearly a third of them. The company built 1,313 of the boats.



Lightning hulls in the second factory located on Mill Street where The Skaneateles wooden boat company is now located. PHOTO COURTESY OF JOHN AND MARY MENAPACE



In 2017, the Lightning Class joined with the Skaneateles Historical Society and the Finger Lakes Boating Museum to rescue the original Lightning mold from the ruins of the old plant in Skaneateles. Pictured above, the mold is now on display at the Finger Lakes Boating Museum Hammondsport, New York.

Barnes Patent for Molding Parts

The Library of Congress was completed in the early 1900s, the most ornate building in Washington DC. Carved marble, rich paintings and gold was used in vast quantities. No expense was spared. In the ceiling of the reading room in the Great Hall are six large skylights trimmed in a rectangle of what looks to be shiny silver. It was not silver; it was the most expensive metal on earth at that time—it was aluminum—the strongest material for its weight in the world. It was most important in military applications where light weight was of primary importance. The best use of this precious material was in the newly invented airplane.



The airplane quickly became the most advanced military weapon known at that time. Fleets of aircraft were needed, but the cost would prove prohibitive. The search was on for a material with the weight advantages of aluminum at lower cost. This would be the "Holy Grail" in the pre-war years. The inventor would become very wealthy should a material be found.

Wood has the characteristics necessary but needs substantial framing like a boat to work. Obviously, this would be too heavy. Wood was used for framing of early fabric-covered airplanes, but new designs were solid fuselages requiring the skin to carry the load. Monocoque is the term. Wooden structures of thin laminates were

the key. However, contemporary glues were inadequate, and what proved difficult was how material was formed to the highly curved shapes found in aircraft design.

Boats have the same requirements and proved to be the best test objects. High temperature autoclaves were employed in the 1930s to make the test boats and aircraft parts. Glues were still inadequate. Inventor/entrepreneurs would patent systems like Gore's plywood 'Duraply,' was created and patented. US Plywood developed waterproof panels called Weldwood. US Plywood had pram plans drawn and freely distributed them to boat builders to get the material in the field for testing. Best known sailboats from these plans are the El Toro and the Sabots. Bill Dyer at Anchorage bought hulls from US Plywood to give us the little Dyer Dows.



El Toro and Naples uses US Plywood hull

The eccentric millionaire Howard Hughes offered an 8 dinghy to test laminated wood for his "Spruce Goose," his gigantic wooden airplane.

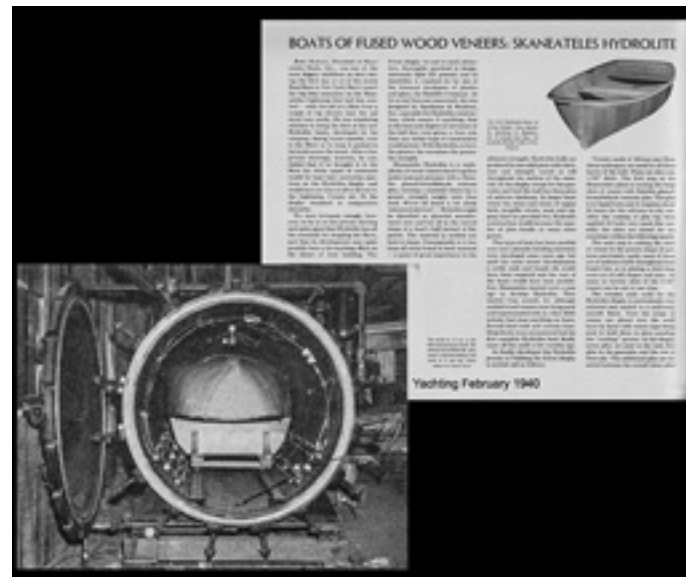


Howard Hughes dinghy at the Spruce Goose Museum

The Achilles Heel in these processes was the need for a heavy, expensive, rubber bag to cover the part when baked in the autoclave. Not being able to see the part before it was "cooked" resulted in a high rate of failures and limited the size of a part to around fourteen feet. John Barnes and the Skaneateles Boat Company solved the problem by employing a clear plastic sheet over the part that would be vacuumed, squeezing the laminates of wood into the desired shape. Any bad parts were seen and corrected before the pressure

cooking. To test the process, Sparkman & Stephens was hired to design an eight-foot dinghy, the Hydrolite Dinghy, for the company to build. These boats were sold by Dyer's Anchorage.

For this John Barnes was awarded patent # 2,411,497, November 26, 1946, "Making Laminated Articles."



The autoclave with vacuum bagged Hydrolite dinghy inside at Skaneateles Boat Co.

PATENTS

GRANTED NOVEMBER 26, 1946

2,411,497
MAKING LAMINATED ARTICLES
John S. Barnes, Skaneateles, N. Y., assignor to
Skaneateles Boats, Inc., Skaneateles, N. Y., a
corporation of New York
Application October 3, 1940, Serial No. 359,559
3 Claims. (Cl. 18—56)

1. The method of making articles by molding moldable material on a removable form by differential fluid pressure, which comprises providing a rigid form having a working surface of the desired shape of the article, applying moldable material to said working surface, covering said moldable material with a substantially air-tight pressure membrane of transparent, flexible sheet material in such manner as to form an entirely enclosed space, said pressure membrane being constructed by joining together pieces of said sheet material in situ on the form, connecting said space to a source of suction to draw said transparent membrane against said moldable material to permit inspection thereof, and thereafter subjecting said moldable material to a molding operation in which fluid pressure is applied to the outside of said membrane while said space is connected to a zone of lower pressure, and separating the molded article.

Skaneateles manufactured airplane parts for Bell Aircraft with this process for the war effort. After the war, the process allowed US Plywood to manufacture larger hulls for sailboats.

US plywood would use Barnes process to mold Thistle and Highlander hulls for Sandy Douglass (NSHF 2020) and hulls for the Luder 16 and the Phil Rhodes-designed Hurricane, now built as the Rhodes 19 in fiberglass.



After the war, aluminum prices dropped, and fiberglass construction was developing. In time, plastics replaced wood, but the technology developed by Barnes continued to be used in the modern composite construction in aircraft and foiling America's Cup boats. Boeing just completed the largest Barnes type system for making aircraft wings.

Note: Special thanks to Tom Tomlinson and the HHYC (Fleet 225) for the early family photos



Boeing's take on Barnes technique

At the pinnacle of his career, John Barnes was stricken with tuberculosis in 1948. He lost a lung to the disease. His condition barred him from the dusty boat shop. He left New York for the dry air of New Mexico, giving up his boat building career. His brother George tried to keep the shop going, but it closed in 1952. So would end the production of the first volume producer of one-design sailboats. This volume of production was not to be seen again until the 1960s with the advent of fiberglass production. Had Barnes retained his health, there is no doubt he would have been a pioneer in this field too.

Sunbrella Acrylic Covers

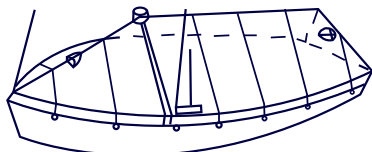
now available UV Proof Goretex thread!

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- material will not mildew, rot or shrink
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- many colors available, samples by request
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- lifetime Goretex thread – small up charge
- Visa/MC

Prices	white	blue	colors
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nap back rudder cover			88
sail # on cover			65

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