

NATHANAEL G. HERRESHOFF

Part II: His Long and Successful Defence of the America's Cup and His Many Outstanding One-Design Classes

By HERBERT L. STONE

Nathanael G. Herreshoff.
Picture taken about 1935
when he was 87 years old

WE NOW COME to the period of Nathanael Herreshoff's greatest prominence, which he achieved through the success of his large cutters in defending the America's Cup from 1893 to 1920. In those 27 years his genius both as a designer and as an engineer, and the yachts whose building he supervised in his own shop, dominated all the Cup matches sailed in that period and earned him the title, both here and abroad, of "The Wizard of Bristol." In all, he designed seven yachts for the defence of the Cup. No boat by any other designer was chosen to defend in the six matches sailed during that period. In the 20 individual races sailed for the Cup in those six matches the challenger won only two, those being the two races taken by *Shamrock IV* against *Resolute* in the match of 1920. It is a record that has never been equalled in the history of yachting.

In the previous article in this series it was told how Herreshoff's *Gloriana* and *Wasp*, in the 46-foot class, had changed the character of yacht design by reducing displacement, increasing the sailing length on a given waterline by making use of long overhangs, and lightening the construction, thus allowing a greater ratio of ballast to displacement. The large steel cutter *Navahoe*, in which the general features of *Gloriana* and *Wasp* were incorporated, was built in 1892-3, so when a challenge from the Royal Yacht Squadron was arranged late in 1892 it was natural that the New York Yacht Club, and its members who bore the expense of the defence, should turn to Herreshoff for a yacht to meet Lord Dunraven's *Valkyrie II*, named as the challenger. The designer of the three previous defenders in 1885-6-7, Edward Burgess, was dead. Cary Smith was past his prime and William Gardner was just beginning his career. So Herreshoff more or less had the field to himself.

With details of the Cup match agreed upon, and the challenger's waterline length announced as 85 feet, a syndicate composed of prominent members of the N.Y.Y.C., in-

cluding Archibald Rogers, two of the Vanderbilts and J. P. Morgan, went to the Herreshoffs and placed an order for a defender of the same waterline length as *Valkyrie II*. "Captain Nat" was given a free hand in the design and construction, all details except the waterline length being left to him. So he started work on the order, the yacht to be named *Colonia*. She was a keel yacht, of steel construction, but was of only 14 feet draft, that being the greatest depth of water off the Herreshoff plant. This was a considerable less proportion of draft to length than *Wasp*, which she otherwise resembled in many ways.

Not to be left out of the picture, Boston yachtsmen, also members of the N.Y.Y.C., built two defence candidates north of the Cape. One of these was the *Jubilee*, for General Paine who managed or owned the former defenders *Puritan*, *Mayflower* and *Volunteer*. She was designed by John B. Paine, General Paine's son. The other was the *Pilgrim*, owned by a syndicate of Boston yachtsmen and designed by the successors of Edward Burgess, Stewart and Binney. Both of these were fin keel yachts, a type introduced by Herreshoff a few years previously.

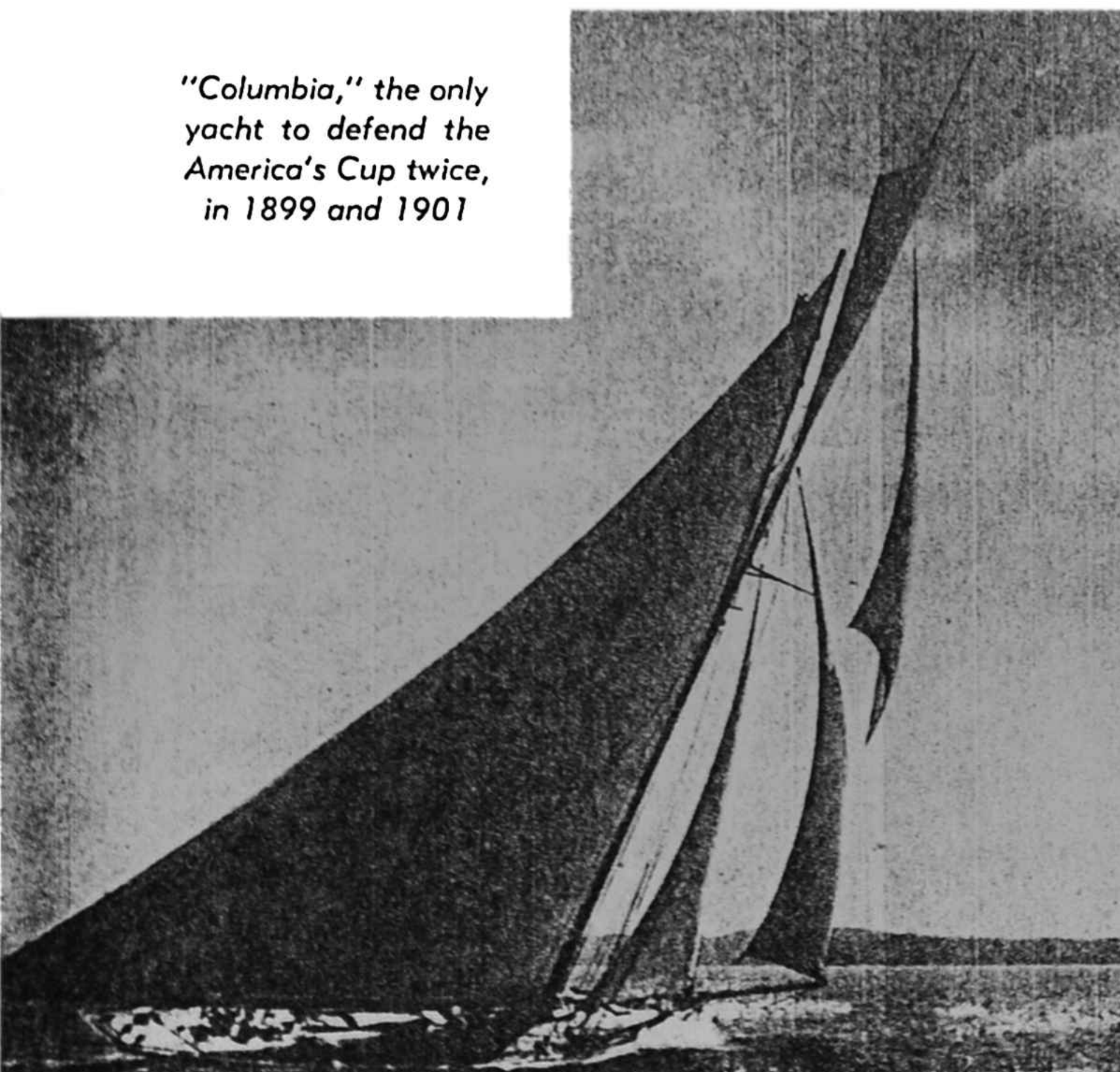
With all this competition in sight a second N.Y.Y.C. syndicate was formed, headed by C. Oliver Iselin and E. D. Morgan, and they also turned to Herreshoff after the *Colonia* was under construction and the work well along. This did not please the first syndicate which had placed the order for *Colonia*, especially when Herreshoff decided to use Tobin bronze for the plating of the new boat, a metal far superior to steel and giving a much smoother racing bottom. It was now used for the first time in a yacht. At that time the supply of this bronze was limited and as the second syndicate had arranged for an exclusive supply of the metal, the *Colonia* syndicate was unable to obtain any with which to plate their yacht. This, and the fact that the designer would naturally attempt to build a boat to beat the one first ordered, caused considerable friction between the two syndicates.

Vigilant, as the second yacht was named, was a big powerful boat, with a centerboard placed in her deep keel, giving her more lateral resistance than the *Colonia*. She was of 26'3" beam compared to the 24' of *Colonia*.

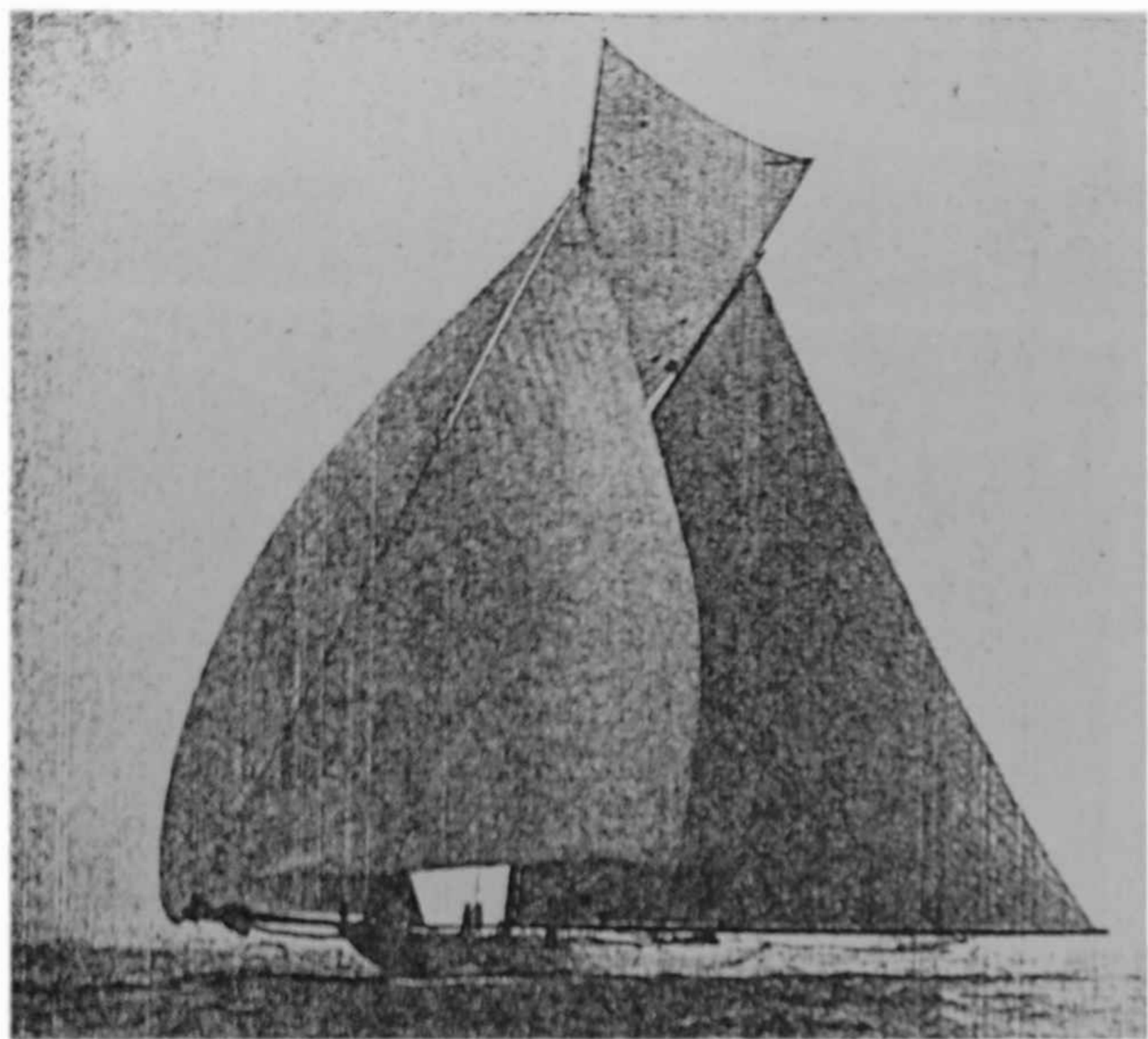
Oliver Iselin in charge of *Vigilant*, with Captain Hansen as skipper, had sailed sandbaggers in his early days and thus knew the value of shifting ballast, especially in going to windward. So taking advantage of the long lever arms in *Vigilant's* wide beam, and there being then no limit on the crew that could be carried, he shipped 70 men to sail his Cup candidate. With these 70 "huskies" lying up along the weather rail, and able to shift over when desired, *Vigilant* had a big advantage over the other yachts. It was only after this series that all Cup yachts were required to be measured with the full crew aboard that were to race on the boat.

In the trial races among the four yachts, *Vigilant* was by far the best and she was chosen to defend. *Colonia* proved very fast off the wind, but was no match for *Vigilant* to windward. The former yacht was later fitted with a centerboard and had her rig altered to that of a schooner under the guidance of A. Cary Smith, and proved very successful in her class. The other two yachts, *Jubilee* and *Pilgrim*, both developed faults inherent to their type and never were serious contenders in the selection of a defender. In the Cup match itself, the big, powerful *Vigilant* outsailed the smaller, finer-lined, Watson-designed *Valkyrie II* and won the three races easily, although she had to give time to the challenger.

"Columbia," the only yacht to defend the America's Cup twice, in 1899 and 1901



Two years later, in 1895, Lord Dunraven was back for another try for the famous Cup with a new cutter, *Valkyrie III*, designed by George Watson. Again a N.Y.Y.C. syndicate went to Herreshoff for a defender. This time no other American designer got an order for a Cup candidate, so convincingly superior had *Vigilant* proved in the previous match.



"Defender" (above), which defeated "Valkyrie III" in 1895. "Yankee" (right), one of the four 70-foot one-design class. "Reliance" (lower right), the largest and most extreme of the Cup Defenders

In his new yacht this year, named *Defender*, the canny American designer reversed himself and, discarding the features that had made *Vigilant* successful, he turned out a keel cutter of less displacement, very moderate beam, a shorter keel with more rocker to it, and with less sail area than the challenger. He again showed innovations in construction. This time he used manganese bronze bottom plating over steel frames while the topsides were plated with aluminum, making her very light above the water. Watson, having seen what *Vigilant* did in 1893 also reversed

himself and turned out a larger, more powerful yacht with some 3000 feet more sail area than *Valkyrie II*. His challenger had 26'2" beam to 23' for the *Defender*.

In the trial races, *Defender* had no serious trouble beating *Vigilant*, which had been altered and refitted, although she developed some defects with her mast step, which were overcome during the season, and she was selected to defend. In the Cup match *Defender* won the first race by 8 minutes. 49 seconds corrected time. In the second race *Valkyrie* fouled *Defender* at the start and broke the latter's starboard shroud. Though crippled and badly handicapped on the starboard tack *Defender* kept on, but was beaten by *Valkyrie* by 47 seconds. But the challenger was disqualified for the foul and the race given to the American boat. Lord Dunraven did not like the ruling and in the next race, after crossing the starting

line, he put *Valkyrie's* helm up and quit the race, leaving *Defender* to sail the course alone. It was an unsatisfactory ending to a match between two outstanding yachts. These two matches of 1893 and 1895 established Herreshoff's prestige as a designer of large yachts of the America's Cup Class.

In 1899, when Sir Thomas Lipton first challenged, Herreshoff turned out *Columbia* and again there was no other American defender built. She was successful in the Cup match against *Shamrock I*, the latter not taking a single race.

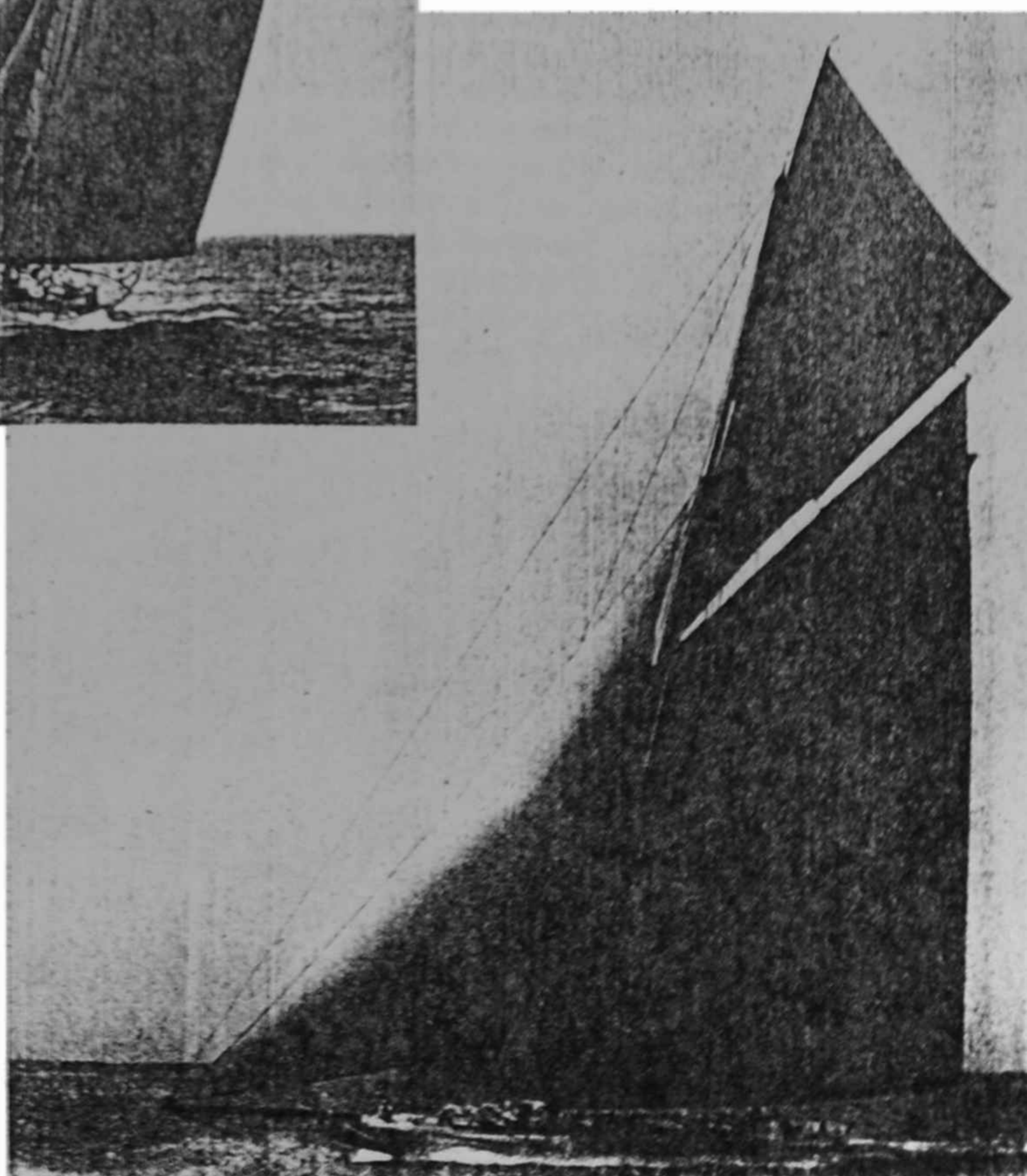
Two years later *Columbia* again defended against *Shamrock II*. Herreshoff designed a new candidate this year, the *Constitution*, for another N.Y.Y.C. syndicate. She was a refined and modified *Defender*, but combining some of the good points of *Columbia*. In her, Herreshoff incorporated a new and somewhat radical form of construction consisting of web frames spaced further apart than the usual practice. This was supposed to lighten the hull weights, but no actual figures for comparison are available. However, in the hands of Capt. Charlie Barr the *Columbia* defeated both the *Constitution* and the Boston yacht *Independence*, built for Thomas W. Lawson, and again was selected to meet *Shamrock II*, which she defeated in three close races.

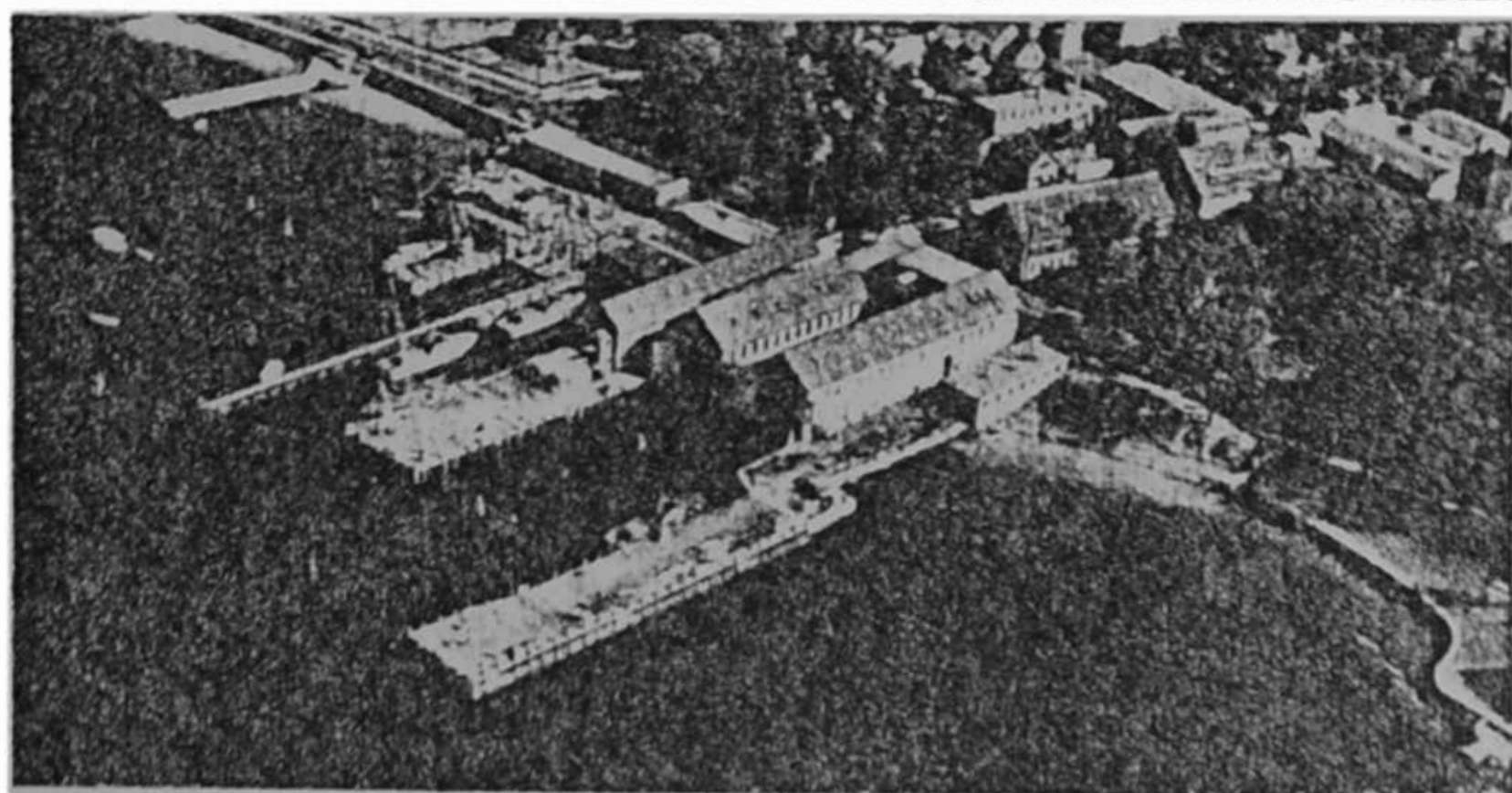
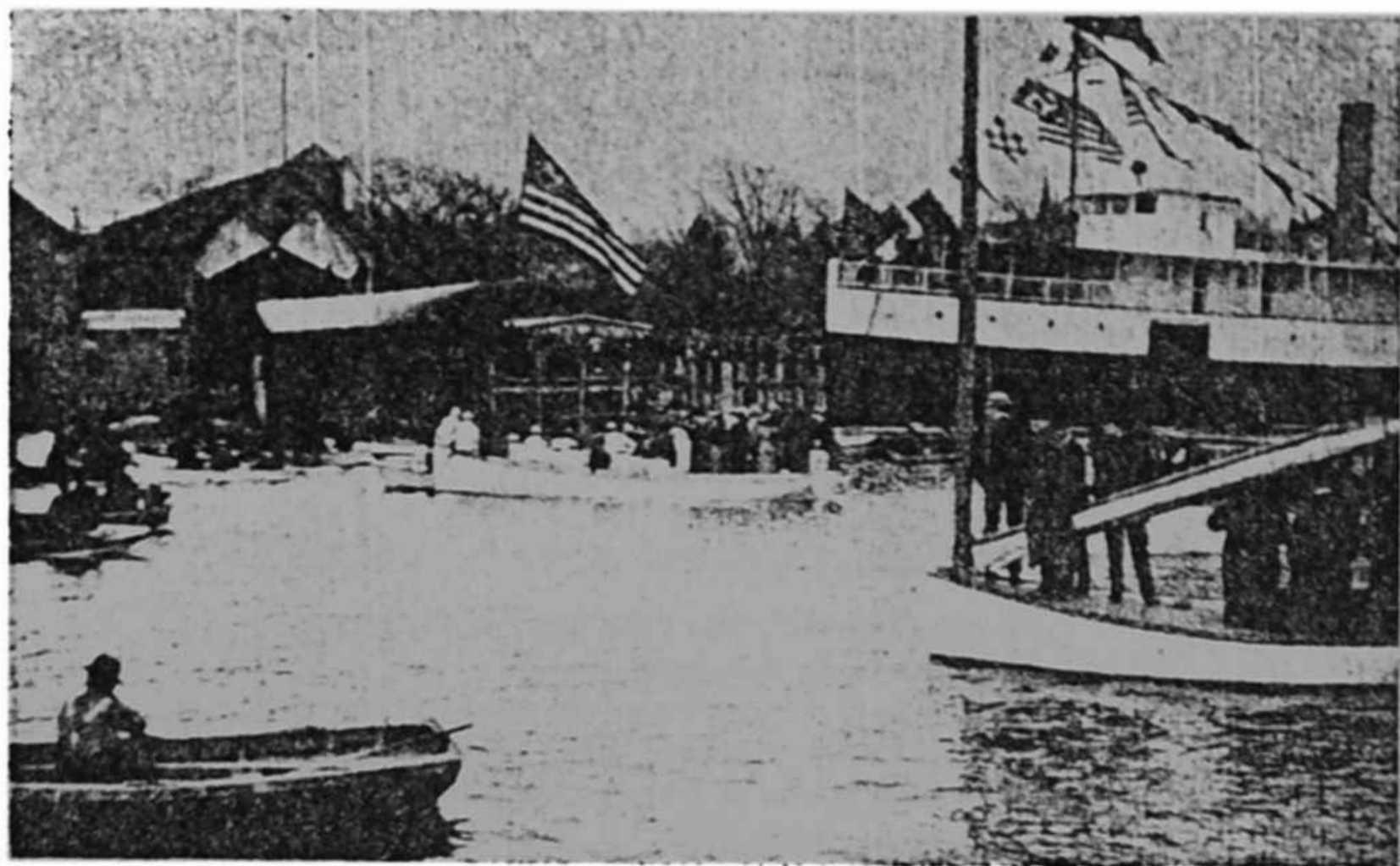
Two years later (1903) to meet Lipton's third challenge Herreshoff turned out his largest and most radical defender, the *Reliance*. Again, no other Cup candidate was built to dispute her. *Reliance* was of the scow type, with shallow

body, flat floors, very long ends, a short, narrow keel carrying an enormous chunk of lead. Her sail area was 16,160 sq. ft., nearly 3000 feet more than *Columbia's*. The combined length of her forward and after overhangs was 53 feet. She was a huge craft and it took a large crew to handle her. She proved far superior to *Columbia* and *Constitution* in the trials, and was chosen to defend. In the Cup match she defeated *Shamrock III* easily in three straight races.

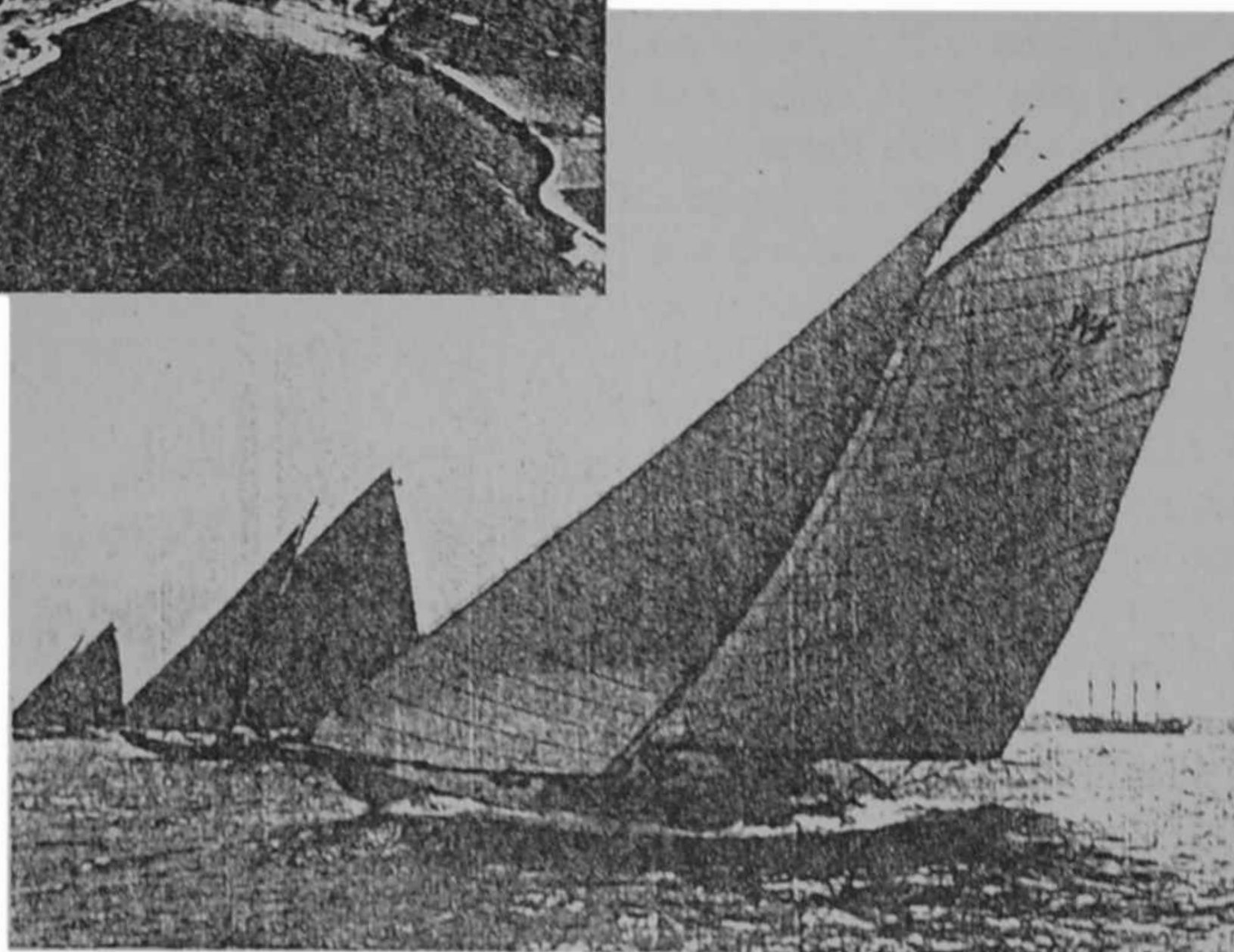
In these six Cup candidates

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Launching of "Reliance" (top), from the Herreshoff shop in 1903. The Herreshoff plant (above), at Bristol in 1944, as it appeared before dismantling. Right, the famous N.Y.Y.C. 30-foot class raced for some 36 years



"Nat" Herreshoff had gone further than any other designer in developing and perfecting the "racing machine," as the America's Cup defenders were getting to be known. *Reliance* was such an extreme yacht that it was felt that the length-sail area rule under which she had been designed had outlived its usefulness, so after the 1903 series a conference was called to consider a new measurement rule that would prevent some of the excesses that were becoming apparent, a rule that would encourage a more useful and wholesome yacht. This conference of leading yachtsmen, with advice and help of Herreshoff and other naval architects, came up with a new formula which was adopted, and which when later amended became what was known as the Universal Rule, although it was not adopted generally except in the United States. This rule, by the use of restrictions and measured limitations, was expected to eliminate many of the excesses which were producing the extreme type of racing machines.

When the next Cup challenge was received in 1913 for a race in 1914, Herreshoff got his chance to design his first defender under this new rule. In the meantime, however, he had designed many smaller racing yachts under its formula, including many for the popular "P" and "Q" classes, and a number of large yachts as well. Among the latter the most outstanding were, perhaps, the big schooners *Westward*

The famous 40-foot class, known as the "Fighting Forties," furnished hot competition for many years

(1910) and *Elena* (1911). These two vessels were about 135 feet in length overall and were very successful. The former raced for many years in British waters where she proved herself the best of her size, and in 1928 the *Elena* wound up a successful career by winning the ocean race from New York to Spain. She was not raced much thereafter, as the day of the big schooner was already passing.

In designing his seventh and last Cup candidate for a N.Y.Y.C. syndicate, the *Resolute*, to the new rule, Captain Nat turned out a beautiful craft with moderate displacement and well turned ends instead of the flat, long-ended type of scow that the old rule had encouraged. By comparison with his previous defenders she was small, but 75 feet on the water (by agreement with the challenger) instead of the 90 feet of the last two or three Cup yachts. She was gaff rigged, as the new jib-headed rig had not yet come into vogue. In the trials *Resolute* had to meet serious competition, for both the cutter *Vanitie*, designed by Wm. Gardner, and the *Defiance*, by George Owen, were also built as candidates. But in the trials of 1914, *Resolute*, sailed for the first time

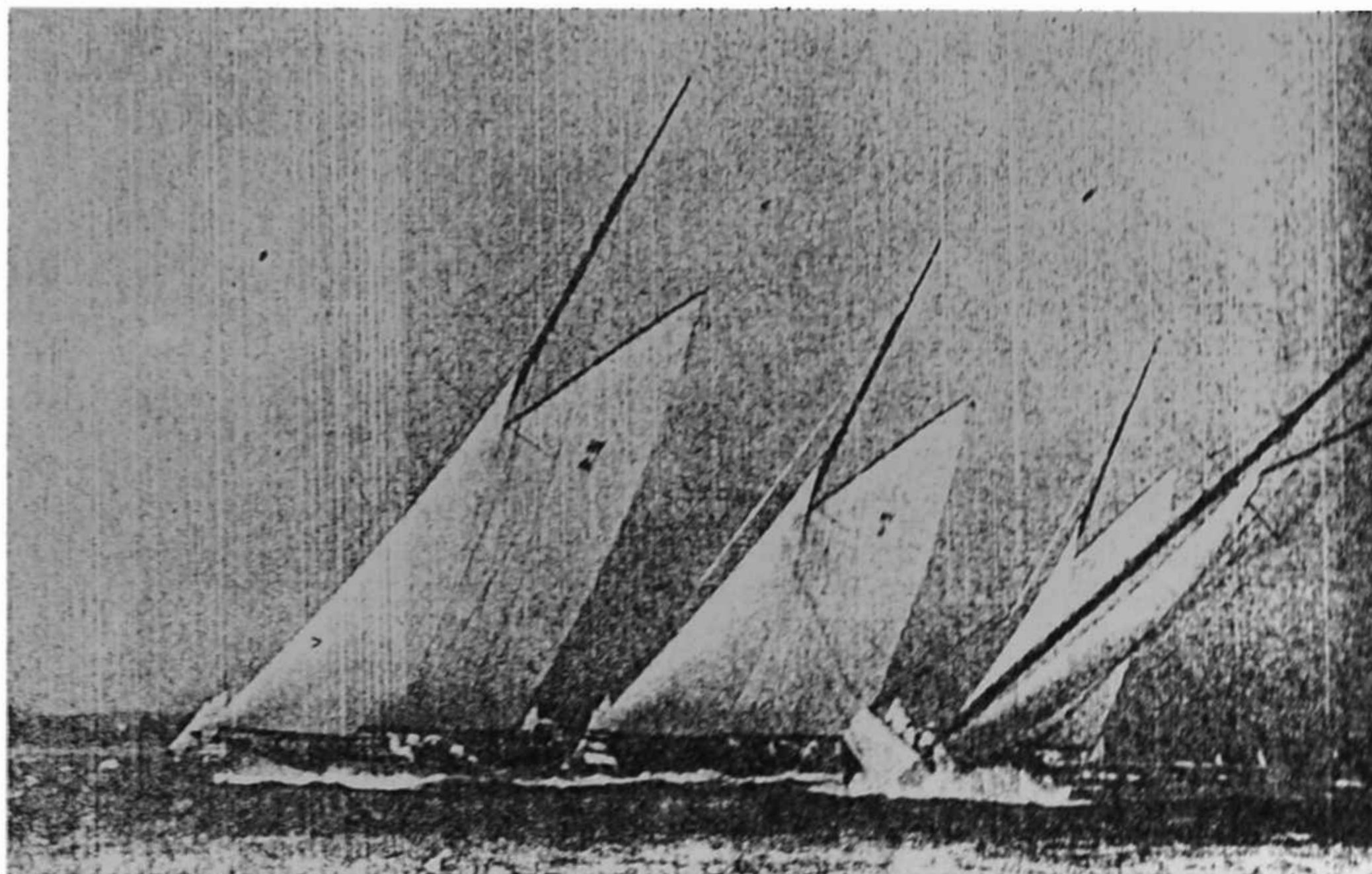
in a Cup series by a Corinthian afterguard headed by Charles Francis Adams, had somewhat the best of it, although *Vanitie* gave her much trouble at times.

The beginning of the first World War in July of that year, while *Shamrock IV* was on her way to this country, caused the Cup match to be postponed for the duration, and it was not until 1920 that the series was finally sailed. Again in that year *Resolute*, nicely handled throughout the season, did well in the trials and was selected to defend. In her races against the fourth *Shamrock*, however, she was to suffer the loss of two races, the first time a challenger had

won a single race against one of Herreshoff's Cup yachts. In the first race of the series *Resolute's* halyard parted, letting the mainsail sag, and she did not finish. In the next event *Shamrock IV* won on her merits, and the series was two-nothing. Thereafter, however, *Resolute* took the next three to win the match against the first Nicholson-designed challenger, and the Cup stayed at home. This ended Herreshoff's long connection with the defence of the America's Cup, and while in the match of 1930 two of the candidates were built at the Herreshoff shop at Bristol, the yard was then in other hands, Captain Nat having retired from active work, and both these yachts were by other designers.

While Nathanael Herreshoff's international fame was built largely on his defence of the America's Cup, his national
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Lerick-Lewis



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prestige was probably due as much to yachts for all the classes then being raced, and to the many one-design classes that came from his drawing board and shop. No other designer in the United States had as many racing yachts and classes built from his designs as Captain Nat, during the period of his activity. These included boats of all sizes, from the then popular "R" and "Q" classes up to the largest racing and cruising yachts. Both he and the Herreshoff Company were extremely busy during the period that covered his activity with Cup defenders. He was lucky, also, in the fact that many of his creations went into the hands of many of the topnotch racing yachtsmen in America, who were able to do justice to the fine qualities in the boats themselves. It is said of Captain Nat that he frequently turned down an order for a yacht in a "hot" class because he had a low opinion of the owner's ability as a sailor and was not sure he would do justice to the boat he got. It is doubtful if he ever let an order for any sizable yacht get away from him, however, for this reason. While his brother John B., the business man of the company, was alive, it is certainly not likely that this ever happened.

In the field of one-design racing, both in the number of classes designed and the number of yachts built to them, Herreshoff turned out more of each than any other designer. There has always been difference of opinion as to the value to the sport of one-design over open class racing. While the former tends to make for better and more even racing, the latter is undoubtedly better for the development of design. In the end, the exponents of the one-design theory have won out. The Herreshoffs had an advantage over most of the other designers, as far as the financial aspects of the argument were concerned, in that they were boatbuilders as well as designers, and the more boats that were built the more work and profit it meant for them; whereas other designers only got a royalty on the number of boats built from one set

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of plans for a class that they turned out. Hence the one-design idea was an advantage to the Herreshoff Company, and not a disadvantage as it was in some cases to other designers.

One of the earliest one-design classes that Nathanael Herreshoff turned out was the Newport 30s in 1896 (described in the preceding installment), a development of his fin-keel experiments, and of five boats for a restricted class of 21-footers for prominent Long Island Sound yachtsmen in 1895. In 1900 he got an order from Cornelius and W. K. Vanderbilt, Jr., Harry P. Whitney and H. B. Duryea for four identical boats, 70 feet long on the water and the largest and most ambitious one-design yachts ever built. The boats were the *Yankee*, *Virginia*, *Rainbow* and *Mincola II*. These four yachts provided much spectacular racing and hot competition for their owners for a number of years. Although the idea of their owners was for a class of fast cruisers, as finally developed the cruising feature was lost sight of, and the yachts were of the semi-fin type, with long overhangs, with but scant accommodation for their size and many sacrifices to speed. But they were fast, although their light construction required extensive rebuilding the next year.

Although much smaller in size, perhaps the N.Y.Y.C. 30-footer was the most famous one-design class that Captain Nat developed. Some 18 of these were built in 1905 for prominent yachtsmen on Long Island Sound, and became immediately popular. They were not fin-keelers, like the Newport 30s, but had more displacement, a lovely form and were deep enough to give adequate accommodations for their size. They provided excellent racing for many years and they were raced as a class until 1941- or for 36 years. Some of them are still alive and in good shape after 45 years.

The limitations of space forbid a detailed examination of all the excellent one-design classes that came from Bristol. The roster is a long one and they can only be listed, although they all did much to enliven the yachting scene and make the sport popular for some 30 years. In 1902 there were the Buzzard's Bay 30-footers, a combination keel and centerboard

designed for the waters of Buzzard's Bay. In 1903 came the Bar Harbor 31s, a larger keel yacht, suitable for the Maine coast. In 1907 the three one-design 57-footers, *Aurora*, *Istalena* and *Winsome*, helped swell the fleet of large racing yachts. In 1913 came the famous 50-footers, 72 feet long overall. Nine of these were built for well-known owners, including J. P. Morgan, Ralph Ellis, Harry P. Whitney, George F. Baker, Jr., and E. T. Irvin. They lasted as a class for many years and some were refitted as jib-headed cutters when the vogue came for the latter rig in the early 1920s.

In 1916 came the "Fighting 40's," a large and popular class which, as their name implies, produced much hot competition for many years. Some of them are still sailing. In 1920 came the popular S Class one-design, one of the best of Herreshoff's classes of small racing yachts. The class was not restricted to boats built in any one year and the success of the class is attested by the fact that some were built at the Herreshoff plant as late as 1940, 20 years after they first came out. They are still actively racing as a class in several localities. In 1921 the well-known Fish Class, 15 feet on the water and about 21 feet overall, was started and many of these were built over the following years, as well as a smaller edition of them, known as the Herreshoff 12½-footers—their length on the waterline.

The last of the one-designs to come from Captain Nat's board were the Fisher's Island 31-foot waterline cruising and racing sloops. These were able little yachts, with good cruising accommodations, and they have been more prominent as cruisers and as contestants in long distance races than as a strictly racing class.

This list is by no means a complete one, but it does give a broad picture of the wide variety of yachts and classes that the great designer gave to yachting, and of his versatility. And while he was at work on these, he was turning out also power yachts, large open class contenders that made names for themselves, and in his later years smaller boats for some

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of the International Rule classes, such as the 6 Meter Class. It was a lifetime record that no other American designer has equalled. Probably Captain Nat's last creation was the 54-foot overall auxiliary cruising yawl *Belisarius*, designed for Charles B. Rockwell in 1935.

From the time the Herreshoff firm was started, Captain Nat's older brother John B. who, as has been said, was totally blind from the age of 14, was the business head of the firm until he died in 1915. Nathanael was the designing genius, the experimenter, the engineer. When John B. passed on Nathanael was handicapped in the handling of the business affairs of the large corporation, and in 1924 control of the corporation passed into other hands—the Haffenreffer family of Providence and Newport. It kept, however, its identity and name until shortly after World War II, when it was liquidated and the various shops and machinery were sold for other uses. The business that had made Bristol famous for over 80 years disappeared into the limbo of the past, leaving only a name and the record of great accomplishments behind.

In his life's work Nathanael Herreshoff had the advantage, not shared by many other designers, of being able to build the yachts he designed in his own plant and in watching over their construction, from the laying of the keel to the making the spars and even the sails, and to the turning out of most items of equipment in the machine shops and foundry with which the plant was equipped. And here he gathered together a group of helpers, superintendents, foremen and the like that has perhaps never been equalled in American pleasure boat building. It is due not only to the great designer, but to the men who fabricated the product of his brain, that so many yachts from the Bristol shop on the shore of Narragansett Bay are "carrying on" many years after they were launched, are still winning races and still giving pleasure to many who know "Captain Nat" and the Herreshoff works only by name and reputation.

It was on June 2nd, 1938, that Nathanael Herreshoff passed away at his home in Bristol at the age of 90 years and 2 months. But his achievements will live forever, and his fame be passed on from generation to generation of future yachtsmen.