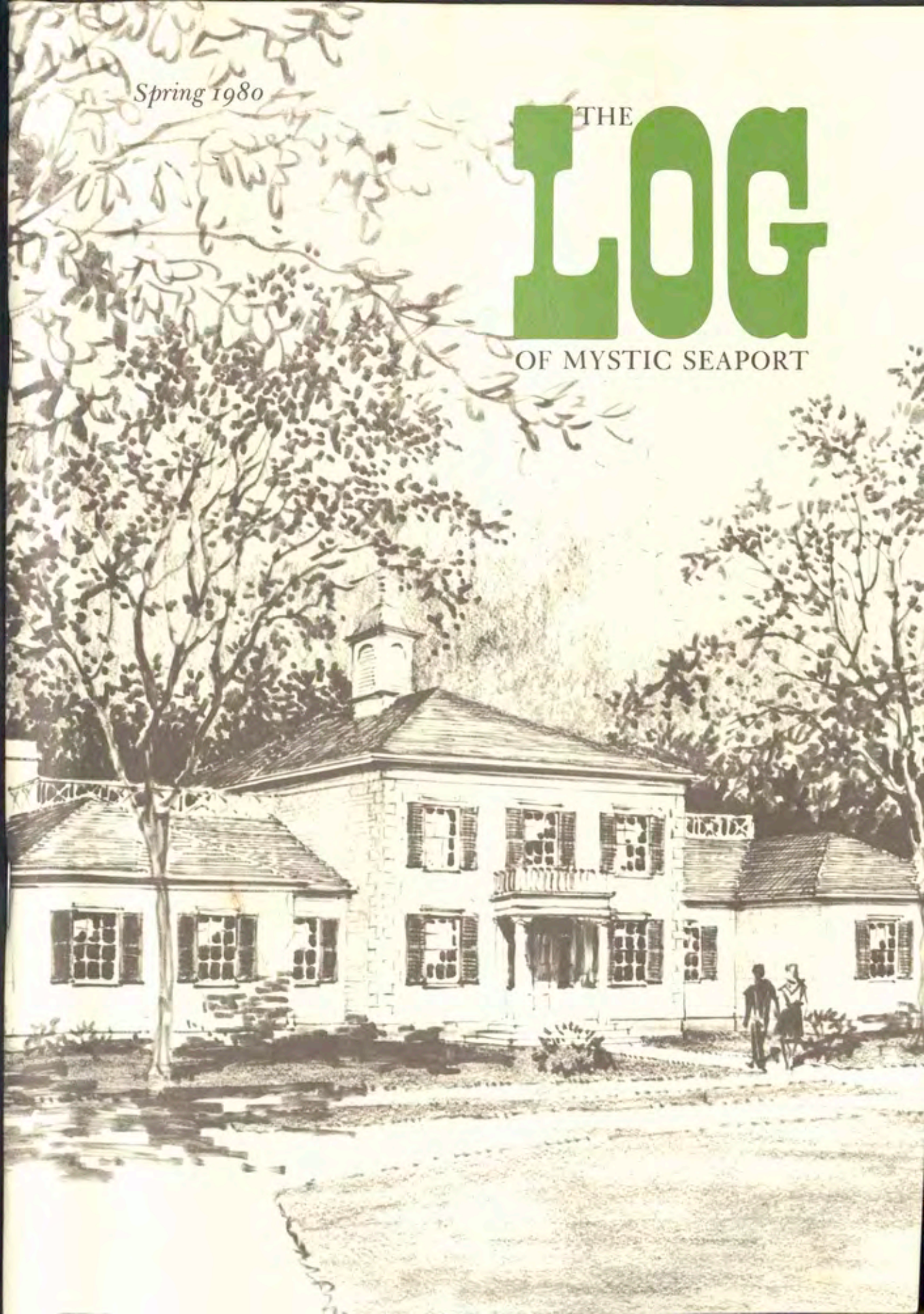
Spring 1980

THE LOG OF MYSTIC SEAPORT



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The Log of Mystic Seaport (ISSN 0024-5828) is published quarterly by Mystic Seaport Museum, Mystic, Connecticut 06355. Subscriptions are by membership only. Contributions of previously unpublished articles and pictures are welcome. Editorial guidelines for prospective authors are available from the Publications Department.

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The Log of Mystic Seaport is available in microform. For information write to University Microfilms International, Department F. A., 300 North Zeeb Road, Ann Arbor, Michigan 48106.

FRONT COVER: *Architect's conception by Rogers and Butler for the G. W. Blunt White Library, drawn in 1963. Construction began in March 1964, and the Library opened in August 1965. (Seaport Photo Archives)*

BACK COVER: *Between 1961 and 1965 summer visitors could view Mystic Seaport from two horsedrawn "barges" given by St. Paul's School in Concord, New Hampshire. (Photo by Sandy Deveau)*

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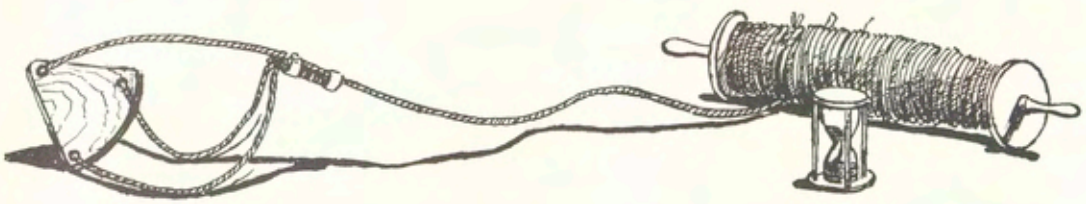
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SIGHTINGS



As we look back at the development of Mystic Seaport in this issue's segment of the chronology, and as we look ahead to a new year and decade, one element of the Museum's complex structure appears particularly vital. When we think of Mystic Seaport Museum, we think of ships and figureheads, small boats and scrimshaw, historic buildings and ships' logs. Yet all of these precious objects are passive and inanimate and can tell us little about our maritime history as they sit, or stand, or float. The "active ingredient," more important in this museum than in most others, is *people*.

We preserve the objects and evidence of our past in order to give the people of today some perspective on their lives and to give them confidence as they look at past achievements. Most of our visitors however, would gain little from simple exposure to an uninterpreted object such as a jagging wheel or a backstaff. Our role as members, trustees, and staff–the people most closely associated with the Seaport–is to care for our collections and interpret them for our visitors. These two basic functions of the Museum are "labor intensive" or "people intensive."

Many of our objects exist in a hostile, outdoor environment, while others are everyday items made from materials that were not expected to last for an extended period of time. Without an understanding staff dedicated to the survival of these objects we would certainly fail in our responsibility.

Without others on the staff working to preserve information, and to interpret these objects for others, we would also fail. In the broad definition of interpretation we have many individuals filling this role: Library staff assisting students and researchers; Curatorial staff in the Registrar's Office, or preparing interpretive labels and other materials for exhibits; museum teachers working with groups of school children; and a shipwright stopping to explain the caulking process. All of these, and others, are helping our visitors to understand what they experience here.

In this installment of the chronology, you will note that we first activated our exhibits in 1955. It was our "activists" who began the shift from static presentation to the active interpretation of our collections. Over the years these persons, now called interpreters, have been on the front lines, the mainstay of the Museum, forming a link between the collection and the visitor.

As this issue of *The Log* reaches you, the Museum is beginning a new fiscal year. In preparing a budget for this year, staff and trustees agonized over ways to sustain our fine programs and meet our preservation commitment. In the face of rising costs throughout the Museum, it was indeed a difficult task.

All the applications of modern technology can not replace the human element of the Seaport, the aspect that has given this institution so much of its character in the past. We must all remain conscious of this essential ingredient. We must work hard to secure support for it, and insure its strong presence in the Museum in the future.

J. Revell Carr

Early Days of Rowing Sport

JOHN GARDNER

On Friday, 2 October 1846 the four-oared barges *Thomas Jefferson* and *Duane*, manned by amateur crews, rowed a match race on the Hudson for a silver goblet by Tiffany & Co. The course ran from a stake boat off the dock at Bull's Ferry, New Jersey down the river to Day's Point and return. For this gala occasion the steamboat *Boston*, thronged with "ladies and gentlemen" and with Dodsworth's band on board, made the excursion from Manhattan.

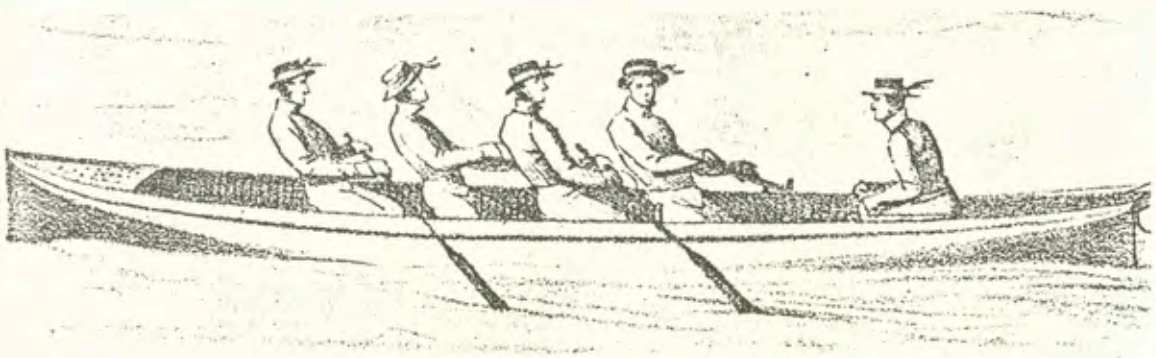
The *Thomas Jefferson*, painted white with a blue and gold stripe, carried a crew attired in white shirts and pants and white and blue caps, contrasting with the *Duane's* vivid scarlet and gold. At the start the *Jefferson* took a slight lead, but it was a contest all the way, with the boats at times bow and bow, until at the end the *Jefferson* moved ahead by three lengths. The prize, presented by Colonel Biddle, was received for the *Jefferson* by C. A. Peverelly, who pulled bow oar.[1]

This was the same Charles A. Peverelly whose *American Pastimes*, published twenty years later, is the best and most complete account that has come down to us of the rise and progress of rowing in America, which for a few decades, or from about 1850 to 1880, led all other outdoor sports in this country. Hundreds of rowing clubs flourished during this interval, and thousands of boats in great diversity were built and rowed. *The Annual Illustrated Catalogue And Oarsman's Manual for 1871* put the number of American rowing clubs, including those in the Canadian provinces, at 237 for 1870 with a membership of 11,076 and a total of 1,676 boats.[2]

Since then, these boats have almost entirely disappeared. Their lines and construction details, with the exception of the shells built by the Waters, Balch Paper Boat Company of Troy, New York were never recorded and if any designs were taken from half models, these have likewise been lost. No photographs have come down to us, and very few sketches. Frequently we know the length, and more rarely the beam. Sometimes the weight is given, and whether lapstrake or shell built. Names are little help, as for example, how to tell what con-

John Gardner, Associate Curator of Small Craft at Mystic Seaport, has written numerous articles for *The Log* since joining the Seaport staff in 1969.

Four-oared race boat of about 1845. Detail from a proposal for the Ravenswood development on Long Island by Alex J. Davis. (Courtesy of the J. Clarence Davies Collection, Museum of the City of New York)



stitutes a gig and what a barge, both of which are mentioned frequently without any clear distinction between the two.

But we are not left entirely in the dark, for there is still enough scattered information from various sources to enable us to work out with fair accuracy what some of these craft were like. A pretty good idea of the appearance and general proportions of the early four-oared race boats or gigs, such as the *Thomas Jefferson* and the *Duane* of 1846, is to be had from a lithograph made from the rendering of a waterfront scene near Astoria, Long Island about 1845 by the architect Alex J. Davis for the Ravenswood development proposed at that time. Among the several craft depicted, one is unmistakably a four-oared race boat or gig of the period. The oars are ridiculous, and likewise the rowing form of the crew, and they are seated too close together, yet the boat in its over-all shape and general proportions is not badly drawn, judging from the best knowledge gleaned from other sources which we now have. Note the nearly plumb stem, the rather wall-sided midsection, and the very small, high-tucked stern transom.

Boats of this sort were not too far removed from the working Whitehalls of the period, or from the standard ships' gigs of the late eighteenth century. Such early race boats naturally tended to be proportionally longer and narrower and lower of freeboard than the working boats. The "cut-downs,"[3] so called, constitute one stage in the evolution of the race boat, being ordinary working Whitehalls with their sides cut down to within a few inches of the water. Yet all of these early race boats of the 1840s were still rowed on the gunwale.

The first four-oared race boat to be rowed with outrigger rowlocks, so far as we have been able to ascertain, was the gig *Experiment,* which triumphed at Saint John, New Brunswick about 1850 under the oars of the celebrated Carleton crew, who by extending 3″ of outrigger from their gunwales[4] were able, it is recorded, to cover a six-mile course in slightly less than thirty-two minutes, although this record time may well be questioned.[5]

According to Peverelly, the first "regular shell" to be built in the United States was also named *Experiment,* being launched 4 June 1856 from the Williamsburg, Long Island shop of builder James MacKay,[6] who introduced iron outriggers. Unlike later shells, this craft was 12″ deep with the enormous expanse of beam–for a racing shell–of 2′8″. Its overall length was 37′ and it was rowed by a crew of four. Yet others have claimed that the first shell boat ever built in North America was by another McKay, a Scots boatbuilder settled in Saint John, New Brunswick. This boat, the *Young Neptune,* is remembered for having placed a close second in the three-mile race for four-oared shells in the Boston City Regatta on the Charles River, 4 July 1866. *Thetis,* another Saint John shell by McKay, rowed "by the lightest crew of men ever placed in a four-oared shell"[7] came first in that race, and still another Saint John boat would have taken third money, except that the crew inadvertently stopped rowing just short of reaching the stake boat.

By the middle 1850s rowing in America, including the Canadian provinces, came of age so to speak, achieving thereafter a degree of popularity and widespread participation which placed it in the forefront of major outdoor sports. The previous decade had been one of beginnings mainly, and prior to 1840 competitive rowing in the United States for match stakes seems to have been confined largely to the working boats of the Whitehallers, or boats derived from them, in the waters surrounding Manhattan.

The earliest recorded race of four-oared boats was rowed in the summer of 1811 between the *Invincible,* a Long Island boat by John and William Chambers, and the *Knickerbocker,* a Manhattan boat built by John Baptis. The Baptis boat won, and was placed in Scudder's Museum, but was later

transferred to Barnum's Museum where it was destroyed when that building burned in 1865.[8]

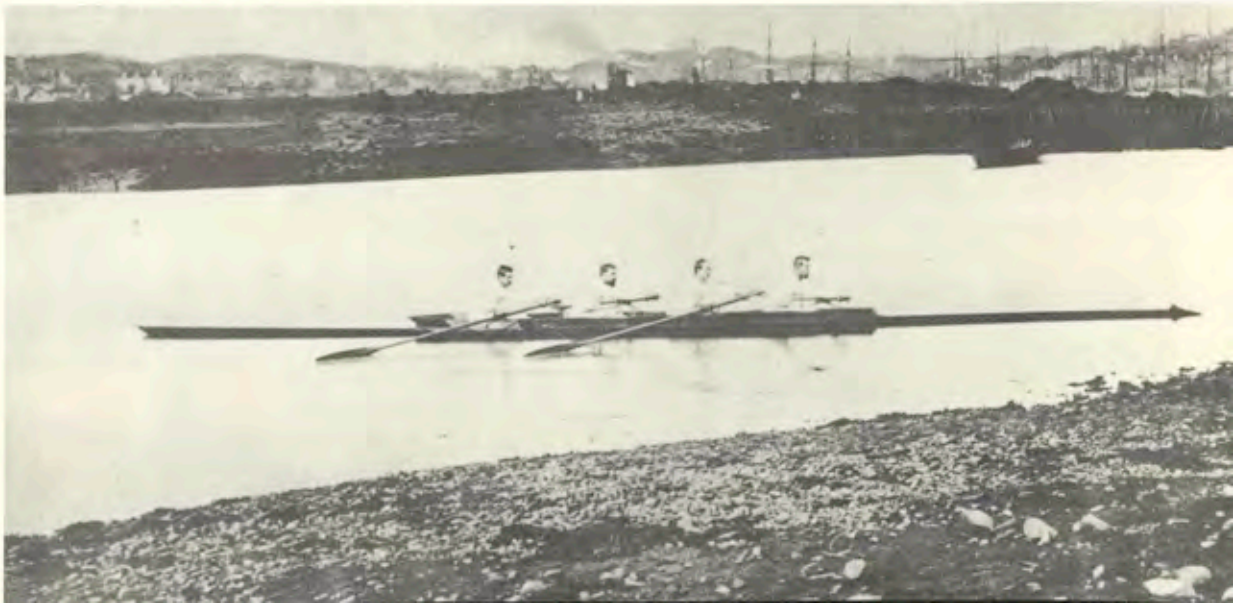
The most notable of these New York, Whitehall-derived race boats is the *American Star,* a Chambers boat which in 1825, in a match race from Bedloe's Island to Hoboken and back to the Battery, soundly defeated *Sudden Death,* the four-oared gig from the British frigate, *Hussar,* a boat then renowned for her speed and former victories.[9] Shortly after, the *American Star* was presented to General Lafayette, then in the United States on his last visit. Taken to France, the *American Star* is still preserved there today in close to her original condition, the only race boat of her time to have survived. From the dimensions and details of this unique artifact, it is possible not only to tell a great deal about similar race boats, but also much about small craft design and building practice in the United States at the beginning of the nineteenth century.

Of the three germinal centers of rowing sport in North America–New York, Boston and Saint John, New Brunswick–it appears that the first organized rowing regatta was held in Saint John. A regatta in that city, perhaps in 1836, but not later than the following year, included races for four-oared pilot gigs, for skiffs and for double and single sculls. The *Nonpareil,* a four-oared race boat built for the occasion by Charles Lawton, and rowed by an amateur crew of clerks and mechanics, was winner over pilot gigs and pilots, and her victory, it has been said, gave great encouragement to boatbuilding in the city.[10] It is of more than ordinary significance that the builder, Charles Lawton, was a direct descendent of John Lawton, boatbuilder and Loyalist refugee in 1783 from New York and Pennsylvania, the first to engage in his trade in Saint John.[11]

Interest burgeoned. By 1844 the summer regatta in Saint John harbor had become an imposing affair with numerous contests for both oars and sail.[12] In September of that year much of the city apparently turned out for this event. Steamers brought spectators from Fredericton and other parts of the Province. The Queen's survey steamer, *Columbia,* gaily decked with flags, was put at the service of the committee. Races with substantial cash prizes were run off for eight-oared and six-oared gigs, with proportionally lesser prizes for whaleboats, wherries, punts and Indian canoes. A squaw race in the latter provided a touch of comedy. The whaleboats raced were built locally, for Saint John at that time was also a whaling port.[13]

It was also in 1844 that Harvard first turned to rowing as a college activity. In

World champion "Paris Crew" of St. John, New Brunswick, winners of the International Regatta at the Paris Grand Exposition, 8 July 1867. (Courtesy of The New Brunswick Museum)





Arrival of the *British Queen* at the Battery in New York, by J. Pringle, 1839. Note the four-oared racing gig (center foreground). (Courtesy of the I. N. Phelps Stokes Collection, Prints Division, The New York Public Library, Astor, Lenox and Tilden Foundations)

Boston, the Chelsea regattas initiated in 1832–largely for working boats in the beginning–had proved highly successful, and it has been suggested that Harvard students got the idea of taking up rowing from this source. The first Harvard boat, originally the *Star* and built for the Chelsea regattas three years before–a low, black, eight-oared boat 37′ long and propelled with plain ash oars–was purchased in the autumn of 1844 by thirteen members of the class of 1846, and renamed the *Oneida*. Rowing caught on quickly. In little more than a year four boats were owned by Harvard clubs. In the beginning, however, college rowing was primarily social, with the emphasis on intercollegiate competition developing later. How it was in the beginning may be seen from the use made of the *Atalanta*, a 26′, six-oared gig of stronger and heavier construction than usual for race boats, acquired by the Oneida Club, class of 1846.

Let Peverelly relate the adventures of this fair craft: "In the *Atalanta*, during the few months preceding their graduation, the crew made frequent excursions down the bay, now stopping for chowder at Point Shirley, now resting their wearied keel on the salt shore of Spectacle or Long Island, and once it is said, they invited the maidens of far-famed Hull to an evening pull. Report adds that even the hereditary horror for 'reckless students' could not withstand such an invitation from so gallant a crew. The damsels blushingly accepted the proffered compliment, and were afterwards regretfully returned to anxious parents by the gallant rovers, who had not like jolly freebooters, hurried the precious cargo to their College homes."[14]

But actually it was Yale that was first in the field, or rather on the water, for in the spring of 1843 William J. Weeks of the class of 1844 secured a secondhand, four-oared New York Whitehall, 19′ long with 4′ of beam, which arrived in New Haven in the latter part of May. She was named the *Pioneer*, and the formation of the first Yale rowing club followed. Within a month another four-oared 19′ New York Whitehall appeared on the scene, having been purchased by Edwin A. Buckeley, class of 1844, who named her the *Nautilus*. And just about this same time still another four-oared

Whitehall, named *Iris,* was added to the growing fleet. Although these were four-oared boats, a length of only 19′ indicates a working boat rather than a lengthened slimmed-out race boat of Whitehall derivation like the four-oared *American Star,* which is 27′ 6″ overall. Whether these boats were "cut-downs," as they might well have been, is not stated.

But this was not all, for that same spring a singular craft named the *Centipede* was acquired by a member of the class of 1845. This oddity, a dugout hollowed from a single log cut on the banks of the Susquehanna near Binghamton, New York was 42′ long, crank with only 2′ of beam, and pulled eight oars. In the early years Yale seems to have been partial to eight-oared boats, for in addition to the 30′, six-oared *Excelsior,* Yale's first race boat, the college clubs acquired three eight-oared craft before the end of their first decade on the water: the *Shawmut,* built near Boston, the *Osceola* and the *Augusta.* This last, a 38′ lapstrake boat planked with red cedar, copper fastened, and ribbed with box wood, cost $170 secondhand, and is said to have been subsequently sold to the class of 1852 for a supper. She went down one blustery day off Crane's Bar while under tow to Fort Hale loaded with straw, where the intention was to dedicate her as a burnt offering to Neptune.[15]

College rowing as competitive sport can hardly be said to have started before 1850, and was limited at the beginning to Yale and Harvard. Their first regatta was held at Centre Harbor on Lake Winnepesaukee, New Hampshire in August 1852, their second at Springfield, Massachusetts on the Connecticut River in July 1855.

Outside of the colleges, match races and local regattas, notably at Boston and at Saint John, provided competition and stimulated keen, but limited, interest in rowing prior to 1850, yet formal organization of the sport did not take place until later. While the Atalanta Boat Club of New York, "the old-

Rowing competitions on the Charles River in Boston attracted large crowds, including such eminent men as Dr. Oliver Wendell Holmes (left foreground). Here a crowd watches the six-oared *Volant* of the Charles River Association defeat *Huron,* owned by a club of Harvard College students, in a three-mile race. (*Ballou's Pictorial,* 20 June 1857)



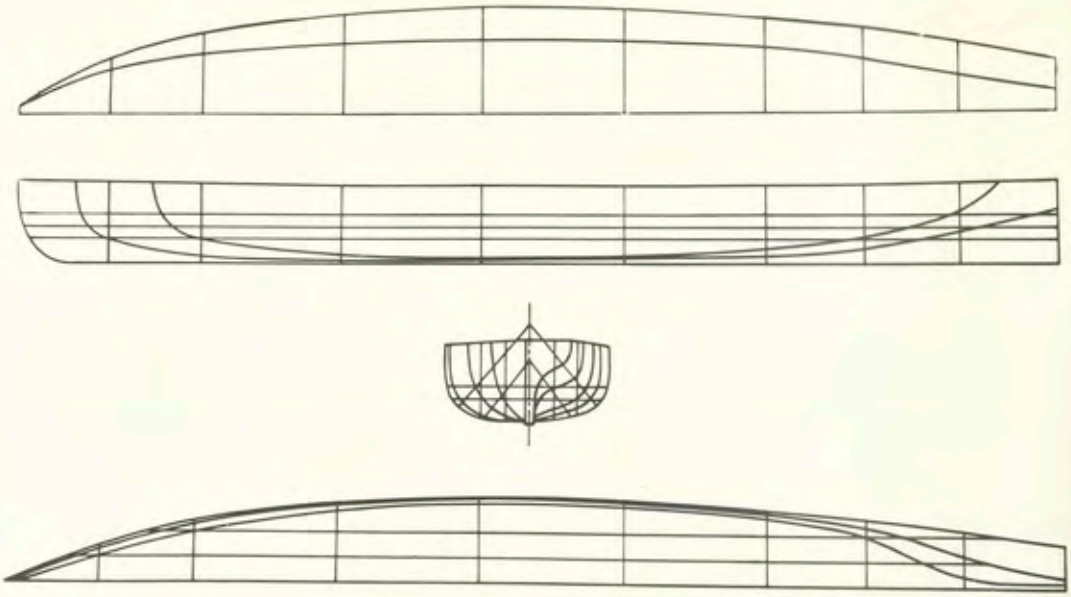
est rowing club in American waters," according to Peverelly, its president in 1852 and 1853, was formed in the spring of 1848, and the Union Boat Club of Boston three years later, these were the early exceptions by ten years or more. The Hudson Navy, so called, comprising the associated boat clubs of New York, dated from 1860.

Race boats prior to 1850 were not far removed from working types and, generally of clinker build, were rowed on the gunwales. Four-oared boats seem to have predominated. They were frequently called gigs, suggesting a likeness to ships' boats. Thus the 20' *Phantom* built in 1846 by Brooks & Thatcher and acquired by Yale students in 1851 was sold in 1853 for a vessel's quarter boat.[16]

At the Newburgh regatta on the Hudson in 1841 there were eight entries in a race for six-oared barges and ten entries in the race for four-oared barges, the latter being won by the *Thomas Jefferson*, with the *Duane* second – a repeat of their 1846 match. Some idea of what these barges were like may be had from the 1891 catalogue of H. V. Partelow & Co., Boston's leading boatbuilding concern in the 1880s and 1890s. The Partelows were a Saint John boatbuilding family who had removed to Boston a few decades earlier. The cut of their barge shows a long, slim, flat-sheered boat, rowed on the gunwale, and resembling the *American Star* and the Ravenswood sketch, except that the barge has a somewhat wider stern transom.[17]

If only someone in the 1840s or thereabouts had left us a draught of lines, but boatbuilders then had no use for lines and did not bother with them. But perhaps we do have a half model dating from the period in question, or even earlier, in the collection of the New Brunswick Museum at Saint John. No documentation exists except that the model did come from the estate of George Hilyard (1878-1968), the last of a line of shipbuilders, the foremost of their day in Saint John, having launched forty-six ocean-going vessels between 1853 and 1873. Thomas Hilyard bought the yard

Lines of the Hilyard half model. (Courtesy of The New Brunswick Museum)



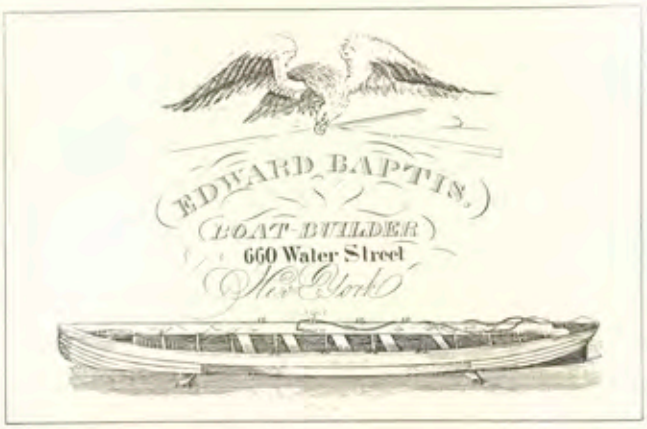
from John Haws, who set it up and prospered in the 1830s.

The model is quite definitely for a pulling boat. However, its porportions are obviously not right for a working boat, being too long and narrow and flat of sheer. It could well be an early and not too successful attempt to alter the lines and proportions of the ordinary ships' boats of the early nineteenth century for racing. No doubt there was much rule-of-thumb experimentation among boatbuilders in the early years before the optimum combination of design elements for speed was attained. In profile and in length/beam proportions this model closely resembles the *American Star* and the Ravenswood sketch and, to a lesser extent, the Partelow barge, but its water line entrance is rather too full, and its bilges are quite hard. Perhaps these were kept hard for stability to compensate for the reduction in beam over that of the standard working boat.

We are told that a Saint John boatbuilder named McLellan produced, presumably about 1840, "a four-oared boat, quite a novelty in her day, very slack in her bilges with wide spreading gunwales." If this was so unusual, apparently it was common practice at the time to build boats more like the model under consideration, with hard bilges and wall-sided above.[18]

This model also resembles to a surprising degree the engraved likeness of a race boat appearing on the business card of Edward Baptis, son of John Baptis, builder of the *Knickerbocker* and the *General Lafayette*, who carried on his father's business at 660 Water Street, New York City from 1824 to about 1835. The Baptis boat has the same bow, flat sheer, wall sides rising from a hard bilge, and small high-tucked stern as the Saint John model.[19]

No scale is indicated on the model, but the assumption of a scale of an inch to the foot gives the most likely dimensions. The resulting 22′ overall is not too short for a four-oared boat. Forty-two inches of beam is considerably more than later race boats would have, and 19″ of depth amidships is more like a working boat and not like the "cut-downs" previously mentioned; yet even so, these are plausible dimensions for an early, and perhaps not overly successful, attempt to modify the standard ships' gig of the early nineteenth century for racing.



Business card of Edward Baptis, boatbuilder, *ca.* 1830.

NOTES

[1]Charles A. Peverelly, *American Pastimes*, 2nd ed. (New York: New York News Co., 1868), p. 257.

[2]Waters, Balch & Co., *The Annual Illustrated Catalogue And Oarsman's Manual for 1871*, (Troy, N.Y.), p. 325.

[3]Peverelly, p. 248.

[4]"Early Days of Boat Racing in the St. John Harbor." *The St. John, N. B. Evening Times and Star*, 21 August 1915.

[5]*Journal of The New Brunswick Society For The Encouragement of Agriculture, Home Manufacture & Commerce* (Fredericton, N.B., 1851), p. 312.

[6]Peverelly, p. 249.

[7]"Early Days of Boat Racing."

[8]Peverelly, p. 243.

[9]*Ibid.*, p. 245.

[10]"Early Days of Boat Racing."

[11]*St. John And Its Business, A History of St. John* (St. John, N.B., 1875), p. 106.

[12]*The St. John, N.B. Courier*, 21 September 1844.

[13]"Early Days of Boat Racing."

[14]Peverelly, p. 119.

[15]*Ibid.*, p. 135.

[16]*Ibid.*, p. 135.

[17]*H. V. Partelow & Co. Catalogue* (Boston, 1891), p. 12.

[18]"Early Days of Boat Racing."

[19]Holograph letters from Miss Erunia H. Stevens and Mrs. Edward T. Coons, William P. Stephens Papers, Coll. 91, Box 8/1, G. W. Blunt White Library, Mystic Seaport Museum, Mystic, Conn.

Augustin Fresnel and His Lighthouse Lenses

RICHARD W. UPDIKE

Lighthouse lenses represent an achievement of consummate genius. They are not only marvels of beauty; they are marvels of science as well. It is fitting that their name honors the French savant who invented them, Augustin Jean Fresnel.

Born in Broglie, Normandy, on 10 May 1788, Fresnel at first experienced difficulty in learning. When he was eight years old, he was still unable to read. Soon afterward, however, Fresnel's superior mind began to reveal itself. Upon graduating from the Central School at Caen in 1804, he entered the Polytechnic School, where he gained distinction for his mathematical ability.

Fresnel completed his formal training at the honored School of Bridges and Roads. After graduating as an engineer, he was sent to Vendée and to Drôme to superintend the government's engineering operations there. Napoleon's return from Elba in 1815 caused Fresnel to join the Bourbon army of the south until his always delicate health convinced him of the unwisdom of further military adventure. The rash enlistment cost Fresnel his job, but upon the second restoration, he received an appointment as engineer in Paris, where he remained until his death.

Very soon after Fresnel moved to Paris, he began his experimental researches in optics. His discoveries and scientific memoirs succeeded each other with remarkable rapidity. By 1816, he was foremost among the scientific investigators of light polarization. Together with fellow physicists Thomas Young, of England, and Dominique F. L. Arago and Etienne Louis Malus, of France, he pioneered in and shaped the doctrine of the undulatory theory of light as opposed to the emission theory, which was championed by the French physicists Pierre Simon de Laplace, Simeon Denis Poisson, and Jean Baptiste Biot.

Fresnel turned his attention to lighthouse illumination in 1819 when, at the request of the French lighthouse commission, he agreed to serve on a committee with his scientific colleagues, Arago and Claude Louis Mathieu. The purpose of the committee was to improve the lighting apparatus; the result was the dioptric or Fresnel system of lighting, which revolutionized lighthouse illumination throughout the world.

Previous to Fresnel's achievement, the most advanced lighting system was the catoptric system, in which a parabola-shaped metallic mirror was placed behind each of the lamps in a lighthouse. The parabolic surface reflected the lamp's rays in line parallel to the reflector's axis. A number of such lamps arranged on a chandelier produced a rather powerful fixed light, and a flashing effect was produced where desired by rotating the chandelier on which the lamps were arranged in concentrated groups. The principal objection to the catoptric system is that less than one-sixth of the light of each lamp is usefully reflected.

Augustin Fresnel concluded that he could create a more efficient illumination by

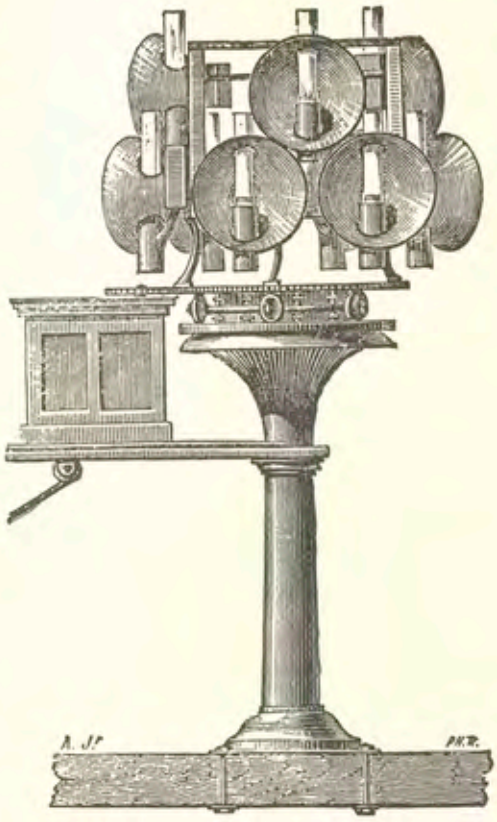
Richard W. Updike, Seaport member, attended the Munson Institute in 1964 and '65, and received his M.A. (American History) from the University of Pennsylvania in 1964. He serves in the Hamilton Township Schools (Trenton, New Jersey). Research on lighthouses has been one of his interests.

using the refractive properties of glass. It had long been known that a convex lens causes all rays to proceed from its focus in parallel lines after deviation. There were several obvious obstacles to the application of such lenses to lighthouses, however. In order to be effective, the lenses would necessarily be large and very thick at the center.

Three difficulties were inherent in such a lens: (1) its very thickness would absorb a considerable portion of the luminous rays; (2) the inevitability of air bubbles, striae, and differences of glass density would cause unwanted deviations of the rays; and (3) the great weight of the lens would render installation and rotation virtually impossible.

The fertile mind of Fresnel conceived a solution to the problem of the lens dimension. He would construct his lens in steps (echelons), thereby eliminating the unnecessary portions and reducing the thickness substantially. Moreover, he would construct the lens in pieces and glue the pieces together, thus greatly reducing the problem of uniform density and the difficulty in grinding and polishing the glass.

It is true that the echelon lens was imagined by George Louis Leclerc, Comte de Buffon as early as 1748, and the piecemeal construction was suggested by Marie J. A. N. de Caritat, Marquis de Condorcet in 1773, but Fresnel was not previously acquainted with either of these ideas, nor did their originators consider the application of these lenses to lighthouses. The noted Scottish scientist, Sir David Brewster, attempted over a period of years to gain credit for inventing the dioptric system as a result of his 1811 drawing of an elaborate burning glass, which concentrated the sun's rays to produce heat. However, the scientific world did not sustain Brewster's claim that he had anticipated Fresnel in the apparatus bearing the latter's name. And even if Brewster's claim had been accepted, no one before Fresnel produced a dioptric apparatus for lighthouses.



Catoptric system of illumination for lighthouses. Note individual parabolic mirrors and lamps. (W. H. D. Adams, *Lighthouses and Lightships*, p. 72)

In addition to those problems in lens construction already mentioned, other difficulties remained, but Fresnel's intelligence was equal to their solution. He adopted the plano-convex form of lens because of its limited aberration and because it was comparatively easy to assemble on a table top. To supplement the central lens, or "bull's eye," a lens panel was constructed with concentric prismatic rings assembled in echelons around it, forming annular lenses.

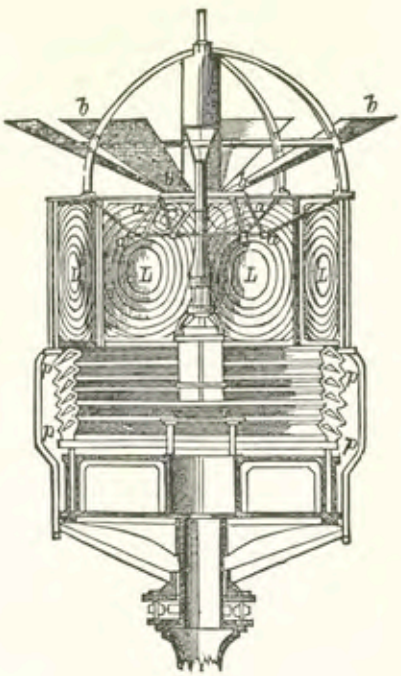
Unlike Buffon and Condorcet, Fresnel realized that to be effective, the echelons had to be calculated with precision. Consequently, he applied the formulae of interference, double refraction, and polariza-

tion, all of which he had discovered; and he computed the correct profiles of the successive prisms, so that each would render usable a maximum amount of light.

The French government, impressed with Fresnel's success, directed him in 1821 to construct a lens apparatus for the celebrated Cordouan Lighthouse, which had been standing for more than two centuries where the Gironde River flows into the Bay of Biscay and was considered the world's finest lighthouse. Together with his very able assistant, the optician Jean Baptiste François Soleil, Sr., he created a rotating apparatus of eight panels of annular lenses set in a bronze frame, to be placed around a large oil lamp having four concentric wicks, which Fresnel also designed.

To minimize the escape of light above the lenses, Fresnel introduced a combination of eight flat silvered mirrors to reflect to the horizon the light thrown upon them. At a later date, in accordance with a postscript to Fresnel's Memoir of 1822, mirrors were also placed below the lens panels. Ultimately, a series of prisms replaced the mirrors above and below the lens panels.

Fresnel's revolving light. Note *b*, flat mirrors to redirect divergent light; *L*, panels of annular lenses; and *p*, prisms to redirect divergent light. (W. H. D. Adams, *Lighthouses and Lightships*, p. 90)



The glass for the Cordouan Lighthouse apparatus and for all subsequent lenses came from the famous former royal glassworks at St. Gobain, located approximately thirty-five miles northeast of Paris. Fresnel chose slightly green crown glass in preference to the clearer flint glass, which contains lead, because the crown glass is much lighter in weight and has a constant index of refraction of 1.51. Also, the crown glass is harder and is less likely to be affected by the air.

The lens parts were cast at St. Gobain in dimensions one-eighth larger than their final size. Then they were ground and polished to their exact specifications by skilled craftsmen in the Paris workshops. At first there were two, and later three, lens manufactories in Paris: Letorneau & Co. (successor to M. Soleil, Sr. and François Jr.) and Henry-Lepaute; then Henry-Lepaute; Sautter, Lemonnier & Co.; and Barbier & Fenestre. All were regulated by the French government, and their prices were established by it.

Except for an abortive venture into lens manufacture by the English firm of Cookson of Newcastle in 1836, and the successful manufacture in St. Petersburg of lenses for Russian lighthouses by François Soleil, Jr., the Paris firms were the exclusive manufacturers of dioptric apparatus and supplied all countries until Chance Brothers & Co., of Birmingham, England, established their works in 1855. France supplied all of the Fresnel lenses used in United States lighthouses.

Fresnel decided that the dioptric apparatus ought to be constructed in six different sizes. (Actually, he designated four orders based on the number of wicks in

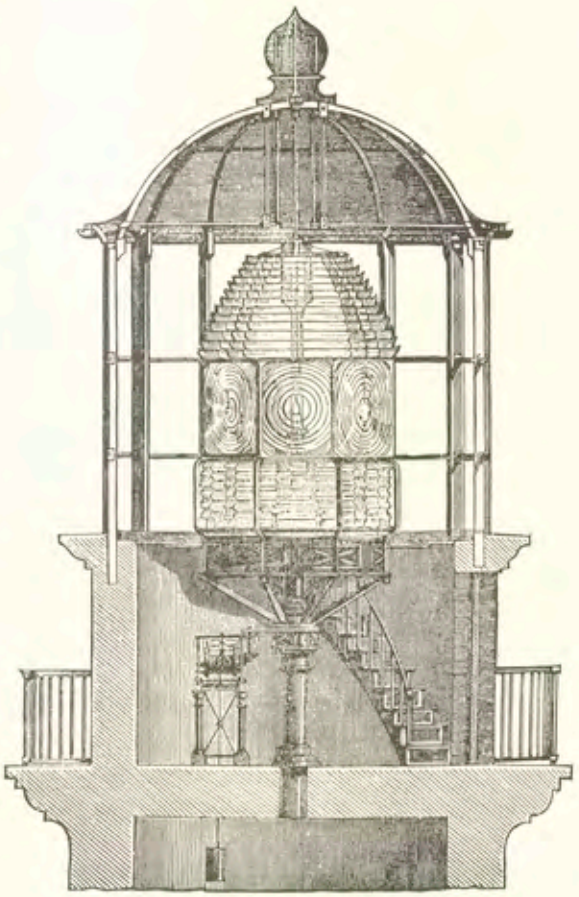
each lamp, with the last two orders each having large and small models) The first-order lens has a focal distance of 36.2 inches; the smallest size has a focal distance of 5.9 inches. In 1885, a hyper-radial lens was developed having a focal distance of 52.3 inches. Since the focal distance is one-half the diameter, the hyper-radial lens had a diameter of nearly nine feet. The Fresnel apparatus in its final form renders five-sixths of the light practically useful. The range of a first-order lens is limited only by the curvature of the earth.

Besides developing the revolving lens, which produces a flashing effect whenever the center of the "bull's eye" crosses the imaginary line between the viewer's eye and the lamp, Fresnel provided for the development of a great number of lens characteristics to make it possible for the benighted mariner to determine his position. As many as seventeen came to be used, but the possible combinations of flashing light patterns produced by various dioptric designs are almost infinite.

The fixed dioptric light is achieved by replacing the "bull's eye" with a convex band and the annular panels with all prisms parallel to the horizon.

So complete was Augustin Fresnel's solution of the lighthouse illumination problem that the renowned Scottish lighthouse engineer, Alan Stevenson, said of the French scientist many years after his death that he "seems to have devoted such minute attention to every detail of the Dioptric aparatus, that he has foreseen and provided for every case that occurs in the practice of Lighthouse illumination." By 1860, all of the civilized world was using the Fresnel system.

Ironically, though Fresnel received the highest praise from many of his colleagues, during his lifetime he received little public recognition. Among the honors from the scientific community were the prize of the Academy of Science in 1819, unanimous election as a member of that Academy in 1823, membership in the Royal Society (England) in 1825, and the Rumford Medal from the latter group in 1827.



Cupola of a lighthouse with a first-order lens. (W. H. D. Adams, *Lighthouses and Lightships*, p. 100)

It is strange to relate that some of Augustin Fresnel's papers were not published by the Academy of Science until 1870, more than four decades after his death. However, undistressed by his lack of public acclaim, Fresnel wrote to his friend, the eminent scientist Thomas Young, in 1824 that in himself 'that sensibility or that vanity which people call love of glory' had been blunted. Further, he wrote, 'All the compliments that I have received from Arago, Laplace and Biot never gave me so much

pleasure as the discovery of a theoretic truth, or the confirmation of a calculation by experiment.'

Fresnel's career was meteoric and, like a meteor, his substance was consumed in the brilliance of its display. Because he had purchased his success at the cost of his precarious health, he was unable to work during the last two and one-half years of his short life. He died of tuberculosis at Ville d'Avray, near Paris, on 14 July 1827.

Modern technology in the past several decades has developed various kinds of illuminating apparatus more suitable to particular locations and needs than the Fresnel lens. Nevertheless, many Fresnel lenses continue to serve as they have done for more than a century. Thus even today, numerous ocean travelers are in the debt of Augustin Fresnel, the benefactor whose accomplishments literally brightened the world.

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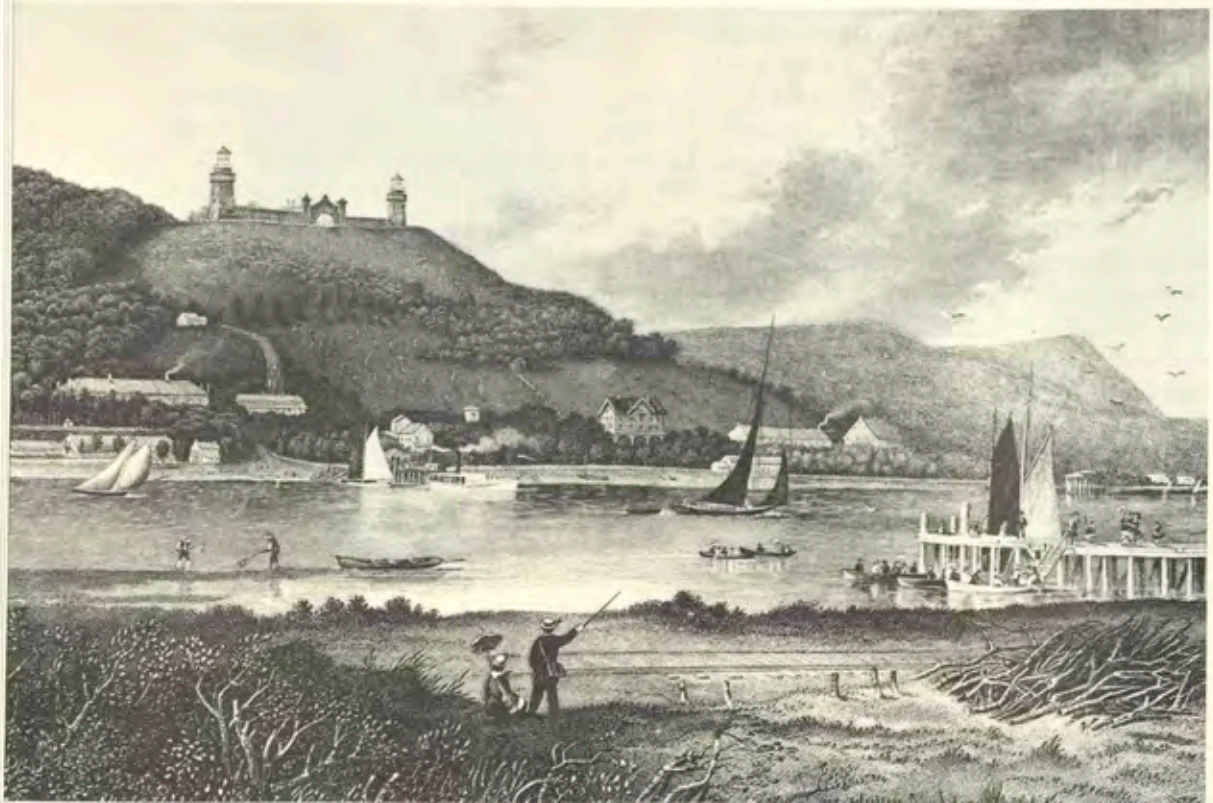
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Navesink Light Station, Highlands, New Jersey, south of the entrance to New York Harbor, *ca.* 1870. The first Fresnel lens brought to the United States from France was installed in the south (left) tower in 1841. In 1862 the two original towers were replaced by these brownstone towers. (William Cullen Bryant, *Picturesque America,* Vol. I [New York, 1872], opp. p. 176)



"...quick as a cat!"

JOHN M. LEAVENS

"I could put into Woods Hole or New Bedford or Newport with my catch, take advantage of the market and get the best price for my fish. Golly," he mused, "New Bedford was a rich place to sell codfish. They were standing in line Thursdays trying to get a fish for Friday."

"Cygnet Dan" Larsen was talking about the days around 1905 to 1917 when he fished the waters sou'west of Noman's in the catboat *Cygnet*. Most catboats were then individually owned and operated, but *Cygnet* was one of a fleet owned by J. T. O'Connell of Newport, Rhode Island, sailed on shares. According to the accepted formula of the day, after deducting current expenses the stock was divided one-fifth to the boat and four-fifths to the crew.

Cygnet is representative of the catboat at its best: a hard-driven, able 26′ workboat built at Newport by Josiah Albro in the 1880s. Cats of her type could be built and maintained at a low enough cost to be money-makers in the onshore fisheries. Much of a catboat's work was out in the morning, back in port at night, but cats did stay out around the clock on some occasions. However, there were few, if any, that participated consistently in deep-water, offshore fishing as on the Grand Banks.

The catboat is generally acknowledged to be uniquely American, yet nobody knows just when or where in the United States it actually originated. The Jersey shore, New York and Newport are among the localities often given credit. Some contend that the catboat's roots go back to colonial times. L. Francis Herreshoff reports in his book, *Captain Nat Herreshoff*, that his grandfather, Charles Frederick Herreshoff, built the 23′ catboat *Julia* at Bristol, Rhode Island in 1833. *Julia* was a cat-rigged "Point boat," a type built at Newport on what is now Long Wharf. Herreshoff adds: "This type of boat was later called a catboat when it became popular around New York."

The word cat is used interchangeably to mean a rig and a boat. As a rig, it means a single fore-and-aft sail, usually gaff headed, set on a single unshrouded mast located well up in the "eyes" of the boat. The cat rig is an evolution from the square sail to the spritsail to the gaff sail. As a boat, the word cat has come to mean a broad-beamed,

John M. Leavens, Seaport member, was a founder of the Catboat Association in 1962. Author of *The Catboat Book*, he is the premier catboat historian. Currently he serves as Secretary of the Catboat Association and coeditor of the *Catboat Association Bulletin*.

Family outing in an unidentified catboat near New Haven, Connecticut, *ca.* 1900. (John M. Kochiss Collection, 71.230)



shoal-draft vessel fitted with a cat rig. It can be either a centerboard or keel boat, but the former is more usual.

The cat rig can be used with many different hull forms. It is a simple matter to step a cat-rigged sail in a known hull form such as a wherry, for example. But the rig was also used at an early date in new and distinctive hull forms. The cat-rigged Barnegat Bay sneakbox is said to have been conceived in 1836.

Around New York, probably also in the 1830s, there evolved a broad-beamed, distinctive type known as the New York sloop which was fitted with dual mast holes so that it could be rigged interchangeably as sloop or cat. In 1851 Bob Fish of Pamrapo, in what is now Bayonne, New Jersey, designed and built the 16'6" catboat *Una*, so named because she had "one of everything"–one hull, one mast, one sail, one halyard, one centerboard and one rudder. *Una* had a flat sheer, a raked bow and a plumb stern. She was 6'6" in beam and had the incredible draft of 9". Obviously, she was very fast in her day. Shipped to England, she distinguished herself in the races off Cowes and set a new style, giving her name to a class. Today in England the catboat is a Unaboat. Taken to Germany, the same style boat became the *Bubfisch* boat.

By the 1870s, at least, catboats were a familiar part of maritime life from the Delaware River and Cape May north to Boston, with heavy concentrations in the shoal inland waters of Barnegat Bay and South Jersey. In fact, at Toms River, New Jersey the first race for working catboats was held in 1872 and the cup purchased on this occasion is still in competition. New York Bay and the estuaries of Long Island's south shore had great fleets of cats, and many harbors on Long Island Sound from New Rochelle easterly to Stonington and from Oyster Bay to Greenport knew them. Narragansett Bay was alive with them and they were equally familiar in the waters of Buzzards Bay and Nantucket Sound.

The catboat's basic range was thus New England, New York and New Jersey, although now and then one could be found in other Atlantic ports south of Cape May. In addition, a special working catboat fleet existed in the Gulf Coast fisheries at Biloxi, Mississippi and nearby ports, and a special type of decked cat was used in the 1880s in the San Francisco, California oyster fisheries. For some strange reason these boats, nicknamed plungers, were called San Francisco oyster sloops, despite the cat rig.

Naturally, each locality produced distinctive variations in hull form. In south Jersey, as on Great South Bay, the cats tended to be large, low-headed affairs since they were used on sheltered waters as freight and passenger carriers between the mainland and the offshore barrier islands. The 1905 edition of *Merchant Vessels of the United States* lists more than a dozen cats of 30' and longer that were built around Atlantic City and another dozen or more that were built at Patchogue, Long Island. The Newport cat, used in the onshore fisheries for lobstering and general fishing, tended to be much smaller, ranging from 18' to 26'. At one time the Newport catboat fleet numbered more than 100 boats.

Photographs taken in Oak Bluffs in 1872 show cats in great variety, including a lapstrake double-ender that appears to be a transition from the famous Noman's Land boat. However, the most distinctive local development was the Cape Cod cat produced by Horace and Worthington Crosby at Osterville, possibly as early as 1850. This style has come to be recognized over the years as the classic catboat type.

The lines of the Cape cat developed between 1850 and 1900 in response to local needs. Designed for fishing in the deep waters of Nantucket Sound, she proved to be an able, seaworthy boat. Her bow was bluff and high to cope with heavy seas. Her sheer swept back gracefully from this high bow to a low point at the cockpit, rising again slightly towards the stern. Her cock-



A postcard view of the Crosby yard at Osterville, Massachusetts, 1884. The classic Cape Cod catboat was designed here. (76.21.91)

pit was large enough to accommodate fishing gear and lobster pots. Her beam was half the waterline length to provide a stable platform for hauling nets and gear. Her draft was shoal to permit her to navigate the shallow waters on the Cape Cod south shore. Her huge barn-door rudder projected aft from her square stern to give greatest leverage with minimum draft. Occasionally, however, the Crosbys built cats with a raking transom and an underslung rudder. Usually, Crosby cats were fitted with centerboards to improve windward ability, but a few keel cats were also built. A large-size cabin afforded shelter for crew or storage for fish. Last, but not least, she carried the single-mast, single-sail cat rig, at once the simplest of rigs; yet, because it had no headsail to aid in maintaining balance, the most difficult of rigs to manage.

The cat was one of the most versatile working boats that has ever been devised. In the age of sail, she was extensively used in all kinds of fishing activities: lobstering, mackerel seining, handlining for cod, swordfishing and scalloping to name some of them. She was also used in packeting and carryaway work. She gained great renown at Martha's Vineyard, Nantucket, Newport, and New York as a party boat carrying sports out to the rips for bluefishing. There are two Currier and Ives prints of plumb-stern, New York-style decked cats, each titled *Bluefishing*. The chief difference appears to be that one is sailing on the port tack and the other on the starboard. Fred S. Cozzens, a noted marine artist (1856-1928), also did a print of a party catboat bluefishing. While the locale is uncertain, the lines are those of a Cape cat.

The one-lung gasoline engine signalled the end of the working catboat. From 1904 to 1910 power was installed. Rigs were first cut, then eliminated entirely. The working catboat served out its useful life as a power boat as other new types replaced it.

A list of outstanding catboat builders would include the Crosbys of Osterville, C.

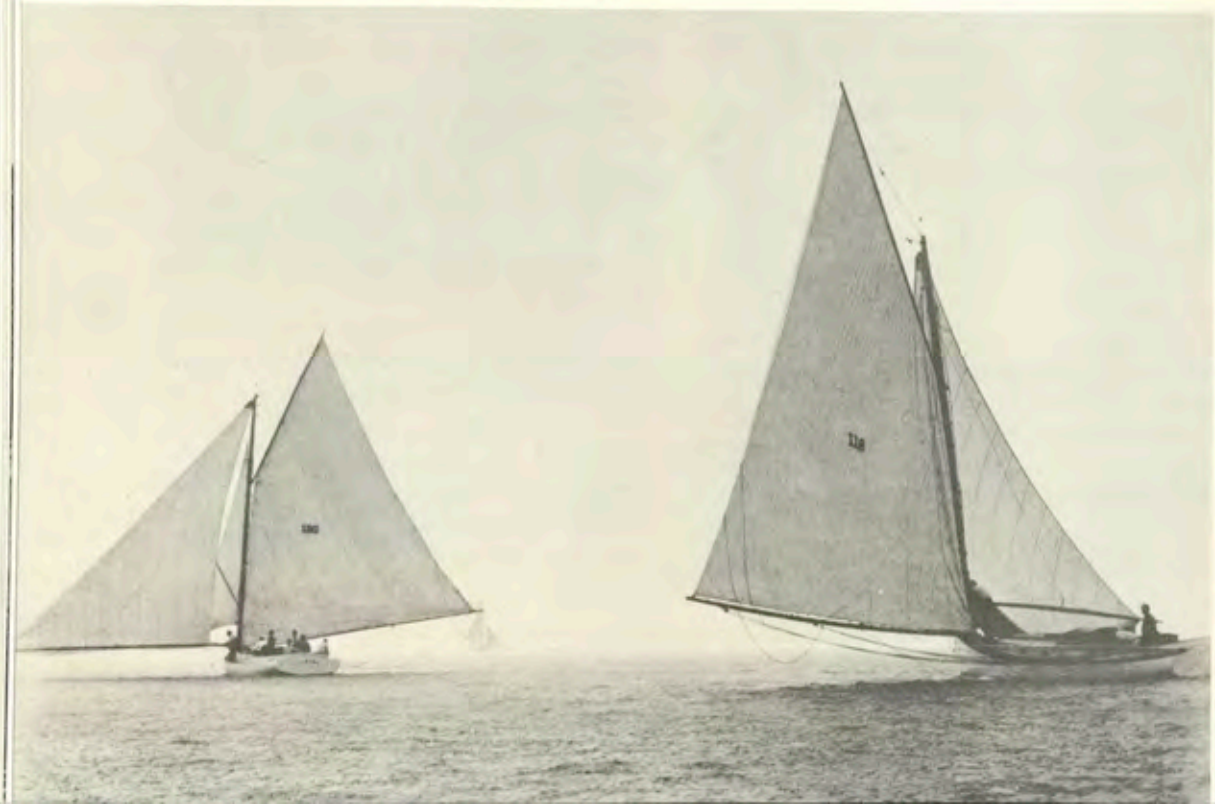
C. Hanley, Captain Nat Herreshoff, Gil Smith of Patchogue, Long Island, Manuel Swartz Roberts of Edgartown, W. W. Phinney of Monument Beach, Bob Fish of Pamrapo and Perrine of Barnegat. Mention should also be made of Fenwick C. Williams, whose success as a catboat designer began in the 1930s just as the catboat entered its long period of eclipse.

Catboat building was essentially a backyard enterprise. For every builder who gained recognition there were a dozen others whose work has long since been forgotten. Manuel Roberts's old boat shop in Edgartown, now the Old Sculpin Art Gallery, can be seen by every summer visitor. But few people in Edgartown today know that William W. King, George Huxford of Chappaquidick, Rodolphus Morgan, Louis Pease, and Lorenzo Dow Smith also built catboats in the town. Many were craftsmen in wood: when people wanted houses, they built houses and when people wanted boats, they built boats. This is not an isolated case. Similar examples could be found at Monument Beach and Mattapoisett, Newport, on Long Island, New York Harbor, and the Jersey shore.

From earliest times there are records of catboat races. Although the catboat is not one of the fastest types for windward work, and only holds her own downwind, she is a wizard on a broad reach. Sometimes, as at Marblehead in the 1870s and 1880s, and Wareham in the 1890s, cats were raced in mixed classes along with sloops, yawls, and other types. But there were also races for cats alone at Boston and Oak Bluffs in the 1870s. The Labor Day fisherman's race at Woods Hole was a well-known event in the early 1900s. Similar affairs took place from time to time throughout the entire catboat area.

Often one hears that the catboat is a dangerous boat because of the number of people who lost their lives when overcanvassed racing cats came to grief in the early days. Years of reading and searching catboat history have failed to turn up any *bona fide* case to corroborate these tales. The fact

Almira defeating *Harbinger,* Massachusetts Bay, 4 July 1890. This view of the ultimate in catboat sail area was made by the noted marine photographer Nathaniel Stebbins. (Courtesy of the Society for the Preservation of New England Antiquities)



is, as catboat racing caught on and became popular, there was a rush to crowd on sail. This reached a climax in the 4 July 1890 match between the 26′2″ catboat *Almira* and the 28′10″ catboat *Harbinger.* Both boats were square-stern Cape cat hulls but fitted with long, hogged bowsprits on which were set huge jibs and spinnakers, so that they were actually cat sloops. *Harbinger*'s spread of 1,551 square feet of sail area with all sails set must be some kind of record for 28′ catboats. *Almira* defeated *Harbinger,* demonstrating that Hanley had reached the absolute high point in the development of the Cape cat hull as a racer. It was inevitable that he should turn next to a different racing catboat hull form–the result was *Cleopatra,* built in 1892. Characterized by long overhangs and an abbreviated freeboard, she was a revival of the catboat skimming dish. Five years later came *Thordis,* 33′4″ overall with a least freeboard of only 10″. The 1897 record of seventeen starts, seventeen wins hung up by *Thordis* was a proud one. However, it marked the beginning of the end for the catboat as top racing boat. Except for a reprieve in 1907 on Massachusetts Bay, the days of the racing catboat were over by 1900. Other newer and faster rigs caught the popular fancy.

Coincidental with the decline of the cat as a racer was its emergence as a family boat. Its weatherly qualities, huge cockpit, large cabin–handicapped somewhat by lack of standing headroom–made it popular for cruising. The same one-lung engine that sounded the death knell of the catboat as a working boat sometime around 1910 proved a godsend to those who took to the cat for cruising. Various shops, particularly E. V. Rosemond's yard at Greenport, Long Island, rebuilt old fishing cats into family boats and installed inboard power. They sold like hotcakes in the early 1920s. Gradually, however, the old wood cats, durable as they were, died off. A fleet of pleasure cats survived on Barnegat Bay well into the 1930s but other boats came along to take the cat's place as a family boat. The Crosby yards at Osterville turned out their last cat, the *Sea Robin,* in 1936, just 103 years after Charles Frederick Herreshoff launched the Point boat *Julia* at Bristol. The cat appeared doomed. However, here and there, one did survive to attract interest wherever she went, for the truth of the matter is that a catboat is pretty and catches the eye.

In the summer of 1962 some twenty catboats rafted at Duck Island after a race from Saybrook, Connecticut sponsored by the Essex Yacht Club. Here, by common consent, The Catboat Association was established, with Paul Birdsall and the author volunteering to serve as secretaries. As a consequence, a unique organization came into being. It has [1971] some 400 members, 250 of whom own catboats. [Membership has increased to 1,025 in 1979.] Catboat owner-members turned up in Australia, Japan, Canada, and England as well as on the Atlantic, Gulf, and Pacific Coasts, the Great Lakes, and other parts of the United States. Once a year the Association meets at

Cleopatra, first of C. C. Hanley's skimming-dish catboats, 1896. (Courtesy of the Foster Collection, Francis Russell Hart Nautical Museum, Massachusetts Institute of Technology)



Mystic Seaport to talk about catboats. During the summer months the Association, usually in collaboration with a local yacht club, sponsors some seven races and regattas in Long Island Sound and New England waters.

About the time that The Catboat Association was formed, experiments in fiberglass design led to the development of the highly successful 18′ Marshall Sanderling. Between the revival of interest in the catboat stirred up by the Association, and the availability of an able, low-cost catboat in low-maintenance fiberglass, its popularity has soared to new heights. Even the building of new, and rebuilding of old, wood cats has been stimulated. The famous Crosby yards, after a lapse of more than thirty years, have turned out two handsome wood cats: the *Frances,* a replica of *Frances,* alias *Buddy,* in the Mystic Seaport collection, and *Sea Cat II.*

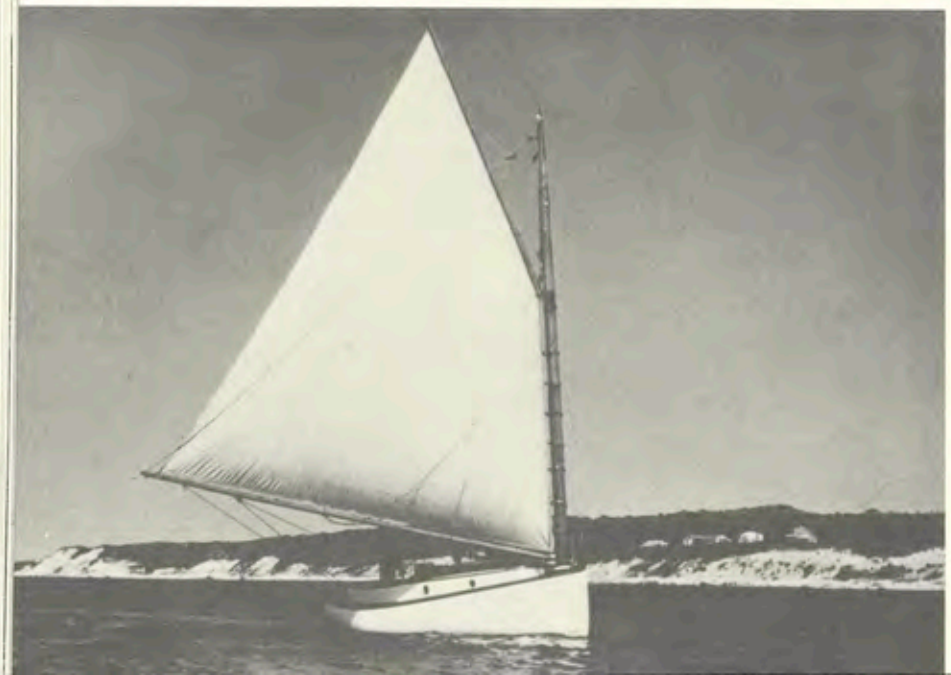
With this resurgence of interest in the catboat has come a broadening of its range. Racing fleets of Sanderlings are now to be found at Nantucket, on the Shrewsbury River, around Atlantic City, along the Texas Gulf coast, and on Puget Sound. Many new designs are coming to the fore. A 30′ cat in Seacrete is under construction. Designer Jay R. Benford is building a 17′ keel cat of ferro-cement on the West Coast. Two new decked cats in the 14′ class are being offered, one in Maine and the other on Cape Cod. *Americat 22,* a fiberglass version of a 1928 Sweisguth cat, is just being completed.

To top it all, naval architect Charles Wittholz has come up with a four-berth catboat of otherwise conventional design and all four berths are inside the cabin. What other 20′ boat can match this?

People often ask how the catboat got its name. No one really knows, but there are a number of romantic answers, chief of which is, "she comes about quick as a cat!" A more likely explanation is that from earliest times the word cat connoted a workboat. The catboat, so familiar for many decades, not only was a workboat, but was so common in the harbors where she was to be found that people took her for granted.

Many catboats afloat today are thirty to seventy years of age and new ones are now being built in increasing numbers, so that even if they never become as common as they once were, with the growing interest in boats of traditional style, they won't be taken for granted. Best of all, this unique native sailing craft will be preserved as an active part of American sailing life.

The author's classic *Pinkletink,* Menemsha, 1963. She was the last catboat built (1931) at Osterville by Herbert F. Crosby & Sons. (Photo by John M. Leavens)



Planning the Black Ball

ROBERT G. ALBION

A manuscript letter of prime significance in maritime history has recently [1965] come into the possession of The Marine Historical Association. Included in the volumes of letter copy books of Samuel Thompson, active as a shipping operator and agent for passage to America, is one letter book of another celebrated Thompson, Jeremiah, who took the prime initiative in developing the Black Ball Line of sailing packets, and of bringing southern cotton up the coast to New York to provide eastbound cargoes for them.

In this particular letter, reproduced below, Thompson and his three Quaker associates outline in detail to the two firms who, they hoped, would handle the Liverpool end of the shuttle, the plans for their project which would have the all-important effect of introducing the principle of "line" or "berth" service, with ships sailing on regular schedule between two ports.

Because of an error in an old magazine, numerous writers, including Basil Lubbock, gave the date of the Black Ball start as 1816. Actually, it was projected in the autumn of 1817 and went into service in the first week of 1818. This particular letter, to the Liverpool firms of Cropper, Benson & Co., and Rathbone, Hodgson & Co., was written on 18 October 1817, nine days before the first public announcement, surmounted by conventional cuts of four little ships, appeared in the New York papers. That the proposal was successful is demonstrated by an advertisement of the two Liverpool concerns on 5 December 1817.

Professor Robert G. Albion, author of *The Rise of New York Port* and *Square Riggers on Schedule*, was Director of the Munson Institute, 1955-73. He has enjoyed a distinguished career as both a scholar and a teacher.



For NEW YORK,
To sail on the 1st of January,
The COURIER,
WILLIAM BOWNE, Master;
Burthen 380 tons.



To sail on the 1st of February,
The PACIFIC,
JOHN WILLIAMS, Master;
Burthen 370 tons.

In order to furnish more certain Conveyance for Goods and Passengers, between Liverpool and New York, the owners of the American Ships, COURIER, PACIFIC, JAMES MUNROE, and AMITY, have undertaken to establish between the two Ports, a regular succession of Vessels, which will *positively sail, full or not full*, from Liverpool on the 1st, and from New York on the 5th of every month, throughout the year.

These Ships were all built in New York, of the best materials, and are coppered and copper-fastened; they are all remarkably fast sailers; their accommodations for passengers are uncommonly extensive and commodious, and their commanders are men of great experience and activity. These recommendations, and the dependance which may be placed upon the periods of their departure, afford to these conveyances advantages of so much importance to the Manufacturing Houses, and to the Shippers of Goods generally as it is hoped will secure to them general support.

The Courier now lies at the east side of the King's Dock.—For further particulars, apply to Capt. Bowne, on board, or to

CROPPER, BENSON, & CO. and
RATHBONE, HODGSON, & CO.

(*One property*)

Black Ball Line announcement which appeared in the *Liverpool Mercury*, 5 December 1817. (Carl C. Cutler, *Queens of the Western Ocean* [Annapolis, 1961], facing p. 42)

Perhaps the most significant phrase, both in this letter and in the New York announcement, was the statement that the Black Ball "square riggers on schedule" would sail "full or not full." It had been all



LINE OF AMERICAN PACKETS
BETWEEN N. YORK & LIVERPOOL.

IN order to furnish frequent and regular conveyances for GOODS and PASSENGERS, the subscribers have undertaken to establish a line of vessels between NEW-YORK and LIVERPOOL, to sail from each place on a certain day in every month throughout the year.

The following vessels, each about four hundred tons burthen, have been fitted out for this purpose:

Ship AMITY, John Stanton, master,
" COURIER, Wm. Bowne, "
" PACIFIC, Jno. Williams, "
" JAMES MONROE. —— "

And it is the intention of the owners that one of these vessels shall sail from New-York on the 5th, and one from Liverpool on the 1st of every month.

These ships have all been built in New-York, of the best materials, and are coppered and copper fastened. They are known to be remarkably fast sailers, and their accommodations for passengers are uncommonly extensive and commodious. They are all nearly new except the Pacific; she has been some years in the trade, but has been recently thoroughly examined, and is found to be perfectly sound in every respect.

The commanders of them are all men of great experience and activity; and they will do all in their power to render these Packets eligible conveyances for passengers. It is also thought, that the regularity of their times of sailing, and the excellent condition in which they deliver their cargoes, will make them very desirable opportunities for the conveyance of goods.

It is intended that this establishment shall commence by the departure of the JAMES MONROE, from NEW-YORK on the 5th, and the COURIER from LIVERPOOL on the 1st, of First Month (January) next; and one of the vessels will sail at the same periods from each place in every succeeding month.

ISAAC WRIGHT & SON,
FRANCIS THOMPSON,
BENJAMIN MARSHALL,
JEREMIAH THOMPSON.

10mo24

Notice of establishment of the Black Ball Line, printed in *New York Evening Post*, 27 October 1817. (Robert G. Albion, *Square Riggers on Schedule* [Princeton, 1938], p. 23)

too common for the "regular traders" plying between New York and Liverpool to announce that a particular ship would sail on or about a particular date. But, if the hold was only half full, the owner was apt to delay the departure for days and even weeks in hope of more freight earnings. That was a serious annoyance not only to those who had put cargo or mail abroad, but also to those who had booked passage and had to wait, at annoying expense, at a hotel, never sure when the ship might sail.

Thompson, who had come to New York to handle the sales of the woolens manufactured by the family concern in Yorkshire, had felt the annoyance of that easy-going system. He believed that if shippers and passengers could be assured of sailings on a particular day, they would reward the new service with their patronage. There would be the risk of sailing half-full with the loss of extra freight earnings, but Thompson, with his two English associates and the Long Island Quaker, Isaac Wright, had pockets deep enough to be able to take the risk. The line would be a success from the start; rivals would develop, and before long New York had weekly service to Liverpool, in addition to sailings to London and Le Havre.

Like the owners of the former "regular traders," their ships carried their own goods in addition to serving as common carriers. This letter spells out clearly that the Liverpool correspondents would not only ship all their own cargo by Black Ball but would try to persuade their friends to do likewise. Incidentally, a later Black Ball liner was named the *James Cropper* for the Liverpool correspondent.

JEREMIAH THOMPSON'S LETTER

Cropper Benson & Co.
& Rathbone Hodgson & Co.

New York 10 Mo. 18th, 1817

Previously to the receipt of this you may probably have been individually informed that it has been in the contemplation of the owners of the *Amity*, *Pacific* and *Courier* to establish a line of Packets between this place and Liverpool, to sail from each port on a certain day in every Month.–This information is correct:–and they are desirous of carrying the measure into effect without

much further delay.–They are induced to enter into it from a belief, that it may not only be rendered profitable to the Owners of the Vessels, but that they may also be furnished with eligible and regular conveyances for the transportation of their own goods.–

They have therefore purchased the new Ship *James Monroe,* just arrived from your Port, in the expectation that this addition to the three vessels already under their control, will be sufficient to accomplish the proposed object:–Each vessel will be required to complete a voyage in four Months.–

It is almost unnecessary to inform you that each of the Owners will direct all their own goods to be shipped in these Vessels; they will not have a single package in any other Conveyance; and they will probably also be able to prevail upon their friends to give the same directions to their Correspondents in England.–Arrangements will also be made to be regularly provided with Cargoes on this side, so as to occasion as little deviation from the fixed period of departure, as can be effected by the most careful preparation.–

With these advantages, and with the general circulation of a knowledge of this establishment, both in England and in this Country, together with the Vessels themselves, being really of a Superior Class, and the Captains experienced and active, we think there can be but little doubt of the success of the undertaking:–and that both for freight and passengers they will take the lead of any Vessels trading to this Country.–

The undertaking is a new one, and is a matter of some importance to us:–and as, by thus engaging to sail at certain times, great exertions will be necessary to procure Cargoes, we are anxious that the attention of both your Houses should be directed to this object, and that you will cooperate in any measure likely to promote the end we have in view.–

In reference to this subject, we have to observe, that we should think the consignment of these Vessels to your separate Houses, as heretofore, would not be calculated to promote our views.–We think that the establishment should be known in both Countries as one concern.–And in order to give it this character, and to unite the views of the several Owners, we will mention to you, that we should consider it to be the most expedient plan that all the Vessels should be advertised in your joint names, that the business should be understood to be entrusted to your Houses jointly, and that mutual exertions should be used in procuring freight and passengers.–But to avoid unnecessary trouble we think that the Accounts might be kept by our friends Cropper Benson & Co. and the correspondence relating to these Vessels be addressed to, and managed by them.–We suggest the latter from an Idea that this mode will be less inconvenient to you both:–and we have the fullest belief that our friends R. H. & Co. will feel as much interested in furthering the view of the Concern, as if the Correspondence was addressed directly to themselves.–On the subject of the Commissions which you will receive from these Vessels it is scarcely necessary to speak:–you will arrange them as is most agreeable to yourselves:–but we are sure they will be to either of you an object of small consideration.–

We have thus frankly stated to you our opinion of the best mode of conducting the business in your place.–We shall be glad to hear of its being mutually satisfactory to you.–But if, this in not the Case, and you can suggest to us any change therein, calculated to favour our design, you will please to communicate it to us.–

The Shipments of Produce, which we made from here, being generally on our private accounts, will of course be sent to the care of our usual Correspondents as heretofore, except it be the consignment of such bulky articles as are sometimes purchased to fill up the Vessels, which will be

forwarded to the Consignee of the Ships, and included in their Accounts.–

It is our intention that these Ships shall leave New York, full or not full, on the 5th, and Liverpool on the 1st, of every Month throughout the year: –and if it be necessary to employ a Steam Boat to tow them out of the River we wish it to be done.–In respect to the rate of freight, we should think it best never to take under 40s. for measurement goods.–

When the *Courier* left here on the 8th Inst. we had not fully matured this business, but as we wish it to commence in the first month of next year, we think it would be best to bring her immediately into the arrangement, and dispatch her precisely on the 1st day of 1st Mo.–

The *Pacific* will be in good time to take her departure on the 1st of 2 Month, and the others in regular succession.–On this side we shall commence by the departure of *James Monroe,* on the 5th of 1st Mo. the *Amity* on 5th of 2 Mo &c.

You will please to announce in England the establishment of this concern in such way as you may deem most proper: –either by advertisements in the Newspapers, or by Circular Letters, or both.–

We have not yet engaged a Captain for the *James Monroe.*

Having thus full communicated to you our Ideas on this subject, we shall leave the execution of it in England to your careful and vigilant attention.–We are with much regard,

Your Assured friends,

PNester

Isaac Wright & Son
Francis Thompson
Benj^{n} Marshall
Jere^{h} Thompson

• • •

The Shipping Office exhibit opened to the public in June 1966. Furnishings and fittings came from the New York office of Samuel Thompson's Nephew & Co., agents for the Black Star line of Liverpool packets. The collection was given to Mystic Seaport by Wendell P. Colton, Jr., of New York, in memory of his mother, Anne Mason Colton; her father, William P. Mason, was a member of Samuel Thompson's Nephew & Co. Among the materials was a letterbook belonging to Jeremiah Thompson, founder of the famous Black Ball packet line, which contained the letter upon which Dr. Albion based the article above. –*Editor*

MYSTIC SEAPORT MUSEUM: YEARS OF EXPANSION

1955 *Morgan* hold opened and exhibit installed below decks.
Summer–First session of the Munson Institute of American Maritime History.
Summer–Exhibits "activated" with live attendants: beginning of live interpretation at Mystic Seaport.
20 August–Annual Meeting, postponed from 13 August by hurricane. Dedication of Aloha Meeting House, named for yacht of Arthur Curtiss James, early Seaport member and benefactor; dedication of Hobey's Dock.
4 watercraft acquired this year.
Attendance 84,707 paid (including 18,485 children), 13,097 free.
Membership now 4,554.

1956 "Main Building," now Clift Block, moved to present site on Village Green and rebuilt to act as part of Seaport Store.
19 May–Schaefer Spouter Tavern opened. Sponsored by F. & M. Schaefer Brewing Co.
Bartram Building, memorial to early member Rensselaer W. Bartram, built to house the Curatorial Department.
July-August–1,047 boats visit Museum.
3 watercraft acquired this year.
Attendance 144,468: 94,366 Adult, 44,247 Children (including 22,000 in school groups), 5,855 free.
Admission: $1.00 Adults, $1.25 Summer; 25¢ Children.
Membership now 5,106.

1957 Spring–*L. A. Dunton* Associates approach Seaport to urge preservation of fishing schooner *L. A. Dunton* at Mystic Seaport.
1 May–Charles A. Brooks named General Manager.
North Yacht Basin completed.
Evidence of *Morgan* stern windows, hidden since 1890s, discovered. Windows and original stern decoration replaced.
Marine railway built on Shipyard Point.
19 July–Annual Meeting. Celebration of *Joseph Conrad* 75th Anniversary, including speech by Alan Villiers.
Inauguration of "Mystic Seaport Pilot," predecessor of "Daily Events" handout.
Mystic Seaport now has 45 buildings.
5 watercraft acquired this year.
Staff now 60 full-time.
Attendance 168,526.
Admission: $1.50 Adults, 25¢ Children.
Membership now 5,559.

1958 Buildings moved from south of present Shipyard for boat shop and Shipyard Office exhibit.
Noyes Memorial Building constructed to house large models.
Main entrance moved to present South Gate, formerly traffic exit.
Annual Meeting–Dedication of Pugsley Clock Shop and *Seminole* figurehead.
Weaving begins in Edwards House.
Beginning of Mystic Scale Model.
1 watercraft acquired this year.
Attendance 221,267.
Admission: $1.50 Adults, 50¢ children.
Membership now about 5,700.

1959 February–Trustees decide to purchase Arctic exploration schooner *Bowdoin*.
Spring–South parking lot opened, replacing parking area on present Village Green. This is first attempt to preserve period mood by isolating Museum from auto traffic.
June–Planetarium construction begun.
27 June–*Bowdoin* arrives.
September–Arrival of Chesapeake bugeye *Dorothy A. Parsons*.
Testing of fiberglass coating to protect bottom of *Joseph Conrad* from electrolytic deterioration.
9 watercraft acquired this year.
Staff now 90 full-time.
Attendance 247,373 paid.
Membership now 6,060.

1960 1 April–B. MacDonald Steers retires as Secretary of MHA and Editor of *The Log of Mystic Seaport*.
Joseph Conrad taken to Thames Shipyard, New London, for application of fiberglass to her bottom.

14 May–Planetarium opens.
John F. Leavitt joins Museum as *Morgan* shipkeeper.
Mystic River Diorama (scale model) building built.
August–Beginning of construction of Youth Training Building through Latouche bequest.
September–Hurricane Donna.
Fall–North Entrance (now lane in front of Planetarium) reopens; Seaport now has two entrances.
240 volunteers give 5,000 hours this year.
5 watercraft acquired this year.
Attendance 207,934 paid.
Admission: $2.00 Adults, 50¢ Children.
Membership now 6,552.

1961 Year of "consolidation" because of drop in attendance in 1960.
1 January–Franklin Cole succeeds Philip R. Mallory as President of MHA. Mallory had served for 20 years.
Completion of Mystic River Diorama.
21 July–Annual Meeting. Rededication of *Morgan* after eleven-year restoration project. Dedication of Theodora Griffis Latouche Youth Training Building.
Admiral Byrd exhibit assembled.
Plans made for new Seaport library building.
September–Baltic Ketch *Gundel* presented to serve as housing for Mariner Training Program during *Australia* restoration.
Fall–*Australia* hauled to have bottom rebuilt.
Fall–Beginning of local school sailing classes, fall and spring.
7 watercraft acquired this year.
Attendance 246,688.
Membership now 7,011. Family membership category instituted.

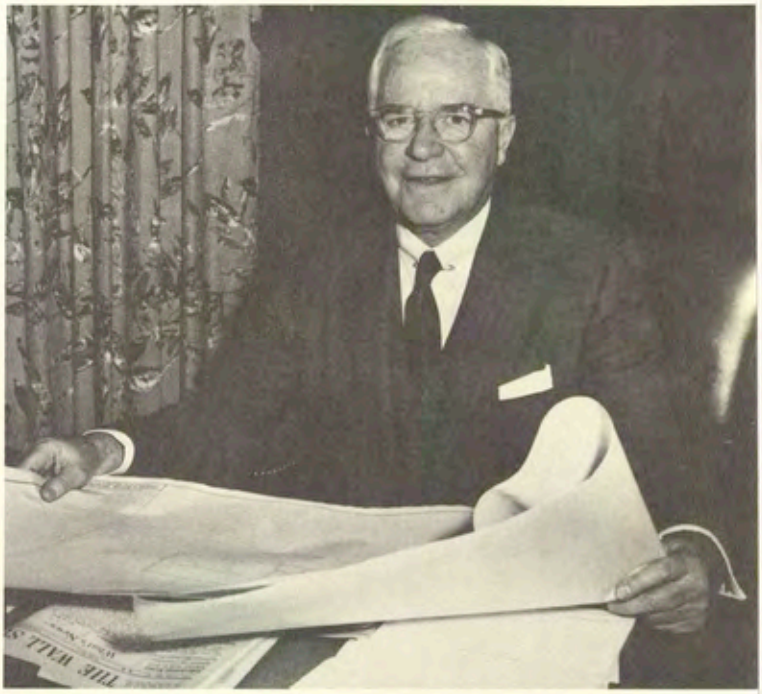
1962 Capt. Francis "Biff" Bowker replaces Capt. Adrian Lane as skipper of *Brilliant*.
1 May–Oliver Denison III appointed Secretary as well as Assistant Treasurer.
Robert Damm replaces Marion Dickerman as Director of Education. Miss Dickerman had headed the department for 16 years.
Opening of Doctor's Office, Hoop Shop, Print Shop, and Weave Shop exhibits.
1 watercraft acquired this year.
Attendance 304,856.
Membership now 7,320.

1963 Seaport Store moved temporarily next to Clift Block.
Membership Building construction begins on original site of Seaport Store.
Utility Building built; former operations building opened as Variety Store.
Exhibit activation transferred to Education Department; men costumed for the first time.
September–MHA purchases *L. A. Dunton* in Grand Bank, Newfoundland.
October–*L. A. Dunton* brought to New London, Conn. for restoration work.
October–Work begun on Seamen's Inne.
Library now has 10,646 books, 1,628 periodicals, and 68,614 manuscripts.
11 watercraft acquired this year.
Staff now 120 full-time, 166 summer.
280 Volunteers give 8,000 hours this year.
Attendance 334,308.
Membership now 8,016.

1964 17 March–*L. A. Dunton* arrives at Seaport.
March–ground breaking for G. W. Blunt White Library.
Cooperage exhibit opens.
Almost 3,000 visiting boats tie up at Seaport during the summer.
12 September–Seamen's Inne opens to the public with cafeteria service in River Room.
December–dining room service begins in Seamen's Inne.
5 watercraft acquired this year.
Attendance 345,959.
Membership now 9,146.

1965 Plans of Seaport watercraft become available for sale.
March–opening of Mildred C. Mallory Memorial Membership Building.
20 August–Annual Meeting. Dedication of G. W. Blunt White Library.
1 September–Waldo C. M. Johnston becomes Director and Chief Executive Officer of the Museum.
Seaport Store moved to south entrance and construction begun on enlargement.
8 watercraft acquired this year.
Attendance about 372,000.
Membership 10,471.





Above, left: Charles A. Brooks brought a business background to the Seaport when he became Business Manager in March 1949. In 1957 his position was changed to General Manager, with responsibility for day-to-day operation of the Museum. He was named Managing Director in August 1964 and in 1966 became Chief Executive Officer of the Seaport Stores, which he had helped organize in 1949. Brooks retired from Mystic Seaport in 1966. (Seaport Photo Archives). *Above, right:* Franklin Cole (1897-1968), who operated an investment advisory firm in New York City, served as fourth President of The Marine Historical Association from 1961 to 1966, overseeing the large building program of 1963-65. He had joined in 1943, was named a trustee in 1950, and Treasurer in 1958. (Seaport Photo Archives). *Right:* Edwin Pugsley (1885-1975) joined the Marine Historical Association in 1942. He was selected as a trustee in 1946 and Vice President in 1952. An inveterate collector, he presented many artifacts, including his clock collection, put on exhibit in 1958. (Seaport Photo Archives)



Below: Arctic exploration schooner *Bowdoin* arrives at Mystic Seaport, 27 June 1959, welcomed by a Coast Guard band. Built at East Boothbay, Maine, in 1921, *Bowdoin* was used by Rear Admiral Donald B. MacMillian for almost forty years to make summer trips to the Arctic. *Bowdoin* was later purchased from the Seaport by Schooner *Bowdoin* Associates, Inc. in April 1968, and taken to Camden, Maine, where she now sails on Penobscot Bay. (Seaport Photo Archives). *Bottom:* Robert Morse and Gerard Aycrigg "plant grass" on the Mystic River Diorama (scale model). Morse sifts steel wool fibers onto the prepared surface while Aycrigg holds a magnet beneath the table to stand the fibers on end. After a coat of spray paint has dried on them the fibers remain standing as miniature grass. The scale model opened in 1960, sponsored by Harold H. Kynett, trustee and Life member. (Seaport Photo Archives)







Left: John F. Leavitt (1905-1974) served on coasting schooners for seven years, worked for several newspapers, and spent many years as a yacht broker before coming to Mystic Seaport as shipkeeper for the *Charles W. Morgan* in 1960. From 1966 until his death in 1974 he served as Associate Curator. He was well known as a marine artist and for his wealth of information on New England shipping. While at Mystic Seaport, he produced two books, *Wake of the Coasters* (1971) and *The Charles W. Morgan* (1973). (Courtesy of Mrs. John F. Leavitt). *Below:* Mystic Seaport has weathered many hurricanes. Severe ones struck in 1938, 1954, and 1960. In 1954 Hurricane Carol sent the Mystic River high out of its banks, surrounding the *Morgan* and flooding the grounds. (Seaport Photo Archives)





The Planetarium was an inspiration of trustee Edwin Pugsley in 1954. Designed by Rogers and Butler, the Planetarium was begun in June 1959 and completed in April 1960. Frederic W. Keator (1896-1974), a retired engineering professor from Yale University, helped plan the interior and served as Planetarium Director, 1960-'65. He developed the astronomy and celestial navigation courses which are still offered in the Planetarium. Donald Treworgy, who became a member of the Planetarium summer staff in 1961, has been Planetarium Director since Dr. Keator's retirement. (Seaport Photo Archives)



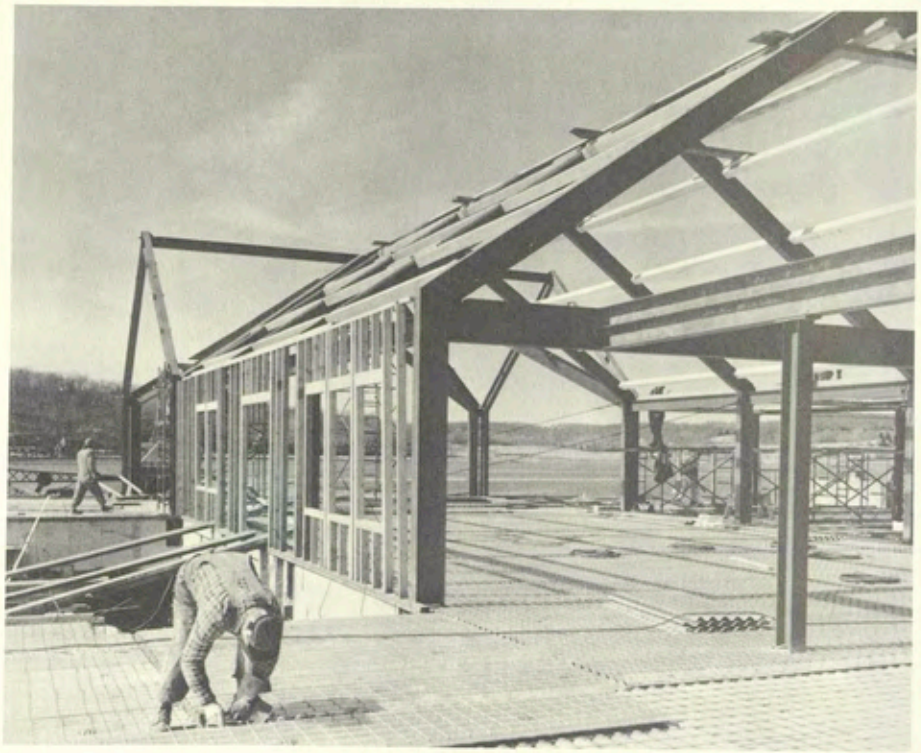
G. W. Blunt White (1895-1962) claiming the fourth annual Dyer Dhow Derby trophy for the Cruising Club of America, 1953. A Seaport member and trustee since 1942, G. W. Blunt White served as Treasurer, 1948-'52, and Executive Vice President, 1955-'62. Upon is death the new Seaport library was named in his honor.

Below: Capt. Francis "Biff" Bowker holds four sea scouts to their course on *Brilliant*, 1963. Weekly summer cruises with ten advanced Mariners began aboard *Brilliant* in 1953. Capt. Adrian Lane commanded her for the first eight years. Capt. Bowker, who had served in coasting schooners early in his career, came to *Brilliant* as mate in 1960 and has been skipper since 1962. (Seaport Photo Archives). *Bottom:* The Mildred C. Mallory Membership Building was named as a memorial to Mrs. Mallory, who had contributed significantly to the membership and volunteer programs at the Museum. The design by Rogers and Butler incorporated the stone lower story of a nineteenth-century Mystic house demolished by the 1938 hurricane. The Membership Building was built on the original site of the Seaport Store in 1963, and opened in 1965. (Seaport Photo Archives)









Facing page, top: Activation–staffing of exhibits with live interpreters–began in the summer of 1955. Within a few years, "activists," who were mostly local retired persons, worked year round. Women were costumed early but it was not until 1963 that period clothing became available for men. This group of activists sits in the game room of the Schaefer Spouter Tavern, opened in 1956. (Seaport Photo Archives)

Facing page, bottom: The Seamen's Inne rises in March 1964. Planned as part of a large-scale project to improve visitor services at the Museum, the Inne was designed by Charles H. Detwiller, Jr. and William F. Hermann, Jr. in 1963. The name Seamen's Inne came from a tavern sign presented to the Museum in 1956. (Seaport Photo Archives)

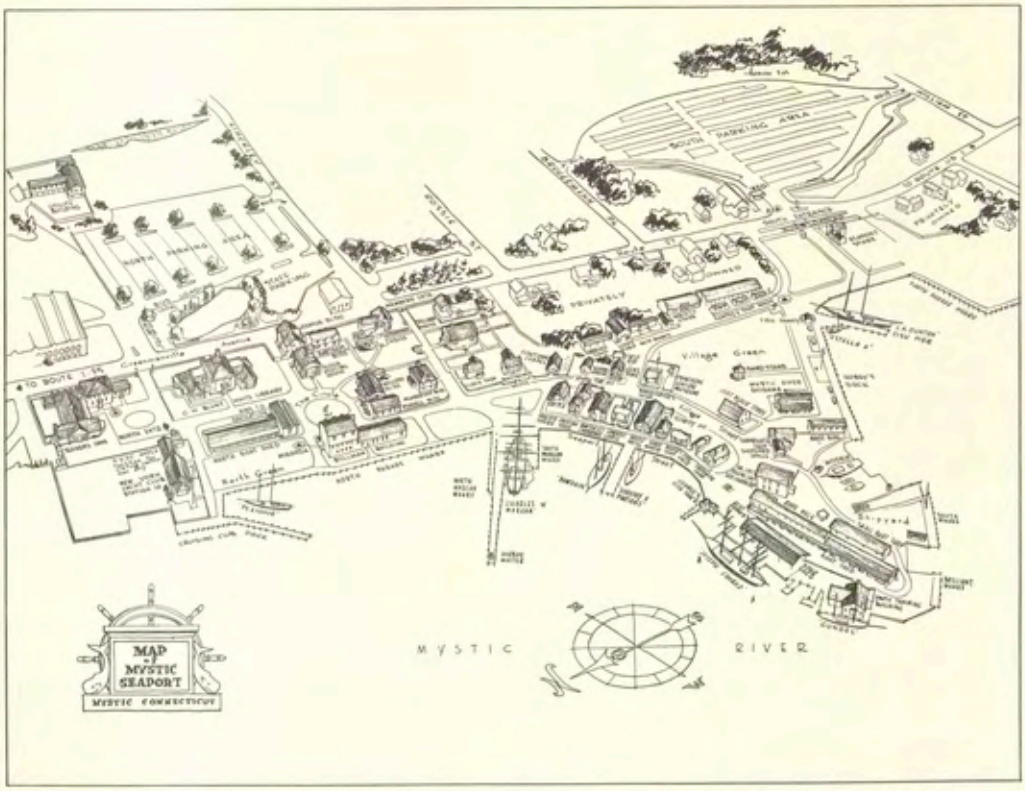
Below: The *L. A. Dunton* arrived at Thames Shipyard, New London, Connecticut from Newfoundland, in October 1963. With a ketch rig, diesel engine, shortened stern, pilothouse, and without a bowsprit, her New England sailing schooner origins were hidden under the appearance of a Canadian fishing vessel. (Photo by Louis S. Martel). She arrived at Mystic in March 1964 with her counter stern replaced and pilothouse removed, looking again like a 1921 fishing schooner. Rerigged as a schooner at the Seaport in April, she moved to her permanent berth in May and was opened to the public in June 1964.





Right: Dedication of the G. W. Blunt White Library in August 1965 brought back two early staff members: Carl Cutler and Marion Dickerman. Miss Dickerman, teacher, author, and protégée of Eleanor Roosevelt, agreed to organize the Education Department in 1946. Although she expected to remain only a few months, it was sixteen years before she stepped down as Educational Director. Subsequently, she served as Assistant to the President of the MHA and Educational Advisor until resigning in 1968. (Seaport Photo Archives). *Below:* Shipyard Point from the *Morgan*'s hoops, 1964. The *Bowdoin*, bugeye *Dorothy A. Parsons*, and Cape Cod Catboat *Frances* are moored in the foreground. The *Australia* is ashore for restoration (left), having been replaced in the Mariner Training Program by the *Gundel* (astern of the *Joseph Conrad*). (Seaport Photo Archives)





Top: The Wendell Building exhibit changed only slightly during the 1950s and early '60s. About 1965, steamship models, illustrations, and half models filled the north end of the building. (Seaport Photo Archives). *Bottom:* Mystic Seaport in 1965.

BOOK REVIEWS

Shanties from the Seven Seas. By Stan Hugill. (London: Routledge, Kegan, Paul, 1965. Reprint, 1980. 604 pp. Illustrations, glossary, bibliography, index. $30.00.)

It was with great pleasure that we received word from the publishers that Stan Hugill's landmark masterpiece is to be reissued this spring. Originally published in 1965 but out of print for several years, this splendid tome, expertly illustrated by the author, is one of the most comprehensive and authoritative of the many collections of sailors' songs published over the past nine decades. In sheer volume alone it is certainly the most monumental, providing a consistently fascinating text and a lifetime's worth of material for the amateur or professional folksinger, maritime historian, folklorist, or literary critic.

"Shanties" or "chanteys" are the shipboard worksongs of the Age of Sail, fashioned at sea by common foremast hands in British and American ships and passed down through oral tradition. Like the great merchant sailing vessels themselves, chanteys enjoyed a spectacular heyday in the mid-nineteenth century, during the post-Napoleonic boom in international commerce, until steam power eclipsed their utility. After the 1860s and '70s, as human labor was gradually supplanted by donkey engines and power winches in weighing anchor, pumping bilges, hoisting sail, and loading cargo, chanteys became increasingly obsolete. By the 1930s, they had become even more rare than the merchant sailing ships. But far from having been lost to future generations, men like Hugill–who was the last chanteyman to serve aboard a British square-rigger (1929)–have been keeping them alive, through books, recordings, performances, and demonstrations. At present, thanks to Mystic Seaport and a host of maritime museums, folksong societies, individual musicians, and scholars in the British Isles and America, there is a significant revival of interest in traditional sea songs and chanteys, in light of which the reappearance of *Shanties from the Seven Seas* is most welcome and timely.

The earliest collections of sea chanteys appeared only after the tradition was already in decline. An unannotated anthology by J. Davis and Ferris Tozer (London, 1887) presents many genuine chanteys and tunes, but explains nothing of their origin or use. A more ambitious attempt by Laura A. Smith (London, 1888) is quaintly ornamental, but suffers from the amateur Victorian antiquarian's unfamiliarity with the seafaring life, and several serious flaws in scholarship. It was not until Captain W. B. Whall's collection (Glasgow, 1910) that anyone intimately acquainted with sea chanteys in their original shipboard context put a hand to preserving the songs for posterity. His fine but jingoistic anthology is one of very few authoritative texts to remain in print today.

The first important American collections appeared more than a decade later. Joanna C. Colcord, daughter of a Down East shipmaster from Searsport and sister of sea writer Lincoln Colcord, grew up in the Maine-built Cape Horn traders of the 1880s and '90s. Her anthology, entitled *Roll and Go* (Indianapolis, 1924; reissued as *Songs of the American Sailormen*, New York, 1938), remains the outstanding Yankee classic. While Captain Frederick Pease Harlow's *Chanteying Aboard American Ships* did not appear until 1962 (Barre, Mass.), his narrative of a voyage in the Boston ship *Akbar* in 1874, entitled *The Making of a Sailor* (Salem, Mass., 1928), contains a wealth of chanteys and songs, complete with excellent musical notation, and vivid descriptions of their use and the men who sang them. (In the sense that he collected these songs at sea in the 1870s, Harlow's is the earliest authoritative anthology.)

In the intervening years, chanteys have frequently been influentially featured in the cultural limelight. Poet Laureate John Masefield was notoriously fond of chanteys, incorporating them into several anthologies of sea poetry; Able Bodied Seaman and square-rig veteran Eugene O'Neill, whose frequent use of sea imagery in his major plays is an outstanding feature of his dramaturgy, employed chanteys symbolically in much of his work for the stage; Ralph Vaughan Williams and countless other serious and popular composers, arrangers, and songbook editors have continued in the spirit of collecting traditional materials, or have adapted (or, in many cases, pillaged) sea chanteys for symphony and

pops orchestras, radio, or grammar school glee clubs. Other significant anthologies have emerged, most notably those by David Bone (Edinburgh, 1931), William Main Doerflinger (New York, 1951 and 1972), Gale Huntington, and Stan Hugill.

Hugill, denizen of the forecastle since early youth and, in later years, deckhand, sometime coal stoker, Outward Bound sailing instructor, marine painter, folk-club performer, adviser to the National Maritime Museum in Greenwich, and *raconteur par excellence*, arises from the ship-bred traditions of an international community of common sailors. His riotously authoritative *Sailortown* presents a sailor's-eye-view of the seaports of the world, delivered up with singular wit and style (any serious study that features on the dust-jacket an advertisement for a Yokohama brothel can't be all bad!). His books, including three others on chanteys and sailor songs, and his *ad hoc* lectures–which he will deliver at the drop of a watch cap, anywhere in the world, to anyone who will have him (and most will)–are peppered with the sailor-lingo and folk-etymology of every seafaring nation and race known to man (Stan speaks the sailor *patois* of virtually every seaport on the terraqueous globe, from Marseilles to Macao). Of all its precursors and successors, *Shanties from the Seven Seas* is the most delightful, if only for this reason: the extraordinary range of experience, immense self-educated wisdom and knowledge, and irrepressibly fascinating personality of the author/editor/illustrator. Hugill, now in his mid seventies, lives in Aberdovey, Wales, does regular concert-and-workshop tours on the East and West coasts each year, and has made some excellent recordings of his songs and yarns (the most recent of which was recorded aboard the *Cutty Sark* in Greenwich). We recommend all of them. This book is no substitute for Stan Hugill in person; but it comes mighty close, and contains more delectable songs and tidbits than even Stan can remember and deliver up in one session.

Stuart M. Frank
Lecturer in Literature
Munson Institute, M.S.M.

[Mystic Seaport Museum will hold a concert, symposium, and festival on Traditional Music of the Sea, 13-15 June 1980. For information, write *Festival*, Mystic Seaport Museum, Mystic, Conn. 06355, or call (203) 536-2631.]

The Spray–Building and Sailing a Replica of Joshua Slocum's Famous vessel. By R. D. Culler. (Camden, Me.: International Marine Publishing Co., 1978. 132 pp. Forty-nine photographs, four drawings, index. $9.95.)

R. D. (Pete) Culler built a copy of Capt. Joshua Slocum's *Spray* in 1930, and lived aboard, chartering the vessel on the East Coast, for twenty-three years. he and his wife Toni then moved ashore in New England where he concentrated on designing and building beautiful sailboats, becoming a legend in his own time.

Throughout his book, Culler often tempers his reminiscences with comments like, "I am still not adjusted to today's concept that you must do it all the hard and expensive way because some agency wants to protect you from yourself," or "Life aboard boats has changed quite a bit since my day."

His thinking is erroneous. It *is* still possible, in the 1970s to build a traditional copy of *Spray*–to go out into the woods and cut down the trees, to build a strong wooden hull, to rig her simply with nineteenth-century gear, and to have a successful, interesting, and satisfying life afloat. I know, because my husband, our three children, and I did just that, building *Scud*, a copy of *Spray*, in our side yard and sailing her around the world in 1973-78.

We sailed 35,000 miles without an engine, a winch, electric lights, refrigeration, electronic gear, or even a head. Our only concessions to the twentieth century were synthetic line, Dacron sails, a fiberglassed plywood deck and a radio receiver. Slocum's thoughts, Culler's thoughts, and our thoughts are the same–keep things simple. A sound, strong hull and rig, gaff sails, fisherman anchors, deadeyes and lanyards, handy billies, anchor burtons, and a plain old vernier sextant can carry you safely anywhere, provided the skipper is careful and has common sense.

Culler knows this. His book exudes this philosophy. In his folksy way, he knocks those who cannot exist without mechanical or electronic devices, who would "sooner drive ashore than pump a windlass," or who "build [a little ship] that is too small because [they] invested [their] money in every mechanical gadget now considered necessary."

Culler opens his book with a discussion of the aspects of Slocum's *Spray* which drew him to her

design–self-steering ability, simplicity, low cost, large capacity, and sea-keeping ability–all of which are as valid today as they were in 1930.

"How does she sail? How does she go to windward?" The two most common questions asked of a *Spray* owner are dismissed by Culler in his answer, "About like any coaster." Any good coaster or any good cruising boat works the wind systems, waits for favorable slants, and does not go charging out into a headwind–it's too tiring on the crew. *Spray* is fast with a favorable wind (we clocked 185 miles per day on two days in the Pacific). She "could put up one hell of a battle on a lee shore, and when things got really hairy, she could out-carry any yacht type she met," Culler wrote, and we found the same. *Spray,* Culler concludes, is a seaboat. "She has a stout build and therefore is dry below, has room for all you need, has gear both on deck and below to cope with all conditions, has tools to make repairs, and has a motion you can live with."

He then proceeds to describe, clearly and in detail, the layout, and the equipment and the gear he carried aboard his *Spray* in order to keep her a good seaboat. Ground tackle, the simple self-steering gear, the yawlboat, sails, rigging, and stores are discussed matter-of-factly in Culler's easy-to-read style. His self-reliance, competence, and common sense come through in his writings, especially when he explains his reasons for preferring the traditional paints, gear, and fittings he used. He does question, somewhat sadly, whether his reasons are still valid today. They are, and would-be live-aboarders could do worse than to heed his advice.

He counsels people who are considering a life afloat, "to do it when you can. And be sure to do it when you are young enough.... Keep in mind, however, that the sea does not change, and in spite of much dogma otherwise, a sea-keeping vessel's design has not changed much in a hundred years–in fact, many today are not as good as some of the round old things of the past."

It is difficult to go against current thought and practice in any field. Perhaps Pete Culler's book will give some people the courage to think back-to-basics, to disagree with current yacht racing practice, and to be self-reliant and able to enjoy the simple pleasures of living afloat in style.

As Culler wrote, "Looking back on our life with the *Spray,* we could have done better (and maybe not enjoyed it so much). All things considered, we did not do badly. The vessel herself? I think she was plain majestic."

(Note: Pete Culler's *Spray* is still sailing and inspiring others. After Culler sold her in the 1950s, she was sailed in the West Indies for several years, spent time in Colombia, passed through the Panama Canal in 1974 and sailed up to California where she was being refurbished. In Australia in 1977 we saw photos of Culler's *Spray* taken in San Francisco by another *Spray*-copy builder who wanted ideas for the rigging and gear for his own boat.)

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Colin Archer and the Seaworthy Double Ender. By John Leather (Camden, Me.: International Marine Publishing Co., 1979. 167 pp. Illustrations and plans, appendices, index. $17.50.)
Saga of Direction: A Cruising Cutter's First Fifty Years. By Charles H. Vilas. (New York: Seven Seas Press, 1978. 217 pp. Illustrations and plans, index. $12.95.)

I first heard of John Leather in connection with the Old Gaffers Association. Next I explored his admirable and useful *Gaff Rig,* and since then I have seen a few very appealing designs for small cruisers from his hand. When *Colin Archer* came up for review I grabbed it, partly because of Leather, and partly because of a casual twenty-seven-year aquaintance with *Direction,* a Colin Archer design. A delighted perusal of Vilas's book about her in 1978 had whetted my appetite for more. Leather gave me more–a fine text, well illustrated with plans and pictures–and had me falling to, gluttonously, to get it all.

The book is built around Archer and the boats he designed and often built: pilot boats, rescue vessels, fishing boats, yachts, and the polar vessel *Fram.* A surprising number of these survive. Examples are the yacht *Velsia,* 1890, still sailing; the rescue vessel *Colin Archer,* 1893, also sailing; and *Fram* herself, built in 1892.

Leather also deals with notable cruises in Colin Archer types, such as those of Ralph Stock, Wm. Washburn Nutting, German Frers, Erling Tambs, Arthur Allen and Rockwell Kent, Alain Gerbault, and Vito Dumas, the circumnavigator. He also goes into a number of designs growing out of the Archer tradition, notably those of William and John Atkin, Frers, Manuel Campos,

and William Garden. For modern day examples, he discusses Nelson Zimmer's North Sea ketch and his own delightful little pilot boat, not to mention the plastic Westsail 32 (a 1934 Atkin design) and the Swedish Colin Archer Club's rentable mould for building your own boat.

Leather's presentation is straightforward, well-organized and clear. His plans and photographs are well-married to the text. It looks like a great book to hunker down with for a few winter evenings to tease out some of the ways in which this tradition has developed.

But gradually one becomes uneasy. Writers are quoted at length but sources are usually not given in the text, nor is there a bibliography or a list of illustrations or plans, which would be extremely helpful for the reference and cross-reference which such a book encourages. There are also inaccuracies in the paraphrasing of material which can lead the reader to false conclusions. On pages 101 and 102, in the first three paragraphs he comes up with at least five inaccurate statements about Rockwell Kent and *Direction*, affecting the design and ownership of the vessel and Kent's position in planning the voyage (he was an afterthought). Such faults hurt the serious use of the book and keep it from being the definitive work I had hoped it would be.

Fortunately, some of the source material for Leather's work, both on Archer and some of the boats, designers, and people affected by him, can be found in *Saga of Direction*, which is surely one of the Delectable Mountains. It feeds everything it touches. It drove me back to Kent's *N by E*, to William Atkin's *Of Yachts and Men*, and to L. Francis Herreshoff's *The Compleat Cruiser*, which last ignores Archer but speaks to Vilas's own approach to cruising.

Vilas gives us the stuff of *Direction*'s design, building, outfitting, crewing, wrecking on the coast of Greenland, her rebuilding by the Greenlanders, and return to the States and Nova Scotia. He details the thirty years of intelligent love through which he turned a topheavy, cranky, leewardly, seakeeping bucket into a boat he *could* sail around the world in. A boat which, though he must be in his seventies now, he single hands routinely about the Bras d'Or lakes of Nova Scotia.

The book includes the sagas of *Direction*'s voyages, the people involved with her from Archer on down, memorabilia of her long career, and, very importantly, a section on *Direction* today, providing some of the philosophy, know-how and wisdom (three different sorts of things) which make it possible to live successfully with, and to improve and refine and simpify, a vessel over thirty years. His self-tending, roller-furling, club-footed staysail and his "micrometer adjustable automatic pilot" (an intelligently conceived tiller-line) alone are worth the price.

Illustration is copious: woodcuts by Kent, sketches and line drawings by Margaret van Pelt Vilas, photographs, maps and charts. They are listed so that they can be found easily, and are properly credited and documented, as are all written materials in the work as far as I can establish. It is a book not just to read, but to go back to, and its relevance transcends both *Direction* herself and Colin Archer's vessels.

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Tools of the Maritime Trades. By John E. Horsley. (Camden, Maine: International Marine Publishing Company, 1978. 304 pp., Illustrations, appendices, bibliography, index. $15.00.)

The tools of early crafts and trades have been a subject of interest to individual collectors as well as museums for a number of decades, and have gradually developed a substantial literature of their own. Least familiar among these are the tools of the maritime trades. They have not been as readily available or identifiable, and few museums on either side of the Atlantic can boast a respectable representation in this category. These tools are most often found lying neglected in the collections of small historical societies or local museums of maritime communities where ship and boat building had once been the primary occupation, and even then their function is not always readily identified. A survey of the growing literature on the arts, crafts, and trades and their tools makes these tools notable by the absence of adequate descriptive material.

Horsley's work for the first time provides a comprehensive catalogue of most of the tools of the maritime trades, with ample description and excellent detailed drawings of each of them.

The author introduces the subject with a brief survey of the tools and practices of ship and boat building from the earliest period of man's preoccupation with water travel. However, he is

mainly concerned with tools used from the beginning of the nineteenth century. Although the basis of Horsley's work is England, he nevertheless includes descriptions and illustrations of American tools and practices when appropriate. Although intending to produce a catalogue of tools, the author succeeds in conveying the color and sense of the industry through lively images of the master shipbuilders who, with their impressive skills, built and outfitted the ships which gave Britain rule of the seas for centuries.

The volume is divided into nine major segments, beginning with early tools, workshops and premises, and timber and sawing. The evolution of ship and boatbuilding tools is traced from man's early use of stone and then metal, through the Egyptian, Greek and Roman, Viking, and Saxon periods. This is followed by a discussion of where and how ships were constructed, including the selection of sites for shipyards, construction of sawpits, shipyard or boatyard buildings, ropewalks, and the shops of metal workers and other trades. Careful attention is given to the role of timber and its preparation, the formation of log ponds, and the tools for sawing. Chapters on the individual major trades of shipbuilding include the shipwright, sailmaker and rigger; ropemaker; block, spar, and pump maker; blacksmith, shipsmith, and anchorsmith. Finally the author deals with the lesser trades, including barking, basketmaking, cooperage, and tinsmithing.

A series of appendices provide descriptions of the individual materials, including timber, sailcloth, rope materials, cooper's barrels, and basketry. A selected bibliography and a full index complete the work.

Even such relatively remote subjects as the half model, the visual presentation of the draftsman's plan, are discussed. Plans were in fact little used in old shipyards and the hull of a wooden ship was built from a half model (they were used only for measuring shell plating in metal ships). The lines of the model, after they had been modified and approved by the owner, were lifted off and translated in terms of the full-size vessel in the mould loft. The half model forms most commonly used, the block, lift, and bracket models, are well described and illustrated.

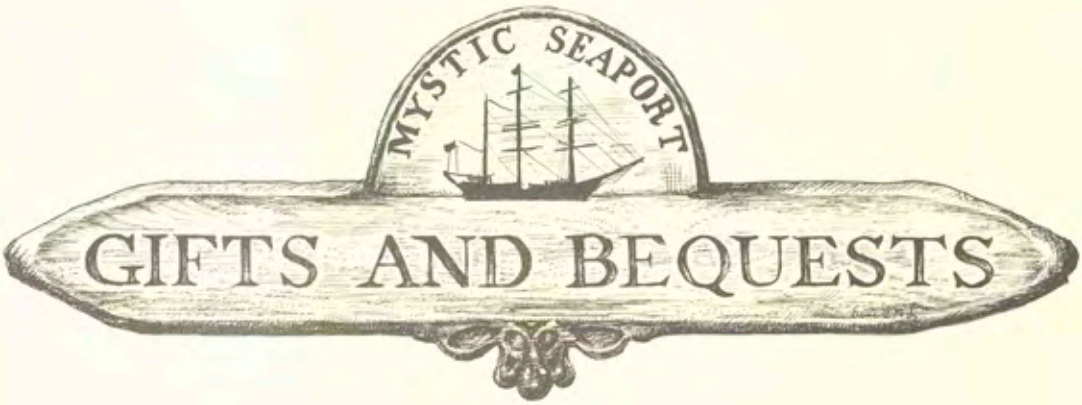
A feature of this work deserving particular mention is the body of illustrations. In addition to some 15 rare photographs of English shipyards and craftsmen at work in the nineteenth and early twentieth century, the work includes 129 plates totalling over 600 drawings, depicting single tools or even families of tools described in the text, each adequately captioned. The drawings are executed with meticulous precision of detail and in themselves constitute an illustrative encyclopedia of the tools of the maritime trades which is, at the same time, informative and charming.

Prior to the present work there has been no single source to provide the information that Horsley has so painstakingly assembled. Even elder craftsmen who had spent a lifetime working in the shipyards were generally familiar only with those tools relating to their own specialized occupation.

John E. Horsley comes to the subject naturally, having spent almost twenty years working in a shipyard in western England. Beginning originally with a study of tools collected in the Brixham Museum, of which he was co-founder and for a time honorary curator, Horsley was forced to pursue his research further afield in order to encompass the entire subject. His published work is based not only on intimate study of the available literature, but is derived in large part from taped interviews with many of the old craftsmen of Dartmouth, Brixham, Salcombe, Falmouth, Plymouth, and Teignmouth, some of whom he had known when employed in the shipyards.

The production of this book is a modest service to posterity, for it preserves much knowledge of the nature and purpose of the tools of the maritime trades, and of the craftsmen who used them, which would otherwise have been neglected and lost. It is a valuable resource for marine historians and students, tool collectors, and for anyone interested in ships and sailing.

Silvio A. Bedini
Keeper of the Rare Books
Smithsonian Institution



GIFTS AND BEQUESTS

The development of the museum–the buildings, ships and wharves, the exhibits, books and manuscripts–give eloquent testimony to the generosity of members and other friends of Mystic Seaport Museum. There are continuing opportunities for gifts and bequests which will help assure its future strength and development.

Members of the Seaport who have not already done so are urged to perpetuate their interest in the work of the museum through a bequest. Some members will want to make a specific bequest while others may want to designate Mystic Seaport Museum as a residuary or contingent beneficiary of all or a portion of their estate.

Mystic Seaport Museum is a nonprofit institution publicly supported by gifts and grants. Contributions are deductible within legal limits for Federal income tax purposes. Inquiries regarding gifts and bequests are encouraged and may be directed to the Director of Resource Development.

SUGGESTED FORMS FOR BEQUESTS

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I give and bequeath to Mystic Seaport Museum, Inc., a corporation existing under and by virtue of a charter granted by the State of Connecticut, and located in Mystic (Town of Stonington) in said State, $ . . . . . , to be used (or the net income to be used) at the discretion of the Trustees of said Corporation.

Residuary

All the rest, residue, and remainder of my real and personal estate I devise and bequeath to Mystic Seaport Museum, Inc., a corporation existing under and by virtue of a charter granted by the State of Connecticut, and located in Mystic (Town of Stonington) in said State, said estate to be used (or the net income to be used) at the discretion of the Trustees of said Corporation.



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