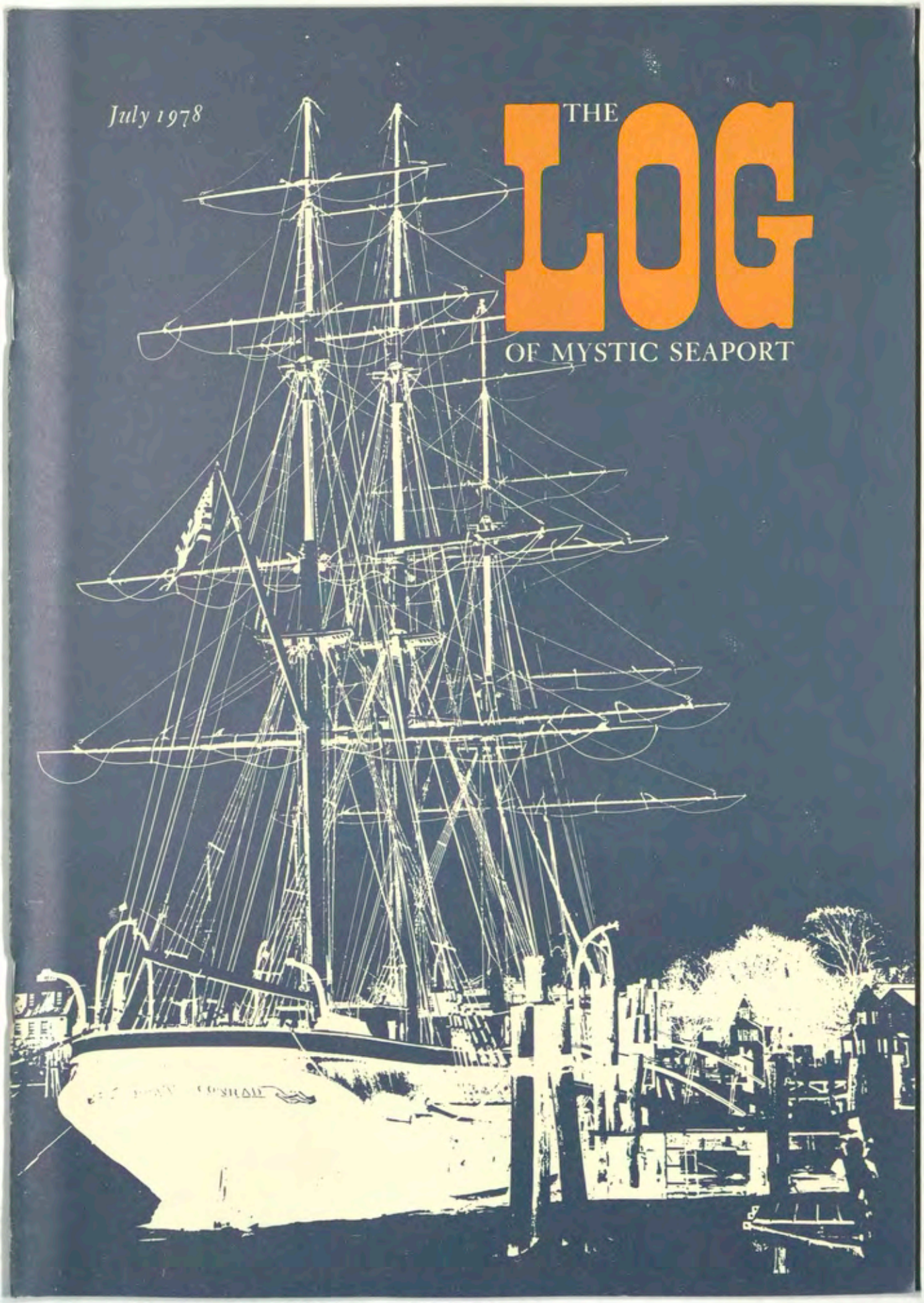
July 1978

THE LOG OF MYSTIC SEAPORT



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FRONT COVER: *The ship* Joseph Conrad *at her berth at Mystic Seaport.*

FACING PAGE: *Pen and ink drawing of the* Joseph Conrad *by John F. Leavitt. (75.170)*

BACK COVER: New England and The Sea, *which was officially opened on May 19th, is attracting a steady stream of visitors and staff.*

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OF MYSTIC SEAPORT

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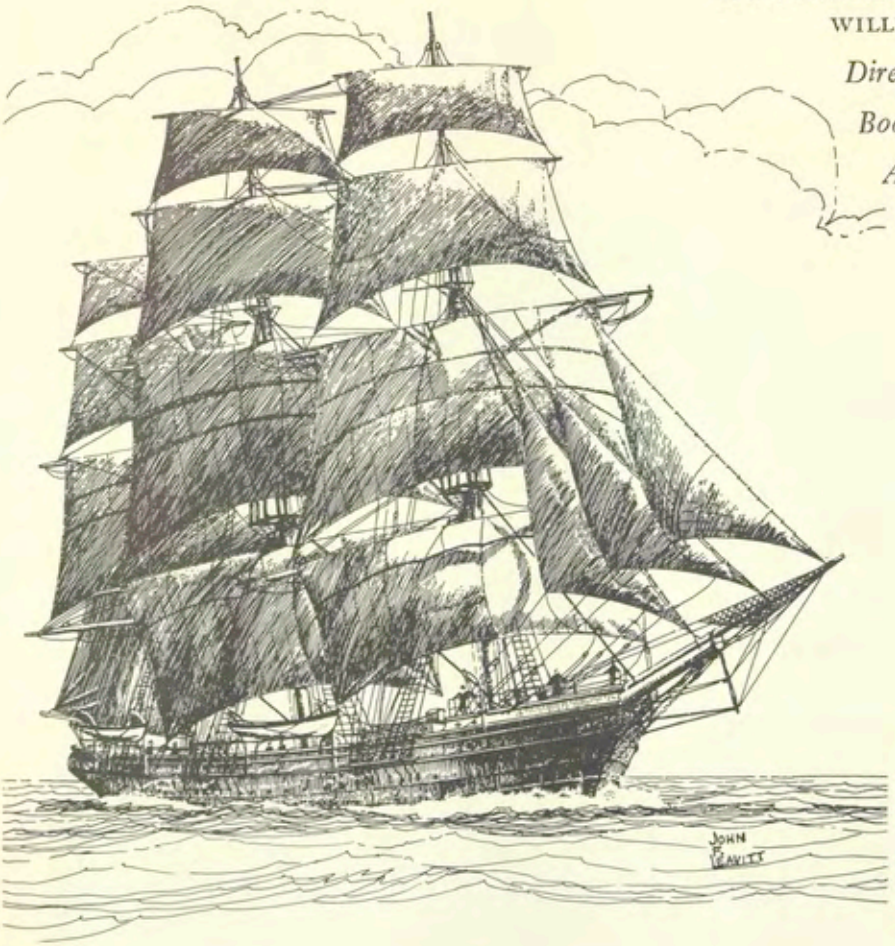
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A full training crew on deck of the *Georg Stage* ca. 1910 *(left)*, and *(right)* some of the cadets at mess-time.

with an old fashioned brake type windlass. A small deck house that served as a galley and lamp locker probably served also as a platform from which the officers could supervise the boys because it had stanchion rails all around. Just aft of the galley was a telescoping funnel for the steam engine. Two companion ways led below to the cadet flat and officers' cabins aft. A short poop deck is just abaft the wheel.[6]

Below, virtually no trace remains of the original layout. Forward there were small cabins on the starboard side for the petty officers and stores lockers to port. The entire midships section consisted of one open "flat" for the cadets who slung hammocks from the overhead. An unusual feature was the open engine room that came right up through the cadet flat and was surrounded by an ornate iron railing. The ship was too small to accommodate a separate engine and boiler room.[7]

The *Georg Stage* had several engineering features that were probably influenced by William Wain, one of Europe's leading marine engineers.[8] Most notable was a retractable propeller, a common feature of warships of the time. Through a well between the true and false stemports, the propeller could be raised into a well under the poop. The captains evidently regarded the 25 HP steam engine as a nuisance, good for little more than ballast as it was seldom used.[9]

The *Georg Stage* sailed for fifty-two years and trained over 4,000 young men between the ages of 15–18. Cadets were drawn from all classes and were selected by the entire Board of the Foundation. Each was expected to pay a modest fee of 60 Danish Kroner, but ample scholarship assistance was given to those whose families could not afford the fee.[10] Cadets were chosen for character, good school records, and each had to swear that he intended to go to sea as a career.

Training was basic and rigorous. Cadets reported aboard in April and helped to rig and fit out the ship. Sail, boat, and other seamanship drills were held at anchor for three weeks. Then the ship got underway for day sails pulling into Copenhagen or other ports at night. As the cadets became accustomed to

[6] *Ibid.*, p. 54. [7] *Ibid.*, p. 55.

[8] Johannes Lehman, *A Century of Burmeister and Wain* (Copenhagen: Burmeister and Wain, privately printed, 1969), pp. 83–84.

[9] Underhill, *op. cit.*, p. 56.

[10] Porsvig, Personal interview. Mystic Seaport. Central Files: *Joseph Conrad* ex. *Georg Stage* history file.

handling the ship, short cruises were made culminating in longer cruises at summer's end to British, Scottish or Scandinavian ports. The ship never ventured out of the North or Baltic Seas. Each cadet was graded for proficiency in basic skills of seamanship. Some graduated to a larger training ship like the *København* or later the *Danmark*. Others went into the merchant marine or the fisheries fleet. Some were weeded out as unfit.[11] *Georg Stage* "boys" found their way into all walks of life. The misty eyed reaction of the old boys who find their way to Mystic to visit their venerable ship is testimony to the value they placed on this life forming experience under sail.

Training at sea, even in the most well-run ship under command of the most experienced officers carries the possibility of disaster. Such befell the *Georg Stage* on the calm, clear night of 26 June 1905, nearing the end of her first cruise of the summer, the ship was just off Copenhagen. Many of the cadets were on deck watching the fireworks at Tivoli. At 2330 hours the officers noticed a steamer approaching to starboard. Despite clear weather and bright running lights and Captain Mathe Braun's efforts to change course, the British *Ancona* of Leith rammed the *Georg Stage* squarely amidships on the starboard side, cutting her almost in two. Although the British master, Mitchell, had the presence of mind to keep his engines going full ahead for a few minutes, the *Georg Stage* sank like the proverbial stone because she had no watertight bulkheads. She took with her twenty-two boys. Most of those killed were either caught in their hammocks below or were crushed by falling spars as the masts went over the side. The captain was sucked to the bottom with her but somehow swam to the surface. His manner of command helped instill calm into the surviving cadets who climbed into spars and other wreckage to await rescue. The tragedy might have been total except for the good weather and the fact that the Copenhagen pilot steamers and the passing Swedish steamer *Irene* heard the collision and came immediately to the rescue. The *Irene*'s newly installed searchlights played a major role in finding the surviving boys in the water.[12]

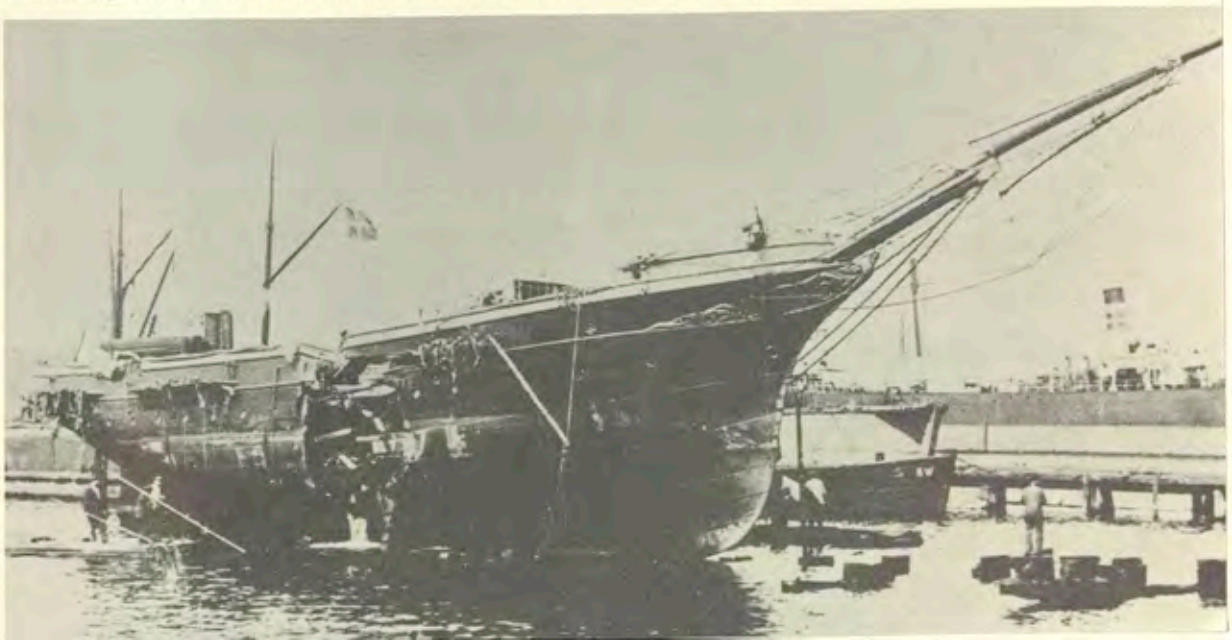
By dawn the survivors had been brought ashore along with the first "corpses."[13] News of the tragedy soon spread round the world but it is a tribute to the Dane's seafaring tradition that within six weeks the ship was sal-

[11] *Details Regarding the Danish Full Rigged School Ship "Georg Stage,"* Copenhagen, C. Hamburgers Boglykkeri a/s, 1956, pp. 3–11. Mystic Seaport. Central Files: *Joseph Conrad* ex. *Georg Stage* history file.

[12] *Georg Stage During 60 Years*, partial trans. by John C. Braestrup, 1958, p. 3. Mystic Seaport. Central Files: *op. cit.*

[13] *Ibid.*

The damaged hull of the *Georg Stage* after the tragic collision of June, 1905.





The portrait figurehead of Joseph Conrad that was mounted in place of Georg Stage when the ship's name was changed in 1934.

vaged and then completely rebuilt by Burmeister and Wain in time for the 1906 season, this time with four transverse water-tight bulkheads installed and the useless engine removed.[14]

By 1932, the Georg Stage Minde decided that a new and slightly larger ship was needed. The firm of Frederikshaven Vaerft & Flydock A/S was commissioned to build the second *Georg Stage*. She is slightly larger, L.W.L. 123.8 vs. L.W.L. 100.8 and 298 gross tons vs. 203 gross tons than the old *Georg Stage*. To this day *Georg Stage* is sailing in exactly the same manner as the old.[15]

Captain Alan Villiers' acquisition of the *Georg Stage* in 1934 and his voyage around the world, . . . "a grand gesture . . ."[16] as he put it, is so well and colorfully recounted in his books *Cruise of the Conrad* and *Storm Along*, the latter a story about two young English lads who sailed with him, that it would be presumptuous to describe his adventures with the ship. Captain Villiers has generously given Mystic Seaport his logs and many reels of film of his epic voyage. By terms of the deed of sale, Captain Villiers had to change the ship's name.[17] He chose the name Joseph Conrad, in honor of the great Polish seaman writer. Conrad more than anyone else would have appreciated what Villiers was about.

However, when Villiers visited New York in 1934–35, the tough old ship survived another near fatal wreck. On New Year's Day in 1935 the ship's anchor chain parted in the teeth of a northwest gale and she drove ashore on the rocks near the Brooklyn end, where the Verrazano Bridge now looms. Heroic efforts by Merritt-Chapman & Scott Corporation just barely managed to salvage her. The surveyor's reports are a horror story and a lesser ship would have been condemned right off. Hull repair estimates were $1,400 alone,[18] and Villiers states that he sailed for Rio some £2,000 lighter in the pocket.[19]

Captain Villiers, who owned the ship outright, ran her at his own expense plus the fees paid by his amateur crew. He states that she cost him £100 a week to run.[20] Not a wealthy man, he was forced to sell her upon her return to New York in 1936.

The *Joseph Conrad* was purchased on 10 November 1936 by Huntington Hartford who completely refitted the ship with "luxury" staterooms and modern conveniences, including a 160 HP Atlas diesel engine at a cost of approximately $100,000.[21] Mr. Hart-

[14] Underhill, *op. cit.*, p. 57.

[15] *Details Regarding the Danish Full Rigged School Ship Georg Stage*, *op. cit.*, p. 3.

[16] Villiers, *op. cit.*, p. 8.

[17] "Memorandum of agreement between Alan Villiers and Stiftelsen Georg Stage Minde, June 14, 1934," Mystic Seaport. G. W. Blunt White Library Mss Coll. 42, Box 1/1.

[18] "Survey by Frank S. Martin and Sons, January 22, 1935," Mystic Seaport. G. W. Blunt White Library Mss Coll. 42, Box 1/4.

[19] Villiers, *op. cit.*, p. 47.

[20] Alan Villiers, Unpublished article. Mystic Seaport. G. W. Blunt White Library Mss Coll. 42, Box 12, p. 7.

[21] Specification Sheet for Sale Offering, Sparkman

ford kept the ship in Charleston, S.C. much of the time making cruises to southern waters. Captain Villiers was in command of the ship for the first of these cruises. Under Huntington Hartford's ownership the ship raced Walter S. Gubelman's ship rigged yacht *Seven Seas* from Newport to Bermuda in late August of 1937. The *Conrad* made Bermuda in 10 days, 1 hour, 57 seconds; hardly a record by today's standards. The *Seven Seas* finished a mere ten minutes ahead of her. But the *Joseph Conrad* was declared the winner based on corrected time.[22] No one knows who figured the handicaps. The International Ocean Racing Club measurers ought to ponder the implications of handicapping ships like these should any ever decide to race to Bermuda again.

Both the start and finish of the race were marred by protests of Captain Hans Milton of the *Seven Seas* against Captain Alexis Troonin of the *Joseph Conrad*. Interestingly, Captain Troonin was a former officer in the Czarist navy.[23] Before the protests could be heard by Clinton Crane of the New York Yacht Club, the owner of the *Seven Seas*[24] withdrew them.

In November, 1939 Mr. Hartford turned the ship over to the U.S. Maritime Commission to use as a training ship. Throughout World War II she was based in St. Petersburg, Florida. Examination of her logs and newspaper clippings reveal that she sailed quite a bit at first, but as the U-Boat danger increased she was forced to stay very close to port getting underway for just day cruises along the Florida Coast. As the war at sea became grimmer, many training frills for the young merchant seamen were eliminated and it got down to the basics of lifeboat drill and elementary deck seamanship. After 1943 the ship was virtually laid up serving mostly as a floating classroom and berthing ship.[25]

With victory the need for merchant seamen drastically declined and the *Joseph Conrad* was again declared surplus. Mystic Seaport's time had come to acquire a ship to implement one of the museum's stated purposes: training young people in the ways of the sea, a vision of one of the founders, Carl C. Cutler. The seed was first planted in 1938 by the now President of the Board of Trustees, Clifford D. Mallory, Jr., who wanted to bring the *Tusitala* to Mystic. She was too big but Clifford Mallory's father, who was a staunch supporter of the museum in those early days, suggested the *Joseph Conrad* as being much more suitable. War intervened but the idea was not forgotten. In 1947, when it became known that the *Joseph Conrad* would be declared surplus by the government, Mr. Cutler, Mr. Philip R. Mallory, Mr. Clifford D. Mallory, Jr., and others went into action, frantic action.[26] The U.S. Maritime Commission proved to be receptive to turning over the ship to the Seaport but an Act of Congress would be required. Representative Horace Seeley-Brown and Senator Raymond Baldwin introduced identical Bills in May of 1947. With remarkable speed the House Maritime and Fisheries Committee reported favorably on the Bill and it was passed by both Houses of Congress in late June.[27] On 9 July 1947 President Harry S. Truman signed Public Law 167 officially transferring ownership of the old ship to the museum.[28]

The *Joseph Conrad* had been neglected in the later years of her war service and she was not fit to go to sea under her own sail or power. Accordingly, the Moran Towing and

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& Stephens. Mystic Seaport. Central Files: *Joseph Conrad Description Specifications*, etc., file, 1947.

[22] "Joseph Conrad and Seven Seas Race, Newport's Strangest," *The Providence Journal*, Sept. 10, 1950.

[23] *Ibid.*

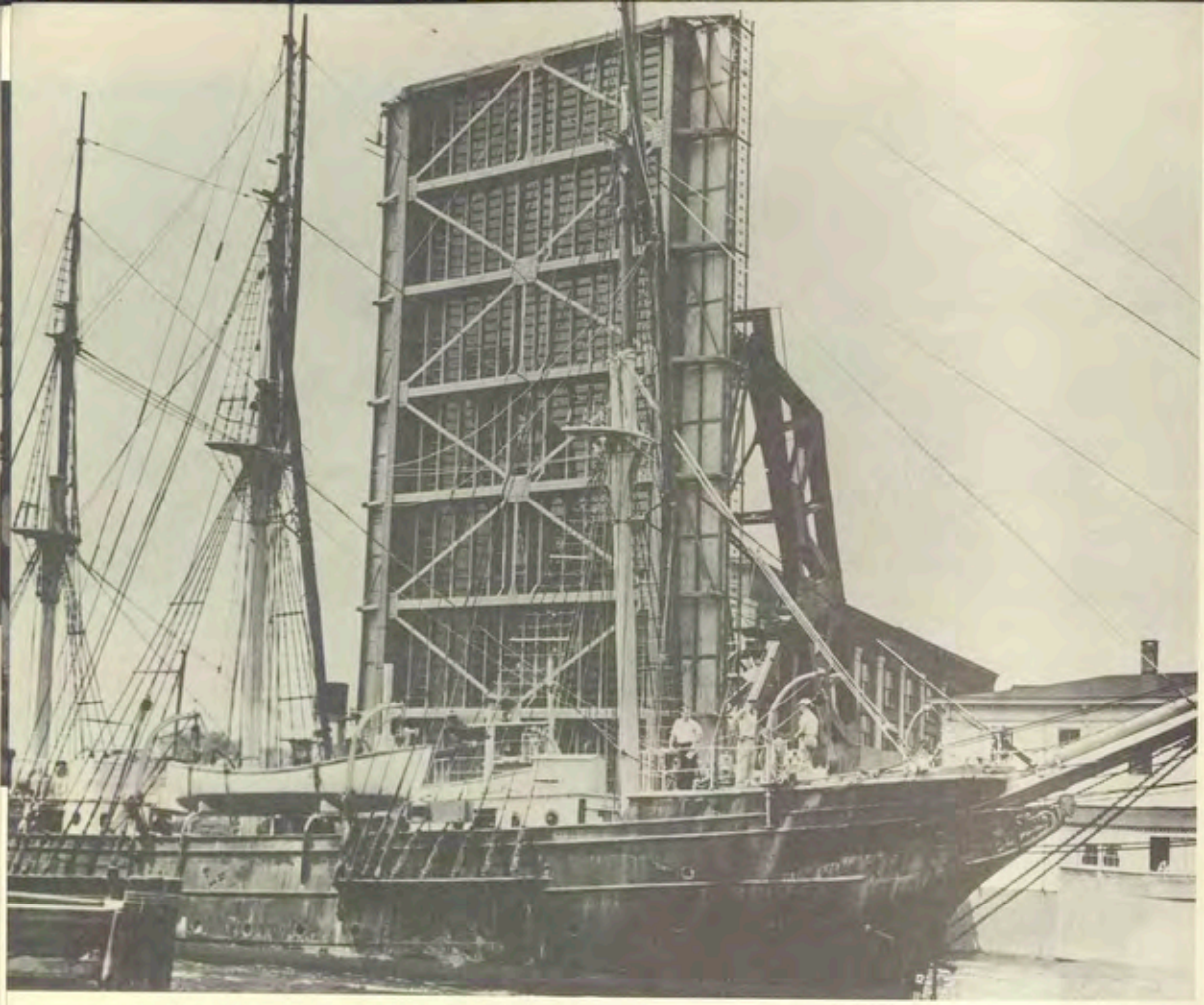
[24] *Ibid.*

[25] *Joseph Conrad* smooth logs. U.S.M.S. Mystic Seaport. G. W. Blunt White Library Mss Coll. 42.

[26] Mystic Seaport. Central Files: *Joseph Conrad* Acquisition file, 1947.

[27] U.S. Senate, 80th Cong., 1st session, 1947. Calendar 411, Report 311.

[28] Telegram, Senator Raymond Baldwin to Philip R. Mallory. Mystic Seaport. Central Files: *Joseph Conrad* Acquisition file, 1947.



The *Joseph Conrad* as she appeared on the day she arrived at Mystic, 5 August 1947.

Transportation Company was engaged to tow her from St. Petersburg to Mystic for the sum of $6,500,[29] which the museum had to scrape together. At 12:30 P.M. on Tuesday, August 5, the bedraggled but proud old Danish ship was nosed into her berth at Mystic Seaport by the tugs *Alert* and *Chase*. On Saturday 23 August 1947 at the museum's eighteenth Annual Meeting Admiral Telfair Knight formally handed over the ship's papers to President P. R. Mallory. Fleet Admiral William F. Halsey gave the main address which emphasized the importance of training seamen whether for war or peace. From that day on the *Joseph Conrad* has been moored in the tranquil Mystic River quietly going about the business set for her by Carl Frederik Stage nearly a hundred years ago—training young people in the ways of the sea.[30]

[29] "Towing Agreement Between the Moran Towing and Transportation Company and the Marine Historical Association, July 21, 1947." Mystic Seaport. Central Files: *Joseph Conrad* Acquisition and Towing file, 1947.

[30] The Marine Historical Association. *Eighteenth Annual Report*. (Mystic, 1947.)

See also: Sørensen, Børup. *Georg Stage Gennem 60 AAR*. Copenhagen: Hirschsprungs Forlag, 1952.

NOTE: Jan Zangenberg, a young Danish author, associated with the shipbuilding firm of Burmeister and Wain, is completing a magnificently illustrated history of the *Georg Stage–Joseph Conrad*, which should appear next year. Last summer he visited the Preservation Shipyard at the Seaport.

What Is Sail Training?

By FRANCIS E. BOWKER

They ought to send that young fellow to sea—might make a man of him.

During the early days of commercial sailing vessels, it was not uncommon for young men who were an embarrassment to their families or community to be shunted into the forecastle or cabin of a merchantman for an extended voyage upon the oceans of the world. In such cases the motivation might be the betterment of the young man or the removal of his presence with a hope that he might straighten out. There were also some ailing persons who felt that a sea voyage would be beneficial to their health, and there were those who tried to find adventure in ships of sail, hoping to rise to command through the only route, experience.

Sail training sometimes began when a captain undertook the education of a son or relative who wanted command. The training of common seamen was undertaken by hard-fisted bosuns and bosuns' mates. For those unfortunates who found themselves forced into naval service, it became a matter of survival of the fittest. There have been periods of history when members of aristocratic families sought their fortunes upon the sea. Some of these patricians were often political appointees and left the actual seamanship to sailing masters and sailors, and others sought the sea as an honored profession. The dregs of society were also attracted to the sea as an escape from the law, liquor, pregnant women, and the responsibilities of the shore community.

As in most industries, a group of hard-working lower to middle class families produced the backbone of the maritime industry; the captains, mates, bosuns, cooks, sailmakers, and seamen. The training a young man received depended to some extent upon the captain and officers of his ships, but even more upon the efforts of his watchmates who would make every effort to raise him from a condition of bumbling incompetence to becoming a supporting member of their own working unit. He would first be given to understand what a useless article of subhuman life he was. All unpleasant tasks were the lot of the neophyte; yet, he was expected to do man's work aloft or on deck when needed. A willing young fellow could usually rise above such menial status and would soon find one, or more, of his shipmates willing to take time to instruct him.

The Master of the *Brilliant*, Francis E. Bowker, first went to sea at the age of sixteen. He sailed in large coasting schooners and steamships, both as seaman and officer. Capt. Bowker is the author of *Hull Down* and *Blue Water Coaster*.

A young crew of the *Georg Stage* practicing their needlework, ca. 1917.



During the early nineteenth century, the idea of preparatory training began to develop. Both naval and merchant ships were becoming larger and more complex and the maritime nations of Europe, in particular, began to encourage a higher caliber of young men to enlist for long-term service. Old ships, retired from service, were often set up as stationary training ships, sometimes as self-contained units, sometimes in conjunction with shoreside facilities. Along with a curriculum intended to provide junior officers, training ships sometimes resembled reform schools, with the purpose of taking salvageable troublemakers off the streets, to give them a taste of discipline and basic seamanship, and send them off to sea.

During the 1850s sea-going ships, designed particularly for training purposes, began to make an appearance. Many of these craft were small: brigs, barks, and ships from 200 to 500 tons, and their field of operation ranged from local waters to transoceanic voyages. Large, commercial shipping companies, both steam and sail, often operated sail training vessels in their own right. Such craft were usually large and cargo-carrying, but had quarters set aside for cadets who were involved in the operation of the ship and who took instruction in their off hours. Such programs ranged from so-called apprenticeships, wherein young men were lured aboard to serve four years as a cheap form of labor, to the sophisticated training given by the English firm, Devitt & Moore, and Germany's North German Lloyd which demanded the finest in officers and were willing to spend money to acquire them. Until the last days of the great Atlantic liners, most of their commanders were veterans with experience in square-rigged ships and sail training programs.

One may wonder why the captain of a large ocean liner or a bulk cargo ship may be the better for having spent a few months in a sailing ship as a boy; or why a junior executive in an insurance firm might be a better man for having sailed around the world with Captain Johnson in the brigantine *Yankee;* or why a young mother in St. Louis may feel herself a better person for having spent five days at Mystic Seaport in the *Joseph Conrad* program, followed a year later by five days as crew aboard the schooner *Brilliant.* It is a fact that such a person will almost invariably reach back to that experience in a sailing vessel as being an important factor in his, or her, life.

Why is it that experience in sail can provide something that participation in an organized sport, for instance, can seldom achieve? To begin with, a youngster, outward bound for the first time, can be a frightened and lonesome figure, especially in a large vessel as she motors or tows out of the harbor. He is surrounded by strange faces, strange



Crew of the *Joseph Conrad* aloft during a storm off Cape Horn in the late 1930s.

voices, strange sounds; is faced with a maze of rigging whose purpose is obscure. He gazes aloft at masts that seem to tower to the sky and wonders what it will be like when all those tall sails are hoisted. He may be rudely shoved aside as an experienced member of the crew does something to a length of rope which is then placed in his hands and he is told to pull. There are several other people also pulling and his hands get tangled up in the others. A vast mass of canvas balloons and flaps over his head as a sail is raised and his mind is a confused blur. Suddenly there is relative silence as the motor is shut off and the vessel falls away to fill her sails; the lee rail lays down to the press of the wind and one grasps for the nearest solid object to hang on for dear life.

The ship is now on her way, but work is not over; there is a mass of loose rope to be coiled down and put on the belaying pins. One tries to help, but soon becomes aware of a peculiar sensation as the bow dips to the seas and a dizzying sensation is felt in one's head; there is an overwhelming need to swallow and one feels lethargic. The mate spots you standing idle, leads you to the rail and instructs you how to coil a line "clockwise" on the deck before you. He shows you how to the coil over the pin and you do so mechanically, not really understanding, nor really caring, for your stomach has begun to churn, you yawn and belch and wonder how long it will be before your lunch comes up. "Get down by the lee rail," the mate instructs. You stagger to leeward and, looking astern, notice that the land has receded to a thin line on the horizon. There is no retreat from a ship once she has left the land. You can't tell the coach you don't like the game and go home; nor tell the captain you feel sick and want to turn in. When your watch is over, you can crawl into the bunk, but in a few hours will be called again on deck to stand your watch. You find that nobody cares about your misery and you listen to gross suggestions about how it can be overcome. Until you get your "sea legs" you are a burden to your shipmates for they must perform much of your work. The agony will pass and so will most of your fears. You will look forward to taking your trick at the wheel and going aloft to handle sail or work on rigging. If the voyage is a long one, you begin to have a sense of physical well-being and you take pride in your new skills. Instead of being a burden on your shipmates, you become part of the very life of your ship and she becomes part of you. Without you the ship cannot live, you have entrusted your life to her, but she demands your every care and complete attention if you would have her bring you safely home. Working ship with heavy seas coming aboard; taking in sail on a yard that is trembling and bucking as it sweeps in wild arcs across the sky; being pelted with sleet or rain that stings like bird-shot; hungry and tired; or maybe a bit sick; there is nothing more terrifying than a sailing ship in a full storm. But the work gets done and storms do end and ships return to port with crews who are proud of what they have accomplished and a feeling that there is nothing they can't do.

Since World War II a new concept of sail training has come into being. To be sure, there are still a number of large square-riggers training naval personnel and a few turning out seamen for merchant shipping. However, the Sail Training Association of Europe and the American Sail Training Association are promoting the sailing experience as a character building device. It is felt that even such short exposure as a week in a sailing vessel can service as an indoctrination to the sea, and inspire young people who require challenge to become the self-reliant leaders of the future. In Europe it is becoming common for large concerns to place promising, young administrative aspirants aboard sail training vessels for voyages during the bad weather months in order to find out how they react to pressure. Both boys and girls are flocking to the sea to find challenge or adventure in ships under sail.

There are no "no risk" endeavors that build true leadership, The risk aboard a well



Cadets at watch on the *Joseph Conrad* during her early days at Mystic *(left)*. A group of more contemporary mariner trainees aboard ship in 1972 *(below)*.



built, well-maintained, and well-officered sailing ship is far less than that to which the average, healthy young person is exposed in the ordinary course of his life at home. The officers of such a craft are more conscious of safety than supervisors in all but the most dangerous occupations ashore. "One hand for the ship and one for yourself," has been a maxim aboard ship for centuries. There are rare occasions when "both hands" for the ship may mean the difference between safety or disaster and other cases when "both hands for yourself" may not be enough.

Today, sail training programs come in various packages and many of them have no intention of preparing trainees for nautical careers. There are large schooners such as the *Tabor Boy* and *Te Vega*, which are operated



Mystic Seaport's training schooner *Brilliant* on an autumn cruise on Long Island Sound.

as part of preparatory school curricula. There are large, oceangoing vessels such as the *Westward* and *Regina Maris* which combine sail training with college credit courses in marine sciences. There are short cruises in various smaller craft, such as Mystic Seaport's *Brilliant*, which offer a sailing experience in which an introduction to the sea and an opportunity to become part of a working crew is the primary object.

There is a need for more ships and programs. Hundreds of young people are anxious for the experience but are turned away in frustration due to lack of ships in which to sail. The American Sail Training Association is working hard to coordinate the efforts of present programs to keep operating and the building of new vessels to augment the present fleet and replace some of the aged craft now carrying on. High costs of construction and operation can probably be overcome, but the ignorance and indifference of governmental bureaucracy are roadblocks that must be broken if a new generation is to benefit from that wonderful experience that is training in sail.

Basic Sail Training at Mystic Seaport

By JONATHAN R. HARLEY

When the question of sail training is brought up, many think of "iron men and wooden ships." They think of Captain Irving Johnson and his *Yankee*, or of cadets training aboard one of the full-rigged ships still sailing: yet, a relatively small number of individuals were able to sail aboard *Yankee* or are presently training on full-rigged ships. But here at Mystic Seaport, sail training is alive and growing. The summer Mariner Training Programs aboard the *Joseph Conrad* and *Brilliant*, fall and spring sailing classes, and three-day sailing programs for school groups offer young and old alike a unique opportunity to experience Mystic Seaport and to become involved in the maritime traditions of New England. These sail training programs are a far cry from furling sail aboard a ship in a storm; but they are a beginning, and a living memorial to Carl C. Cutler, one of the museum's founders and originator of the idea of the Seaport's mariner training program.

The present sail training program at Mystic Seaport began 9 July 1947 on the day that President Truman signed a bill giving the full-rigged ship *Joseph Conrad* to the Marine Historical Association at Mystic Seaport. The ship arrived in Mystic on 5 August 1947, and after extensive renovation, received its first group of mariner scouts on 24 June 1949. Though initially designed to teach the basics of sailing to groups of Mariner Girl Scouts and Sea Scouts, ages 13-18, it has since expanded to include week-long sessions for individual youngsters who are not affiliated with scouting. Over 18,000 individuals and their adult leaders have participated in the program and this summer the *Conrad* Mariner Training Program will complete its thirtieth year of continuous operation.

The Mariner Training Program consists of two phases: a week-long stay aboard the *Conrad*, when youngsters learn the basics of sailing, navigation, and seamanship and also gain exposure to the wealth of resources and history at the museum; and a week-long cruise aboard the schooner *Brilliant* for those who want to continue the experience they began aboard the *Conrad*. The *Conrad* Mariner Training Program operates on a weekly basis during the summer months. They live in the foc's'le and midship areas below the decks of the *Conrad* and take their meals at the Seamen's Inne. While in the program they become acquainted with the museum on staff-guided tours and acquire skills in some of the maritime crafts.

The weekly program begins on Sunday evenings with an introduction to the ship, the Seaport grounds, and program activities. Although she no longer sails, the *Joseph Conrad*, fully equipped with the conveniences of hot and cold running water, heat and electricity, offers to those who have never before encountered the sea, a unique opportunity to live and work aboard a ship. After museum

Jonathan R. Harley was a commodore of the University of Rhode Island Yacht Club and captain of the varsity sailing team. Seaport Mariner Program Supervisor since 1974, he was formerly head sailing instructor at the Chapoquoit and New Bedford Yacht Clubs in Massachusetts.



Sea Scouts learning to set sail on the *Joseph Conrad* in the 1950s *(right)*. A hearty crew pulling together like old hands during a training cruise aboard the *Brilliant (below)*.





hours, the *Joseph Conrad* is used as a teaching classroom. All individuals are taught how to climb the rigging, and a select few are asked to assist Seaport staff members in setting the foretopsail and hauling the halyard while singing sea chanties, the age-old work songs of sailors. The youngsters spend their first morning learning the basic elements of sailing theory, the physics of why and how a boat sails, and the terminology necessary to communicate effectively in sailing. The latter is sometimes compared to learning a foreign language.

The boats that are used in the program are 9 foot fiberglass dinghys called Dyer dhows, built in Warren, Rhode Island. A fleet of thirty, each donated by yacht clubs or individuals, are light enough to be carried easily by four to six youngsters. Their rigs are simple, and easy to master. They are vigorously tested by the 1000 individuals a year who participate in the various sailing programs, and have proved to be versatile and almost indestructible.

After a short classroom lecture, the mariners double up, choose and rig a boat, and are set to sea under the close supervision of instructors manning safety launches. This first sail on the Mystic River may only last a minute or two, and consist of nothing more than sailing a straight line for fifty yards. As the week progresses, with new-found confidence and enthusiasm, the sailors learn to tack, jibe, reach, run free, and eventually, sail a complete three-leg course.

As the success and popularity of the Mariner Training Program grew, a need to offer sailing programs to local people was recognized. In the spring of 1961, a decision was made to make more year-round use of the Dyer dhows and launches. Ninety-three local youngsters, ages 10-16, took part in after-school classes that first season. Sailing classes are now offered to both adults and children during the spring and fall months. Nearly 100

Aloft for the first time on the *Joseph Conrad (left)*, with both hands tight on the ratlines.

local area people sign up for the classes each season. Beginners, intermediate, and advanced sailing classes run for eight weeks in the fall and twelve weeks in the spring. These programs offer the most intensive sailing instruction available at Mystic Seaport.

The objective of the morning adult classes and after-school children's classes is to sail and to learn by doing. On-the-water practical sailing experience is provided as much as possible. Some of the enjoyment in directing programs such as these, comes from observing the confidence gained by individuals after a month of continuous sailing. Some seem almost confident enough to tackle Cape Horn—even in a 9 foot dinghy!

The newest mariner program at Mystic Seaport give small groups of school children, grade four and up, an opportunity to live aboard the *Joseph Conrad* with their classmates and teachers for two nights. Daytime participation includes intensive tours of various maritime activities, a basic sailing lecture, a chance to sail a Dyer dhow, a row on the Mystic River in a 30 foot purse-seine boat, and a Planetarium program. Though the children do not learn to become expert sailors in this short time, by living aboard a square-rigger and sailing a smaller vessel, they gain insight into our maritime heritage and a nineteenth-century sailor's life. These school sailing programs have proved to be successful "hands-on," supplements to classroom curricula, and a worthwhile extension of the Maritime Training Programs.

The sail training programs have come a long way since their inception in the late 1940s. Carl C. Cutler firmly believed in teaching young people to learn the sea and respect it. As Marion Dickerman wrote in 1968 in the special report, *A History of Mariner Training Programs:* "He believed in young people and determined to work out a plan by which some could come to the Seaport each summer—live on a ship, learn something of the ways of the sea, and inscribe a bit of its majesty and power while learning the part it had played in shaping our history as a people." Sail training remains an integral part of Mystic Seaport.

Young sailors take to the Seaport's fleet of Dyer Dhows for a lesson in seamanship on the Mystic River.







12 September 1977 *(above)*. The *Joseph Conrad* is moved gently from her berth and towed down river to the Shipyard, where *(right)* an anxious crowd gathers as the *Conrad* is slowly raised on the lift dock, revealing the accumulated growth on her hull.

The Restoration of the *Joseph Conrad*

By DONALD P. ROBINSON

We were ready and the ship was ready. The sun was not up as we started the engines in the two work boats. The *Joseph Conrad* lay bow to the northwest at the old Shipyard dock. Only her lower masts, jibboom, and bowsprit remained of her rig.

She had been moved to the dock from her permanent berth on September 6 to permit a crane to assist in rigging her down. Nearby lay the tiny shops where for years a handful of men had labored, often in frustration, with few tools, little equipment, and poor materials to maintain the Seaport's ships. Today, Monday 12 September 1977 she would move to the Henry B. duPont Preservation Shipyard the third major ship to be hauled and restored on the lift dock. And in this new Shipyard, there are good tools, good materials, and most important, a staff of skilled men and women whose day to day job is to keep our ships well and alive.

With only a little fuss, the *Joseph Conrad* was towed and pushed stern first down the river and carefully slipped into the opening of the lift dock. Suspended below her was the platform upon which the keel blocks and bilge blocks had been built up to fit her shape. The *drag* (difference in height between the forward and after end of the keel) and keel profile had been calculated, then checked by our divers, who now gave the signals which enabled the crew to locate her precisely over the blocks.

Associate Director for Ships Preservation, Donald P. Robinson holds a Mechanical Engineering degree from Princeton University and a degree in Marine Engineering and Naval Architecture from M.I.T. He is a member of the Society of Naval Architects and Marine Engineering.

The dock was then raised to meet her keel. With a sigh of relief, but with no real surprise, those on the dock were told that the blocks fit her like a glove. After more underwater work securing the sliding bilge blocks, the dock rose lifting the *Joseph Conrad* from the water, for the first time in fourteen years. Onlookers, after ogling the strange and varied marine growth on her bottom, asked: "When did you decide to haul her, and what are you going to do to her?"

It was in May 1976 at a Ships Committee meeting, that the need to begin planning for a major restoration effort was introduced. Typically, we asked ourselves more questions than we answered. The major question was: Is she structurally sound enough to haul without causing serious damage that we may not have the capability to repair? This was a major consideration because of her wrought iron hull, built by Burmeister and Wain Shipyard, Copenhagen, in 1882. We had the Shipyard, but one which was equipped and staffed to work on wooden vessels.

The conclusion of the meeting: we must systematically study her, keeping in mind the four fundamentals of shipbuilding: The absolute need to have a plan of action, the skills, the materials, and the facilities to do the job.

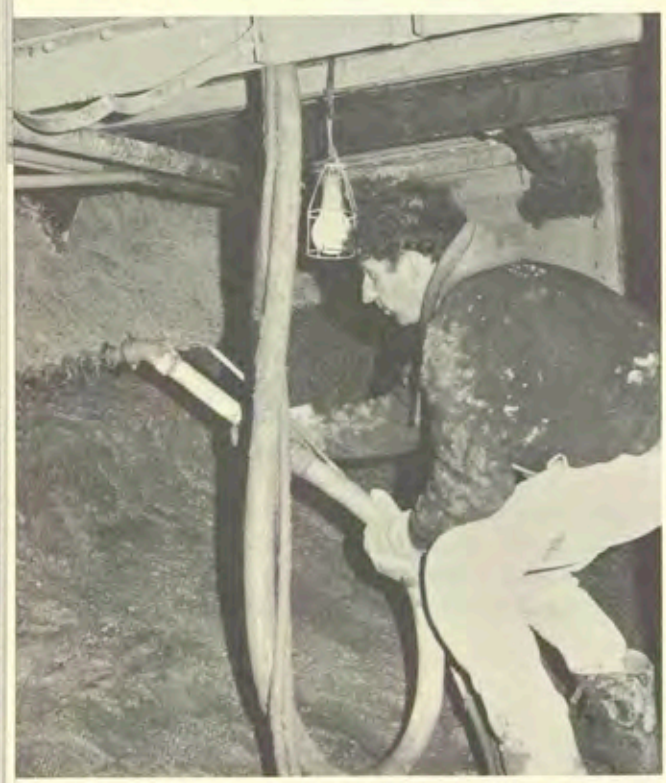
During the next three seasons, our foreman and I, along with others, pondered and planned. First, what was our plan of action? We carefully studied her history since she came to the Seaport in 1947. In 1960 and again in 1963, while hauled at Thames Shipyard, her bottom and topsides had been coated with 70% polyester resin and 30% flaked fiberglass to a thickness of 30 mills after an indeterminate amount of repair work was done

to her plating. Later, in 1967, her bilges and plating inside the hull up to the waterline were covered with ferro-cement, a specially mixed cement in which wire lathe was encapsulated. This procedure became mandatory after our surveys showed us that the plating in her bilges was dangerously thin.

Since the installation of the ferro-cement minor leaks developed, generally where the original structure rose above and through the cement liner. It was impossible to trace the source of the leaks since water could travel substantial distances between the liner and the hull. During the hard winter of 1977, the 18-inch thick river ice ruptured the plating at the waterline in two places on the port side. Historically, the waterline plates of ships become thin first due to the effects of wind and water.

Next we considered the condition of the *Conrad's* keel, only 2¼ inches wide. Photos taken in the early 1960s indicated general corrosion and irregularities. What had happened during the ensuing fourteen years?

A worker at Thames Shipyard in 1967 covers the bilges with ferro-cement.



Since the keel blocks would carry all 327 tons of her displacement, we would need to plan her keel blocking carefully. (Bilge blocks should never carry weight, only keep the ship upright.)

The decision was made to use twenty-five keel blocks 15 inches wide thus giving a theoretical load per foot on the blocking of 10.46 tons instead of the normally accepted loading of 15 tons per foot. By proceeding in this way, neither the keel nor the blocks would be subjected to damagingly high loads if vertical irregularities in the keel existed.

We then considered the probable thinning of the plates from various kinds of corrosion, and evaluated the structural integrity of the hull as a whole unit.

Her hull shape as designed would serve her in good stead: amidships she is 25 feet wide by 14 feet deep from the weather deck to her garboard strake. Her framing was sound and the ferro-cement liner would serve to provide structural integrity in areas of local weakness caused by deterioration. Yes, we concluded, we could safely haul her on the lift dock. A preliminary plan of repair was developed. The probable area of greatest plate thickness reduction was thought to be at the waterline. Therefore we planned to apply a belt of plating 5/16 of an inch thick around the hull extending down 4 feet from her load waterline. Wrought iron plate has long been unavailable; therefore, we would use low carbon steel plate and a low hydrogen welding rod specifically alloyed for welding wrought iron and steel.

Because we would weld new plate over old, grease would be pumped in between the plates to prevent corrosion. The new plates would be covered with epoxy resin to provide compatibility with the existing hull coating. Finally a layer of coal tar epoxy would be applied over the whole bottom followed by anti-fouling paint applied in a belt below the waterline.

What of the steel shipbuilding skills needed? Our foreman and mechanic-diver, jacks-of-all-trades are inventive and skilled metal

workers. Also, a welder with high quality skills who worked for the museum for years part time could take a leave of absence from his regular job at a local shipyard and bring with him another welder and shipfitter.

The Seaport Shipyard has no plate roll or presses, the basic tools of a steel yard. Thus we had to give special consideration to the thickness of the plate to be used. By using small plates in areas of compound bends, 5/16 of an inch plates could be worked into shape using clamps, wedges and draw-bolts, and a large sledge. We could rent welding machines and buy a small sandblasting machine to work off our compressors.

The decision was made to send down the *Conrad*'s yards, topmasts, and topgallants and to overhaul them as well as her whole gang of rigging. This would help her in other ways. She would draw less water, which would facilitate getting her on and off the dock. Also the chances of damage in the event of a hurricane would be reduced. Finally, her living quarters would be scraped and painted out.

We had to give careful consideration to scheduling and cost. The *Joseph Conrad* is the backbone of the museum's Mariner Training Program. Therefore we planned to haul her just as soon as the tides would allow, after she completed her summer training schedule which ends on Labor Day.

Controlling her docking period at the other end was the need to haul another vessel, the *Sabino* to start her winter restoration. Our target date then was fixed for the middle of November. Nine short weeks to do an estimated thirteen weeks of work! We had the additional pressure of winter weather which would slow the work and force us to wait for good warm dry days to do our fiberglassing and to apply the coal tar epoxy. Our best estimate of cost, excluding the work of our own staff, was $45,000.00 just for the hull work up to the waterline. Hours of time, research, and thought went into the planning. Options and alternatives had to be planned well in advance if we were to keep costs down and avoid serious delays!

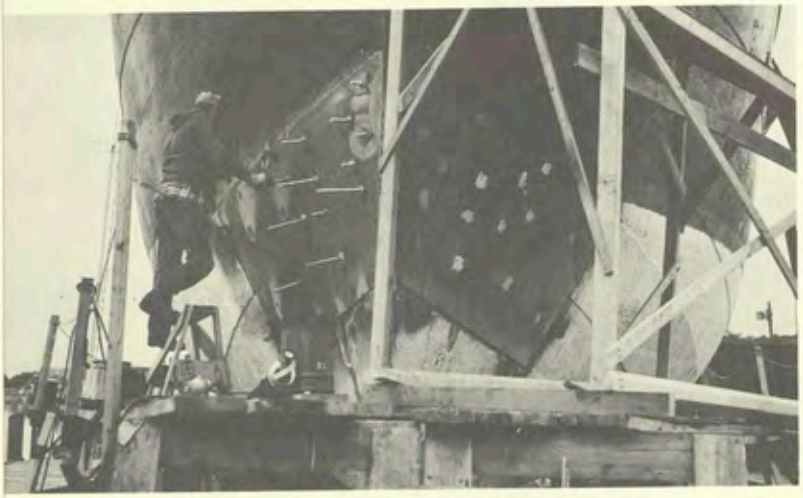


As the restoration work begins, Shipyard workers scrape years of growth from the *Conrad*'s bottom.

So it was that on September 12 even before her bottom had dried, the Shipyard crew was hacking at the 4 inch growth on her bottom with every tool imaginable. Speed would save work if the growth could be removed before it dried. Staging soon surrounded her and work continued up to the waterline.

The next step was that of sandblasting the hull to clean the fiberglass coating. We did not want to remove the fiberglass but clean it for the steps to follow. The sandblasting went slowly, with one small gun and a compressor barely able to support it. The type of blasting grit was varied. Finally sand was







The *Conrad*'s hull is delicately sandblasted clean in preparation for replating *(top left)*. The new plates along the waterline at the bow *(bottom left)* are drawn tightly into place with numerous large bolts, and *(right)* all new plates are carefully edge-welded.

chosen, in consideration of the health of our staff and that of the neighbors.

The crew started testing for unsound plates with hammer blows closely spaced. Visual inspection revealed many major problem areas. The bow plating at the waterline was particularly bad.

First a large 4 foot by 6 foot plate was arduously formed in place over the old plating. The compound curve required the use of draw bolts which work in the following way. Starting in the middle of the plate, a hole was drilled through the new and old plate. Because of the weakness of the old plate, a piece of plate stock served as a washer under the nut on the inside of the hull. Turning the nut on the outside of the hull drew the plates together. Heat and sledges were also used. More draw bolts were installed fanning out from the middle of the plates to the edge as necessary.

Welding then started; as the edges were welded, one by one the draw bolts were removed and welded to form plug welds, thus holding the plates together throughout its whole area.

In addition to visual and hammer testing, General Dynamics loaned us ultrasonic equipment and technicians to test for plate thickness. Some 350 different readings were taken of the hull. Due to laminations in the plate when it was manufactured, many readings falsely indicated thin plating. These areas were either tested by drilling through

the plate and physically measuring the thickness, or listening to the distinctive hammer ring over the lamination area.

Testing indicated that only 30% of the waterline needed to be replated or doubled. However, this saving was offset by the discovery of substantial areas below the waterline area in need of repair. As work progressed the Shipyard men were working from dawn until after dark six days a week. Our schedule simply had to be met so that we would be ready to fiberglass before really cold weather set in.

Each area of repair required a unique approach, as most restoration work does. Plating could be so badly deteriorated that it had to be removed in order to be able to weld to good material, the framing. Often when work started, the needle gun or chipping hammer would go clear through the plate drenching the operator with water which had been trapped between the plates and the ferrocement liner.

Since the ship did not leak when the ferrocement was installed in 1967, the water came from hull leaks that had developed since then. The effect of this trapped water between the plating and ferro-cement liner would have to be tested when she is next given her routine hauling in three to four years.

How had the fiberglass covering stood up over the fourteen years since its application? Most of the hull had in fact received its specified thickness of coating (30 mills) and only minor areas of separation were discovered. However, in most areas needing replating, the glass had been applied too thinly or had broken down for some reason. As a matter of fact the glass had broken down in hundreds of areas resulting in small cracks but large enough to cause multitudes of rust streaks on the hull. The nature of the plate corrosion, very briefly, is electrochemical in nature. Discontinuities in plate covering, due to marine growth or breaks in the fiberglass coating, generates an electrical potential across the same plate or adjacent plates. Since the vessel floats in a good electrolyte—salt water; "concentration-cell corrosion" occurs. This is a different type of corrosion than galvanic corrosion, commonly called electrolysis. The type of prevention for this problem, is an application of fiberglass to the new plates, followed by two heavy coats of coal tar epoxy.

November 8 came: The welding was complete, grease had been pumped between the old and new plates with a garage type grease pump borrowed from a friend of the museum. The propeller shaft tunnel, running from the stern to the mid-ship's engine room, was considered as a possible source of water found between the ferro-cement and hull. Water poured from it after the stern stuffing tube was removed. The solution was to cut off the shaft inboard of the stuffing tube, weld a round plate over the hole and pump a barrel of grease into the cavity. All new plates had been fiberglassed successfully thanks to the help and advice of a local fiberglass boat builder, Peter Legnos.

Once again, the many friends of the museum came to help, this time with the application of the coal tar epoxy. An extremely expensive piston-operated spray gun was required to spray the coal tar epoxy, which when warm has the consistency of roofing cement. Bob Sharp, owner of Whaling City Dredge and Dock Corporation in Groton, offered to supply the spray unit and an operator. Good weather was essential; the hull had to be dry with a temperature of at least 40°F or more for at least four hours after application. The forecast for the fifteenth was promising, the spray unit arrived and batches of the two-part coating were mixed, and then—the spray unit malfunctioned.

What to do with the expensive coal tar? The whole Shipyard staff, men and women, dropped their tools and grabbed rollers and brushes to apply the terribly sticky, gooey covering. While the coal tar epoxy was being applied by hand the spray unit manufacturer was called and repairs were started on the unit. The manufacturer of the coal tar suggested a 10% thinning. By the next day, we

were ready again, and a second coat was applied by spraying.

In order to prevent the "concentration-cell corrosion" referred to earlier, all the underwater surface of the hull had to be protected uniformly. To accomplish this the vessel would be refloated and moved aft 26 inches to allow coating of the keel under the twenty-five keel blocks and ten bilge blocks. We waited until November 22 for the high tide; all went well and the exposed areas were given two coats. Finally, several small leaks, found when she was refloated, were repaired.

While waiting for the next tide, large zincs (zinc plates) were bolted to the bow, plating amidships, stern post, and rudder. A band of anti-fouling paint was painted around the waterline.

On November 30 came the expected high tide, the dock was lowered and the *Joseph Conrad* slipped out of the dock and moved around alongside the lift dock for further restoration work above the waterline.

Word had spread of the steel work on the *Joseph Conrad*. Chuck Hellier, General Manager of Non-destructive Test Engineering, a division of Hartford Steam Boiler, volunteered to assist with his team of experts. Plating was ultrasonically tested for thickness by Seaworthy Inc.; suspect areas were then radiographed by N.T.E. and finally, George Torello Jr., did an engineering analysis of the ship structure. His work found her generally sound. Warmer spring weather brought the welder and shipfitter back aboard to begin the repair of the steel structure above the waterline.

All during the fall, winter, and spring, a member of the shipyard gang chipped and painted out the living quarters below deck. His efforts were supplemented at intervals by a Pilot project in the fall. Volunteers and students from the Williams College-Mystic Seaport program also lent a much needed hand.

The rigging crew worked diligently, ever mindful that the ship must be rerigged and in her permanent berth by April 6 to take aboard her first group of students. Every piece of wire standing rigging was inspected and replaced as necessary. Day after day one could see wire splices in process, wire being wormed, parcelled, and served; Stockholm Tar was applied liberally at appropriate intervals. Blocks for the running rigging, over eighty in number, were overhauled and new ones built as needed.

Work on the *Joseph Conrad*'s yards constituted a major element of the restoration work of course, and Will Ansel, who built the five new yards, describes the process in an accompanying article.

On 13 March 1978 the rerigging began. Topmasts and topgallants were sent up in the traditional manner and the standing rigging was set up. The tight time schedule, combined with limited manpower, necessitated the use of a crane to rig the yards. Eight yards lay ready on the lift dock. Two would go on board later, due to late delivery of Douglas

Many volunteers, as well as shipyard staff, helped chip and paint the living quarters below decks on the *Conrad*.



With the *Conrad* afloat once again in March *(right)*, rerigging began and the yards were sent up and secured.

fir from the West Coast. On March 23, all eight yards went aloft and were secured. The *Joseph Conrad* was ready to return to her berth with the tide on April 4 right on schedule. Seven months of work, requiring an enormous breadth of skills, have resulted in a sound ship, safe and able to resume her important role at the museum.

However, ships are never "done," never "fixed" in landsman's parlance. A new teak deck will be needed along with new sills for the deckhouses and skylights; her transom needs new plating and framing; her stern decoration, long gone, will bring life to her; her stunsail yards and gear must be made and rigged; her boat davits hang empty of the handsome pulling boats used to train thousands of cadets in years past.

These will come; now that the ship is sound.

A complete record of plate repair and the materials used in the restoration of the *Conrad* are on file at the Henry B. duPont Shipyard in a plan entitled *Joseph Conrad Shell Plate Thickness*, September, 1977, by Robert C. Allyn.



The *Conrad* Yards: A Close Look at the Restoration Process

By WILLITS ANSEL

Before being hauled last fall, the *Joseph Conrad* was rigged down, and her spars and rigging brought ashore for work during the winter months. Topmasts, topgallants, and yards were taken into the shops of the Henry B. duPont Preservation Shipyard, and all standing and running rigging sent to the rigger's loft. Rot was discovered in the five largest yards. These were condemned and new yards were turned on the spar lathe in the Shipyard.

The problem of maintaining spars on vessels not in service is difficult. Yards, which hang horizontally, are particularly vulnerable to rot on the upper surfaces. Maintenance calls for striking the smaller yards for the winter, and cockbilling the larger (leaving the yard in place but canting it to an angle so that water will run off). This procedure is accompanied by a continuing program of painting and filling checks (cracks running along the grain of the wood). Rot originating in checks is the main cause of deterioration of yards, masts, booms, gaffs, bowsprits, and other spars. Many different substances have been tried at the Seaport, some traditional, some new, in trying to determine which is the most effective for filling checks. Beeswax and tar, tallow and white lead, polysulfide compounds, and Vaseline have all been tried. The Shipyard constitutes a working laboratory in preservation technology, which is one of Mystic Seaport's most important contributions.

Checks on the top surfaces of the yards are caused by sunlight breaking down the protective coatings of paint; these become collecting places for fresh water. Freezing in winter weather frequently opens them further. Rot begins forming at the bottom of the checks. If not too deep, small rotten areas may be graved out and a dutchman (wooden filler piece) fitted and glued in. More advanced rot will go to the center of the yard and will work along the check resulting in a yard that is dangerously weakened.

Upon examining the *Conrad*'s yards it was found that five out of the twelve yards needed replacement. These five were the largest: the fore, main, and mizzen lowers, and the fore and main topsail yards, ranging in length from 42 feet to 50 feet 6 inches. The diameter of the largest was 12½ inches. Timber stock of such length would have to be specially ordered and would be expensive. The possibility of splicing together shorter timbers was explored. Research revealed that the same problem had occurred in the past and the same solution considered. Because of short spar stock, the British were scarfing (i.e. joining) and banding yards with iron as early as the 1700s. Shorter timbers of Douglas fir, is stocked in some lumber yards for construction purposes. Timber suitable for spars may sometimes be found among construction-grade lumber if it is picked over. The Weyerhaeuser Company in Portsmouth,

Author of the *Restoration of the Smack Emma C. Berry*, Willits Ansel has been at the Mystic Seaport Shipyard for the past eight years. He holds a B.A. degree from Stanford and an M.S. from the University of Wisconsin.

Rhode Island became interested and involved in our problem, furnishing a forklift and operator to assist one of our shipyard men in looking for suitable mast stock. Factors governing selection were size and location of knots, size of checks, and location of the heart.

In 1974 the Henry B. duPont Preservation Shipyard was fortunate in acquiring a spar lathe of a size which would enable shipyard personnel to turn any mast or yard required for any vessel at Mystic Seaport. The largest turned thus far was a new mizzen mast for the *Charles W. Morgan*, over 70 feet in length.

With the spar lathe, a scarfing machine was acquired which, until the restoration of the *Conrad*, had never been used. This machine cuts a scarf with a slope of 1 to 12. Such a joint when properly glued, gives a strength of 90% according to U.S. Government test reports. It was decided to place the scarfs in the middle of each yard where the glue joint would receive the additional reinforcement of three forged iron bands for the halyard and yoke.

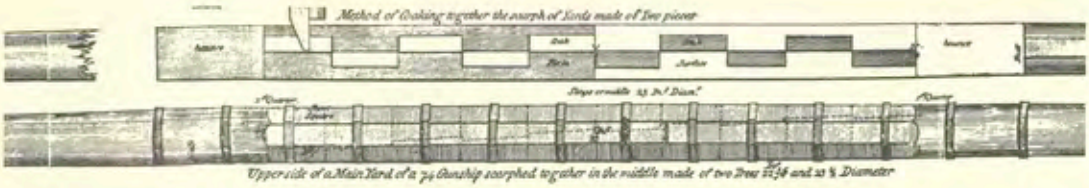
Initially the scarfs were roughed out with a chain saw and splitting wedges; then the ends of the timbers were put in the scarfing machine and the scarfs planed. The joint was glued with epoxy. Gluing surfaces were first roughened and heated before the glue was applied. The first coating was allowed to penetrate fifteen minutes before a second coat was spread. After the epoxy was applied to both surfaces the pieces were joined together and clamped. One of the Shipyard shops was maintained at a constant temperature of 70 degrees for one full week in order to allow the glue to cure.

The scarfed timber was then chucked into the lathe, giving careful attention to the location of the heart and the presence of any set (curvature) in the piece. A three foot section in the middle of the yard was first turned and sanded. It was this section which would act as a bearing surface on the steadyrest (see illustration). The steadyrest used consisted of a block with a V-shaped notch which was lubricated with Vaseline. After considerable experimentation, this design was found to be the easiest to handle and the best for aligning the axis of the spar on each side.

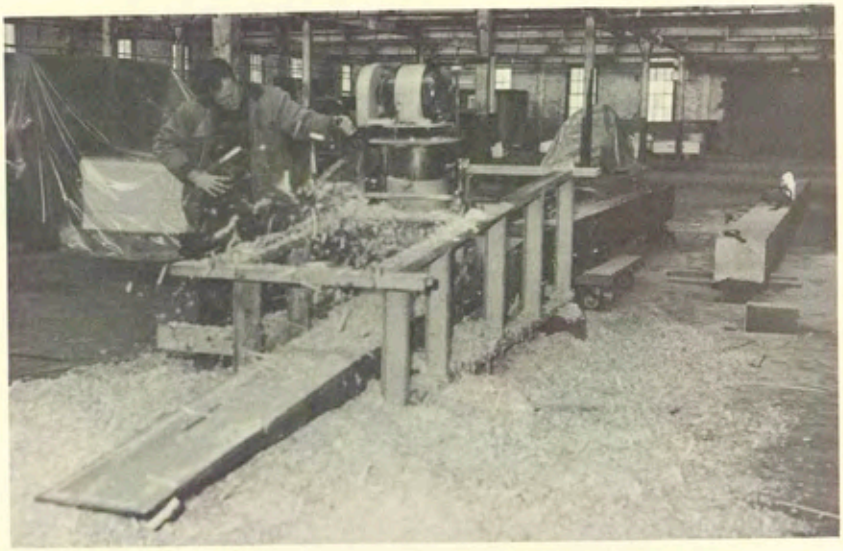
The track, which guides the lathe's cutter head, was adjusted for the required taper. The spar was turned and sanded on one side of the steadyrest, and then on the other. The cutter head was used to chip within a quarter of an inch of the final diameter and a sanding head used to finish. Shoulders were cut with a dado cutter head. Machine time for cutting each yard was about twenty-four hours.

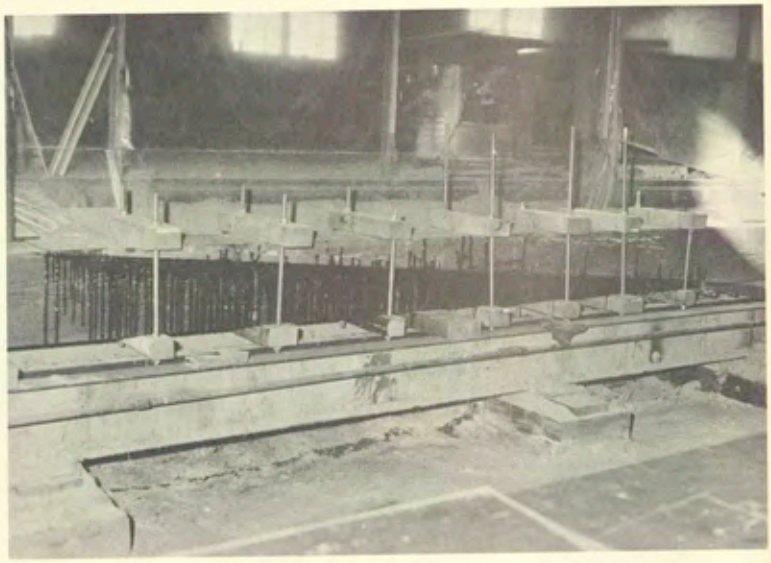
In order to prevent rotation of the iron bands when they are bolted around the yards, the middle section of each yard is octangular in shape. The flat faces of this section are planed with a hand-held electric planer. The yard is then given a coat of raw linseed oil and turpentine to reduce its tendency to check. Checks generally appeared during turning, apparently as a result of tensions within the wood. It has been our experience that this occurs even in old, well seasoned wood.

All ironwork was removed from the old



An illustration from Steel's *Elements of Mastmaking, Sailmaking, and Rigging* showing a scarf held by bands in a British ship of the 1790s.



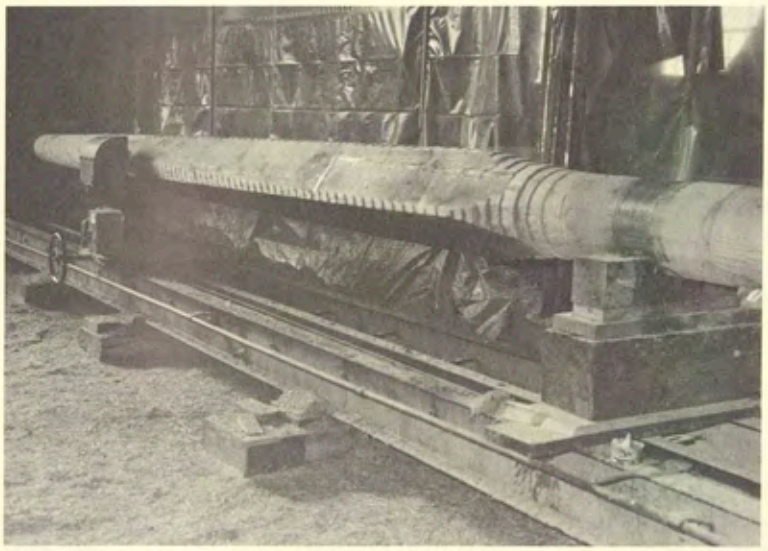


The author first shapes the ends of the timbers with the scarfing machine *(above)*, then *(right)* glues and clamps the 12-foot joint.

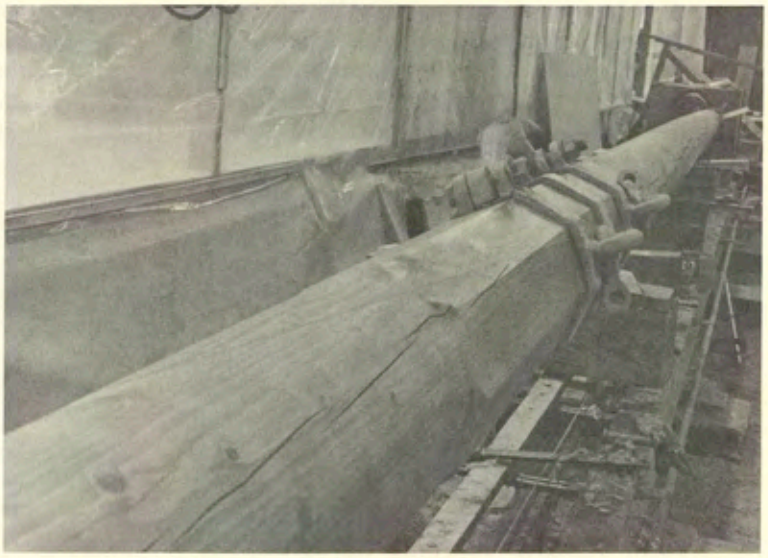
yards, sandblasted and painted with a rust preventer. Fitting the bands, shivs, eyes, and jack stays required about a week's work for each yard, which was then given a coat of primer and two coats of finish paint.

Until recently, standard, premixed, marine paints were used at Mystic Seaport on yards and masts. Over a period of time however, we began to question whether these paints with their drying agents gave the same protection as the older, slower drying paints. An arrangement was made with a commercial paint company to mix paints according to older formulas, and we are now using these paints on an experimental basis.

Frequently visitors at the Shipyard ask why power tools are used in restoring historic vessels rather than hand tools exclusive-



The yard is in place on the spar lathe *(above)*, with the steady rest in the foreground. The turned yard *(right)* next has the bands fitted to the 8-sided middle section.



ly—in the case of spars, the broadax, adz, drawknife, and spar plane. For some work, traditional tools are superior still; on other jobs however, power tools are great time savers when their use does not impair the authenticity of the finished product. To meet the great responsibility of preserving Mystic Seaport's large collection of boats and larger vessels, the Shipyard must use the means and tools that are the most efficient and effective.

Approximately one hundred man hours were expended on each yard for the *Joseph Conrad*. With delays for glue-curing and paint-drying, about three weeks were required from rough timber to finished yard with all its ironwork fitted.

DIRECTOR'S PAGE

Few museums must cope with artifacts that are as large and complex as the *Joseph Conrad*, but within Mystic Seaport this problem and others of equal magnitude are being dealt with daily. The *Conrad* is symbolic of the challenges we, as members and staff, must face in order to meet our commitment as a maritime museum.

Today, the staid atmosphere of many conventional museums is being shattered by the economic and social pressures of our changing world. These museums are having to make drastic, sudden changes in response to their crisis situations. Our museum, on the other hand, has been constantly changing. During nearly half a century, we have perceived opportunities to enhance our visitors' experience and to increase in the public an awareness of the sea through programs reaching beyond the museum. Through the foresight of our past leaders, this museum has evolved from the "traditional" Marine Historical Association of the early 1930s, into the dynamic institution that is the Mystic Seaport of today.

With our basic obligation to accumulate and preserve the physical evidence of our maritime heritage, we have developed a very extensive collection. From this base, we expanded our thinking into preserving other viable aspects of maritime life. Within our ship restoration program, traditional shipbuilding skills are constantly in use; while in our village exhibit we are conveying information not only about the objects in the buildings, but the character of life in a nineteenth-century New England coastal community. Our Library is a recognized maritime research center, and our publications offer an opportunity to distribute important information to a wide audience throughout each year. Our various education, training, and college level programs, give people of all ages a firsthand exposure to maritime skills and tradition. The changes have been deliberate and, through them, we have been recognized as innovators in the maritime museum field.

As I assume my new role as Director of this active and respected institution, I am aware of one major challenge facing all of us. Our primary task is to insure the continued quality of this museum by preserving not only its collections, but also its programs and its staff. It is costly to operate a museum of this scope, but I am confident that support can be found for our programs of proven quality and merit. From a foundation of financial stability, Mystic Seaport will improve and be able to remain among the leading maritime museums in the world.

The challenge lies ahead and our course is clear.

J. Revell Carr

BOOK REVIEWS

The Cape Cod Canal. By Robert H. Farson. (Middletown: Wesleyan University Press, 1977. xiv + 177 pp. 165 illustrations, bibliography, index. $14.95, cloth. $6.95, paper.)

As early as 1697, the Massachusetts General Court acknowledged that a canal across the isthmus of Cape Cod "was very necessary for the preservation of men and Estates, and (would be) very profitable and useful to the publick." And at regular intervals throughout the next two centuries old canal surveys were dusted off and new surveys conducted—while canal promoter followed canal promoter to whatever corner of Hell is reserved for artists of the fast buck and engravers of the worthless stock certificate.

Meanwhile, the "Ocean Graveyard" between Monomoy and Wood End exacted its relentless yearly tribute, with 687 vessels reported wrecked, at least 105 lives lost from 1875 to 1903 alone. The *Marine Journal* called the outer Cape "the most dangerous coast in winter to be found on the map of the United States." There are many who would confer this dubious distinction on Cape Hatteras. What difference to those who have perished on either cape?

The United States had the engineering capability and manpower to dig a navigable channel across the Cape Cod isthmus almost from the first. But it wasn't until 1907 that financier-sportsman August Perry Belmont (whose maternal roots lay in Bourne and who was justly proud of his Perry blood) put together an adequately funded canal construction corporation and got on with the job. Dredging began in earnest some two years later.

At last, on the afternoon of 29 July 1914, the sidewheeler *Rose Standish*, under charter for the occasion to Belmont and his stockholders, led a flag-bedecked flotilla of naval vessels, yachts, and commercial craft into the western entrance of the canal. Slicing through a length of red, white, and blue bunting suspended across the canal near Gray Gables, *Rose Standish* proceeded without incident and "at the lowest possible speeds that (would) afford steerageway: the remaining 7.68 miles of "Belmont's ditch" and into Cape Cod Bay. Brass bands and speeches were the order of the afternoon in Sandwich. The dream became reality.

Despite the hefty tolls originally charged by the Canal Company, the canal showed an operating loss of $1.5 million during its first three years of operation. Out of old custom or for reasons of economy, or both, much of the canal's potential traffic continued to sail around the Cape. Only a year after the canal opened for service, Belmont was willing to consider sale of the canal to the Federal government. (Incredibly enough, the General Board of the Navy initially opposed the purchase.) It wasn't until the end of World War I that the Canal Company (which was by now in deep financial difficulties) and the War Department (which now had ample evidence of the canal's military worth) commenced their interminable haggling over the terms of condemnation. August Perry Belmont had been dead four years when the United States took formal title to the canal in 1928. Belmont's estate showed an actual loss of about $5 million on the venture. For once, American taxpayers got a bargain.

Under new management by the Army Corps of Engineers, the canal was substantially widened to allow for two-way traffic by all but the largest vessels. The canal was dredged to a controlling depth of 32 feet. The troublesome double band at the Buzzards Bay entrance was eliminated by the creation of Hog Island Channel. As of 1940, the Cape Cod Canal, and the dramatically handsome new bridge spanning it, was ready for the challenge of a new world war and for the boating boom that followed.

Robert H. Farson's history of the canal is concise, workmanlike, and readable. Although Farson, a professor of journalism at Penn State, has relied very heavily indeed on William James Reid's *The Building of the Cape Cod Canal* (a doctoral dissertation that was privately published, without the scholarly apparatus, for Eleanor Robson Belmont in 1961) his own lack of scholarly pretension is disarming. Farsons account of the canal's day-to-day operations will be of particular interest to those who make frequent use of the canal. The remarkable collec-

tion of illustrations Farson has included in this well-produced book amply justify its high hardcover price.

For the serious student of maritime history, Reid's *The Building of the Cape Cod Canal* still remains the best source of information about "Belmont's ditch." For the general reader, Robert H. Farson's *The Cape Cod Canal* will serve nicely. Yachtsmen may even forgive Farson for stating that skippers of pleasure boats that do not have radios are "amateurs as far as water safety is concerned. Or perhaps the author will qualify that statement in a second printing of *The Cape Cod Canal.*

Llewellyn Howland, III

The Finest Kind: The Fisherman of Gloucester. By Kim Bartlett. (New York: W.W. Norton & Co., Inc. 1977. 251 pp. Photographs. $8.95)

The schooners are gone. The dorymen, who were so highly vaunted by James B. Connelly, toil no longer hauling their lines from small boats on the open ocean. Yet, even if the romance of white sails and supposedly iron men has vanished, the catching of fish is still a serious business. In recent years, emphasis has increased on the condition, even the plight, of the New England fishermen.

In *Fishermen of Galilee* (Univ. of Rhode Island, 1974) John Poggie, Jr. and Carl Gersuny propose a sociological model of human ecology based on the fishing community of Galilee. In the process, they reveal something of the attitudes of these fairly successful fishermen. Gersuny and Poggie, with Robert J. Marshall, Jr., then apply their model of human ecology to New Bedford and Stonington fishermen to identify *Some Effects of Technological Change on England Fisherman* (Univ. of Rhode Island, 1975). They note a decrease in optimism from the level in Galilee and a rapidly impending need for controls to limit the overfishing which threatens New England fishermen. In *Tell it Good-bye, Kiddo* (International Marine, 1976) David Boeri and James Gibson ably trace the decline of the New England offshore fishery in the face of newly mechanized, highly developed European and Canadian fishing fleets, as well as the coincident decline in the spirit of the fishermen. They also warn of the dangers of uncontrolled harvesting of a resource on which we may become increasingly dependent for protein.

Now, a new book takes the reader directly into the daily existence of the modern Gloucester fisherman to view exactly the effects of the conditions analyzed in the above works. Kim Bartlett, author of *The Finest Kind*, does not intend to analyze or preach about the innumerable impediments in the fisherman's life; rather, this self-styled "freelance writer, part-time farmer, sculptor, woodworker, house-husband, father, and fish monger," turns his artist's eye on his friends, the fishermen, to present us with meticulously carved vignettes. He picks out the details in high relief, as do Nubor Alexanian's accompanying photographs, allowing us to sense the experience, to appreciate, to enjoy; and perhaps to conclude. This approach can cause difficulties if, for instance, the reader knows nothing of the fisheries and cannot visualize the description of the handling of the otter trawl. Still, anyone can understand the human aspect. With various members of the inshore fleet, we drink 3 A.M. coffee; we watch the sun rise as we leave Gloucester; we set the otter trawl; we wait; we haul back expectantly; we clean the catch; we head back; unload, and ease into life ashore again. Friday, we stay ashore working on the boats, settling up the week's trips and taking it easy with a couple of beers at Mitch's or Joe's Dugout.

When we head offshore aboard the *Joseph & Lucia III*, we too work into the routine; try to second guess the skipper; try to second guess the fish; curse the haddock for being so numerous when the law says they can not be caught in such volume, and curse the fish dealers for seeming to take the sweat and livelihood of the fishermen and value them so low.

When we come ashore, and put the book down, we begin to hear what all these details have been saying. What we hear are contradictory statements. Certainly, the romance of the New England fisheries is in the imagination, not in the stark light of a donut shop at 3 A.M. nor in the constant smell of diesel exhaust and the steady vibration of the boat, nor in the waiting to haul back, nor in the work on a "rimwracked net," nor in the frustration of feeling powerless when the fish are unloaded and the dealers decide how much they are willing to pay, and the crew needs money and the boat needs work, and everything except fish is so expensive. Yet the fisheries remain an opportunity for alien fishermen, particularly Sicilian who, like the Nova

Scotian and Newfoundlander before them, find conditions so much better in Gloucester.

In the end, it comes down to the men, who echo the contradictions in the fisheries themselves. They can be harsh, petty, fatalistic, fun-loving, generous, and optimistic. There is Salvi, who takes his fishing so personally. Santo, the immigrant who takes it so seriously, Olly, who fishes alone, and Tommy Brencaleone who hunts grey sole offshore to the sounds of romantic music. It is clear that Mr. Bartlett appreciates these men, and he makes us appreciate them. Finest kind.

Andrew German

BOOK ANNOTATIONS

"Home At Last!" A Voyage of Emigration to Liberia, West Africa in the Cold Spring Harbor, L. I. Brig. John H. Jones, 1861–1862. From the journal of Charles Jones Stewart (1842–1887). Edited by Frederick P. Schmitt. (Cold Spring Harbor, N.Y.: Whaling Museum Society, Inc., 1977. 14 pp. Illustrations. $2.40 post paid)

Here is a unique journal indeed, written by a highly intelligent perceptive, young employee of the Atlantic Mutual Insurance Company in 1861–62. It is totally absorbing.

Founded in 1817 to send freed slaves to West Africa, The American Colonization Society purchased Monrovia (named for President Monroe) in 1821, and later established the independent Republic of Liberia. On this passage to Monrovia, in addition to a crew of thirteen, the diarist's companions numbered ninety-five black passengers of all ages and from all parts of the United States, several fine cattle (for improving the native African stock) and a handful of hounds. A manifest which "made quite a large and lively mixture" for the voyage.

Young Stewart's enthusiastic appetite for adventure on this his first voyage plus his wit in the telling transform the most ordinary sightings into visual events. Not that genuine excitement was lacking: smallpox broke out among the emigrants; a fierce tropical electrical storm aroused understandable anxiety about six thousand kegs of powder stored aboard, etc.

Upon arrival at Monrovia, Stewart's alert and sympathetic vignettes of blacks both native and American provide a rich, first-hand peek into a relatively obscure corner of history.

This pamphlet, 8" x 11" in page size with three columns per page, contains more text than one would assume by noting the collation. Stewart is well served by his editor Frederick P. Schmitt, curator of the Whaling Museum at Cold Spring Harbor, where the original manuscript is preserved.

A History of War at Sea: An Atlas and Chronology of Conflict at Sea from Earliest Times to the Present. By Helmut Pemsel. (Published and distributed in the U.S.A. by the Naval Institute Press, Annapolis, Maryland. First English-language edition, 1977. 176 pp. 250 maps. Copious index. $15.95)

A stupendous achievement. Helmut Pemsel of the Society for Austrian Naval History has written a concise, meticulous chronology of naval warfare—spanning 492 B.C. to 1973—which is matched in quality by 250 crisp, detailed maps constructed by Helmut Fechter. Comparative fleet strengths are consistently presented as is the evolution of warships and weapons in a series of line drawings and diagrams. An admirably smooth, idiomatic English translation has been provided by Major G. D. G. Smith. The Naval Institute Press will receive the praise of historians and naval buffs alike for making this important work available in the United States.

Challenge '77: Newport and the America's Cup. By Ted Jones. (New York: W.W. Norton & Co., 1978. 266 pp. Illustrated. $14.95)

A candid, gossipy, at times irreverent memoir of the great event last summer and its effect on the town of Newport. Consistently entertaining, more appealing perhaps to landlubbers than to yachtsmen. Illustrations are appropriate but not particularly memorable.



ACQUISITIONS

The Seaport has recently purchased this watercolor, "Boston Harbor at Low Tide," by the Massachusets marine painter Hendricks A. Hallett (1847–1921). The scene was probably painted in the 1880s and portrays the commercial harbor on a windless summer afternoon with a fishing schooner coming home and a brig careened on shore for repairs. Hallett, who studied in Antwerp and Paris, was a member of the Boston Society of Water Color Painters (Accession No. 78.10).

PHOTO CREDITS: Cover, p. 56, Claire White Peterson; pp. 40 bottom, 41, 45, 46, 50, 52, 53, 56 bottom 57, back cover, Mary Anne Stets; p. 48, Richard W. Woolworth; p. 49, Kenneth Mahler; p. 28, Alan Villiers *The Cruise of the Conrad*.

AN INVITATION TO JOIN MYSTIC SEAPORT

We should like to extend a cordial invitation to like-minded individuals to join with us in programs dedicated to the preservation of our national maritime heritage. Annual dues materially strengthen Mystic Seaport. At the same time, a member receives tangible benefits and privileges:

Unlimited Free Admission to Mystic Seaport during museum hours. (In all classifications above Individual, this applies to the immediate family: husband, wife and their children through the age of eighteen).

Receipt of THE LOG *of Mystic Seaport*, a quarterly magazine devoted to articles on maritime subjects.

Receipt of the WIND ROSE, the Seaport's newsletter, reporting on current museum activities and personnel.

A 10 Percent Discount on purchases at the Mystic Seaport Museum Stores, Inc.

Purchase of Guest Ticket Books at substantial savings.

Eligibility for Subscriptions to the Adventure Series, illustrated lectures for armchair travelers.

Memberships are available in the following categories:

Individual	$15.00	Sustaining	$ 100.00
*Resident Family	20.00	Associate	250.00
Family	25.00	Life	1000.00
Participating	50.00	Benefactor	5000.00

Contributions to Mystic Seaport are deductible within legal limits for U.S. income tax purposes. Please make your check payable to Mystic Seaport, Inc. and send to: Membership Office, Mystic Seaport, Mystic, Connecticut 06355

*Available to year-round residents of Groton, Ledyard, North Stonington and Stonington.





GIFTS AND BEQUESTS

The physical development of the museum—the buildings, ships and wharves, the exhibits, books and manuscripts—give eloquent testimony to the generosity of members and friends of Mystic Seaport. There is a continuing need for gifts and bequests which will help assure its future strength and development through endowment.

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 as a residuary or contingent beneficiary of all or a portion of their estate.

Mystic Seaport, Inc. is a publicly supported nonprofit institution and 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 Development.

SUGGESTED FORMS FOR BEQUESTS

General

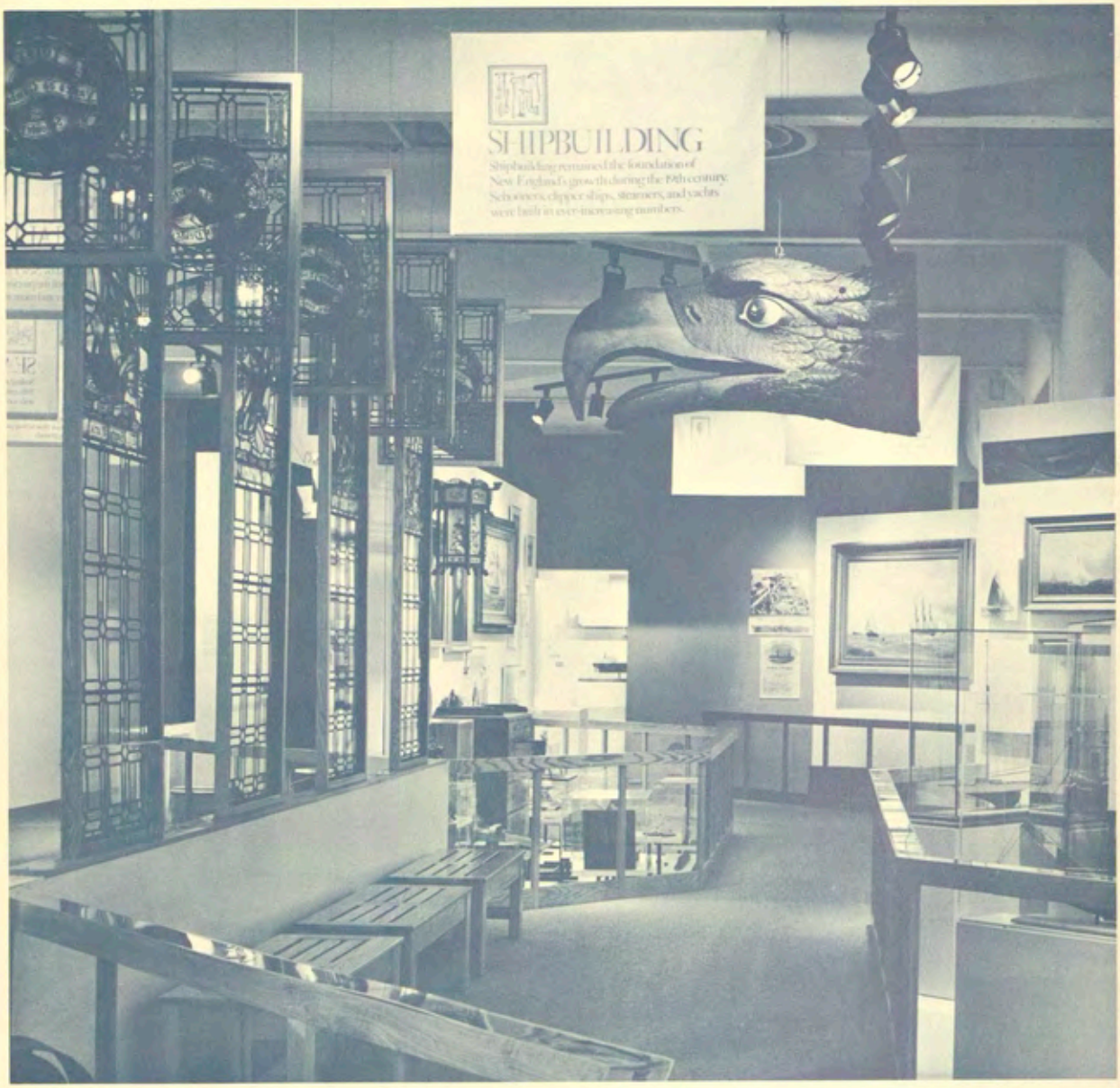
I give and bequeath to Mystic Seaport, Inc., a corporation existing under and by virtue of a charter granted by the State of Connecticut, and located in Mystic (Town of Stonington) in said State, $....., to be used (or the net income to be used) at the discretion of the Trustees of said Corporation.

Residuary

All the rest, residue, and remainder of my real and personal estate I devise and bequeath to Mystic Seaport, 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.



The *Joseph Conrad* under full sail in high seas off Sydney, Australia, 1934.



THE LOG
OF MYSTIC SEAPORT

Mystic, Connecticut 06355

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