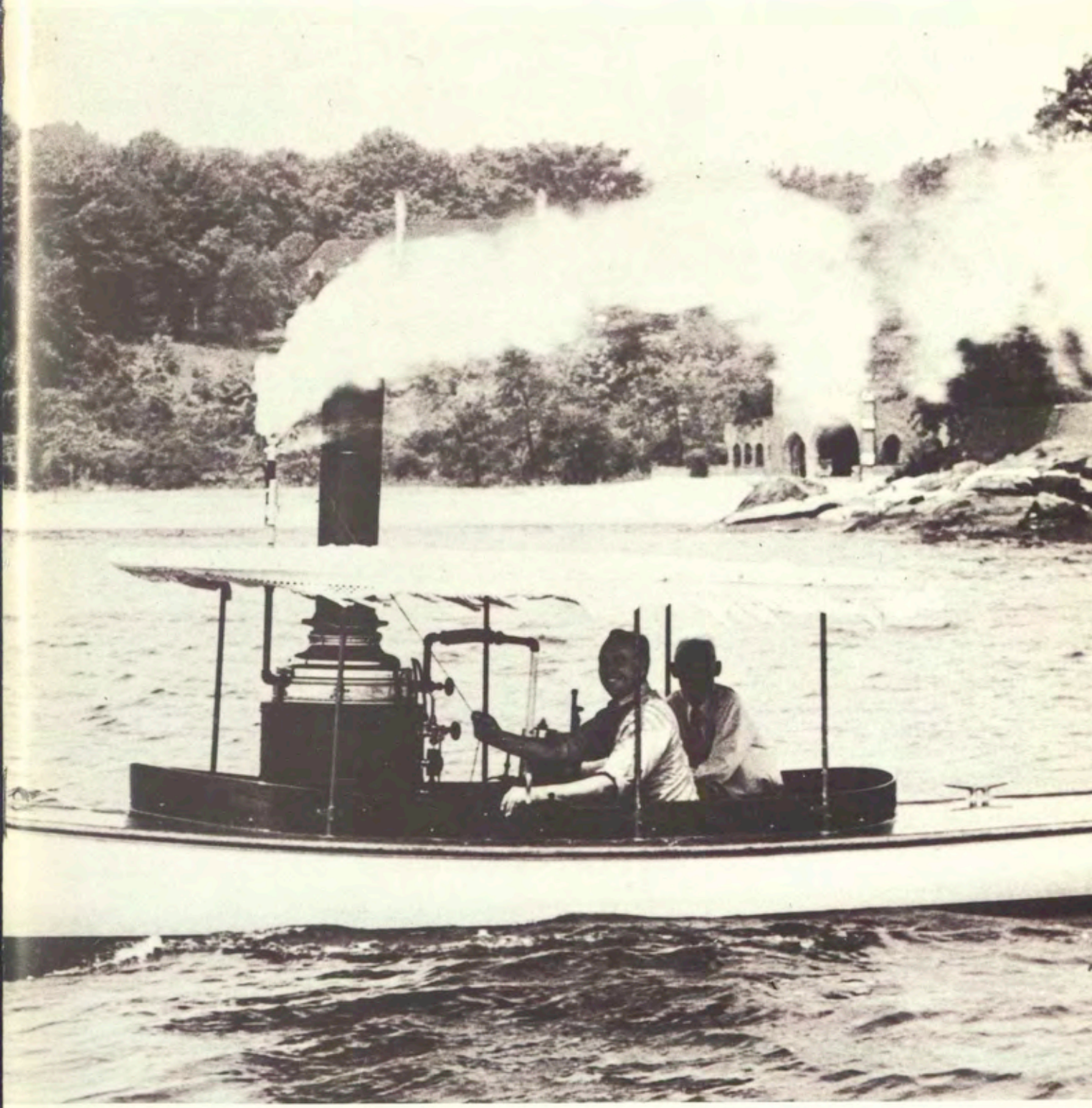
The Log *of* Mystic Seaport

Autumn

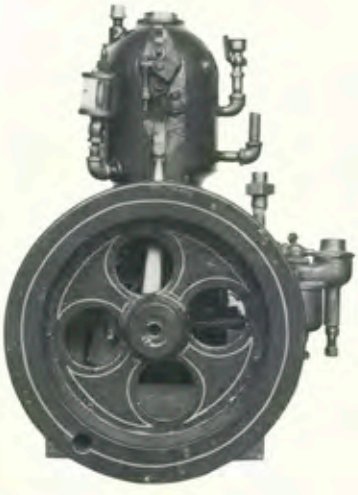
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On the cover: *Mystic Seaport's steam launch* Nellie, *representing the beginnings of recreational marine power in the nineteenth century. (Courtesy Robert Holbrook)*

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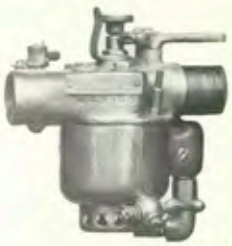
Sightings



A few years ago, as I visited the Folk Museum of Oslo, one of the world's earliest outdoor museums, I was struck by how natural the ancient stave church looked in its setting. It appeared to have been there for a hundred years. I soon realized that it had, in fact, been there a hundred years, and that the early design for this venerable museum has worked well to accommodate the diversity of historic structures that have been brought from all parts of Norway. ❧ Mystic Seaport has been evolving on the banks of the Mystic River for more than 60 years, and it now has much of that same natural appearance, with mature trees growing among the structures that have been moved here. It is easy to forget that the Museum was created by design, and that good design is very much a part of so many aspects of Mystic Seaport. ❧ This issue of *The Log* is clear evidence of the application and importance of design in our work. We have reached another moment of change in the 45-year evolution of this publication, a moment in which we pay tribute to a designer who has helped Mystic Seaport for a decade, and a moment in which we welcome to *The Log* a designer who has helped us in other areas in recent years. ❧ The designer's subtle artistry has been evident in the work of Marie-Louise (Mimmi) Scull in numerous brochures and books published by the Seaport during the last ten years. Although the informational content of a book is the critical factor, its readability and appeal are largely dependent on its design. Readers of the books Mimmi designed for us have benefited from her talent and her steady, gentle, designing mind. In 1989 we asked her to change *The Log* to accommodate further illustration plus more Seaport news and information for our members. Mimmi's fine solutions to the changing requirements of *The Log* have been evident in the last 13 issues of this publication. ❧ A few months ago Mimmi informed Log Editor Andy German that circumstances required her to cut back on her work load and that, regrettably, she could no longer design *The Log*. We greatly appreciate all that Mimmi has done for the Museum, and we will miss her creative eye and good-natured approach. ❧ With Mimmi's departure, Andy German and Associate Editor Leslie Gifford approached a number of able designers in the region, who submitted an impressive array of proposals for carrying on *The Log*. Working with a small staff committee, Andy and Leslie selected Peter Good and his associates in Peter Good Graphic Design to take on *The Log*. ❧ Peter Good's creativity was clear to us from his work on the 1989 annual report, and on the materials he developed for our current capital campaign. He and his colleagues have proven to be both talented and very good people - no pun intended - to work with. As you can see from this issue of *The Log*, Peter Good has created a distinctive new design for the years ahead. ❧ For our members, *The Log* is probably the most constant reminder of design at Mystic Seaport. But throughout the Museum, we are consistently creating new designs for the present or preserving old designs from the past. Our visitors are engaged by our well-designed exhibits and find respite from this fast-paced world in the landscape design of our grounds. People learn about the Museum and its numerous programs from brochures, posters, advertisements, and various publicity pieces, each of which is designed to convey a particular message with a particular feeling about it. Several Museum departments, as well as the Museum Stores, create well-designed products unique to this institution. And in the Museum's collections, we preserve designs of all varieties, from silver trophies to scrimshaw, half models, actual vessels, the drawn designs of great naval architects, and the architectural designs we preserve in our historic buildings. ❧ It is not stretching the point too much, I think, to note that our students – at all levels – benefit from well-designed curricula, as do the participants in the many classes and programs offered by the Museum. Our financial responsibilities are met through the design of our accounting systems, while our communication and information management are improved by computer systems and network designs. ❧ The word "design" connotes purposeful forethought and skillful execution, and it is our hope that the thoughtful designs implemented throughout the Seaport strengthen the institution and provide a positive and lasting impression for members, visitors, users, and staff. To this end, we will continue to draw on the talents of staff members and outside designers like Mimmi Scull and Peter Good, in order to maintain the integrity of design that distinguishes Mystic Seaport.

J. Revell Carr

The Coming of the Explosive Engine, 1885-1910



CLAIRE WHITE-PETERSON PHOTO

BENJAMIN A. G. FULLER

The Sound of the Engine Was Heard Over the Waters, And Things Changed...

"I can still hear the one-lungers that first day of November when the scalloping started," recalled Charlie Sayle of Nantucket. "At break of dawn, the whole town would wake up to them. There'd be 40 or 50 of 'em cracking away all over the harbor."[1]

For centuries, waterfronts had been quiet places. But as the nineteenth-century Industrial Revolution went to sea, they began to change. The relative silence of sail and oar began to give way to blowing steam whistles and boilers venting steam, the din of machinery in motion and slapping sounds of paddle wheels. Still, the sounds of steam at work were not much louder than the clop of hooves on the quay or the call of a waterfront vendor, the bellow of a mate or a stevedore, the moan of the wind in a ship's rigging or the thunder of a luffing sail. But, at the end of the nineteenth century, the bark of the explosive engine changed all this.

The sound of the engine meant a maritime revolution, a revolution in how people moved on the water in small craft. For both the inshore fisherman and the small cargo carrier, the engine's bark meant relief from the toil of the oar or the whims of the wind. And it made the sea accessible to new users: amateurs or recreationalists, whose craft and supporting industries now dominate the waterfronts of New England and much of the rest of America. It was a rapid revolution, transforming the waterfront in the scant ten years between 1900 and 1910. By 1908, the year Henry Ford's Model T automobile went into production, gasoline engines had already conquered the inshore waters and were a fully developed technology.

Just 100 years earlier, marine steam engines had begun to be commercially successful with Robert Fulton's *North River Steamboat* of 1807. In a steam engine, steam is injected into a cylinder, pushing a piston. More sophisticated engines allow pressurized steam to expand during part of the stroke. They also cool the exhaust steam rapidly to create a vacuum that pulls the piston. By the 1880s, engines economical enough to compete successfully with sail were entering service on the most distant ocean routes, reducing the ocean-roaming sailing ships to about 30 percent of the world's merchant fleet by 1910.[2] In these compound and triple-expansion engines, steam progresses through two or three increasingly larger cylinders to make full use of its expansive power before it is cooled and condensed. But such engines, with their bulky boilers and need for copious coal bunkers, as well as the requirement that they be operated by licensed engineers and be inspected, were unsuited to most



H.A. Lozier's Shooting Star, *a 37-foot lapstrake boat with an 18-horsepower Lozier "auto-marine" engine, was launched from Lozier's Westchester, New York, plant just in time for the first American Powerboat Association regatta, held at Manhasset on Memorial Day, 1904. Photo by Charles E. Bolles. (Neg. Y1061, © Rosenfeld Collection, Mystic Seaport Museum, Inc.)*

Engine builders

aimed their message

at the emerging

market of middle-class

recreationists,

people who could afford

their product.

working small craft. Small steam launches did become a popular form of pleasure craft in the 1870s and 1880s, but they had limited capacity and were expensive, complicated, and dirty.

In contrast to steam engines, internal combustion engines rely on the explosive burning of a compressed mixture of fuel and air. The resulting high-pressure gasses drive a piston in a cylinder. Internal combustion engines are now ubiquitous; we take their benefits–and their problems–for granted, but the principles for such an engine were not introduced in America until 1876.

Technological innovations–the steam engine in 1800, the internal combustion engine in 1900, the personal computer in 1980–need three things to succeed. Innovators must understand the principles of the device–how it works. Production skills must allow the device to be built for a reasonable price, with enough quality and reliability to make it functional. And a market must be created, letting consumers know it exists, suggesting that they need it, and getting it to them conveniently. Successful innovators and entrepreneurs succeed at all of these levels.

With new technologies, the pace of adoption varies widely depending on the development of these three elements. Steamships took almost a century to



The Rudder, *August 1893*

drive sailing vessels off the sea, but that was a bootstrap technology, paced by steam engine development that had to "build the tools to make the tools" and create new principles as it went along.[3] The steam engine created the Industrial Revolution of the early nineteenth century: machine tools, research into metals, and indeed the engineering profession. By the last quarter of the century, metal fabrication and production skills were highly developed, as were marketing and communication methods. Internal combustion engine builders could adapt much of the existing technology to their work. With the widespread distribution of the explosive engine principle, the pace of adoption was fierce.

The European "invention" of the first practical internal combustion engine is credited to a German named Nikolaus Otto, whose design won a gold medal at the 1867 Paris Exposition.[4] His engine was based on one that was a cross between a steam and an internal combustion engine invented by the Belgian-born French inventor Jean Joseph Etienne Lenoir in 1860. Lenoir's engine burned fuel in the cylinder, but admitted the fuel with slide valves like a steam engine and relied on expansion of the mixture when heated, rather than on compression, to drive the piston. In 1861 Lenoir installed one of his engines in a boat and demonstrated it on the Seine, but his design was not practical enough; by 1867 Otto's had superseded it.

Otto's 1867 engine was much like a Lenoir. Working in partnership with Eugen Langen, Otto hired two additional engineers, Gotlieb Daimler and Wilhelm Maybach. By 1876 they had developed a fully practical "explosive" engine. The 1876 report in a *Scientific American Supplement* brought this engine to American public attention.[5]

Otto's 1876 engine was a four-stroke or four-cycle engine. On the intake stroke, the piston, moving away from the cylinder head, pulled a partial vacuum and a mixture of fuel and air into the cylinder. It then reversed direction, compressing the gas. At the end of the stroke, the gas was ignited and the force of the explosion drove the piston down on the power stroke. As it reversed direction and moved back toward the cylinder head, a valve opened and the burnt gas was driven out. The intake valve then opened, and the cycle started again. Otto's patent on this principle limited competition until the patent was overturned in 1886, after the discovery that a French engineer named de Rochas had described the theory in 1861.

The fuel used–gasoline, kerosene, or a heavier oil–were all products of the petroleum industry, which had existed in Europe even before it was successfully established in America after Edwin Drake drilled Pennsylvania's first oil well in 1859. Kerosene–a cheap alternative to wax, whale oil, and gas for lighting–was the primary product, but naphtha, gasoline, and other byproducts of the process of refining crude oil were all available in the marketplace.

In 1882 Daimler and Maybach set up a shop in Stuttgart to develop lightweight, high-speed–250 revolutions per minute–

engines. Their 200-pound 1.1 horsepower engine of 1885 weighed as little as one-fifth of an Otto engine, making installation in a boat or carriage feasible. In 1886 Daimler patented a boat motor and by 1891 was building boats powered by Maybach engines in Germany.

Meanwhile, in the United States, Frank W. Ofeldt created a different alternative to the marine steam engine when he launched a boat with a naphtha engine on New Jersey's Passaic River in 1883. Patenting his engine and taking as his partner Standard Oil executive J.A. Bostwick–who was looking for a way to use a petroleum byproduct called "gasolene"–Ofeldt established the Gas Engine and Power Company in 1885. During the next 20 years the company built some 2,000 naphtha engines, which were used in small pleasure launches, tenders for yachts and naval vessels, and even as auxiliary engines for sailing vessels.

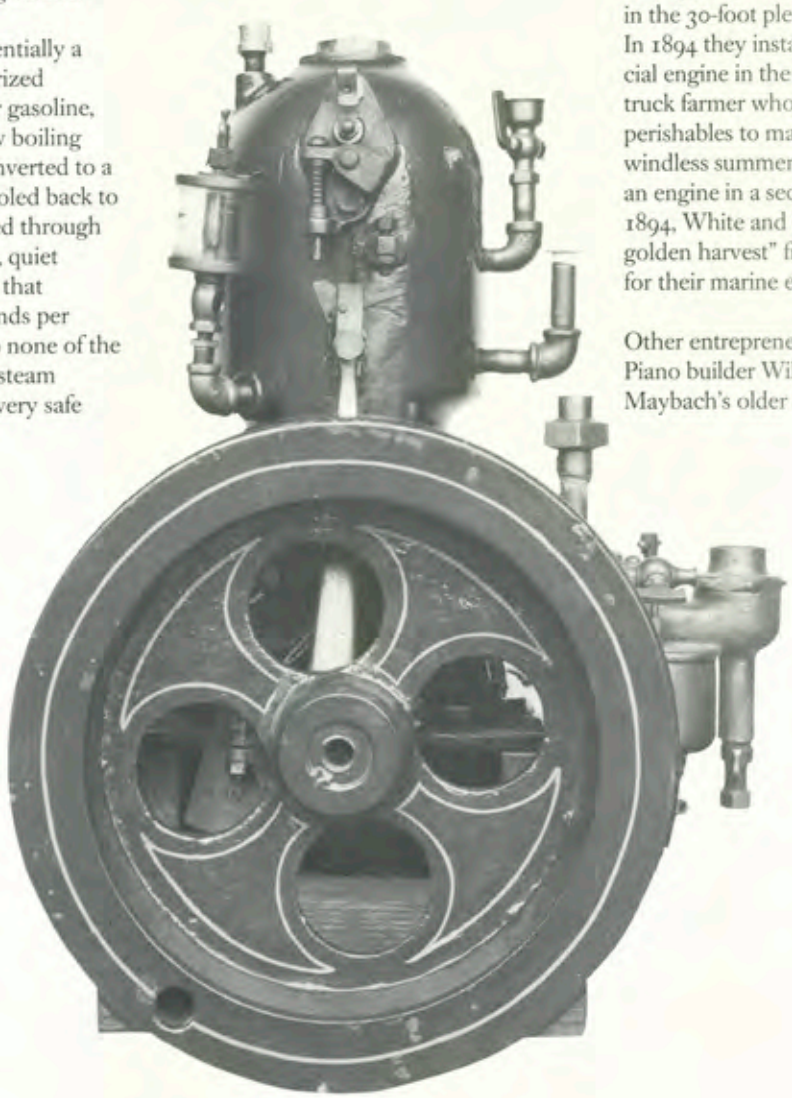
The naphtha engine was essentially a steam engine that used vaporized naphtha, the raw material for gasoline, instead of steam. With its low boiling point, naphtha was easily converted to a gas to drive a piston, then cooled back to its liquid state and recirculated through the system. It provided clean, quiet power in a compact package that weighed only about 100 pounds per horsepower. It was subject to none of the safety regulations governing steam engines and was considered very safe and easy to run, even though we would blanch at the idea of boiling gasoline: the slightest leak in the piping meant instant fire.

The popularity of the naphtha engine was reflected in the fact that the Monitor Launch Company of Grand Rapids, Michigan, built an early explosive engine with a casing that made it look virtually identical to a naphtha engine.[6] Ofeldt eventually sold his Gas Engine and Power Company, adapted the principle of the naphtha engine to alcohol, and established the Marine Vapor Company to manufacture the Alco-Vapor engine. But these variations on the steam engine did not survive the dramatic developments in explosive engine design.

In 1884, about the same time that Ofeldt began work, the first American claim to a marine internal combustion engine was made for an open-crankcase, four-cycle engine built by the Union Gas Engine Company of San Francisco. This company was affiliated with the Globe Company of Philadelphia, which had been building stationary Otto-type engines and which promptly added a marine engine to their line. Union introduced electricity to the ignition system by developing a patented make-and-break igniter, whereas Daimler engines relied on a heated tube for ignition.[7]

One way of adopting engines originally designed for stationary land use was tried in Baltimore in 1887. Baltimoreans, never shy at promoting their city, claimed it as the first marine use of internal combustion in the U.S. The engine was built by Charles White and Arthur Middleton, who had designed a horizontal engine on the Otto principle after opening a machine shop in 1884. Their four-horsepower vertical engine was installed in the 30-foot pleasure boat *Water Witch*. In 1894 they installed their first commercial engine in the bugeye *No Name* for a truck farmer who understood how to get perishables to market, even on a hot, windless summer day. After they fitted an engine in a second "business boat" in 1894, White and Middleton "reaped a golden harvest" from the local demand for their marine engines.[8]

Other entrepreneurs were also at work. Piano builder William Steinway had Maybach's older brother working in his



Among the hundred marine engines in the Seaport's collection is this 1.5 horsepower Hubbard two-cycle engine. Established at Middletown, Connecticut, in 1900, the Hubbard Motor Company produced both two- and four-cycle engines, ranging from 1.5 to 25 horsepower. Hubbard engines were known for their endurance and ease of operation. (M.S.M. 85.133; *photo by Claire White-Peterson)*



Powerboating has a strong appeal for the mechanically inclined. These men could do much of the work on this two-cycle engine themselves. Note the deflector on the exposed piston, and the heavy flywheel on the front end of the crankshaft, which maintained the engine's momentum between piston strokes. The rod on the flywheel is the starting crank. (Neg. 3441F, © Rosenfeld Collection, Mystic Seaport Museum, Inc.)

New York factory. In the summer of 1888, Steinway founded the Daimler Motor Company, intending to manufacture, market, and sell Daimler products. As one offshoot of his successful piano business, Steinway began to build boats, subcontracting the engine building to George A. Long of Hartford, Connecticut. Using sales skills honed in the highly competitive piano market, Steinway issued his first boat catalog in 1891.[9] His products were not cheap. A one-horsepower engine cost $325, plus $650 for a boat to put it in. That $975 was about twice what Steinway was likely paying his best workers annually.[10]

At the Chicago Columbian Exposition in 1893, a third technology–electricity–powered boats that transported visitors on the canals built for the fair. The Electric Launch Company–Elco–was organized to build these boats, subcontracting the work to Charles L. Seabury–the boatbuilding part of the Gas Engine and Power Company–and to the Racine Company of Wisconsin. During the exposition, the fleet of 55 electric launches logged some 200,000 miles, carrying more than one million passengers.

Marine electric power had first been tried on the Hudson in 1892, in a boat built by Seabury, who may, in fact, have organized the Electric Launch Company to bid on world's fair work. Elco itself did not begin manufacturing on its own until 1900, when it was bought by Isaac L. Rice, who had been buying up electric motor and transportation patents. Rice opened a boatbuilding plant at Bayonne, New Jersey. The company priced its 25-foot launch at $1,380. Such a boat could run for 35 miles at 6 miles per hour before its storage batteries needed recharging. By 1902 Elco had added gasoline engines to its line, and eventually it–like the naphtha-based Gas Engine and Power Company–shifted to all internal combustion engines.[11]

The sound of the engine meant a maritime revolution, a revolution in how people moved on the water in small craft.

A second successful form of internal combustion engine is the two-cycle model, derived from the 1871 design of Scotsman Dugald Clerk. Clerk failed to patent his engines in the U.S., leaving the field open to inventors and entrepreneurs. One was Lewis H. Nash of New York City, whose work, beginning in 1883, led to his patent of 1888 "for an engine in which the piston controlled the inlet and exhaust ports." This was the basis for the two-stroke engine that dominated the small engine market for the next 40 years.[12]

Two-cycle engines fire on every stroke. As the piston travels down in the cylinder, it compresses the fuel-air mixture in the sealed cylinder base, which has been drawn in by a partial vacuum on the previous upward stroke of the piston. When the piston passes a port in the cylinder wall, the compressed fuel mixture enters the top of the cylinder, aimed upward by a deflector on the head of the piston. At the same time, an exhaust port is uncovered, and the incoming fuel mixture drives out the exhaust gasses. The piston then travels up, covering both ports and compressing the fuel mixture. At the right instant the spark ignites the fuel, driving the piston down to turn the crankshaft and compress the fuel-air mixture that has entered the cylinder base as the cycle repeats. This principle is still used in most outboard motors, motorcycle engines, and other light power plants.

Two-cycle engines have better power-to-weight ratios than four-cycle engines, but fuel economy suffers because some of the fuel-air mixture is lost with the exhaust fumes. It is also hard to build high-power two-cycle engines. But for marine applications they had the virtues of simplicity and reliability, and single-cylinder engines could be run in reverse simply by changing the spark timing.

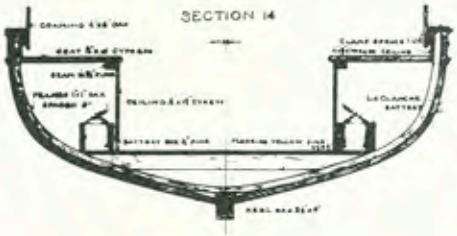
Another two-cycle pioneer was Clark Sintz, a former steam engine builder who formed a company to build Clerk engines in 1885. He moved to Grand Rapids, Michigan, in 1892, and the following year patented the three-port two-cycle engine, which produced more power than the Nash type and is the basis for today's two-stroke outboards.[13]

By 1896, according to *Horseless Age*, 300 companies were building gasoline engines in the U.S.[14] By 1900 the number had grown to 1,170. In 1899 New York, Ohio, and Pennsylvania each had over 100 companies, with a total output of 5,000 engines per state, while Wisconsin's 65 establishments built more than 4,000. By the turn of the century, 1,513 patents had been issued for explosive air and gas engines, 710 of them between 1896 and 1900.[15]

By 1900, then, the principles of the internal combustion engine were well known. Thereafter, engineers and designers worked on the primary engine problems: decreasing power-to-weight ratios and improving reliability and performance. In 1897, a small two-stroke marine engine might weigh 100 to 150 pounds per horsepower. A similar four-stroke engine, such as the Globe, would weigh 300 pounds per horsepower. Large ones like the Globe 100-horse-power four-stroke weighed 150 pounds per horsepower. By 1904 improvements in design and metallurgical engineering had dropped the power-to-weight ratio to about 20 pounds per horsepower. In another ten years, aircraft engines were weighing in at about 3 pounds per horsepower, having started from a base of 11 pounds with the Wright flyer of 1903. After the First World War, these aircraft developments would be reflected in marine and automobile engines. And by 1911, self-starting ignitions had been added to engines, making them, from their users' perspective, little different from what we see today.

By 1902, increased power from lighter engines presented boatbuilders with a new challenge. Engines were becoming so powerful that hull shapes based on efficient rowing and sailing craft were overpowered. Boats started to squat badly at speed as they tried to climb over their bow wave. Designers began to pay close attention to hull form in order to produce a boat that could get out of the wave-train trap: the hydroplane or hydroglisseur.[16] In 1904, 25 miles per hour was fast, but could only be attained with a hull 30 feet or more in length. By 1911 the speed record was up to 45 in a fully planing boat.

Speed counted for consumers. Principles learned in the years before World War I,



first in experimental and then in racing boats, would be combined after the war with mass production and a new generation of engines that grew out of auto and aviation engineering. Good power-to-weight ratios in reliable stock engines allowed the creation of boats that flew: planing craft that skimmed over the water's surface rather than plowing through it. These boats would come to the buyer as the name-brand boats of the 1920s: Chris Craft, Dodge, Hacker, Gar Wood, and many others.

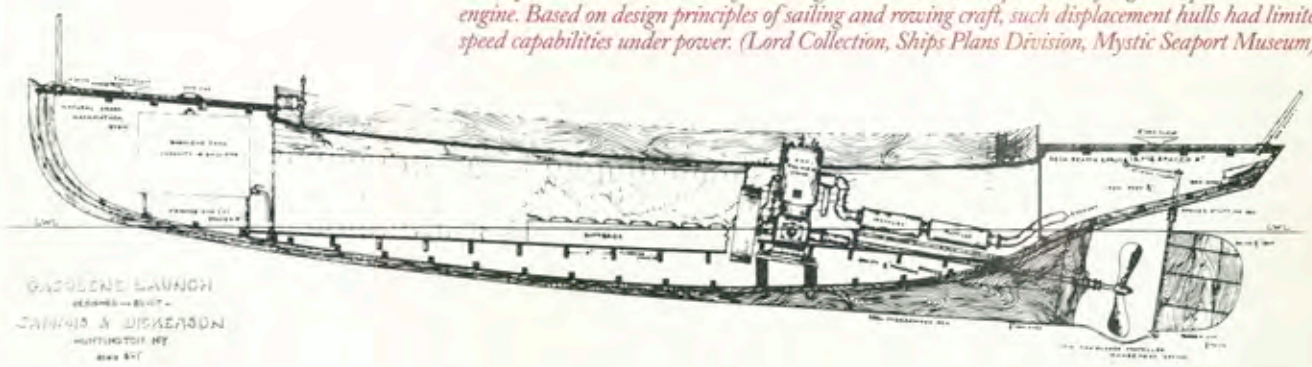
Once engine principles were known, all it took was a foundry and a machine shop to build a gas engine. It helped to have someone else's engine to copy, but even that wasn't necessary. A machinist could find articles, books, and magazines that gave precise plans and dimensions for simple marine engines.[17] Early builders had skills that came from other foundry and precision machine work, such as bicycles, electric motors, and sewing machines. With tools and skills in place the number of builders grew dramatically.

In the East, the heavily industrialized state of Connecticut was particularly active. More than 20 engine builders have been identified, with more being discovered, as collectors ferret out old engines and catalogs tucked away in attics and basements. But the Midwest dominated engine making, a lead that would grow as the automobile became popular, until products of the big Michigan and Wisconsin engine factories finally drove the small East Coast builders out of the market after World War II.

Among the earliest builders were the Palmer brothers of Cos Cob, Connecticut, who had developed their mechanical abilities assembling bicycles and building electrical equipment. In 1895 they put their first production engine of 1.5 horsepower into a 15-foot Whitehall. The first factory was a small water-powered one at Mianus Falls, and, indeed, their early efforts were made under the Mianus Electric Company name.[18] In their 1900 catalog the Palmers offered marine engines, horizontal stationary engines, automobile engines, and even a bicycle engine kit, claiming that they had already built 2,000 engines. In 1901, they built a new factory at Cos Cob that included a boatshop, and by 1906 they claimed to have produced 15,000 engines.

To help sell engines, the Palmers and a number of other builders followed Steinway's lead and offered complete

Above and below: Construction plan for a typical gasoline launch of the 1900 decade, designed and built by Sammis & Dickerson of Huntington, New York, and powered by a 3-horsepower Palmer engine. Based on design principles of sailing and rowing craft, such displacement hulls had limited speed capabilities under power. (Lord Collection, Ships Plans Division, Mystic Seaport Museum)



boat and engine packages. Only after boatbuilders saw the potential of this new market could the engine builders concentrate on their primary business of building and selling engines. By World War I, the Palmers had dropped launches from their line.

Finding an early market among local oystermen, the Palmers established what would become an East Coast tradition of building relatively heavy-duty engines best suited for workboats, larger power yachts, auxiliary sailboats, and displacement launches. The Palmers did enter the lightweight market briefly, building the Palmer automobile marine motor to compete in the high-speed marketplace with builders experienced in producing light, powerful automobile engines. But the Palmers' staple was the slow-turning marine engine, something they stayed with until going out of business after World War II.[19]

Mystic's Lathrop Company was started in 1897 by James W. Lathrop, who had been a needle salesman and was a partner in a Mystic twine-making company, a man well versed in machinery, production, and sales. After studying a Palmer, Lathrop built his first engine in a shop behind his house, sold it, used the money to build more, and was soon on his way to a fortune. Like the Palmers, Lathrop engines–both their two- and four-stroke models–were heavy, best suited for displacement craft, and they later shifted naturally into Diesel or crude-oil engine building.[20]

Also in 1897, the Eagle Bicycle Company of Torrington, Connecticut, began building small engines. Renamed the Progressive Machine Company, it had moved to Newark, New Jersey, by 1910. This company claimed to have originated the idea of mixing oil with gasoline for two-stroke lubrication, which remains a familiar task for many outboard motor operators.

Bicycle building spawned at least two other manufacturers in New York State. In 1900 Fay & Bowen, producers of bicycle spokes, turned to launch and engine building at Geneva. H.A. Lozier had a highly successful career in the sewing machine business and then as a bicycle manufacturer before establishing a launch and boatbuilding company in 1896, which he moved from Toledo, Ohio, to Plattsburgh, New York, in 1900.



The Seaport's steam launch Nellie, *shown underway on New Hampshire's Lake Winnipesaukee. Built at Boston's Atlantic Works in 1872, she represents a popular form of steam launch. (Courtesy Robert Holbrook)*

Lozier was also interested in automobiles, and by 1910 he had switched to automobile building.[21]

The most successful of these early manufacturers had learned excellent business and technical skills in industries similar to engine building. In addition, they understood marketing and advertising, and were experienced at selling complex products to the public, for their success hinged on marketing.

Engine builders aimed their message at the emerging market of middle-class recreationists, people who could afford their product. The market for boats was the growing middle class, the white-collar workers and foremen who in 1900 earned at least $1,000 a year, about double that of a factory worker. The potential market was significant: about 28 percent of the nation's 30 million workers.[22]

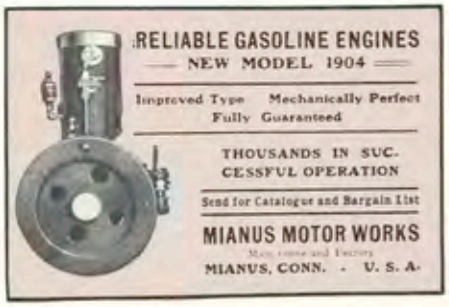
After the Civil War, in an increasingly industrializing America, there was greater distinction between work and leisure time amongst all economic groups. Sports became increasingly popular, with clubs and teams helping to provide participants with a sense of community. Activities varied according to income. There was a distinct trickle down effect, with middle-class participants following the lead of the more affluent on a less extravagant scale. Boatbuilders who sensed this and worked out ways of building efficiently and moving their marketing beyond their immediate environs could prosper. Following the lead of the Montgomery & Ward department store, which began issuing sales catalogs in 1872, boatbuilders and then engine builders began distributing catalogs to consumers.[23]

But even more important for reaching a larger market was the specialized print medium. As early as the 1870s, several sporting magazines, such as *Forest and Stream*, established canoeing and yachting sections to appeal to those interested in waterborne recreation. But the field was still too small to support purely aquatic magazines; indeed, the first, *The Aquatic Monthly*, began in 1872 and failed in 1879. Not until Thomas Fleming Day brought forth *The Rudder* in 1890 was the recreational boating market large enough to support a magazine.

At the start, Day had the field to himself. By 1904, however, the rise in popularity of powerboating, or "perfume boating," attracted other publishers, and *Motor Boat* was founded. By 1910, *Yachting* and four other new boating magazines were also on the newsstands. These magazines

flourished on a tight linkage between editorial matter and advertising.

Besides print, marketeers created another vehicle to bring the attention of the public to new products: the boat show. Specialized trade shows probably grew out of the tradition of country fairs and national and international expositions. In 1895, the first sportsmen's show was held in New York's Madison Square Garden. Two years later the show included a special boat section, and in 1905 boats had a New York show of their own, something that quickly spread to other boating centers.



Thomas Fleming Day had timed the creation of *The Rudder* well. In 1889, the pleasure boat industry was flourishing. The 1890 Census of Manufactures recorded that, of the 18,739 boats built, valued at $1,442,000, fully 67 percent of the boats and 71 percent of the value represented pleasure boats. Many were likely rowing craft, inexpensive skiffs and other small boats, and perhaps some should be classed as fishing boats. An average of $80 per pleasure boat was ample to buy a nice St. Lawrence skiff, a sneakbox ready to sail, or a quality square-sterned livery rowboat.[24] Day had a large market of potential subscribers, and the new engine builders had a significant number of likely buyers.

Measuring the success of the pleasure "perfume boat" in the first decade of this century is difficult because statistical data is spotty. Data collected by the Federal census takers do provide some help, but are not grouped neatly by purpose as they were in 1890. However, it is clear that, although the nation's shipbuilding industry remained in its post-Civil War decline, boatbuilding was prospering.[25] In 1909, about 36,000 boats valued at 4.5 million dollars were built. Powerboats were an increasingly large proportion of this, going from 11 percent in 1899 to 23 percent in 1909, with their value rising from 55 percent to 62 percent of the total. Industry analysts noted that this was the only part of the ship- and boatbuilding industry to show growth, a strong 408.4 percent during the decade.[26]

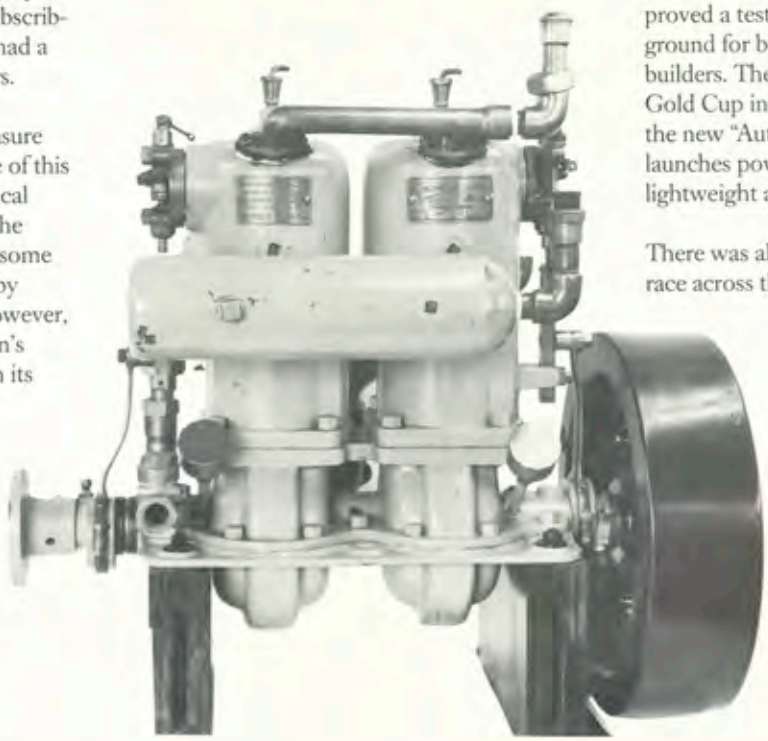
In 1898, *The Rudder* began to take a poll of what was building in the yards. Its results, though distorted by the polling methods, provide a useful sense of the change at the beginning of the new century.[27] Already, powered craft of all types predominated in the industry, and this trend only accelerated. Even in the first year of the poll, 28 percent of the boats were gas powered, and only 43 percent were pure sailboats. By 1903 gas had grown to 52 percent, with sail at 37 percent. The demand for naphtha and electric launches decreased, with electric launches built in quantities primarily in the years when there were expositions or world's fairs that could use them.

It is more difficult to get a sense of the size of the marine engine industry itself. After 1899, when builders produced more than 18,000 internal combustion engines, the census takers did not count the motive-power industry again until 1920. In *The Rudder*, Day estimated that there were a dozen marine engine manufacturers in business in 1900; four years later there were hundreds.

In *Motor Boat*'s 1906 "Second Builders & Buyers Number," the editors estimated that "4,000 American boatbuilders are interested in motor craft, and several hundred plants are building internal combustion engines. One maker alone is credibly reported to have sold 10,000 motors this year." They estimated that small powerboats numbered in the tens of thousands, with additional hundreds of motor yachts exceeding 60 feet in length, many of them replacing steam yachts. The editors happily reported that this growth was accomplished with little injected capital. Rather, the biggest builders had started at the workbench. Powerboat building had become an active business, rather than a passive service. "And that's how it all is at the moment, with plenty of good prosperity to supply good underpinning for further growth, and with new cash and talent invested every day."[28]

As both sport and recreation, powerboating quickly developed a competitive structure. Powerboat racing reports and stories of long cruises helped convince the public that motorboats were fast and reliable. The American Powerboat Association, formed in 1903 to promote and organize racing, created the Gold Cup as the premier trophy in powerboat racing. Races received major coverage in the yachting press and proved a testing and publicity ground for boat- and engine builders. The first running of the Gold Cup in June of 1904 featured the new "Autoboats," speed launches powered by relatively lightweight automobile engines.

There was also talk of a motorboat race across the Atlantic, following



This Palmer model U-2, two-cycle, five-horsepower engine dates to 1911. The Palmer Brothers were among the earliest and best-known of the eastern engine-builders. (M.S.M. 60.377; photo by Claire White-Peterson)

the path of the *Abiel Abbot Low*, a 38-foot double-ender, which made a 37-day crossing in 1903, powered by a New York Kerosene Engine Company motor. This company wanted to demonstrate the economy of the semi-diesel engine type, which relied on high compression and heat to fire less-flammable crude oil. Engines on the Diesel principle were far more popular in Europe than in America, due to the high cost of fuel and a greater fear of the combustibility of gasoline.[29]

Automobile-engine builders played a significant role in early races, as they found that boats provided both a good test bed and a great deal of publicity. Soon, however, the automobile industry, which was too small to be reported in 1900 census data, grew so rapidly that it far outstripped the marine field in sales and impact. In 1904, 21,692 automobiles were sold at an average value of $1,095; just five years later, 126,593 were sold, but the value had risen to an average of $1,298. Throughout the decade, cars remained affordable only to upper-middle-class professionals: the equivalent of the owners and operators of automobile or boatbuilding companies whose salaries averaged around $1,300 per year. At an annual average wage of $600, the builders of boats and cars could not afford automobiles. Not until the Model T of 1908, whose price dropped from $825 when introduced to $345 eight years later, would automobiles become available to their builders.[30]

The change to affordable products came earlier in the boating industry, with the average value of powerboats dropping sharply from $576 in 1904 to $370 in 1909. Power dories could be had for as little as $175 for a 19-foot "Fishing Pattern Motor Dory" with four-horse-power engine from the Atlantic Company of Amesbury in 1905. Indeed, the boating press often ran articles on boats that were available at different price points, such as $100 or $200 for boat and engine together.[31]

Reliability and economy were what the fishermen and small commercial mariners needed. In 1900, commercial "gas boats" were rare. Only on the Great Lakes did census takers find enough small powerboats to count in 1902, although they did note their presence in various other industries. By 1904, working powerboats could be counted everywhere. New England was the regional leader, with almost a third of the inshore fishing fleet powered by engines and far exceeding the value of the remaining sail- and rowboats, a fact that was true nationally as well.[32]



Overshadowed by sail-powered fishing schooners at Boston's T Wharf, Sicilian boat fishermen straighten up their power dories on a quiet Sunday morning in 1911. The engine changed their lives dramatically in the four years between 1904 and 1908. Detail of photo by Henry D. Fisher. (M.S.M. *76.208.79*)

Generally, fishermen first saw engines in operation in the pleasure-boat fleet. Among the first to adopt engines were the oyster farmers of Long Island Sound, who used them to replace steam engines in the power dredge boats they used in their annual routine of spawning, growing out, and harvesting oysters on their submarine "farms" along the western Connecticut shore. Mystic Seaport has recently acquired one of the earliest of these gas-powered dredge boats, the *Rhoda E. Crane* of 1897.[33]

Boston's Sicilian inshore dory fleet demonstrated the fishermen's rapid acceptance of the labor-saving, reliable engine. By 1902, several hundred of these immigrant fishermen were working under sail and oar from Boston's harbor islands. In 1904 a power launch sped past one Sicilian fishing dory as two fishermen rowed it in on a hot, calm day. The enterprising fishermen found out where the boat was based, had a look at it, and promptly fitted up their Swampscott dory with an engine. When their compatriots saw that they were making two trips in the time a sailing dory made one, they too bought engines as soon as they could afford them. By 1908 nearly the entire fleet was powered–the Mianus reportedly being a favorite–



At the 1916 Motorboat Show, Evinrude displayed its line of outboard motors and boats. The Model A motor then cost $80, as did a round-bottom boat to put it on. An Evinrude flat-bottom boat could be had for $40. (Neg. 3987, © Rosenfeld Collection, Mystic Seaport Museum)

and prosperity amongst the inshore dorymen had increased markedly.[34]

Other fisheries to adopt the gasoline boat early were the salmon fisheries of the Pacific Northwest, where the engine allowed the adoption of the new method of trolling, the scallop fisheries of Maine and Cape Cod, and the gill-net fisheries of the Great Lakes. In the Maine lobster industry, powered dories and peapods became common around 1902. Casco Bay's fleet of Hampton boats, which fished the banks just off Portland, was completely transformed from spritsail rig to gasoline power in the years between 1903 and 1908. And even Maine's Friendship sloops, designed as pure sailing craft, might be built with auxiliary power, as was Mystic's *Estella A.* of 1904.

Marine gasoline engines came to larger vessels more gradually as the manufacturers learned how to build big engines. But sailing vessels did make use of the gasoline engine. Shortly after the turn of the century, as engine prices dropped, they were installed in the yawl-boats of coasting schooners. Schooners also came to rely on the horizontal gas engine to help with the work of hoisting sails, using the same simple engines found on farms and in shops. Beginning in 1910, fishing schooners like the *L.A. Dunton* were equipped with hoisting engines to handle the anchor windlass.

The outboard motor spelled the final doom of commercial sail- and rowboats and made both take a distant backseat in pleasure boating. The first attempts at building a transportable outboard motor began as early as 1896 with an air cooled engine built by the American Motor Company of Long Island. None survive of the estimated 25 that were built. The first person to produce them in quantity, and to name them outboard motors, was Cameron B. Waterman, who got the idea while testing his motorcycle engine on the back of a chair in his room at Yale Law School. By 1907 he was in production and built 3,000 outboards; by 1909 Waterman Porto sales had doubled.[35]

But it was Ole Evinrude–and his wife Bess–who made the outboard industry. When Bess Evinrude complained about melting ice cream during a row on a hot August day in 1905, Ole began to devise a reliable and affordable outboard motor. By 1909 they had a prototype and entered production. The engine was basically the small one-lunger turned on its side. To advertise it, Bess created a slogan that prophesied what was to come: "'Don't Row! Throw the Oars Away' Use an Evinrude Motor." Her management skills created a highly profitable enterprise, and their company, the Evinrude Detachable Rowboat Motor Company, built a product at $62 and 62 pounds that was a hit. But even Evinrude, in the early days, got into the boatbuilding business to help provide suitable platforms for the company's engines.[36] After World War II, outboards increased rapidly in reliability and power, making inboard engines of small size and power rare in pleasure boating, and gradually taking over the role of the inboard in small-boat commercial uses.

During the eight decades since 1910, the long-term implications of the internal combustion engine have been profound. Virtually every aspect of life, both ashore and on the water, has been changed by it. From the largest oil tanker to the smallest outboard skiff, the engine dominates all forms of marine transportation. Around the world, it has changed the ways mariners move goods and catch fish.

On land, the automobile has meant vast increases in personal mobility. More and more people have been able to get to the water and use it once they are there. It was estimated in 1904 that there were 15,000 recreational boats, and in 1914, 400,000. Now there are more than 8 million, more than half of which are powered by outboards. Recreation has changed the chief maritime activity of New England, and of much of the rest of the country, from commerce and fishing to recreation.

For those going to sea to work or for pleasure, the bark of the explosive engine, which grew into a dominating roar by 1910, announced a second industrial revolution that has completely transformed America's harbors.

"Bang, bang, bang! The steady fusillade of an ill muffled exhaust strikes my ears as I am prowling about the famous T Wharf on Boston's water front," wrote Allen Goold after watching the fleet of Sicilian boat fishermen maneuvering their craft back in 1907. "As I turned and walked up the wharf with the sharp crackle of Pedro's exhaust again in my ears, an exalted opinion of the humble but epoch-making gasolene motor filled my mind. Surely it has wrought miracles for the fisherman."[37]

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Joseph Bement and the Charles W. Morgan

DAVID LITTLEFIELD



A Reconstruction of the Morgan*'s Least Known Voyage*

It had been a long voyage. Fifty-nine months earlier, the *Charles W. Morgan* had left New Bedford, heavily refitted, freshly painted, and looking for success on the New Zealand sperm whaling grounds. Now she was back, with obvious signs of chafe and wear despite a homeward-bound coat of paint, bleached and patched sails, and a dejected crew, worn out by storms and bickering and a scarcity of whales. When they were paid off in that summer of 1886 some would find that their lays of the meager $26,545 cargo would barely cover the debts to the ship they had amassed in nearly five years of service.

With that crew paid off, the *Morgan*'s agents, J. & W.R. Wing, looked to do better with the next voyage, which would dramatically alter the career of the *Charles W. Morgan*. Until recently, we knew very little about the *Morgan*'s 1886 voyage, but during a visit to the Seaport, Francis and James Bement, grandsons of a crew member from that voyage, gave us a glimpse of life aboard the *Morgan* as related by their grandfather, Joseph Bement. When combined with information from the business records of J. & W.R. Wing, the Bements' reminiscences offer us a much clearer understanding of the *Morgan*'s thirteenth voyage and of whaling in the last decades of the nineteenth century.

Joseph and William Ricketson Wing were among the third generation of New Bedford whaling agents. In earlier generations, men might become agents after successful careers at sea, or in their roles as commission merchants or manufacturers of spermaceti candles or whale oil, or, as in the case of Charles W. Morgan, through marriage. Not so the Wings. Born on a farm at Russells Mills near South Dartmouth, southwest of New Bedford, Joseph Wing had arrived in New Bedford in 1833, finding employment as a 13-year-old clerk in a dry goods business. After becoming a partner in the firm in the 1840s, he set out on his own, opening a clothing business on 1 January 1849. As partners he brought in his brothers, 19-year-old William R. and 16-year-old John, who began as clerk.[1]



From the beginning, the Wings were intimately related to the whaling fleet, which was New Bedford's largest employer. The American whaling fleet had just passed its peak year, but the New Bedford fleet would continue to grow for another eight years. The thousands of men who came to town to ship aboard whalers, or who arrived back after years at sea, all required suitable clothing and personal items, which the Wings and other outfitters supplied.

To secure their ties with the fleet and increase their outfitting business, the Wings began to invest in whaleships in 1849, and in 1852 they became managing owners and agents of their first vessel. Unlike the prominent whaling merchants of the previous generation, such as Charles W. Morgan, they were less interested in the production and sale of the whale products taken by their ships than they were in the profits to be made from the men employed on their ships. Right into the 1890s, the outfitting of seamen would remain an extremely lucrative and essential part of their business.[2]

During the Civil War, the Wings increased their fleet, purchasing the managing share of the *Charles W. Morgan* in 1863, and buying other whalers, until they managed 16 vessels in 1866. By the end of the decade they controlled the largest fleet of American whaleships.

Above: Joseph Bement (1867-1958) ca. 1940. (Courtesy Bement family)

Left: William R. Wing (1830-1909) sits in his buggy on New Bedford's Central Wharf as the firm's whaleship Sunbeam *is outfitted for a voyage. Detail of photo by Clifford W. Ashley, 1904. (Courtesy New Bedford Whaling Museum)*

Although the whaling industry was in obvious decline after the war, the Wings continued to profit from both their outfitting and their vessel investments. Cheaper petroleum products and gas had taken most of the illumination market away from whale oils, but they were still in demand for tanning and industrial lubrication.

Increasingly, whalebone became the principal whale product. Light, flexible whalebone, or baleen, serves as a plankton strainer in the mouths of non-toothed whales. Growing from the upper jaw in long, feathery, densely packed plates, it was cut out and processed into corset stays and busks, parasol and umbrella frames, whips, fishing rods, bows, tongue scrapers, shoe horns, and many other domestic items. By the end of 1878 the price of whalebone reached $3.25 per pound, at which rate the average Arctic bowhead whale was worth $5,000 for its baleen alone. Clearly, Arctic whaling would be ever more important to the survival of the industry.[3]

In 1878 William R. Wing travelled across the continent to San Francisco to establish a West Coast base for the firm's Arctic whaling operations. For more than 30 years, Arctic whalers had been using the Hawaiian Islands as a base for refitting and shipping oil, but San Francisco had obvious advantages, including cheaper food and materials costs and better transportation links to the East Coast. The Wings continued to send their sperm whalers out of New Bedford, but they began to berth their Arctic whalebone whalers in San Francisco, eventually maintaining a fleet of five vessels there. After the poor returns of her last sperm whaling voyage, they decided that the *Charles W. Morgan* would join the San Francisco fleet at the end of her next voyage.[4]

To prepare her for voyages into icy seas, New Bedford shipwrights thoroughly inspected and refastened the *Morgan* wherever necessary, and reinforced her lower deck beams with many new supporting knees. To resist the stress and chafe of ice, they attached 1½-inch oak sheathing to the bow, added a horizontal bracing called a set of pointers in the lower hold against the stem, and "filled in" the bow for ice. By October 1886 she was considered to be "in A No. 1 order."[5]

A report in the local *Whalemen's Shipping List and Merchants' Transcript* for 12 April 1887–six months after the *Morgan*'s work–indicates that such alterations had become typical in the whaling fleet.

Improvements on whalers–Bark Lagoda, *fitting for sea at Hazard's Wharf, is to receive a hoisting engine, and her bows outside are being filled with solid timber even to the cutwater. Outside of this will be heavy plates of composition metal, so that she can do better work than an iron ship battling with ice.*

The bark Triton *[also a Wing vessel], which is now fitting for the North Pacific Ocean, is to have a hoisting engine.*

Like the *Lagoda* and *Triton*, the *Charles W. Morgan* was fitted with a steam-powered donkey engine during her preparations for Arctic whaling. As early as 1872, the *Java* had been outfitted with a steam engine for more efficient and speedy operation of the windlass when raising anchor and when hoisting aboard the massive blanket pieces of blubber and jaws full of baleen as a whale was cut in. On the strength of that example, such engines became relatively common in the fleet. Such engines did not make these vessels steam whalers, like the steam auxiliary barks then being built for whaling in the Western Arctic, but they did allow more efficient performance of heavy work on board.[6]

The Wings laid out $1,225 to purchase the engine from Miller-Shaw of Cambridgeport, Massachusetts. Considering that the engine required coal to fire the boiler and an engineer and assistant to operate it, this was a substantial investment. And the engine added a new skill to the *Morgan*'s crew requirements, which must be compensated with a lay higher than that of ordinary seamen. On the coming voyage the Wings would pay their engineer a 1/140 lay–only slightly higher than the cook's lay. On later voyages the carpenter, blacksmith, shipkeeper, or sailmaker would also act as engineer, commanding a lay comparable to that of a boatsteerer (harpooner), about 1/75 to 1/90.[7]

As a mechanical addition to the crew, it is fitting that the steam engine was,



The Charles W. Morgan *at sea, ca. 1900. Note the canvas "crow's nest" on the foremast to shelter the lookout, a feature of ships whaling in the ice.* (M.S.M. 45.452.20)

apparently, installed in the crew's quarters in the forecastle, beneath the windlass it operated.[8]

While the *Morgan* was prepared for sea, the Wings assembled a crew for the coming voyage. For half a century, the labor demands of whaling had exceeded the local supply. Whaling agents had long been dependent on shipping agents, in New York and elsewhere, who rounded up men and sent them to New Bedford. At one time they could easily recruit rural boys with a thirst for adventure. But even with the demand for whalemen far lower than it had been during the banner years of the 1840s and 1850s, it had become harder to fill out crews. By the 1880s whaling crews usually mixed a few naive youths with waterfront derelicts, city toughs, and immigrant laborers of many nationalities.

New York shipping agent D.L. Pearl kept a red-lettered sign outside his office at West and Reade Streets simply stating "Whalers Wanted." He also advertised in the newspapers. In an 1886 ad he solicited "six strong men for a whaling voyage." This was exactly the kind of advertisement Joseph Bement and his friend noticed while reading a magazine in that fall of 1886.[9]

Joseph Francis Bement, 19, was the son of a New York printer. According to his grandsons, Bement did not get along with his stepmother. To escape her, and imagining that a whaling voyage would be "exciting, romantic, and swashbuckling," Bement and his friend signed an agreement with a shipping agent and soon found themselves in New Bedford. Bement's friend took a look at the *Morgan*, decided whaling was not for him, and ran.

Bement, however, signed on the *Morgan* out of "pure stubbornness," driven by the determination not to return to New York and his family and not to be perceived as an impetuous failure. On the ship's articles his last name was misspelled as "Bemont." He was delighted by the oversight, thinking it would make it that much more difficult for his father to trace him and take him home. Bement also obscured his identity by giving his age as 22.[10]

Acting as both agent and outfitter, the Wings signed Bement as a greenhand at 1/185 lay. He was assessed for an advance of $95.63 to cover his expenses before actually setting foot on board ship. A "brokerage" fee of $13.00 went to the New York shipping agent. To the Wings he was indebted for $79.73 to cover the cost of his sailor's outfit.[11] According to one whaleman, at this period a sailor's outfit would include "a sailor's canvas bag, a mattress, a pair of blankets, woolen trousers, dungaree trousers, a coat, a pair of brogans, a pair of rubber sea boots, underwear, socks, two flannel shirts, a cap, a belt and sheath knife, a suit of oilskins and sou'wester, a tin cup, tin pan, knife, fork and spoon."[12]

As part of his advance, Bement was charged a board bill of $2.40. New Bedford boardinghouses, which cost $3 to $5 per week, were mere holding pens for recruits waiting to be shipped.

Finally, an assessment of $15.60 covered interest and insurance. Outfitters charged substantial interest on their advances to seamen, claiming they had to carry the debts for years before the ship returned and they could collect from the sailors' pay. Insurance charges were considered necessary due to the high risk involved in lending money to whalemen, especially greenhands.

During their few days in New Bedford, Bement and his fellow crew members were probably watched closely to ensure that they did not run away with their new outfits.

During their few days in New Bedford, Bement and his fellow crew members were probably watched closely to ensure that they did not run away with their new outfits. Customarily, the crew came aboard on the day before sailing. The ship was then moved away from the wharf and anchored in the harbor to prevent any men who might have second thoughts about making the voyage from going ashore. This did not stop two men from deserting before the *Morgan* left harbor.[13]

On board at last, the men could look each other over, and a disparate group they were. Mostly in their late teens and early twenties, the sailors were a mix of New Bedford and Cape Cod boys, greenhands like Bement from Vermont, Connecticut, New York, Pennsylvania, and Illinois, and more experienced seamen from the British West Indies, the Cape Verde Islands, Guam, Manila, and Norway.[14]

They could also get a look at their officers: Captain George A. Smith, 58, a native of Eastport, Maine, who had been a whaleman since 1848; First Mate John S. Layton, 41, who came from Albany, Western Australia, (where whaleships sometimes called for water) and would one day command the *Morgan*; the three other mates and the five boatsteerers; and a crucial individual, cook Crispolo de Aris, a 27-year-old native of Manila.[15]

The next day, on 6 October 1886, probably with the help of her new steam engine, the *Morgan* got up her anchor and headed for sea, towed by the steam tug *Charlie* and piloted by Albert Church.[16] During the departure, Joseph Bement got into trouble almost immediately. As the *Morgan* pulled away from friends, relatives, and onlookers, First Mate Layton, "a thorough disciplinarian," ordered the crew to wave and cheer the well-wishers. Bement, who "prided himself on being a rebel," refused. From that moment on, Layton seemed to mark him as a troublemaker.

Bement quickly became disenchanted with life aboard the *Morgan*. Perhaps because of his attitude, he was hazed and ridiculed during the early months of the voyage. He later remembered the cold coffee and maggoty hardtack served to the crew. Although he had no trouble with Captain Smith, he later told his grandsons that Smith, who was nick-

named "stuttering George," had an ill temper. "You knew he was mad when he started to stutter; the madder he got, the more he stuttered."

Several months into the voyage, the crew was allowed liberty in some port–Bement's grandsons believe it was Rio de Janeiro, but, lacking the *Morgan*'s log, we do not know for sure. Fortified by alcohol, Bement obtained a gun and went back aboard to confront Layton. The two men scuffled, and in the end Bement was overwhelmed.

To punish this serious breach of discipline, Bement was strung up and flogged. Then a bucket of salt water was dashed across the raw wounds on his back. Bement later declared that the salt water caused him greater pain than had the sting of the lash. He carried the scars of that whipping on the deck of the *Morgan* for the rest of his life. Years later, grandson Frank Bement watched his shirtless grandfather chopping wood. On his back, a pattern of criss-crossed scarring stretched from shoulders to waist. In front, horizontal scars radiated from his flank to his abdomen.

Flogging had been legally abolished aboard American merchant vessels in 1850, but corporal punishment remained common on whalers. And what could a whaleman do? He could complain to the American consul in whatever port the vessel next called at, but the consul would uphold the officers in cases involving such a deliberate affront to the ship's discipline.

Bement was admittedly a hard case, but in many ways he typified men caught in a penny-pinching, dangerous, and isolated industry. Considering the cultural differences, language barriers, and daily stresses of a whaleship's heterogeneous crew, it is no wonder that the universal form of communication was strict discipline and punishment.

Although he was described as "pig-headed," "difficult," and a "loner," Bement did make at least one friend on board the *Morgan*: Cook Crispolo de Aris. During the voyage, de Aris gave Bement two pairs of ebony-colored "rhythm bones" and taught him to play them simultaneously.

Aboard ship, music was important during both work and play. Work songs called chanteys were often used to coordinate heavy or repetitive tasks, such as hauling on halyards to raise sails, pumping the ship, or–until steam donkey engines were added–raising the anchor. Aboard whaleships, the men were allowed little free time except on Sundays and in the two short dog watches between four and eight each evening. But during those times the officers allowed them the privacy of the deck forward of the tryworks, where they could smoke, spin their yarns, sing, and play music without interruption. Some men sang "forebitters," or fo'c'sle, or "main hatch" songs. Others formed impromptu bands with a motley collection of fiddles, banjos, flutes, accordions, tambourines, rhythm bones, and homemade instruments to accompany the singers or play popular tunes of the day. However sullen and desperate Bement may have felt on board the *Morgan*, rattling his rhythm bones and singing along with the crew would have given him brief release from his cares.[17]

On her way to the Pacific, Captain Smith apparently took the *Morgan* east across the Indian Ocean, where she had frequently whaled in the past. Along the way she took enough sperm whales to make 150 barrels of oil. By late February 1887, she had reached Norfolk Island, east of Australia. She then headed north, anchoring at Guam to resupply in early April.[18]

Bement was sent ashore with one of the work parties to bring off water and fresh



The Whalemen's Shipping List and Merchants' Transcript, *1886*



Aboard the Charles W. Morgan, *(right to left) James and Francis Bement pose with author and Seaport chanteyman David Littlefield and Seaport Coordinator of Special Music Programs Geoff Kaufman, who holds the two sets of rhythm bones. (Photo by Mary Anne Stets)*

fruit. Perhaps he had been plotting his escape, or perhaps it was spontaneous. Either way, Bement and three others bolted into the underbrush and concealed themselves well enough to escape capture. Five days later, Captain Smith shipped four new hands, all at smaller lays than those of the deserters. After another five days, on 14 April 1887, the *Morgan* got up her anchor and headed north to spend the summer whaling in the Sea of Okhotsk.[19]

On 4 November 1887 she arrived at San Francisco to deliver a modest cargo consisting of 280 barrels of sperm oil, 1,050 barrels of whale oil, and 11,430 pounds of whalebone, with a total value of $24,430.50. Although Joseph Bement had forfeited his share of the proceeds by deserting, he did leave the Wings a reminder of his going. Against his name was entered a debt of $43.21 to cover his partially unpaid advance and $12.45 for personal items purchased from the *Morgan*'s slops chest during the voyage.[20]

The Wings would survive this debt. Their outfitting business remained profitable for nearly another decade, until about the time of Joseph Wing's death in 1895. Their whaling business even outlived his two brothers, William R. (who died in 1909) and John (who died in 1915). The *Morgan* completed her last voyage for them in 1913, but it wasn't until 1916 that the firm dissolved its whaling interests. During the 64 years of its existence, J. & W.R. Wing had managed 234 whaling voyages, making this simple outfitting firm one of the leaders in American whaling history.[21]

After this, the least documented of her 37 voyages, the *Charles W. Morgan* began a new era, sailing out of San Francisco rather than New Bedford. To cover the principal habitats of the whalebone whales, the Wings divided their Pacific fleet. Three vessels made voyages through the Bering Strait to hunt bowheads above the Arctic Circle while the *Morgan* and the *Cape Horn Pigeon* whaled in the Sea of Japan and the Sea of Okhotsk, seeking both bowheads and sperm whales. Beginning in December 1887, the *Morgan* made 15 annual voyages and one two-year voyage from San Francisco. She generally left in December to cruise through the South Pacific before reaching the Sea of Japan in the spring and the Sea of Okhotsk when the ice broke, then returned to San Francisco in November. Not until June 1906 did the *Morgan* return to New Bedford, the port she had left almost twenty years earlier with Joseph Bement on board.[22]

And Joseph Bement survived his brief career aboard the *Charles W. Morgan.* After the *Morgan* left Guam he was able to sign aboard a yacht as a deckhand, working his way to Yokohama, Japan. There, he got a job as a bartender for a time. Returning to sea, he served aboard the British iron bark *Bowman B. Law,* and in 1890 he made a passage as ordinary seaman aboard the British iron ship *Eskasoni* from Melbourne to London. The next year he sailed as an able-bodied seaman aboard the four-masted British ship *Ellisland* on a voyage from London to Singapore. After retiring from the sea, Bement returned to New York, working as an ironworker in the Motive Power Department of the Long Island Railroad.

Years before Joseph Bement died in 1958, one month shy of 91 years of age, he gave his grandson Frank Bement the two pairs of rhythm bones given to him by the *Morgan*'s cook. Frank Bement has generously donated both pairs of bones to Mystic Seaport, where they give us a tangible link to the *Morgan*'s least-known voyage. One pair is now displayed in the *Charles W. Morgan*: A Reflection of America exhibit.

Frank and Jim Bement remembered that their grandfather brought the family to Mystic in the 1950s to visit the *Morgan* and pointed out the bunk he had occupied nearly 70 years earlier. Despite the scars of his unhappy time aboard her, Bement felt something for the old ship. "The *Morgan* is my grandfather," commented Frank Bement. "The *Morgan* had the same personality that my grandfather had."

"She had a stubborn personality just like he did," added Jim Bement. "She had to to survive this long."

Ring three bells, recall the watch,
Relieve the wheel an' chain.
Won't we have a jolly time,
When we get home again.

We sailed through the Gulf Stream,
And down by Botany Bay,
Around Cape Horn and home again,
'Cause that's the sailor's way.[23]

Notes to this article appear on page 64

A Seaport Profile
Robert C. Allyn

LESLIE GIFFORD



MARY ANNE STETS PHOTO

Every once in a rare while, a very singular person comes along bringing a skill and a manner you can't imagine having done without. That person exudes a humble certainty of self that engenders an easy and friendly trust. That person came to Mystic Seaport in 1969, in the body of Bob Allyn.

Having just retired from a full career at the Electric Boat shipyard in nearby Groton, the naval architect and long-time Seaport member first started coming to the Museum regularly to pore through the collections in the G.W. Blunt White Library. "I came here to read," he says, "and then the first thing I know I'm coming here to work.... You know, you get attached to this place."

In turn, the Museum has grown quite attached to Bob Allyn. Says Maynard Bray, former Shipyard Supervisor, "I relied on him a lot. He was just one of those guys who knows what needs to be done and then goes ahead in his own way and does it."

Nancy d'Estang, Director of Shipyard Research and devoted friend to Allyn, has referred to him formally as "a dedicated, faithful, and talented contributor to this museum for many, many years." Informally, she says he is "a dear."

Allyn is at once artist and engineer, his gift an ease with numbers and an artistic sense of shape. He is, says Bray, "a rare find."

It is Allyn's judgment that makes his work so special. "A lot of people can do the numbers," Bray suggests. "It's the judgment, the assumptions that make a drawing come together." The inventory of Allyn's drafting work here at the Museum is extensive - numbering some 1,500 sheets of sketches and hundreds more of straight calculations.

Allyn is candid about his work, and modest. He talks excitedly about his first major Museum charge, which required measuring the *Charles W. Morgan* in anticipation of hauling her out of the sand bed that had steadied her since she came to the Seaport in 1941. Recalls Bray, "We had to know the [vessel's] stability before we could take her out of the sand." Knowing Allyn's ability from their shared days at E.B., Bray requested the architect's assistance. Allyn didn't let him down: he spent nearly three years taking measurements and making the necessary considerations and intricate calculations - using a slide rule, not a computer - to determine the vessel's weight. Then he had to take the lines off the hull, to determine displacement.

"To calculate that you've got to measure every darn stick of wood there is on that boat," says Allyn in mock exasperation. No easy task, considering the vessel was buried almost to her waterline.

Allyn used a unique and effective method of lines-taking. He used a surveyor's transit in place of the more conventional plumb bob and level, in part because he wasn't at all sure the *Morgan* was perfectly level, which would throw accuracy of measurement into question. And even if the vessel was level, the plumb bob would be an effective calculator only on the portion that rose above the sand. Not that the buried portion would be easy to measure with either method, but Allyn would manage.

He set a surveyor's transit on the pier alongside the *Morgan*, and took scores of sightings from it, measuring and recording the distance from the transit and the angle to it. Sightings were taken strategically - increasing in direct proportion to curvature - along the vertical line. Once satisfied that a sufficient number of sightings had been made at one "station," he would move on to the next. The stations were equidistant one from the other, and at right angles to the centerline of the vessel.

When it came time to go below the sand, Allyn's intuition and artistry really shone through. He went inside, determined a centerline, then worked from the inside out, taking into account such details as thickness of wood and distance from the sand line outside. Despite the odds, the drawings came out remarkably true to form, as was proven this past winter when the *Morgan* was hauled on the lift dock and shipwright Roger Hambidge took another set of lines, having adopted Allyn's use of the transit. Accounting for changes that have been made to the vessel during various restoration efforts, the new set of lines - taken when the vessel was completely exposed - is strikingly close to the set Allyn took some 20 years ago under more challenging conditions.

Allyn plays down the complexity of his task, referring to it only as having been "a little bit clumsy." The result of his patient figuring through this clumsiness is an impressive collection of some 230 sheets of finished drawings, plus pages and pages of calculations and sketches.

With the numbers all in, the logical next step to floating the *Morgan* was to begin dredging around her. The Museum was soon to learn, though, that this job would require more than a little digging. They hoped for storm-borne, wind-driven tides, but none came. As Bray wrote in the Spring 1974 issue of *The Log*, "...this year the weather was perfect for everything except floating the *Morgan*."

Despite the perfect weather, they made several tries to free her. These attempts typically were made in the wee hours of the morning, and typically with a good bit of coaxing. Nothing worked, though, until on the sixth attempt she finally lifted. It was December of 1973, and, as Allyn recalls, it was "about 5:00 in the morning, and it was dark and cold." It was a moment he would not have missed.

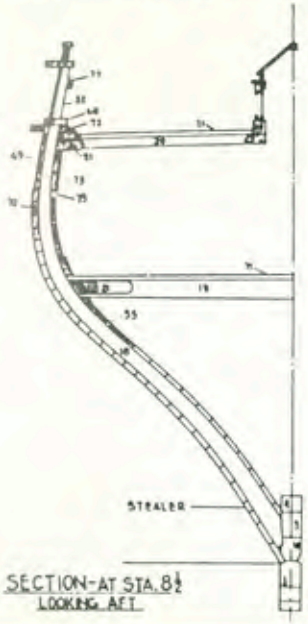
Once the *Morgan* was floated, the Museum wanted to haul her on the newly built lift dock, to have a good look

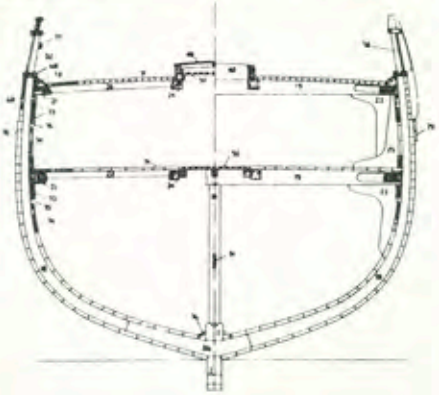
at her bottomside. Divers were sent down to measure the keel's lower edge, so the lift dock blocking could be set to accommodate it. The bottom of the keel was very irregular, with pieces missing and notches all along where she had been sitting on rocks.

Despite the irregularity, Allyn's plans - drawn from the divers' measurements - enabled the shipyard crew to have her "all blocked up by the time the tide started to drop.... That was the grandest sight I've ever seen," says Allyn, "to see the bottom of that boat. Daylight had come, and there she was." As he talks of this event nearly 20 years later, and having intimate knowledge of every inch of the vessel inside and out, it is as though Allyn is seeing that bottomside once again for the very first time. He is quite in awe of it.

Not all of Allyn's projects take such a grand scale. Intrigued by the various shapes of different vessels, he has made himself indispensable in his ability and enthusiasm for taking the lines off models and half models.

Fairly early in his career here, Allyn was asked to take the lines off a large half model of the steamship *City of Austin*, exhibited in the Mallory Building. The goal was to use the lines to construct a small, completely rigged full model. Allyn ran into trouble, though, when he asked to have the half model dismounted and sent to his workshop. As he quickly learned, the models had all just been remounted, and in an awkward fashion that didn't facilitate ready dismounting.





But he had been asked to do a job and, as is his wont, he was determined to do it. Allyn had a small table built that would sit against the wall under the half model and serve as a shelf. He then went home and devised what he calls his "gadget," a simple device that would enable him to take the lines off the *City of Austin*.

This "gadget" is in fact a set of contiguous wooden slats that, at one end, touch the model and at the other end describe its curves along a sheet of paper. Marking the paper at the tip of each slat, then repositioning the "gadget" at regular intervals along the model, Allyn then connects the dots to describe the shape of the vessel.

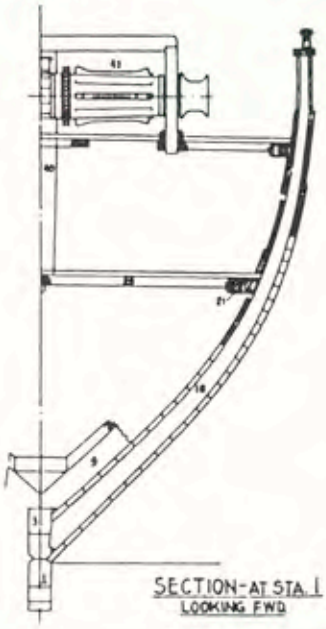
This little invention worked fine then, and it continues to serve these many years later. Allyn is in the midst of an enormous project - as a volunteer now - with the Museum's Curatorial Department, for which he is taking lines off a sizeable collection of half models. "All these things start with nothing," remarks Allyn, saying, Curator of Collections "Bill [Peterson] calls one day and says 'I've got a model over here... and I don't know the name of it. I know what shipyard it was built in and we've got the records of the shipyard. If I could get the lines off and get an idea of what the displacement was, I could identify it. Would you mind?"

As it turned out, there were two half models needing identification. Allyn took the lines off both and delivered the dimensions to Peterson, who was thus able to name both vessels. That was about five years ago, and today Allyn and his "gadget" are still at work on this same collection of roughly 50 half models, taking the lines off each vessel and documenting its dimensions. Peterson wonders what the Seaport would do without Allyn: "There's no one else who could have done this project."

Allyn volunteers at the Museum just once a week now, but continues to spend a lot of time on the project, working out of the shop he has set up in his own basement. It is a tidy set-up, equipped with all the needed tools, including a tailor-made pair of eyeglasses with bifocals worked in at two key distances for the lines-taking process.

Allyn's artistry lies not only in his facility for taking the dimensions from and making detailed drawings of completed vessels and models, but also in his ability to read from the lines and drawings to recreate the vessel. He has crafted a number of half models, which hang proudly in his home. He has a special place in his heart, he says, for the *Morgan* half model he fashioned. Though Allyn's artistic touch is reflected in sketches of several Museum vessels - and in extensive plans for the waterfront bulkhead, lines from many of the models and half models, and detailed construction plans for "dear Alice" (the coasting schooner the *Alice B. Wentworth*, which he reconstructed on paper from old photographs and gathered information) - the *Morgan* is still his sweetheart.

And he is our's. When he first came to the Seaport, we couldn't imagine having managed without Bob Allyn. Today, though we see him less and less frequently, he continues to be an integral part of our working life here, and we realize we really can't manage without him.



Shaping a Spar

ROGER HAMBIDGE

Traditional Technique Returns Early Lines to Morgan *Bowsprit*

When it came time last winter to construct a new bowsprit for the *Charles W. Morgan*, we determined to duplicate as much as possible the lines of the spar carried during the Seaport's restoration period, which extends from 1895 to 1905. By studying the earlier bowsprit - which was on the ship nearly 70 years and which we still have in the shipyard - and by consulting historic photographs, we were able to detect various differences between the old and newer bowsprits, and agreed to reinstate the earlier details.

To the best of our knowledge, the *Morgan* has carried a total of five bowsprits. In the Hillman papers, at Mystic Seaport's G.W. Blunt White Library, the *Morgan*'s builder listed the original length of the first bowsprit at "24 feet outside the knightheads," the portion of the bulwarks through which the bowsprit protrudes. The Marine Insurance Record of 1823-1903 - part of the New Bedford Whaling Museum collection - noted the "bowsprit shortened 3 feet." The same source noted in 1881 the installation of a "new hard pine bowsprit." We have no record of further repairs to or replacement of the spar until, as noted in the Seaport's Maintenance Record of 1947-58, "New bowsprit of Douglas Fir..." The *Morgan*'s fourth bowsprit is listed in the Curator's Report of 1960. In 1975, we noted some rot in this last spar, but were able to strengthen it sufficiently by scarfing in new pieces of wood. Even then, however, we knew we would have to replace the spar completely in the not-too-distant future.

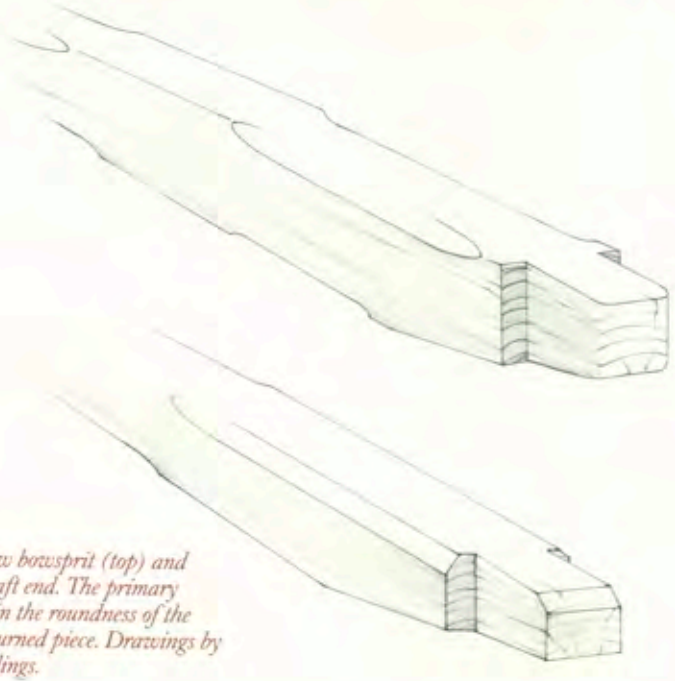
The time came last October, when the *Morgan* was due for her three-year haul out, a process that requires a complete down-rigging. In our research, we had learned that the major differences between the old and newer bowsprits were the result of the newer spars having been machine-turned rather than hand-hewn. By using a lathe, we had been able to save time and money, but we had in the process lost the true shape of the bowsprit. The biggest difference is that the lathe turns a perfectly rounded piece of wood, whereas our hand-hewn model features a flat top. Also missing from the machine-turned piece were rigging "shoulders," for which grooves had been substituted.

The top of the spar has a one-inch deflection in length, with the ends higher than the middle. The tapers are worked in at the bottom and the sides with a flat area running the length of the bowsprit across the top. Where the bowsprit passes through the bulwarks between the ship's knightheads, the spar is square in section. Aft, towards the heel bitts, a heavy chamfer, or bevel, is worked into the four corners, ending just a couple of inches forward of the step, or tenon, and softening the appearance of the spar.

We would use a Douglas fir log - 35½ feet in length and 3½ feet in diameter - which had been obtained from the McFarland-Cascade Co. of Tacoma, Washington, in the early 1980s, and had been stored in the Museum's shipyard.

It took two forklifts to move the log to the shipyard sawmill and set it up on the saw carriage. Because of its extreme diameter, though, the log was too large for our saw. We had to make it fit by taking a chainsaw and axe and notching out the side of the log so it would extend beyond the carriage standards that help to hold the log on the carriage.

After the first pass through the saw, the rest of the squaring-up process was more or less routine, with the log's extreme size being the only complication: we had to use the forklifts to roll it after each pass. When the sawmill work was completed, we had a 24-inch by 24-inch by 35½-foot piece of lumber ready for final fashioning.



Comparison of new bowsprit (top) and 1960 spar, at the aft end. The primary difference here is in the roundness of the earlier, machine-turned piece. Drawings by Christopher Rawlings.

At its largest point - where it passes through the rail - the bowsprit measures 22 inches vertically by 20¾ inches horizontally. I deliberately left a couple of inches extra, to ease the laying out of tapers, and to avoid the worst of the knots and checks, or splits, which are inherent in any large, dried lumber. As stated earlier, the bowsprit was flat on top with a one-inch longitudinal curve that would be worked in later, and tapers were laid out fore and aft on the remaining three sides. I selected a "top" that would enable us to both use the best of the wood and better encapsulate the heart, or center, of the timber.

I picked off and recorded the diameter, width, and height of the old yellow pine spar at three-foot intervals, and Steen Kokborg, our draftsman, made a detailed drawing that would help in the final shaping of the new spar and preserve the details of the old one as well.

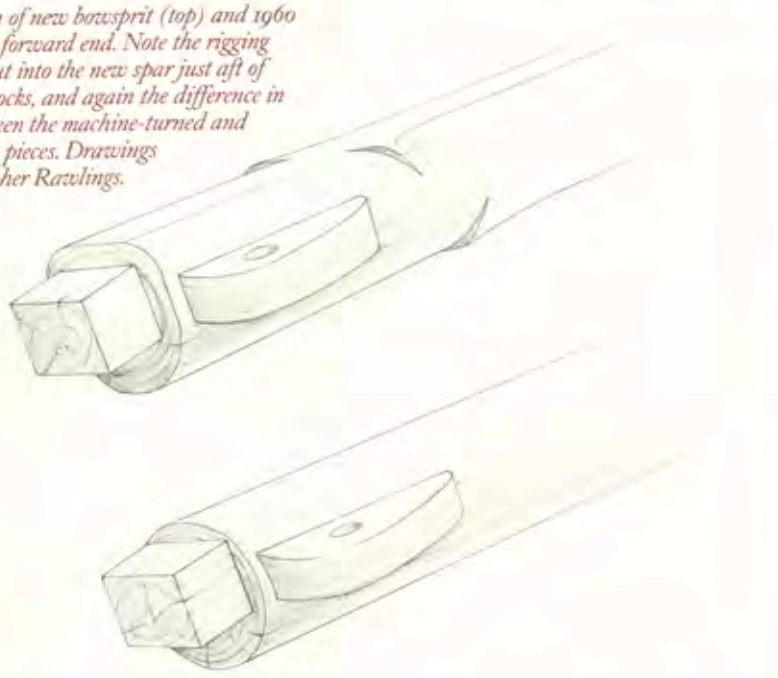
I struck a centerline at the top of the timber and, working from it, charted the new spar's width at the same three-foot intervals. Starting at the aft end, or heel, the width is 20⅜ inches, or 10⅜16 inches either side of the centerline. Between 9 feet and 12 feet from the heel, the bowsprit attains its maximum width, at 20¾ inches. From here to the forward end it starts to taper in toward its centerline, finishing off at 16 inches wide. With all the widths laid out, I tacked a long strip of wood along the pencil marks, and played a huge game of connect-the-dots.

When satisfied that this batten described a fair line, I drew a pencil line carefully alongside it, and removed it. I then repeated the process on the opposite side of the centerline. Having drawn the final side-to-side width, I could now begin trimming away the excess wood.

We set the timber up on several of the oak blocks normally used on the lift dock, to bring it to a comfortable height for dubbing, or chopping off the excess wood with an adze. My intent at the time was to do most of the adze work sitting on a low stool or sawhorse.

Then the size of the job hit me. I was sitting and looking at a 24-inch face of wood 35½ feet long, from which I had to remove anywhere from about 1½ inches of wood, at the bowsprit's widest point, to about 4 inches at its most narrow. That's a lot of board footage, and that's just one side. I would still have the other side, plus the bottom, plus the final shaping.

Comparison of new bowsprit (top) and 1960 spar, at the forward end. Note the rigging shoulders cut into the new spar just aft of the "bee" blocks, and again the difference in shape between the machine-turned and hand-hewn pieces. Drawings by Christopher Rawlings.



I started a few experimental whacks down at the after end of the timber, where only about 2 inches of wood had to come off. After only a few minutes I could see I was in for a long and arduous exercise. Could there be another way? Well, not really.

I could, however, use a piece of labor-saving machinery at the outset. One of the shop's prized possessions is a large "skill" saw that swings a 16-inch-diameter blade. Adjusted to its full depth of cut, the blade will reach down 6 inches into the wood. By running this saw down the length of the timber, I was able to remove almost a full quarter of the total surface area on each side. Quite an improvement, though there was still an awful lot left to dub away.

For the first week, I sat on a low sawhorse and alternated between a "scoop" adze, which makes short deep cuts quickly, and the more familiar shipwright's "lipped" adze, for a flatter cut. I used the scoop adze every four to six inches to remove wood down and back to the saw cut. I also used a carpenter's framing square here, to ensure that the cut down the face would be flush to the saw-cut line and at a right angle to the top. I smoothed the wood in between the cuts with the lipped adze.

After the first week, my back was killing me. With the log low and me sitting down, I was spending most of my time nearly doubled over finishing the cuts down toward the bottom. I ended up repositioning the timber much higher, more at the level of my waist and slightly tilted away. I stood for the rest of the project, and my back was much better for it. Toward the forward end, where the "waste" wood was thicker, I used a smaller skill saw to make vertical cuts at 5-inch intervals. This enabled me to speed up the removal of large chunks of wood, to within an inch of the finished surface. I would then use the scoop adze to remove the rest and the lipped adze to smooth it up.

Once I got into the "swing" of things, it took me roughly a week and a half to dub down one side to finished dimension. Many wheelbarrow loads of "designer" kindling were produced, and emptied into the *Sabino*'s kindling box. At the end of each day's work, I coated the raw wood with shellac to slow any drying and subsequent checking. Despite this precaution, several checks, though small, did occur.

One rather large check had developed at the upper forward portside corner. I was able to remove some of it, but not all. When I cut back 30 inches of the forward end to remove even more of the check, we were able to get a good look at the rest of the wood inside, and were pleased to note no trace of deterioration.

Moving around to the starboard side, I again tilted the timber away and made another set of vertical cuts. It was about this time that I noted with satisfaction my ability to do all this work - including raising and tilting the timber - single-handedly. It's amazing what one can accomplish with jacks, blocks, wedges, and a pinmaul, or shipwright's sledge hammer.

I finished up the starboard side to mirror the port side, again using scoop adze, lipped adze, framing square, and ever-present shellac. Both sides were 90 degrees to the top surface. Next, I rolled the timber onto its port side and snapped down a chalk line to depict the top edge. With 24 inches of vertical wood at the forward end and only 15½ inches needed, I wanted to take advantage of the good wood and eliminate (if possible) the large check in the corner.

I didn't have that luxury aft. At 6 inches forward of the heel, the bowsprit measures 22¼ inches vertically, leaving only ⅞ of an inch leeway. From the chalk line I marked a one-inch "sag" and used a batten to draw the top surface line. I then laid out the bottom vertical dimension along the length of the timber, again marking at three-foot intervals to define the taper to the bowsprit.

With the skill saw I made a new series of vertical cuts along the bottom face and, grabbing the adze once again, dubbed the excess wood away. I had started at the forward end - with the bulk of wood to remove - and worked aft, figuring to lighten the load as I went.

Once I started in on the top face, I had the bulk of the wood removal behind me. Finishing the top surface, I now had a bowsprit that was square in section and tapered in all dimensions fore and aft. I had still to round it off and form in the rigging shoulders. Once again consulting the old yellow pine bowsprit, I noted locations for the shoulders and for the tenon on which the cap would sit, joining the jibboom to the spar.

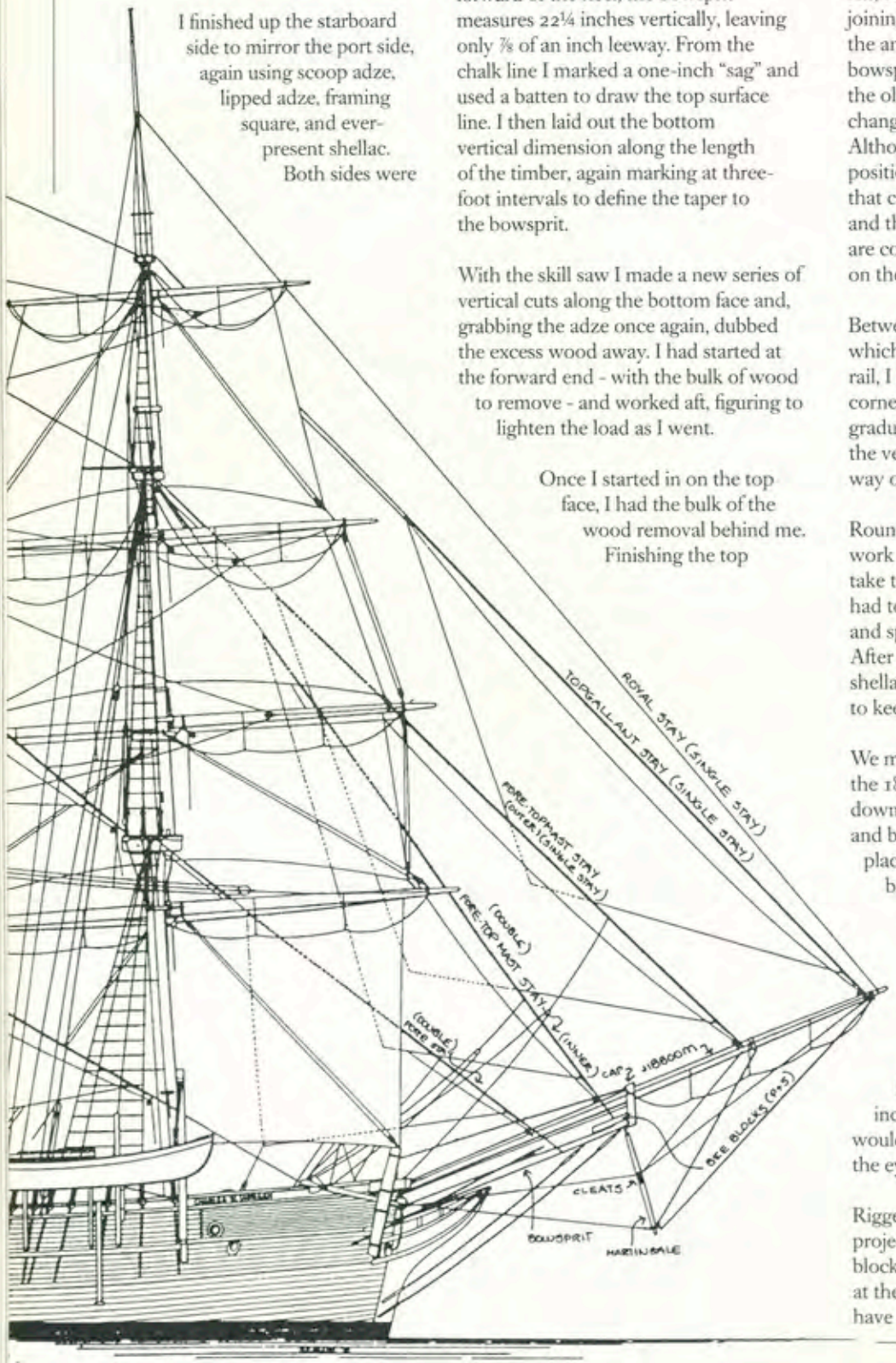
Aft, I had to calculate positioning of the joining tenon for the heel bitts, as well as the angle at which the bottom of the bowsprit meets the deck. Working from the old spar meant making a number of changes that might affect the rigging. Although the rigging lengths and positioning proved to be fine, the tenon that connects the bowsprit to the deck, and the bitts that hold the heel in place, are considerably different in dimension on the new piece.

Between the heel and the point at which the spar passes out through the rail, I beveled deep chamfers at each corner. Beyond the rail, the bowsprit gradually goes to round, except at the very top, which remains flat all the way out to the cap.

Rounding off the bowsprit meant more work with the adze. Because I couldn't take too much more wood off, I finally had to resort to a drawknife, hand plane, and spoke shave to fine-tune the piece. After each session, I brushed a coat of shellac over all the raw wood, still trying to keep the drying to a minimum.

We modeled the rigging shoulders after the 1881 bowsprit. The forestay passes down around the bottom of the bowsprit and back up to the foremast. It is held in place by two shoulders, formed in the bottom corners of the spar, which are left proud of the rest of the spar. The inner bobstay deadeye on the 1881 piece had originally been stropped to the spar, and later was rigged with an iron eyebolt. Consulting the photographs from our restoration period, we incorporated both the shoulders that would have held the strops in place, and the eyebolt hole as well.

Rigger Dean Seder contributed to the project by building two so-called "bee" blocks, which project out from the side at the forward end of the bowsprit and have a 3½-inch diameter hole cut



through them to receive the fore-topmast head stay. This double stay passes through the blocks and leads off to terminate at a pair of bullseyes at the knightheads.

We bored five holes through the new bowsprit. Two of these would receive the ironwork for the whisker stays that prevent the bowsprit from swinging side to side. Two would receive the bobstays that hold the bowsprit down against the pull of the mast. And the last would accommodate the eyebolt for the martingale hook.

We cut in and finished off the tenons at each end, filling some of the larger checks with epoxy glue, the smaller splits with seam compound. While final painting was taking place, I built a new cap. I made up a split pattern for the cap out of some pine boards and adjusted the patterns for fit and final shape, consulting several historic photos. The new cap is two pieces of oak 8 inches thick by 4 feet long and 9 inches wide, and joined at the centerline.

The new bowsprit is finished in three colors. Aft, inside the rail it is an ochre color matching the surrounding bulwarks. The middle is a satin black from the rail out to just above the billethead, where it meets the third color, white, in a vertical slash upward across the spar.

On 23 March 1993 the new bowsprit was shipped aboard the *Charles W. Morgan*. To alter the bitts to fit, I built a full-size (vertical) pattern of the after half of the new spar and tried it in place. Forward, there was plenty of horizontal clearance through the bulwarks. But vertically, though the bowsprit would fit, it was tight. Lying on my back in the bowsprit hole, I chiseled out the underside of the rail with one hand, eating a Snickers bar with the other, and noted the irony. Twentieth-century snacks aside, the bowsprit fits fine, the rigging fits, and it looks right.

But we weren't quite finished yet. We still needed a new jibboom, and that meant more dubbing. Though the existing jibboom had been machine-turned and was thus completely rounded, the historic photos indicate a straight bottom, which we decided to duplicate.

"Getting out" the new jibboom was much like making the bowsprit. I lined out tapers with a long batten, struck a centerline along the top, and removed the extra wood with an adze. I positioned the new jibboom so that the largest checks would be toward the underside. Once the jibboom was shaped up, I ran epoxy glue into the largest of the checks and faired them over with seam compound. Along the bottom of the spar we found small traces of rot, which I cut out and replaced with new wood.

The new jibboom finishes off at 44 feet 7½ inches in length, with the largest diameter – 11 1/16 inches – roughly in the middle. The heel, where it tenons into the rail step, is 8 5/16 inches in diameter, and the extreme forward end is 5⅛ inches in diameter. Two shoulders formed into the spar hold iron bands that connect the jibboom stays, both inner and outer, as well as the martingale stays.

Four holes pierce the jibboom. The first is a slot toward the after end of the spar, which holds the sheave, or pulley, that runs the jibboom out over the bowsprit. The second of the four holes receives the outer fore-topmast stay, which passes through the jibboom, then under a cleat in the martingale, setting up onto a bullseye at the bow of the ship. The third hole receives the fore-topgallant stay, which sets up similar to the fore-topmast stay. The fore-royal stay passes through the final hole, out by the tip, and is seized to the outer martingale chain.

We fastened four battens, two per side, to the jibboom once it was rigged in place. The battens hold the sail stops for the headsails when these sails are furled. Measuring approximately 9 feet long and 2 inches by 1½ inch and made of oak, they were fitted to the spar and bored for fastenings. Removing the battens, and making sure the iron bands would slide on easily, we applied the final finish coats of satin black and white.

Despite the size of the timbers involved, and the complexity of their finished shape, I had a lot of fun hewing these pieces out. At the start, I was concerned that my stamina might not hold out (it did). I worried that I'd be slow, and anticipated the riggers breathing down my neck (they didn't). I also thought, with all the dubbing, I might turn into a junior-grade Arnold Schwarzenegger (I didn't).

The adze is an amazing tool that lets you remove a lot of wood fairly quickly, then smooth the surface to a high degree of accuracy, leaving an almost hand-planed finish. May Bowsprit Number 6 give its maker as much satisfaction.

After 21 years of working here at the Seaport, I am still taken by the beauty. It's everywhere: in the springtime budding of flowers and trees; in the patches of light and shadow dotting unpaved streets; in the grace of the small boats and the magnificence of a vessel like the Grand Banks fishing schooner *L.A. Dunton*, which I never pass without stopping to wonder at her form, her strength, and even her danger.

The unexpected can always be expected here. This past winter, for example, I was stopped by the sight of Roger Hambidge working a new bowsprit for the *Charles W. Morgan*. I would watch him raise the adze high, then strike it down, again and again, in powerful rhythm.

Studying the massive fir stick he was working, I saw vertical hollows, top to bottom, even and neat. Later, these cupped-out rows would be dubbed as smooth as if they had been hand-planed.

It is this picture of Roger swinging that adze with skill and assurance that flashed to me a picture from our past, when hand tools and highly skilled trades were commonplace. It is these tools and skills, in fact, that built this country.

And they are put to use daily in the Seaport's shipyard. I hope more people will walk down to the shipyard, to see the old methods at work. It's all part of the beauty.

–Barry Thomas

Captain Bunker Speaks of Food







SANDRA L. OLIVER

"It is raining so I cant dig potatoes," wrote Captain Emery Bunker as he sat at his big desk in the corner of his living room. It was Tuesday, 5 September 1893, and quiet around the house that day on Islesboro, Maine. Emery's wife, Adrianna, and her older, widowed sister, Lois, who lived next door, had "gone down to Sarah's," and his sons, Newton 18 and Henry 22, he left unmentioned. He was replying promptly to the "very welcome letter" he had received the day before from "Friend John," a shipmaster like himself.[1]

Emery was home in Maine between sailing trips. Like his friend John and his brother Edgar, Emery was one of hundreds of coasting schooner captains who made their living sailing essential but unglamorous cargoes along the Atlantic Seaboard: Lumber from Maine or the Carolinas to New York; coal from Philadelphia or Newport News to New England; railroad rails or building products from the North to the South. In a job comparable to modern long-haul truckers, these men drove their three-masted schooners up and down the Atlantic coast, commanding a crew of about six.

Sometimes these schooners visited Cuba or the Gulf ports. When they were first married, 27 years earlier, Adrianna accompanied Emery to sea, once waiting out a quarantine for yellow fever off Sandy Hook after a visit to Havana. Occasionally they made transatlantic voyages, perhaps to Spain or Italy for salt to supply the fishing industry. During one trip to the Mediterranean, the Bunkers brought home decorative alabaster carvings, which Adrianna kept on a fancy whatnot in the living room.[2] After the boys were born, Adrianna chose to stay home close by her in-laws, Mr. and Mrs. Silas Bunker, and her own family, the Coombses, while Emery continued to go to sea.

Depending on how much money these seafarers had been able to save up and how they invested it, men like Emery Bunker might be able to retire ashore to dig potatoes, or anything they pleased, before they got too old. The record of Emery's commands is not clear, but we know that he was involved with the three-masted schooner *Jacob Reed* by 1893. In February 1898 he was in command on a routine passage from Fernandina, Florida, to New York when the 15-year-old schooner sprang a leak about 200 miles east of Cape Hatteras. Her cargo of yellow pine lumber helped keep her afloat until Emery and her crew were taken off by another schooner five days later. After that, Emery, age 55, probably came ashore for good.[3]

Emery was 50 years old in 1893. He had grown up in a house not far from the one in which he sat, and his brother Edgar had learned the carpentry trade from their father Silas. In fact, Emery had helped build his own home. But what he really wanted to do was to go to sea. Family legend has it that when he and his father finished roofing the house where he and Adria, as he called her, would live, he stood up, threw his hammer to the ground, and announced, "That's it, Pa, I am going to sea." Those may have been his words, but he probably meant he was going *back* to sea, for he was a mariner by the time of his marriage in 1866, and if he was able to take Adrianna with him he must have been a skipper by 1869, the year his first child was born.[4]

By the 1890s Islesboro was well established as a summer colony. At the north end of the island, where Emery lived, summer people from Bangor flocked to Sabbathday Harbor and Ryder's Cove and built little summer cottages. And there was a hotel down there, too, within easy walking distance of Emery's home. Just like today, the summer season ended abruptly around Labor Day, so Emery could report on the day after Labor Day that the summer people were gone and the hotel was already closed up.

"Yesterday we had a clambake at the narrows and a game of ball and of course that was resting," was how Emery described Islesboro's 1893 Labor Day celebration.[5] Emery had grown up with baseball, from its first broad popularity at the time of the Civil War, through the beginnings of professional baseball in the 1870s, until by the 1890s it had become America's favorite sport to play and to watch. For us, 100 years later, a clambake and a baseball game sound perfectly natural.

At the "narrows," about three miles south of Emery and Adrianna's house, Islesboro almost becomes two islands. The wealthy, fashionable summer people from Philadelphia were clustered at the south end, near Dark Harbor. For the Bunkers, the mainland towns of Belfast and Castine, easily accessible by boat across Penobscot Bay, seemed closer than the south end of the island, 10 miles away.

The clambake, if it was anything like others of its time, featured clams and more clams, and maybe some lobsters. Adrianna and Lois, if she went, probably baked pie or cake to take along. Maybe she made doughnuts–the only recipe known to have survived Adrianna is one for "Auntie Bunker's doughnuts." The clam flats all around Islesboro still yielded up soft-shell–"steamer"–clams in the days before they were overfished and the flats spoiled by pollution washing down the Penobscot River and drifting along both sides of the island.

Although he was not home often enough to be a leading figure in Islesboro affairs, Captain Bunker was busy when he was home. "We are all well and considerable happy considering how much work there is to be done and the committees we are appointed on," he told his friend John. Adrianna probably greeted him each return from sea with a list of fix-it jobs around the house. Although he made his living at sea, Emery continued

to do carpentry work, mostly at his home. And he was involved with the Freemasons, and with the Free Will Baptist Church a few hundred yards down the road, whose meetinghouse his father had built.

One of Emery's projects was building a fancy little summer house at the top of the rise in back of his barn. Seated there, in the 1890s, he would have had a wonderful view of Penobscot Bay. Like most of New England, the island was largely cleared at that time, for agriculture had occupied most of the island's settlers, and the woodlots not sacrificed for fields had later been cut for firewood. Even though the islanders always had one foot in the water, fishing in it and carrying their goods to market on it, not until the second quarter of the 1800s did seafaring become a distinct occupation for Penobscot Bay's island boys. From then on, the schooners that carried Maine products to market, and the big Maine-built schooners and square-riggers that carried cargoes from port to port around the world, offered opportunities for fellows like Emery and his brother who wished to go to sea. Most of Emery's letter addresses seafarers' concerns: "and our island boys got through that hurricane in good shape"; "Fields Pendletons vessel went through all right as usual"; "and you was lucky to be where you was with most of your family around you."

Eventually he got around to mentioning food. "Ed Bunker is at home for the season and got a mackerel net in the water but there dont seem to be many fish and my potatoes dint turn out quite as well as I expected But there are plenty of blackberries."

Emery's brother Edgar had apparently set a gill net somewhere alongshore. This kind of net hung down into the water from a line of corks along the surface where Ed expected mackerel might school. Even today islanders fish for mackerel, but mostly in July and early August; fishing luck really peters out in September, and maybe it did in 1893, too. Ed and his family probably planned to eat some fresh fish right away, perhaps sharing some with Emery and Adrianna, and then salt the rest away for off-season use. Today, the people who live in Emery's house catch mackerel and freeze them in blocks of ice, gutted, headless, in the round. As Adrianna might have, we fry them up for winter breakfasts.

We don't know for sure where Emery planted his potatoes. Once there was a good deal more topsoil on the land in back of the house and barn. Twenty or thirty years ago, much of it was skinned off and sold to make lawns for summer people. Perhaps Emery's potato patch went "down island" then. But there is a nice level spot directly to the south of the house where Emery's successors have their garden, and perhaps that is the spot he and Adrianna once chose for a garden.



Captain Emery N. Bunker (1843-1900). (Courtesy Island Lodge 89, A.F & A.M., Islesboro; photo by James MacMillan)

Potatoes were an important part of their diet if the Bunkers were typical of their time. When he was a boy, Emery, like most Mainers, had never seen a Colorado potato beetle, but the bug arrived on Islesboro in 1874.[6] He doesn't say if it was insect damage that kept his potatoes from thriving, but *we* haven't had a bad year yet for potatoes in the four we have grown them here.

After he dug them, Captain Bunker probably carried his potatoes down cellar where they would keep beautifully all winter long, just as they do today. The cellar, with its dirt floor and stone walls, maintains a temperature cool enough to keep milk fresh for three days in August, and is dark enough that potatoes need only a board over their box to keep them from getting greenish. Perhaps the Bunkers fried up some boiled potatoes to go with their mackerel, as we who now live in their house often do.

Even though we would like to, we do not do as the Bunkers probably did, and cook the fish and potatoes in salt-pork fat. But *we* have put insulation in their house and caulked every chink we can find. And when we go somewhere on the island we drive a car, not a horse; nor do we walk as much as they did. We simply don't burn off the calories that the Bunkers did, so we use vegetable oil, even though the salt pork tastes better.

In 1893, the potatoes shared the cellar with a cistern that supplied Adrianna with water in the kitchen through a pump. The cistern has since been dismantled, but it collected water off the steep roof for many years before the summer people, who bought the house after Adrianna died, drilled the well that we use today.

One thing has not changed: There are still "plenty of blackberries." If Adrianna made a pie for the clambake, it could have been a blackberry pie. Maybe she also made jam, as we do. We suspect that Emery did the picking.

This is how he did it: He hung a lard pail around his neck from a string so he could pick with two hands. Then he set out down the slope towards the east where the berries grew, as they do today, very thickly. He could pick and look up occasionally to see the steady traffic of schooners on the East Bay. Today the woods have grown back so thickly that we would have to climb a tree to see the view Emery saw. Now the only schooners we see are the occasional cruise boats out of Camden with their human cargoes warming themselves in the late-summer sun.

In September 1899, six years after Emery wrote to his Friend John, he slipped and fell while picking blackberries. Family tradition says that he fell forward on the lard pail, injuring his stomach and causing a cancer that never healed. Emery died the following spring—on 25 March 1900—and was buried in back of the church.

There is still an old lard pail in the house, which we found when we moved in—but probably not the one that killed Emery. I use the lard pail for steaming brown bread, and when I pick blackberries, I take a basket.

Notes to this article appear on page 64

The Wind Rose, Calendar of Events & Museum Notes

August

SUMMER HOURS CONTINUE. The Seaport is open 9 A.M. to 8 P.M. daily, through 29 August.

"KIDSTUFF" continues, through 6 September. Free drop-in activities for children on the grounds and in the Children's Museum. Consult the *Kids Today* to locate the action.

OUTDOOR DEMONSTRATIONS of maritime activities include whaleboat demonstrations, sail handling, fish splitting, and more. Full schedule available at gates.

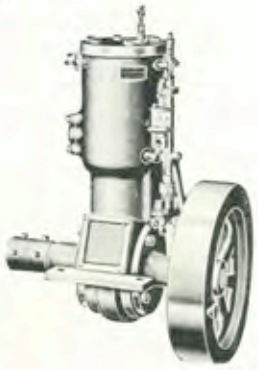


Sabino continues 1993 summer season through 5 September, with half-hour cruises daily from 11:00 A.M. to 6:00 P.M. One 90-minute downriver tour at 7:00 P.M. Please call 572-5351 for details.

THE BOATHOUSE continues 7-day-a-week operation, 10:00 A.M. to 7:00 P.M., through 29 August. Please call ext. 4233 for details.

A...B...SEAS: AN ILLUSTRATED DICTIONARY OF THE SAILORS' OWN LANGUAGE continues in the R.J. Schaefer Building, through 27 September. The letters A to Z are all represented - some more than once - with objects, images, and activities. Come explore the mysterious lingo of the sea, and discover the meanings and origins of such salty expressions as "scuttlebutt," "monkey's fist," and "baggywrinkle."

21-22 ANTIQUE MARINE ENGINES EXPOSITION. Engine mania will be the order of the weekend, when engine buffs from all over gather to display their prized possessions.



This invitational is unusual in that it is not a competition and therefore draws a wide range of engines in all stages of repair. The meet will take place from 9:00 A.M. to 5:00 P.M. Saturday and 9:00 A.M. to 3:00 P.M. Sunday. The Seaport's *Star, Florence*, and *Kingston II* will be underway and featured in the parade that takes place both days. For additional information, please call 572-5390.

29-9/3 *Brilliant* SAIL FOR TEENAGERS. *Sold Out.*

30 MUSEUM HOURS CHANGE. The Seaport will be open 9:00 A.M. to 5:00 P.M. Summer daytime activities continue through 6 September.

September

4-6 LABOR DAY WEEKEND FISH FRY. Three-day food festival, during which cod, haddock, and other treasures of the sea are specially prepared and served at Lighthouse Point by the Mystic Lions Club. Please call 572-5315 for details.

7 FALL SCHEDULE BEGINS, with outdoor demonstrations according to schedule available at the gates.

7 STEAMBOAT *Sabino* begins fall schedule, with half-hour cruises daily on the hour 11:00 A.M. to 4:00 P.M., and one 90-minute cruise beginning at 5:00 P.M. For information and reservations, please call 572-5351.

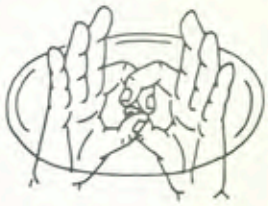
7 BOAT LIVERY begins weekends-only operation, 10:00 A.M. to 5:00 P.M., through 11 October. Please call ext. 4233 for details.

7 THE JEWISH LUNAR CALENDAR PROGRAM in the Planetarium describes the origins and development of this intriguing calendar, through 30 September. Available to formal groups by reservation only. Please call 572-5355 for information and reservations.

10-13 *Brilliant* RACE WEEKEND FOR ADULTS. Sponsored by WoodenBoat School, the weekend includes participation in the annual Mystic Schooner Race. Emphasis is on the acquisition of line-handling skills and familiarity with the vessel's operation. The first day, Friday, is devoted to drills and race preparation. Relaxed passages on Sunday and Monday. Participants must be experienced sailors. For information and reservations, please call the WoodenBoat School at (207) 359-4651.

11 MYSTIC SCHOONER RACE. The 26th annual invitational schooner race challenges traditional and modern schooners from throughout the Northeast. Participants will rendezvous at the Seaport Friday evening, for an early Saturday morning start. Participants are invited to attend the awards ceremony Saturday evening. For information and registration, please call ext. 5010.

11 INTERPRETER FOR VISITORS WITH HEARING IMPAIRMENTS available according to schedule posted in the Visitor Reception Center.



11-12 FAMILY PHOTO WEEKEND. This special opportunity to capture the Seaport on film is sponsored annually by Kodak. Staff and volunteers, dressed in

KENNETH E. MABLER PHOTO

nineteenth-century costume, pose for visiting shutterbugs on the Seaport ships, boats, and grounds. Members are invited to take part in the photo contest and exhibition. Please call 572-5315 for details.

17-20 *Brilliant* Weekend Sail for Adults. *Sold Out.*

18 Sail Education Fall Classes begin. Adults and Juniors alike can choose from a full menu of programs, including Beginner, Intermediate, Advanced, and Racing. Please call 572-5323 for details.



20 Members-Only Lantern Light Tour Ticket Sales, through 3 October. Please call (800) 522-1841, 24 hours a day. Tours will run 3-19 December. Please have alternative dates in mind.

25 Members' Day. Special activities for Seaport members. Watch the mail for your special invitation, which will tell you everything you need to know about the day's activities.

26 Mystic Maritime Gallery. Fourteenth annual Mystic International Exhibition opens. Please call 572-8524 or (800) 344-0675 for details.

October

1-4 *Brilliant* Weekend Sail for Adults. On this cruise through New England waters, the emphasis will be on good seamanship and environmental awareness. Qualifications include physical fitness, agility, and a connectedness to our natural world. Cost is $525. For information and reservations, please call 572-5323.

3-8 Elderhostel At Sea. Enjoy an in-depth tour of the Seaport the first day, then sail New England waters aboard the *Mystic Clipper*, mooring each night at various harbors, which might include Block Island, Newport, or Sag Harbor. Participants will study three disciplines while on board: regional maritime history, the voice of the seafarer through literature and chanteys, and navigation. Cost is $340. Please call ext. 5272 for details.

4 Lantern Light Tour Tickets go on sale to the general public. Please call (800) 522-1841, 24 hours a day, for tickets. Tours will run 3-19 December. Please have alternative dates in mind.



6 Basic Celestial Navigation course is held Wednesday evenings, 7:30 - 9:30, in the Seaport Planetarium, through 15 December. Cost is $135 ($150 for nonmembers). Please call 572-5355 for information and registration.

8-11 *Brilliant* Sail, New York to Baltimore. Board at South Street Seaport Museum in New York City, head south, and disembark at Fell's Point in Baltimore, Maryland. The emphasis will be on seamanship and passage-making. The only qualifications for this passage are physical fitness and agility. Cost is $525. Please call 572-5323 for details.

9-11 Chowderfest Weekend. Hearty chowders of all sorts will be served, at reasonable prices, by six regional civic groups in the boat shed. Sample these sumptuous soups and other menu pleasers to the sounds of chantey music, 11:00 A.M. to 3:00 P.M. throughout this Columbus Day weekend. Please call 572-5315 for details.



9 Interpreter for Visitors with Hearing Impairments available according to schedule posted in the Visitor Reception Center.

13-16 *Brilliant* Sail - "The Great Chesapeake Bay Schooner Race." Board this classic vessel at Fell's Point, Baltimore, be a proud part of the crew for this exciting overnight race, and disembark at Waterside Marina in Norfolk, Virginia. Emphasis for this cruise is seamanship, safety, and intensive sailing. Participants must be experienced sailors. Cost is $550. Please call 572-5323 for information and reservations.

16-17 Pilots' Weekend. A working weekend for membership volunteer group.

18 Introduction to Coastal Navigation. Classes are held in the Seaport Planetarium Monday evenings, 7:30 - 9:30, through 22 November. Cost is $72 ($80 for nonmembers). Please call 572-5355 for information and registration.

19 Morning Fun for Kids. Special educational fun for parents and preschoolers ages 2½ to 3, Tuesday mornings from 9:00 to 10:00, in the Children's Museum. Series cost is $35; a second child can attend for an additional $14. Please call 572-5322 for information and reservations.



MARY ANNE STETS PHOTO

22-25 *Brilliant* Sail, Norfolk to Baltimore. Board at Waterside Marina in Norfolk's business district, make the passage north, and disembark at Fell's Point, Baltimore. Emphasis is on good seamanship and environmental awareness. No experience necessary, but participants should be physically fit, agile, and inquisitive. Cost is $525. Please call 572-5323 for information and reservations.

23 Dyer Dhow Derby. This annual event is an expression of our appreciation to those who donate the Dyer Dhows for our sail education programs. A fleet of Seaport sailing dinghies race on the Mystic River with members of several East Coast yacht clubs at the helm. This day of races for adults and juniors is followed by an awards ceremony that evening. Please call 572-5323 for details.

23-27 Boatbuilding Classes include instruction and student work in a variety of operations basic to traditional wooden boatbuilding. These include planking

(both carvel and lapstrake), cutting a stem rabbet, steam bending, edge-tool sharpening, caulking, and more, as well as one full day of lofting. Participants will work with Seaport-supplied tools and materials, in a typical boatbuilding shop under boatshop conditions. Classes run 9:00 A.M. to 5:00 P.M., Saturday through Wednesday. Cost is $320 ($350 for nonmembers), and enrollment is limited. Please call ext. 5028 for information and reservations.



30-11/3 BOATBUILDING CLASSES. Please see above.

November

1 MUSEUM HOURS CHANGE. The Seaport will be open from 9:00 A.M. to 4:00 P.M., through 2 January.

3 VOLUNTEER RECEPTION. This annual gathering in honor of our many dedicated volunteers will be held in the Seamen's Inne. Please call 572-5378 for details.

5 LIBRARY BOOK DUTCH AUCTION. Prices reduced hourly. Hundreds of titles from which to choose in this annual event sponsored by the Fellows of the G.W. Blunt White Library. 10:00 A.M. to 5:00 P.M. in the Library.

5-7 HISTORICAL SOCIETY DAYS at the Mystic Seaport Museum Stores. This is a community effort with members of the Mystic River Historical Society, which will receive a portion of sale proceeds. Hours are 10:00 A.M. to 5:00 P.M.

6 SOUTHERN NEW ENGLAND MARITIME HISTORY SYMPOSIUM. Thirteenth annual program explores diverse aspects of regional maritime history through lectures and discussion. See back inside wrap, or call 572-5313, for details.

13 INTERPRETER FOR VISITORS WITH HEARING IMPAIRMENTS available according to schedule posted in the Visitor Reception Center.



6 "HERO, VILLAIN, VICTIM, STRANGER: CHANGING IMAGES OF THE SAILOR" opens in the Schaefer Building. This new exhibition will explore the ways in which various images of sailors - in the press, in caricatures, in portraits, and other media - have historically shaped our perceptions of seafarers.

21 FOUR DISTINGUISHED ARTISTS EXHIBITION opens in the Mystic Maritime Gallery, with an opening reception for members from 2:00 to 5:00 P.M. The exhibition will run through 31 December. Please call (800) 344-0675 or 572-8524 for details.

25 THANKSGIVING DAY. Mystic Seaport will be open on a limited basis, from 9:00 A.M. to 4:00 P.M. You may call 572-5315 for information.



25 ORNAMENT CONTEST DELIVERY to the Museum Stores. Entries will be accepted through 2 December. Please call 572-8551 ext. 302 for details.



26-28 NEW ENGLAND FIELD DAYS. Special Thanksgiving weekend offers activities for families, including wagon rides, craft workshops, and puppet shows. Please call 572-5315 for details.

28 LAST DAY OF OUTDOOR DEMONSTRATIONS until 4 April.

29 "VISIONS OF CHRISTMAS PAST." This 30-minute slide presentation describing a traditional New England Christmas will be shown at 11:00 A.M. and at 2:00 P.M. in the Planetarium's Campbell Room.

December

1 YULETIDE TOURS begin, to run through 18 December. These daytime tours of selected exhibits and ships are conducted by guides in nineteenth-century costume, and include chantey music and conversations with roleplayers. Tours are conducted Wednesdays through Sundays. Reservations are required, and can be made by calling (800) 522-1841.

1 "THE STAR OF BETHLEHEM," a half-hour program on this noted celestial phenomenon, will be presented in the Planetarium daily at 2:45 P.M., through 2 January. Please call 572-5355 for details.

3 LANTERN LIGHT TOURS. One-hour walking tours leave the Visitor Reception Center every 15 minutes each evening from 5:00 to 9:00, through 19 December. Groups are led about the darkened Seaport, making their way by the light of their costumed guide's lantern. This is an eerie and quite dramatic experience, as each group is led below deck or into a darkened building, where cast members present scenes from an overall story, which changes each year and which relates to the way Christmas might have been celebrated in the nineteenth century. Member ticket sales begin 20 September, at (800) 522-1841.

4 MEMBERS' SHOPPING DAY at the Mystic Seaport Museum Stores. Extra discounts for members all day, 10:00 A.M. to 8:00 P.M. Please call 572-8551 for details.

10 ORNAMENT CONTEST winners announced, at Mystic Seaport Museum Stores. Please call 572-8551 for details.

11 INTERPRETER FOR VISITORS WITH HEARING IMPAIRMENTS available according to schedule posted at the Visitor Reception Center.

19 COMMUNITY CAROL SING takes place in Anchor Circle at 3:30 P.M. The Seaport carolers will lead an hour of favorite carols. Canned food donations are welcomed in lieu of admission. Please call 572-5378 for additional information.

24 CHRISTMAS EVE OBSERVED. Seaport will be open on a limited basis.

25 CHRISTMAS DAY. Mystic Seaport will be closed.

26 KIDS AFTER CHRISTMAS. Special activities for children abound. Games, crafts, and magic shows every day through 2 January. Special "Plum Pudding Voyages" will be conducted - at $2 per voyager - at 11:00 A.M. and at 1:00 P.M. daily. Please call 572-5315 for additional information.



If It's Tuesday It Must Be... Morning Fun with Martha Lane!

How can you tell a whale's age? How do you know the sex of a turtle? How does the captain know which way to steer the ship?

These are some of the questions that come up - and get answered - in the Seaport's Morning Fun for Kids, with Museum Teacher Martha Lane. Now in its third year, this preschool program for members and their parents just gets better every day.

The general theme of Morning Fun is the world around us. That means nature, and much of nature at the Seaport has to do with the sea. Martha gears all projects and activities toward helping kids "look down, out, up, and around...to see things they might not have seen before."



And it works. Early in a session, she says, she'll see a lot of dolls and toy trucks at sharing time. But as the term progresses, the children will begin bringing in rocks and birds' nests and sticks, the kinds of things they've been learning about in class.

Much of the learning materials relate to the maritime theme, and Martha also adapts well-known songs and finger plays to that theme: "four and twenty *seagulls* baked in a pie!" for example, or "10 little *sailors* jumping on the *bunk*!"

Field trips are always fun. One group took a trip to the *Charles W. Morgan.*



CLAIRE WHITE-PETERSON PHOTO



They went below and saw where the sailors slept and ate, and had a great visit. When they got back to the Children's Museum, they each were given an itty-bitty-ditty bag, which they were asked to fill with whatever they couldn't possibly do without for three, four, or five years - the length of a whaling voyage. Though many teddy bears had been stuffed into the bags by the following week, one practical preschooler filled his with a bar of soap, a toothbrush, and toothpaste.

Another field trip was made to the Buckingham House garden, which needed a scarecrow. The children hadn't even completed their scarecrow when a very scared sparrow started to screech. What a success!

The program is for children, ages 2½ to 3, and a caregiver. During circle time, when kids need to interact closely with their peers, caregivers are asked to sit at the side of the room. They lend a big hand, though, during project time.

Martha always puts the kids first. She helps them find something that's unique to them, then leads them in an exploration of similarities and differences in things and creatures around them. An example: kids have all their bones on the inside. How might it feel to have your bones on the outside? To test this, the children each put their hands inside an enormous lobster claw, and squeeze it open and shut, open and shut.

Having been a Mommy of five, an early childhood teacher in the public schools, and a long-time library story lady, Martha is full of great ideas. Join her at Morning Fun, and find out just how a starfish might eat a peanut butter and jelly sandwich.

The fall session begins 19 October, and runs for six Tuesdays, from 9:00 to 10:00 A.M. The series cost is $35, and a second child may attend for just $14 more. Space is limited, so please call 572-5322 to secure your spot. The next session will begin 11 January 1994.

Seaport Stores Needs Dishes!

The Mystic Seaport Museum Stores is preparing yet another in its hit series of Seaport cookbooks, and they need your help. This newest effort will be a cultural smorgasbord: food histories and recipes from many cultures, notes of ethnic contributions to the United States, tales of family immigrations, and more.

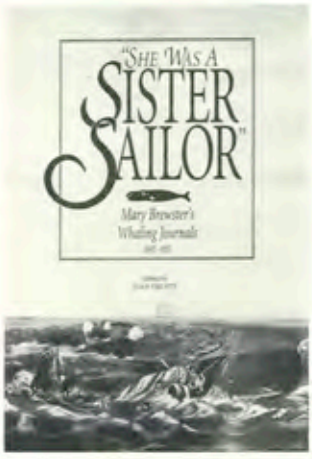
The editors are looking for ethnic dishes that have been incorporated into Americans' daily lives, and they are seeking as well any known histories of these dishes, related family stories from "the old country," interesting anecdotes, and photographs showing festive costume, mass production of pierogi in church basements, or any other scenes that illustrate the camaraderie and care with which food is prepared (photos will be returned).

The Seaport cookbooks have established a national following, and this is your chance to be a part of it. Please submit your recipe as soon as possible - and include your name, address, daytime telephone number, and the country in which the dish originated - to:

Mystic Seaport
Museum Stores
Attn: Annice Estes
47 Greenmanville
Avenue
Mystic, CT
06355
For further
information,
you may call
(203) 572-8551.



Seaport Titles Merit NASOH Recognition

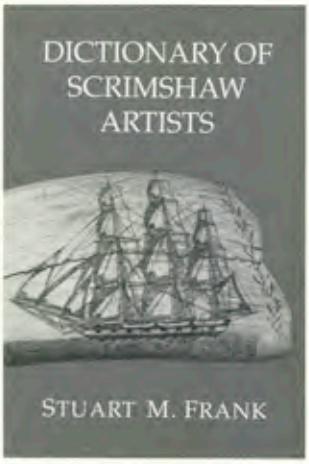


Mystic Seaport Museum Publications has been recognized by the North American Society for Oceanic History, which recently cited two Seaport titles for merit.

Joan Druett's *"She Was a Sister Sailor": Mary Brewster's Whaling Journals, 1845-1851* received the NASOH's 1993 John Lyman Prize in Maritime History, and Stuart Frank's *Dictionary of Scrimshaw Artists* was awarded the 1993 John Lyman Prize for a Maritime Reference Work.

About *She Was a Sister Sailor* the awards panel remarked that, "Ms. Druett's carefully edited version of Mary Brewster's journals provides valuable annotations on Brewster's originals, and Druett draws on her previous studies of other seafaring women to provide valuable historical context to this woman's experience on her husband's whaling ship *Tiger*, of Stonington, Connecticut. The Mystic Seaport Museum deserves high praise for its encouragement of this talented editor and for publishing this edition in such a handsome format."

The committee noted that, in *Dictionary of Scrimshaw Artists*, "Frank has provided a great service to scholars of maritime history and enthusiasts of maritime art in the extensive research so ably presented in this concise reference work. The biographical information alone provides a virtual prosopography of scrimshaw artists and the previously untutored admirers of scrimshaw art can now be more discriminating in their tastes, thanks to Frank's clear definition of what scrimshaw art is and is not."



NASOH is North America's leading organization of academic, professional, and serious amateur maritime historians, and the Seaport is honored to receive its accolades. The two award-winning titles are available in the Mystic Seaport Museum Stores, or by calling the Publications Department at (203) 572-5347 or (800) 331-2665.

Can You Help Us?

The Shipyard is looking for photographs, taken between 1955 and 1960, of the Museum's sardine carrier, *Regina M.* We are interested especially in any photographs taken while the vessel was disassembled. We're hoping these images will help further our knowledge of the vessel's construction, as we continue with its restoration. Please call 572-5342 if you can help.

The Reading Room of the American Seamen's Friend Society is looking for donations of books. Any books published before 1900 are welcome, especially those published before 1876. If you have any questions, or would like to donate any number of books to this exhibit, please call Susan Jerome at ext. 5088. Please note: if you wish to receive a tax benefit for your donation, you must have the books appraised by someone outside the Museum.

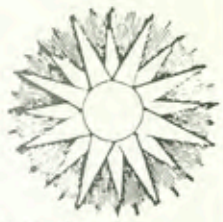
Kids' Corner

How A Lion Ate the Sun

Long ago in Egypt, people believed a huge lion lived up in the sky. They could see his eyes twinkling on starry spring nights. At the end of summer, when thunderstorms rolled across their river valley, the people could hear the lion's loud roar.

It was said the lion roared because he had a stomach ache. He had eaten something very hot...the sun! One July day, that lazy lion had opened his mouth to yawn and had swallowed the hot summer sun. It slid down his throat and landed with a thud in the pit of his stomach.

"Aaaaahhrrrr!," roared the lion. "I feel so miserable. It must have been something I ate."





He opened up his big jaws and let a breath of hot air blow over the earth. It wilted the flowers and turned the grass brown. It blew the desert sands into great clouds. It made the dogs pant with thirst.

The people became grouchy because they were thirsty and hot. Children cried, and parents grumbled. Even the pharaoh was unhappy, though he lived in a palace and had many servants to cool him with fans.

"I think I need a big drink," said the lion. "Water will put out the fire in my stomach."

He leaned down from the sky and began to gulp the river water. The people feared he would drink the river dry! They tried to chase him away by shouting and beating drums, but he was too thirsty. Even the pharaoh's threats did not frighten the lion.

"I know what to do," said a little girl, who had been gathering reeds to make baskets.

She found a dry papyrus stem with tiny, fuzzy seeds on its tip. Drawing in a great breath of air, she blew the seeds in the lion's face. At first he blinked and shook his head, because the seeds tickled. Then a little seed landed on his nose.

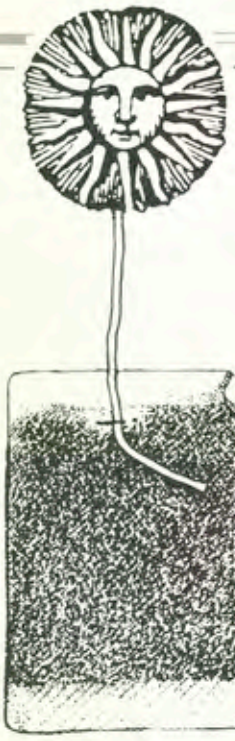
"Aaaaaachooooooo!" the lion sneezed.

A great gust of wind came from his mouth, and the sun with it. The sun bounced back up in the sky. No sooner had it landed among the clouds than the air cooled down, and raindrops began to fall. The children laughed. Their parents cheered. Dogs barked with joy. And the pharaoh smiled and hugged the little girl.



Feeling very much better, the lion leaped back up in the sky. He stretched out on a fluffy mattress of clouds, and was soon fast asleep.

Adapted from the Egyptian myth by Elinor DeWire.



Super Sun Tea

Brew up a brisk drink using the sun's rays!

You'll need: a large clear glass jar with lid
8 to 10 tea bags
juice of one lemon
1 cup sugar

Fill the jar with cold water. Suspend the tea bags in it and put on the lid. Place the jar outdoors in direct sunlight. Let the tea brew for about 4 or 5 hours. Remove the tea bags. Add the sugar and lemon juice, and stir. Serve with ice.

Special Invitation to Members! Join us at the Planetarium on Members' Day - Saturday, 25 September - for some fun with the sun. We'll show you the Seaport's sundials, then help you make one of your own!

Sun Designs

The Chumash are Native Americans living in California. They love the sun and use it as a theme for much of their art. Here are some Chumash sun designs that were painted on rocks.





Now it's your turn to make a sun design! Find a smooth, round rock. Sketch a sun design on the rock, then color it with paints or markers. You've got a great paperweight!

Sun Trivia!

During an eclipse, we can see a bright ring of light around the sun. It's called the corona. This word means "crown." The sun's corona has flaming points like a real crown. Kings and queens wear crowns because they want to be powerful, like the sun!

Each of the days of the week is named in honor of something in the sky. Which day was named for the sun?

Our word "sun" comes from the old English word "sunne." It means "shining." Sometimes we call our sun by its Latin name, "sol."

Fact: The weight of something is equal to the pull of gravity on it. Earth's gravity number is 1. The sun's gravity number is 28.

Trivia: Cosmos the dog weighs 10 pounds on the earth. If Cosmos could sit on the sun (ouch!), she would weigh 28 times her earth weight. Can you figure out her sun weight?



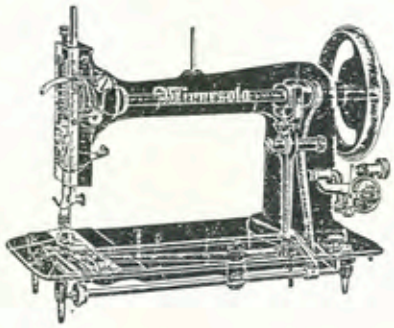
They're Baaaack!

Australia has been left once more to its own devices, while Don and Myra Lucas - the Seaport's longest-distance volunteers - are spending their third summer in Mystic. The two have been invaluable to the Seaport, each in their own right.

Don, a sailmaker skilled in the traditional methods, has committed to helping the Seaport create a record of this highly skilled trade, which is quickly disappearing. Lucas has been working closely with Seaport rigger Gary Adair, who has been transcribing the taping completed during the Lucases' 1991 stay, and in general getting the documentation in order.

This summer, in addition to proceeding with the documentation, the two men will be making new sails for Seaport vessels. Their first project this year was crafting a new mainsail for the Crosby catboat *Breck Marshall.* They used this project, Lucas says, to make sure their documentation method was completely accurate.





Members who saw the two men at work in the Charles Mallory Sail Loft two years ago will surely want to revisit the Loft before the Lucases return to Australia in late September. Members who missed the sailmaker last time should make a point of visiting the Loft, which hums - or, rather, rumbles - with the sound of a bulky black Singer 6-11 sewing machine nearly 100 years old.

While Don is working the Loft, Myra is putting her skills to work elsewhere in the Seaport. As she says happily, "I'll go with Donald wherever he wants, but I'm not going to go on his coattails." Hardly. She was so valuable to the people in the Photo Lab during the summer of 1991, in fact, that they requested her return. Her task for this tour was to catalog nearly 9,000 slides taken during last year's America's Cup racing in San Francisco.

Like all Seaport volunteers, the Lucases are very special people. They are warm, friendly, and full of fun. And we are lucky to have them here.

About the Authors

Benjamin A.G. Fuller is a writer, a teacher at the Artisan School in Rockport, Maine, and a consultant on maritime and computer subjects. His many hours using both oar and sail have given him an appreciation for working watermen and turned his research interest to "perfume boats" and the power revolution they created. He is past curator of Mystic Seaport Museum and the Chesapeake Bay Maritime Museum.

David Littlefield has worked at Mystic Seaport Museum since 1986. He was part of the Seaport team that conducted background research for the *Charles W. Morgan:* A Reflection of America exhibit in the Stillman Building. His current duties include chanteyman, role player, and exhibit interpreter.

Seaport shipwright Roger Hambidge has worked at the Museum for 20 years. A skilled model maker as well as a full-scale shipwright, he is as familiar with the *Morgan's* construction as anyone alive. He was profiled in *The Log* last winter, volume 44, number 3.

Leslie Gifford is Associate Editor of *The Log.*

Come On, and Take A Free Ride!

NEWLY RESTORED *Resolute* HEADLINES MEMBERS' DAY

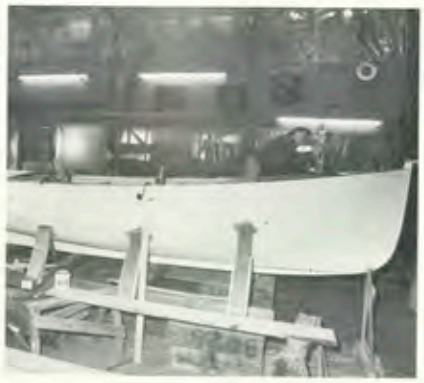
Members' Day is 25 September, and we can think of no better way to celebrate your membership in Mystic Seaport than by taking a ride - at no cost - aboard the classic Herreshoff launch *Resolute,* whose restoration in the shipyard was recently completed.

Designed and built in 1917, the *Resolute* was one of five motor launches to win a U.S. Navy design competition. The tender served as starboard launch for the 1920 America's Cup defender *Resolute,* and later became the well-used and well-loved club launch for the Seawanhaka Corinthian Yacht Club. It is thanks to sponsoring members of this club that she was made part of the Seaport's permanent collection of historic watercraft in 1980.

And she needed work. A careful and complete restoration was required, and this was completed earlier this year, when the *Resolute* took her place in the Museum's Boat Livery operation. Like the steamboat *Sabino* and the Crosby catboat *Breck Marshall, Resolute* will be operated by a licensed skipper and available for passenger service only.

She is a stunning representative of prewar yachting, and members will not want to miss this opportunity to cruise the Seaport waterfront aboard her.

Please watch the mail for your special Members' Day invitation. It will provide details on *Resolute* rides and a whole roster of additional Members' Day events.



PETER FIX PHOTO

MARY ANNE STETS PHOTO

Thank You, Dyer Donors!

The Sail Education crew wishes to say a word of thanks to the following clubs - and clans - who've donated Dyer Dhows to the program within the last year (unless otherwise noted, the donated boat carries its donor's club name):

Smith Cove Yacht Club

The Maxwell Family, for the *Eddie Maxwell*

The Corinthians

New York Yacht Club

Masons Island Yacht Club



ELIZABETH LAMBERT PHOTO

The boats are used both for the *Joseph Conrad* and Community Sailing programs, and donations are always welcome, as they help us keep our fleet safe and up to date.

Mystic Seaport Publishes John Gardner's Classic Small Craft You Can Build

More than 50 years after becoming a boatbuilder and 20 years after joining Mystic Seaport–where he led the small craft renaissance of the 1970s–John Gardner is still going strong, researching, writing, and inspiring. The Seaport is proud, then, to publish his latest effort to document and disseminate knowledge of small-craft construction and use.

Calling this a book for the "independent" boatbuilder, John Gardner has put together a collection of practical traditional designs, modifying some of them for modern construction techniques. The 16 designs he has selected emphasize skiffs–flat-bottom, transom-sterned craft for many purposes–but also included are the ancient Gaspé Flat, the Maine Reach Boat, two peapods, three handsome dory varieties, and an early power dory.

Classic Small Craft You Can Build includes all the design information one will need for laying out and building the boats. Each chapter contains illustrations and a complete set of plans, along with step-by-step instructions, making the process easy to understand and follow for novice and expert alike. But there is more here than the bare bones of boatbuilding procedure. John Gardner is interested in the living context of boats, and his comments on each boat include revealing glimpses of the people who built and used them.

Publication of *Classic Small Craft You Can Build* was made possible in part by a bequest from artist and model-maker Lois Darling, whose portrait of John Gardner graces the book's cover.

Classic Small Craft You Can Build is a 200-page, large-format paperbound book priced at $24.95. It can be ordered from the Museum's Publications Department at (203) 572-5347, or the Seaport Stores Bookstore at (800) 331-2665.

Get Ready for Adventure!

POPULAR SERIES GETS UNDERWAY

Mark your calendar for the premier of this year's Adventure Series, which kicks off 18 November with a presentation by the youngest person and first American woman ever to have sailed around the world single-handedly. Tania Aebi, author of *Maiden Voyage*, made her circumnavigation between the ages of 18 and 21, and she's agreed to share the sometimes frightening, often intense experience. With a series opening like this, members can anticipate a thrilling season of vicarious adventure. Look for details in your next issue of *The Log*.

NOTES TO *The Coming of the Explosive Engine, 1885-1910*

1. Stan Grayson, *Old Marine Engines, The World of the One Lunger* (Camden, Maine: International Marine Publishing, 1982), 17.

2. F.R. Klein, "When Steam Darkened the Sail: Some Economic, Geographic, and Public Policy Factors Affecting the Timing of Conversion from Sail to Steam Marine Power" (Ph.D. diss., Columbia University, 1968).

3. Edward W. Sloan, "Evolution of Seagoing Steam: Stages in a Maritime Revolution," *The Log of Mystic Seaport* 43:4 (Winter 1992): 87-98.

4. Perhaps the most accessible history of internal combustion engine development is Lyle Cummins, *Internal Fire* (Carnot Press, 1976).

5. *Twelfth Census of the United States, Taken in the Year 1900*, vol. 10, Manufactures, pt. 4, Special Reports on Selected Industries, (Washington, D.C.: U.S. Census Office, 1902), 795-96. Lenoir's engine was patented in the U.S. in 1861; Otto's engine was patented in the U.S. in 1877; Daimler's was patented in 1879; *Scientific American*, supplement 22, (27 May 1876): 339.

6. *The Rudder* 6:12 (December 1895): 304.

7. Grayson, *Old Marine Engines*, 5; by 1893, The Union Company was building a marine engine that looked suspiciously like the twin-cylinder V of Daimler; C.H. Wendel, *American Gasoline Engines Since 1872* (Sarasota, Florida: Crestline Publishing, 1983), 518.

8. Stuart Stevens Scott, "Business Motor Boats: The Working Boat of the Chesapeake Bay. What They Are Like and What They are Used For. A large Variety of Boats in Varied Services," *Motor Boating* 4:4 (October 1908): 18; Wendel, *American Gasoline Engines*, 552.

9. The discussion of Daimler and Steinway is based on Don Fostle, *Speedboat* (Mystic: Mystic Seaport Museum Stores, 1988), 17-20; David Scott-Moncrieff, *Three Pointed Star, The Story of Mercedes Benz* (London, Gentry Books), 44; and notes from the files of the Museum of Connecticut History, Hartford, Connecticut; see also *Scientific American* (7 February 1891): 84-85.

10. *The Rudder* 4:4 (March 1893): IX; Daimler Motor Company, *Marine Catalog*, 1893.

11. Fostle, *Speedboat*, 26-28; William C. Swanson, ed., *Electric Launch Company, Launches and Yachts: The 1902 Elco Catalog*, (reprint; Waldorf, Maryland: Swanson Marine Enterprises, 1984). The maneuverings of these early entrepreneurs are about as difficult to tease apart as are the twists in the computer business today.

12. Fostle, *Speedboat*, 11-12; *Twelfth Census of the U.S., 1900*, vol. 10, pt. 4, 796; Grayson, *Old Marine Engines*, 7.

13. Wendel, *American Gasoline Engines*, 468-69; Fostle, *Speedboat*, 14-15.

14. *The Horseless Age*, 1896.

15. *Twelfth Census of the U. S., 1900*, vol. 10, pt. 4, 393, 794-96.

16. D.H. Cox, "Gasoline Engines for Marine Propulsion"; Clinton H. Crane, "High Speed Gasoline Launches," *Society of Naval Architects and Marine Engineers Transactions* 11 (1903):33-56; 12 (1904): 321-44; see Fostle, *Speedboat*, for the story of hull shape development. The concept of lightweight inexpensive planing craft seems to have originated with the French in tiny boats called hydroglisseurs, beginning around 1905; early U.S. experiments began around 1907, and were being realized in racing craft by 1910.

17. Edmund W. Roberts, *How to Build a Three-Horsepower Launch Engine, With a Full Set of Working Drawings and Explanatory Text* (Cincinnati: The Gas Engine Publishing Company, 1901); George H. Johnston, "One-Horse-Power Gas Engine," *The Horseless Age* (November 1900).

18. Letter, Richard A. Day, Jr., to author, 14 December 1990. Mr. Day is a specialist in the history of the Palmer company and owns the first Palmer engine, which was installed in a boat called *Pioneer*. The engine was made by the "Mianus Electric Company," the company the Palmer brothers started in 1887 to make telephone equipment. They may have continued to build under this name as well as the Palmer name. The Mianus name may also have been picked up by another entrepreneur wanting to capitalize on the Palmer reputation.

19. "The Palmer," *Motor Boat* 1:10 (25 August 1904): 30-31; Grayson, *Old Marine Engines*, 22-26; Palmer catalogs, No. 2, 1900, microfilm MR 112, G.W. Blunt White Library, Mystic Seaport Museum; Wendel, *American Gasoline Engines*, 378-81.

20. Grayson, *Old Marine Engines*, 35-36; Edward R. Welles, Sr., *Recollections of a Small-Town Yankee Mechanic* (Groton, Connecticut: Groton Town Library and Information Center, 1987).

21. Grayson, *Old Marine Engines*, on Fay & Bowen, 36-39; on Lozier 109-23; "The Great Lozier Plant," *Motor Boat*

1:13 (10 October 1904): 26-27.

22. *Historical Statistics of the United States, Colonial Times to 1957* (Washington, D.C.: U.S. Bureau of the Census, 1960), 74.

23. See Donna R. Braden, *Leisure and Entertainment in America* (Detroit: Henry Ford Museum & Greenfield Village, 1988), 8-13, 211-17, 240-42. The use of sales catalogs was already well understood. Montgomery & Ward pioneered the field in 1872, with the first large-circulation catalog. For the boating enthusiast, the Waters, Balch & Co. paper boat and shell company of Troy, New York, led the way, with various canoe-builders following in the 1880s, Lawrence B. Romaine, *A Guide to American Trade Catalogs, 1744-1900* (New York: R.R. Bowker, 1960), 65-68.

24. St. Lawrence River Skiff, Canoe and Steam Launch Co., Illustrated Catalogue, 1893.

25. In the 1900 Census of Manufactures, the total value of small boats built came to $2,116,000, with 15,544 built. Trends due to the emerging interest in motor- and pleasure-boat building are visible. Steam launches numbered 96, with a value of $143,660; all other power launches numbered 1,689, with a value of $1,060,395. Sailboats under 5 tons numbered 3,417, at $473,307, and rowboats and canoes numbered 9,442 and $439,153. The latter were dominated by Maine, with its emerging wood-canvas canoe building industry, and Massachusetts, home of the high-volume dory. Some assumptions can be made, given the states that dominated the industry. In motorboats, New York led with 552, at $823 per boat; Michigan followed: 327, $524 per boat. Wisconsin at 241 averaged $372. Connecticut was the only other state over 100, with 259 boats at $357 each. New York, as we have seen, was home to at least three manufacturers of gasoline pleasure boats; Connecticut was the home of Palmer. And, in the Midwest, the Racine Company, the Brooks Company, and Mullins were significant pleasure-boat builders.

By 1904, production of gasoline-powered boats of all kinds had grown to 3,771, valued at $1,981,815, and in 1909 to 8,577, valued at $3,176,175. The value of the sail-row-canoes did not increase nearly as fast, going from $912,000 in 1899 to $1,416,732 in 1909.

26. *Thirteenth Census of the United States, Taken in the Year 1910*, vol. 10, (Washington, D.C.: Government Printing Office, 1913), Shipbuilding, 301-13.

27. *The Rudder* sent out forms to more than 500 builders and designers. About half replied. The results showed what designers and builders sent in, and there were duplications, because designers would often report a boat that was under construction in another yard that also reported. Absent were such notable manufacturers as Herreshoff, the Racine Company of Wisconsin, Mullins of Ohio, Brooks of Michigan, and most of the many canoe and other small boatbuilders who might have been turning out sailing craft or powered launches and dories.

28. *Motor Boat* 3:23 (10 December 1906): 1.

29. During its long passage, the *A.A. Low* spent a good deal of time hove to with a sea anchor out, see Captain W.C. Newman, "Log of the Abiel Abbot Low," *The Rudder* 14:5 (May 1903): 261-66; W.P. Stephens, "The Power Boat in 1904," *The Rudder* 15:12 (December 1904): 637-49; E.W. Graef, "A Power-Boat Race Across the Western Ocean," *The Rudder* 15:12 (December 1904): 655-56.

30. Various censuses of manufactures, and James J. Flink, *America Adopts the Automobile, 1895-1910* (Cambridge, Massachusetts: MIT Press, 1970), 268-78 and passim.

31. Various censuses of manufacturers; Flink, *America Adopts the Automobile*, 277-78; *Motor Boat* 2:10 (25 May 1905): 32; *Motor Boating*, 1910.

32. These data are taken from various census reports.

33. John M. Kochiss, *Oystering from New York to Boston* (Middletown, Connecticut: Wesleyan University Press for Mystic Seaport Museum, 1974), 138-44; the enrollment documents for the *Rhoda E. Crane*, copies of which are on file in Mystic Seaport's shipyard research office, indicate that she had a gas engine from the time of her launch in 1897.

34. Andrew W. German, *Down on T Wharf: The Boston Fisheries as Seen Through the Photographs of Henry D. Fisher* (Mystic: Mystic Seaport Museum, 1982), 115-17.

35. Peter Hunn, *The Old Outboard Book* (Camden, Maine: International Marine Publishing, 1991), 5-8. In 1917, Waterman sold the company to the Arrow Company of Newark, which built them for a few years and went out of business in 1924.

36. Hunn, *Old Outboard Book*, 9-24; the Evinrude's sold their company and the rights to their engine in 1913, coming back into the market in 1921 with the Elto (Evinrude Light Twin Outboard), only to be reunited with the Evinrude name as part of the Outboard Marine Corporation a decade later.

Notes to *Joseph Bement and the* Charles W. Morgan

1. Martin J. Butler, "J. & W.R. Wing of New Bedford: A Study of the Impact of a Declining Industry Upon an American Whaling Agency" (Ph.D. diss., Pennsylvania State University, 1973), 6-7, 14-16. A copy of this dissertation is available at Mystic Seaport's G.W. Blunt White Library (hereafter cited as GWBWL).

2. Ibid., 21, 134.

3. *Whalemen's Shipping List and Merchants' Transcript*, 6 August, 8 October 1872, 28 January, 12 August 1873 (hereafter cited as *WSL*); Karl Brandt, *Whales Oil: An Economic Analysis* (Stanford, California: Food Research Institute, Stanford University Press, 1940), 50-53; Walter S. Tower, *A History of the American Whale Fishery* (Philadelphia: University of Pennsylvania Press, 1907), 94; John R. Bockstoce, *Whales Ice and Men: The History of Whaling in the Western Arctic* (Seattle: University of Washington Press for the New Bedford Whaling Museum, 1986), 208, 218; Lloyd C. M. Hare, *Salted Tories: The Story of the Whaling Fleets of San Francisco* (Mystic: Marine Historical Association, 1960), 78; Alexander Starbuck, *History of the American Whale Fishery* (1878; reprint, Secaucus, New Jersey: Castle Books, 1989), 155-56; *WSL*, 17 December 1878.

4. Butler, "J. & W.R. Wing," 111-12; Reginald B. Hegarty and Philip F. Purrington, *Returns of Whaling Vessels Sailing from American Ports* (New Bedford: Old Dartmouth Historical Society and Whaling Museum, 1959), 2, 11, 21-22; Bockstoce, *Whales, Ice and Men*, 172-75.

5. In his "Fitting Out a Whaler," *Old Dartmouth Historical Sketches* 14 (1906): 6, L.A. Littlefield wrote, "If the ship is destined for a voyage into the Arctic Ocean, where she has to encounter heavy ice, her bows must be reinforced with heavy oak plank, and an iron shoe on her fore foot, to protect her from the heavy blows of the huge ice blocks." Marine Insurance Company, New Bedford, Massachusetts, "Repairs to *Charles W. Morgan*," Records of Ship Repairs, 1823-1911, 2, Old Dartmouth Historical Society, Whaling Museum Library, New Bedford (hereafter cited as ODHS). A photocopy of these records is on file in Mystic Seaport's Henry B. duPont Preservation Shipyard.

6. James Templeman Brown, "The Whalemen, Vessels and Boats, Apparatus, and Methods of the Whale Fishery," *The Fisheries and Fishery Industries of the United States*, George Brown Goode, ed., (Washington, D.C.: Government Printing Office, 1887), 236; John R. Bockstoce, *Steam Whaling in the Western Arctic* (New Bedford: Old Dartmouth Historical Society, 1977), 22.

7. J. & W.R. Wing, Accounts, Microfilm Roll 87, 138, 144-45, 216, 260; Cash Book "M," 1886-1889, Microfilm Roll 124, 94-95, Whaling Manuscripts, New Bedford Free Public Library (hereafter cited as NBFPL); James Laflin, "List of Officers Composing Whaling Fleet, San Francisco, Cal." [issued annually, 1887-1908], GWBWL; crew lists of whaleships, 1905-1925, Microfilm roll 175.

73, 119. Whaling Manuscripts, NBFPL; see also a bill dated 31 October 1913 to J. & W.R. Wing from the New Bedford Boiler and Machine Co. for 15 hours labor on the *Morgan*'s boiler and engine, Mss. 35, series B, subseries 10, folder 21, Whaling Museum Library, ODHS.

8. Walter Bechtel, interview by Ivan Sanderson, 1949, Oral History Collection, GWBWL, available in written transcription ME 49-1, sse 4. Bechtel, who served on the *Morgan* in 1900-01 remembered it as a "steeple compound" engine and implied that it was located in the forecastle.

9. "Whaling Not What it Used to Be," *The Sailor's Magazine and Seamen's Friend* (May 1886): 152-53.

10. *WSL*, 12 October 1886; outward-bound crew list of bark *Charles W. Morgan*, National Archives, photocopy in GWBWL; Francis and James Bement, interview by David Littlefield and Fred Calabretta, 8 February 1991, OH 91-13, Oral History Collection, GWBWL.

11. J.& W.R. Wing, Agent's Accounts, Microfilm Roll 87, 144-45, 164-65; Day Book, 1886-1888, Microfilm Roll 119, 185, 186, 189, NBFPL [due to their use of the vague term "sundries," many Wing accounts are difficult to decipher or tabulate accurately]; Brown, "The Whalemen," 221; Charles Nordhoff, *Whaling and Fishing* (1856; reprint, New York: Dodd, Mead, 1895), 18, 31-32; Elmo P. Hohman, *The American Whaleman* (New York: Longmans, Green, 1928) 256-59.

12. Walter Noble Burns, *A Year With a Whaler* (1913; reprint, New York: Macmillan, 1919), 18-19.

13. Brown, "The Whalemen," 239; Littlefield, "Fitting Out a Whaler," 13; Captain Smith certified that both Harry Hermann and John Fertard Lopez deserted the ship after she had been cleared at the customhouse but before she left the harbor, attachment to outward-bound crew list, *Charles W. Morgan*, National Archives, photocopy at GWBWL.

14. Outward-bound crew list, *Charles W. Morgan*.

15. Information on Smith and Layton courtesy Paul Cyr, NBFPL. Smith commanded the *Morgan* for one more voyage, 1887-88, and died in 1891. Layton had left his native Australia aboard the New Bedford whaleship *Canton*, probably during her 1855-58 voyage. He served in the Civil War and acted as mate and master of the whaleships *Wanderer* and *Sunbeam* before this voyage of the *Morgan*. Layton commanded the *Morgan* for two voyages, 1888-90, and then served as mate and master of the *Cape Horn Pigeon* and *Alice Knowles* before retiring ashore about 1900. He died in 1911, obituary, New Bedford *Evening Standard*, 6 February 1911. As cook Crispolo de Aris was signed on at a 1/145 lay plus half the "slush" - the fat residue left after salt pork and salt beef were cooked. Slush had long been a perquisite of seagoing cooks. The Wings would later buy de Aris's share of the slush for $5.50.

16. J.& W.R. Wing, Agent's Accounts, Microfilm Roll 87, 139, Cash Book "M," Microfilm Roll 124, 95, NBFPL.

17. Stan Hugill, *Shanties from the Seven Seas* (London: Routledge and Kegan Paul, 1979), 27; Hugill, *Songs of the Sea* (Maidenhead, England: McGraw Hill (UK), 1977), 23; Craig Edwards, "A History of Sailor Music," Ninth Annual Mystic Seaport Museum Sea Music Festival (Mystic, 1988), 4-5; Brown, "Whalemen," 229; Nathaniel Taylor, *Life on a Whaler, Or, Antarctic Adventures in the Isle of Desolation* (1929; reprint, Evansville, Indiana: Unigraphic, 1977), 35. "From 5 to 7 the watch [on a whaler] is allowed to loaf, smoke, and spin yarns, the only time for such liberties during the day," Brown, "Whalemen," 229.

18. *WSL*, 31 May 1887.

19. Besides Joseph Bement, the runaways were George Cody, 22, of Vermont, Fred W. Robinson, 27, of Chicago, and William J. Mitchell, 21, of New York. Their replacements were Jose de Los Santos, Juan Quitaguia, Jose Sequina, and G. Hirrera, outward-bound crew list, *Charles W. Morgan*.

20. *WSL*, 21 June, 30 August, 8 November 1887; J. & W.R. Wing, Agent's Accounts, Microfilm Roll 87, 146, 167-69, NBFPL.

21. Butler, "J. & W.R. Wing," 112-13, 115, 134.

22. See John F. Leavitt, *The Charles W. Morgan* (Mystic: Mystic Seaport Museum, 1973), 51-60, 96-109, 119-20.

23. Frank and Jim Bement remember their grandfather singing these verses of the forebitter or main hatch song called "The Sailor's Wife." Several versions of the lyrics are published in Hugill's *Shanties from the Seven Seas*, 386-88.

Notes to *Captain Bunker Speaks of Food*

1. Emery N. Bunker, letter, 5 September 1893, in the author's possession. The letter was found about five years ago in the attic of another Islesboro house, and was given to the Bunker house's present residents, who are James MacMillan and Sandra Oliver. We do not know who John was, but he may possibly have been Captain John Warren, who lived a few tenths of a mile north of the Bunkers.

2. Elsa Bates, of Islesboro, a niece of Adrianna Bunker, and Harold Gurney, now deceased, formerly of Massachusetts, a descendant of Lois and nephew of Adrianna, supplied information on how the house was furnished and are the sources of family tradition cited here.

3. New York *Maritime Register*, 9 February 1898; information courtesy Francis E. Bowker.

4. U.S. Census records of 1850, 1860, 1870, and 1880, fill in other biographical details and give us a snapshot of his and Adrianna's household and neighborhood for each of the census years. Additional details come from John Farrow, *History of Islesborough, Maine* (1893; reprint, Islesboro: Islesboro Historical Society, 1965).

5. Labor Day had been introduced ten years earlier, during the expansion of the trade union movement in New York City. Several states had adopted it as a legal holiday after Colorado did so in 1887, and in 1894 Congress would make it a national holiday. Coming at the end of the summer season, Labor Day served the nonunion folk on Islesboro both as a celebration of the end of the labors they performed for the rusticators and as a kind of autumnal equinoctial festival.

6. Farrow, *History of Islesborough*, 80.

SEAPORT SALUTE

Mr. and Mrs. Wade F.B. Thompson



MARY ANNE STETS PHOTO

Wade and Angela Thompson are dedicated advocates of Mystic Seaport's efforts to preserve this nation's maritime heritage. ❧ The Thompsons' concern for historic preservation in their adopted country (they were born in New Zealand but have lived in the United States for thirty years) is partly in reaction to a widespread disregard for preservation in their native land. They saw valuable things being lost there, and it troubled them. Wade's great grandfather built schooners for the coastal trade in New Zealand in the 1880s, but little documentation remains. ❧ Introduced to the Seaport by close friends Clifford and Pauline Mallory, the Thompsons' enthusiasm for the Museum grew even more upon seeing the wonderful experience their daughter Amanda had in the *Brilliant* program. It was her joy that inspired Wade's generous gift to the *Brilliant* Fund, and father and daughter continue to admire the vessel, for her beauty and the experience of sailing aboard her. ❧ The Thompson family – Wade, Angela, Amanda, and Charles - are all active in the world of fine arts. The two children majored in art history at college, and Wade and Angela are avid collectors of contemporary art. ❧ Having served on the Seaport Board of Trustees for more than a decade, Wade has also taken an active leadership role in the ongoing Campaign for Mystic Seaport. In addition to his own significant pledge, Wade, as Chairman of Thor Industries (the nation's largest builder of small buses and the second largest manufacturer of recreational vehicles) has called on the support of business associates with an enthusiasm that is inspiring. ❧ To the Thompsons, Mystic Seaport symbolizes excellence in historic preservation that ensures a vital link for future generations. The Museum is proud to acknowledge their trust.

MYSTIC SEAPORT MUSEUM



CLAIRE WHITE-PETERSON PHOTO

In 1973, Mystic Seaport launched a program for members wanting to forge a closer relationship with the Museum. This group would gather twice a year - once in May and again in October - for behind-the-scenes tours and lectures. For their guidance and leadership, they were called Pilots.

In the 20 years since, the Pilot program has evolved into an exceedingly strong membership volunteer corps. This group - which is limited to 200 members - has given more than 37,000 hours to the Museum. Pilots pay additional dues, which cover expenses for the semiannual work weekends, and they come to scrape bottoms, paint and shingle buildings, debark logs, stuff envelopes, and more. The Pilots' job jar - always full by the time they arrive - is emptied enthusiastically, and with a lot of shared laughs.

This is a unique and friendly group, and we encourage you to learn more about them. If you think Piloting is something that might interest you, please write to the Membership Office, at the Seaport address.