

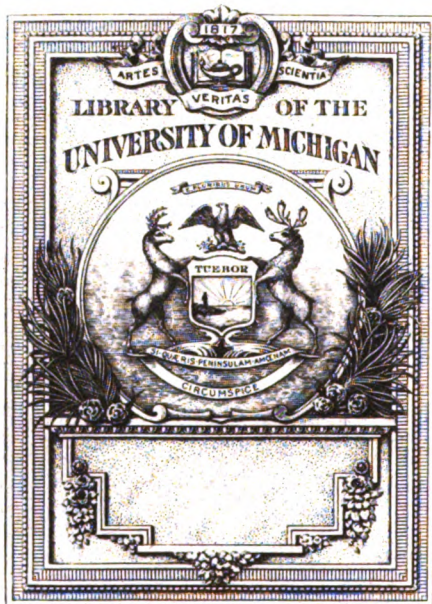
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MERCHANT SAIL

WILLIAM ARMSTRONG FAIRBURN



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MERCHANT SAIL

VOLUME III

MERCHANT SAIL

BY

William Armstrong Fairburn

[1876-1947]

Naval Architect and Marine Engineer

University of Glasgow, 1897

IN SIX VOLUMES



Volume III

*United States Merchant Sail—Types, Models, and Rigs; Clippers and
Square-riggers of the Post-Clipper Period; Speed of Sailing
Vessels; the Clipper Ship Era and the California Trade*

*Published and Distributed as a
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PRINTED IN THE UNITED STATES

1945 — 1955

PRINTED BY L. MIDDLEDITCH CO.

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Pub.
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MERCHANT SAIL

XIV.

NINETEENTH CENTURY MERCHANT SAILING SHIPS—TYPES, MODELS, PROPORTIONS, CONSTRUCTION, RIG, AND LONGEVITY

The United States Revolutionizes Both Merchant Ships and the Sailing of Them in Deep-Sea Trade

IN WORLD deep-sea trade, the outstanding type of big merchant vessel in use during the first part of the nineteenth century was the British Indiaman, which made the long voyage from London, England, around the Cape of Good Hope to Indian and Chinese ports. These ships, while solely merchantmen in principle, were heavily armed and manned to defend themselves from pirates, warlike East Indian natives, and privateers, and in operation they carried forward the traditions of the British Navy. The typical Indiaman of the early nineteenth century was built not for speed but for safety, capacity, and comfort. During the Napoleonic Wars, the Indiamen operated in groups, at low speed, following the old and well-established convoy system where men-of-war sailed with them for protection. Later, during the years of world peace, these vessels did not carry heavy guns and had only a light armament, but "to protect them from pirates and savages" they continued to be built to resemble warships and, with painted gun-port sides, were designed to deceive lawless craft that might be inclined to capture them. The early British Indiamen sailed in a protected and monopolistic trade without rivalry and the spur of competition from the early seventeenth century until the 1830's, and the Blackwall frigates not only made history but also for long years affected the British policy of building and operating ships on the Seven Seas.

American-built and owned vessels operating in foreign trade in the early nineteenth century were generally small craft that had to protect themselves from pirates and from their country's enemies in time of war. These vessels could not be convoyed by protecting warships, as the United States had no navy; they had to operate "on their own" independently, be "smart," and take care of themselves both physically and competitively in trade. From early days, the conditions confronting American vessels in deep-sea commerce called for speed, handiness, and a resourceful command, qualities that the British paid but little attention to during the first half of the nineteenth century.

It was but natural that in transatlantic trade, vessels built and operated in harmony with the American idea and tradition should win popular favor and dominate that business. Following the end of the War of 1812, there developed a great demand for increased commerce between the English-speaking countries east and west of the Atlantic Ocean; moreover, the call was clear and persistent for speedy transport of passengers, mail, news, and freight. The United States was prepared to meet the demand for regular and fast sailings across the Atlantic, and Britain was not. Moreover, England, notwithstanding its much-vaunted shipbuilding traditions, with "walls of oak are our ships; hearts of oak are our men," and the supremacy of its marine "wooden walls," never could build wooden merchant vessels that were in any sense competitive with those produced by its "American cousins." British wooden ships were

heavy and cumbersome and built along naval lines more for defense. A merchant marine has to give prime consideration to "ton-mile-days"; i.e., carrying capacity, speed under all conditions, handiness, etc.

It is not surprising, therefore, that the United States, originating and developing a type of sailing ship for the transatlantic and certain other trades, held a virtual monopoly in the operation of ships on the North Atlantic. Aggressive on the Seven Seas, the United States by mid-century had practically caught up in tonnage with Britain as a great marine power and had outdistanced it in the size and quality of ships. The type of vessel that became known as a sailing packet (which operated in a regular line sailing on a schedule), a general trader, or transient, with or without passengers, was predominant in the thirties and forties and displaced the old Indiaman and Blackwall frigate. This distinctly American type of vessel prepared the world generally for still another United States merchant marine development, a faster type of sailing craft designed and built to meet the demand in certain trades for the greatest possible speed between ports. This fast, sharp-lined, and heavily canvased vessel became known as the clipper ship, and the designation, or term, "clipper" is a popular rather than a technical one. This general type of ship was built in increasing numbers for the China trade in the forties and for the China, California, Australia, and India trade in the first half of the fifties.

The clipper ship is said to have been the result of trade requirements. Howard I. Chapelle, in *THE HISTORY OF AMERICAN SAILING SHIPS*, has said that this is only partially true, for the clipper was also the result of publicity and the mania for speed as expressed in quick passages. He continues:

The wild tales of hard-driven ships seized the imagination of the public and ship men alike. The result was an accentuated importance placed on such passages and a great deal of publicity for them in the newspapers. As a result of the interest aroused, a reputation for being very fast brought cargo and passengers to a ship; fame for her captain and owner but Hell for the crew. The tremendous profits of the boom-trade to California enabled the construction of large sharp-ended ships in which cargo space and low operating costs were sacrificed to speed. Under the pressure of competition, and pride, the clipper grew steadily sharper, larger and more costly, until at last economic laws called a halt. The clipper ship was not the highest development of sailing ship design because of the emphasis placed on speed at the expense of cargo capacity and low operating costs. The remarkably short career of the clipper ship (1846-1859, approximately) as a distinct type can be traced to the uneconomic design that had been developed by the fashion for speed. The hard driving necessary to

get speed out of these ships required large crews, and also caused loss of spars, sail and gear, as well as straining the . . . hulls; all of which increased operating costs. . . . The clipper ships, which followed the packets, are unquestionably the most over-advertised type in maritime history. The quantity of literature dealing with the history of this class is greater than that dealing with all other types put together. Ranging from gushing sentimentality to statistics, this literature has covered nearly all phases of clipper ship history, design and "romance." Overly enthusiastic writers, however, have painted a false picture of the importance of the type. The prevalent idea that the clipper ship was the culmination of sailing ship design can be traced to these writers. . . . The clipper was the outgrowth of the rising fashion for fast ships. Though the design of the clipper was closely related to the packet ships, it also employed many of the principles of design that had proven successful in the early sharp-model vessels.

The clipper ship was a creation of the era when "speed was king," and the period of the extreme clipper was a very short one, being limited by economic factors; therefore, the "out-and-out" clipper type of ship was a restricted and temporary and not a permanent one. The clipper ship was an attempt on the part of the builder to obtain extreme speed and to get a very fast ship. The owner had to sacrifice cargo-carrying capacity and be willing to man the ship with a big crew and saddle himself with high maintenance and operating charges, which only extremely high rates on cargo and passenger transport would justify. There could be no originator of a fast ship and no inventor of a clipper ship, and Carl C. Cutler, in *GREYHOUNDS OF THE SEA*, well says: "If there is one thing which appears to stand out clear and incontrovertible, it is that the clipper ship was a composite creation—the product of literally scores of the keenest minds in America, afloat and ashore, none of whom considered

himself too great to learn and each of whom would have scorned to apply that learning without attempting to add something of himself."

It has been said, "The evening of the Indiaman was the morning of the clipper." The old slow-moving British Indiaman sailing ship has been likened to "a portly and prosperous merchant . . . with topsails the exact contour of an old gentleman's paunch, jolly with expensive living"; whereas "the clipper resembled the flat tense belly of a sprinter, and the pace of the two types of vessels varied in proportion—about 7 knots to 13 knots per hour in good favoring winds without stu'n's'ls." The topsails of Indiamen were deeper than they were broad, "with four rows of reef points tapping in the wind and extending some fifteen feet forward of their yards in a good breeze, whereas a clipper had shallower sails, which bulged only about five feet or less under similar sailing conditions." The Indiaman has also been likened to a mastiff, bulky and characterized by leisurely progress, while the clipper has been generally termed a greyhound, suggestive of speed, "built taut and tense," and intended in highly competitive trade "to cleave her way through a world of no favors." It used to be said that the British Indiaman was "the product of a monopolistic trade" and the American clipper "the result of unbridled competition in the realm of speed."

When Donald McKay built his first real clipper, the *Stag Hound* (launched December 7, 1850), she was likened by an enthusiastic Boston writer to a Thoroughbred horse in build, "a creation of nature in the animal kingdom that denotes and is ideally capable of speed." In the same sense, all sailing vessels built in the last days of sail (i.e., from the late eighties and after the admirable *Down Easters*—which reached their height of perfection in 1884-1885—on to the end closely following the turn of the century, when size, bulk, and carrying power were essentials of existence) could be likened to a draft horse of the French Percheron, Scotch Clydesdale, or British Suffolk type. The *Stag Hound* was of 1,534 tons register, and it was said of her:

This ship is an out-and-out clipper of a new type. She has been built primarily for speed and carries no more deadweight than her registered tonnage. The *Stag Hound* has a big beam and good model power [stability, etc.] with very fine ends. With clipper sharpness of hull, she has been given

more propelling power in masts, yards, and canvas than has ever been placed on any vessel. It is expected that this fine ship will traverse the oceanic pathway from New York to San Francisco more speedily than ever before.

Evidently, much was expected of the *Stag Hound* by her builder, owners, and Boston boosters, but she failed to show the speed claimed for her in actual service. One Boston paper asserted that she made a record on her maiden voyage to San Francisco, but this is not true. Her first voyage around the Horn was her best, but she required 107 days to make the passage according to the claim of her command (Capt. Josiah Richardson). The records show that she left New York February 1, 1851, and reached San Francisco on May 25, which is a 113-day passage, port to port, having called at Valparaiso for repairs en route (April 8-12), which would give a net passage at sea of 109 days. Seven weeks before the *Stag Hound* sailed, Samuel H. Pook's first clipper, the *Surprise* of 1,261 tons (built by Samuel Hall at East Boston for A. A. Low & Bro., New York), cleared port under the command of Capt. Philip Dumaresq on December 13, 1850, and was entered at San Francisco on March 19, 1851, after a passage of 96 days 15 hours from New York. This is eleven days less than the reported net time for the *Stag Hound*, thirteen days less than that clipper's time at sea, and seventeen days less than the actual length of passage, port to port. Again, about nine and a half months prior to this time, the little China clipper *Sea Witch* of 908 tons (launched by Smith & Dimon, New York, on December 8, 1846), when well over three years old, left New York on April 13, 1850, with Capt. George Fraser in command, and arrived at San Francisco (after a scheduled stop at Valparaiso to discharge cargo) on July 24, completing a passage, clearance to entry, of 102 days and a net run at sea reported as 97 days, which was the record until broken later by the *Surprise*. On May 6, 1850, the China clipper *Samuel Russell* of 957 tons (launched by Brown & Bell, New York, August 14, 1847) sailed from New York with Captain Low in charge and was entered at San Francisco May 6, 1850, after

a passage of 111 days, clearance to entry, and 109 days as reported. This was a faster passage, port to port, than that of the *Stag Hound*, which followed her a year and nineteen days later. McKay's much advertised "first" clipper made six voyages westbound around the Horn in times—as reported—varying from 107 to 127 days. Her average length of passage was good, but a large number of contemporary American ships made a much better record.

It is of interest to note that whereas the *Stag Hound*, in an effort of the builders to obtain high speed, carried deadweight only equal to her registered tonnage, Down Easters built at Bath, Maine, thirty-five years later carried deadweight as paying freight over one and a half times their registered tonnage and showed about as much speed as far as length of passages between ports is concerned.

The operation of British and American ships in the first half of the nineteenth century bore a direct relation to the design and construction of the vessels themselves. Yankee skippers took chances and drove their ships hard night and day, getting every bit of speed out of them and covering every possible mile toward their port of destination that could be gained by courage, initiative, and resourceful handling. What had not been done in the past was no reason why it should not be done in the present, so American ships made record after record as they made history. British and all other foreign ships (excluding Canadian vessels, which operated at times along lines similar to those of the United States) became known as "slow coaches," and, in fact, they were full-bodied, poorly modeled, and undercanvased ships, commanded by "fearful skippers lacking the guts to carry even the sail provided." Even the French ships, which, next to the American, had the best-modeled hulls during the thirties and forties, were sailed by captains who operated along traditional lines generally similar to those of the British, and the French captains marveled at the driving and energy displayed and the chances taken by Yankee skippers. Particularly noticeable was the American "forceful sailing at night," for the command of all foreign ships took in canvas at dusk and "put the ship quietly to bed and tucked her in to sleep during the night," while a Yankee command walked the deck with an eye on the sails and drove his ship relentlessly at night the same as during the day.

Pioneer and Early Clipper Ships—the Influence in Their Design of North Atlantic Packets and Small Fast Sailers

Much has been written of the "first clipper," but no ship is entitled to the historical honor or notoriety of being the pioneer "clipper." Several marine historical writers have referred to the nonexistence of a real "first clipper," but it is said that "the fable of her appearance still persists." It is, of course, as difficult to say when the first clipper was built and reveal the identity of the vessel as it would be to designate specifically one sailing vessel as the world's first fast sailer. However, the word "clipper" is a popular and not a scientific name, and it refers to a type of sharp-lined, loftily sparsed, and heavily canvased fast sailing ship that was built (in America) in the late forties and most of the fifties to meet a demand for extreme speed. The construction of real clippers is generally considered to have commenced in 1850; the demand for such ships reached its height in 1853, when 120 vessels of this class were built in the United States, and the clipper shipbuilding boom was practically dead in 1857, when only 10 clippers were built—none of which was an "extreme," or "out-and-out," clipper. Only four of them were of over 1,000 tons register, and three of these ten medium (or moderately sharp-modeled and canvased) clippers were rigged as barks.

The three ships that—far more than any others—have been suggested by enthusiastic champions for the distinction of being the pioneer clipper ships are the *Rainbow* of 752 tons

(length 159 ft., beam 32 ft., depth 18 $\frac{1}{3}$ ft.), built by Smith & Dimon, New York, for Howland & Aspinwall, New York, in 1845 (launched January 22); the *Houqua* of 583 tons (length 142 $\frac{1}{3}$ ft., beam 30 ft., depth 16 $\frac{2}{3}$ ft.), named after a famous Chinese tea merchant and built by Brown & Bell, New York, for A. A. Low & Bro., New York, in 1844 (launched May 3); and the *Ann McKim* of 494 tons (length 140 $\frac{1}{2}$ ft., beam 27 $\frac{1}{2}$ ft.), built by Kennard & Williamson, at Fell's Point, Baltimore, Md., for Isaac McKim, Baltimore, in 1833. It has been written: "The *Ann McKim* was the forerunner of that illustrious fleet destined to make the American merchant marine known in every part of the globe; the tea and silk clippers racing in from China, the hard-driven Liverpool packets, the California clippers in a mad dash around the Horn, with their eager passengers bound for the gold fields and El Dorado of the West." Such is the emotional and imaginative material that has operated to crowd out facts on the pages of marine history. The *Ann McKim* was a handsome yacht-like ship that in model was merely an enlarged Baltimore "clipper" schooner. She was of prime interest because of her size and ship rig and was of a type built for speed in order to evade the Spanish naval vessels that attempted to reserve the West Indian trade for the Spanish flag. Vessels of her type were well suited for many illegitimate trades and were making money in the Orient as opium runners.

It has been well said that there was no more real reason for designating the *Ann McKim* as the pioneer clipper than there would have been for bestowing that distinction on the well-modeled, heavily canvased early Baltimore merchantman *Hannibal*, the extremely fast 199-ton three-masted 20-gun Salem privateer *Rattlesnake* of the days of the Revolution, or the 18-gun Baltimore ship sloops *Erie* and *Ontario*, built in 1813, as well as numerous other speedy sailing craft. It is ridiculous to say that the *Ann McKim* or any reputed clipper built in Baltimore or elsewhere was "the forerunner of the hard-driven Liverpool packet." Transatlantic packets (of the original Black Ball Line) were built a quarter of a century before the *Ann McKim*, and all regular transatlantic packets built before, at the same time as, or later than the *Ann McKim* were of a type entirely different from that much-publicized vessel. The *Ann McKim* or any vessel built as a transatlantic packet after her lines would have made a "sorry showing" bucking the winds and seas on a westward passage, and none of the "perfected" and "out-and-out" clippers, even of the largest size built in the fifties, ever made a good, steady showing on the westbound Atlantic crossing under average, not to mention extreme, wind and sea conditions.

The following transatlantic packets, engaged most successfully for years in the New York run, were built about the same time as the *Ann McKim* (494 tons), and not one of them nor any earlier or later North Atlantic packet was built that resembled to the slightest degree any Baltimore clipper.

Year Built	Name of Packet	Tonnage	Builder	Packet Line	Years in Service	Westward Passages in Days	
						Best	Average
1828	CALEDONIA	647	Brown & Bell, New York	Liverpool Black Ball	8	17	37
1832	SOUTH AMERICA	605	Brown & Bell, New York	Liverpool Black Ball	11	23	32
1832	PHILADELPHIA	542	C. Bergh & Co., New York	London Black X	11	24	33
1833	UNITED STATES	650	Smith & Dimon, New York	Liverpool Red Star	11	25	33
1834	INDEPENDENCE	732	Stephen Smith, New York	Liverpool Blue Swallowtail*	18	21	32
1834	ENGLAND	729	Smith & Dimon, New York	Liverpool Black Ball**	10	21	32
1836	GARRICK	895	Brown & Bell, New York	Liverpool Dramatic	19	18	32

* Includes five years in London Red Swallowtail Line.

** Includes two years in Liverpool Red Star Line.

Any early packet that averaged 36 days or better on her westward transatlantic crossings can be deemed a fast vessel, and passages over that course in better than 25 days can be considered very "smart runs."

The *Rainbow* is said to have been designed by John W. Griffiths, who, however, was a draftsman in the employ of the firm of Smith & Dimon, builder of the ship. Stephen Smith, in charge of the design and construction of the vessels built by the company, was himself a naval architect of outstanding ability coupled with sound judgment. Griffiths was undoubtedly a good theorist and competent ship calculator; moreover, he was a great publicist. He wrote books and pamphlets, edited a marine magazine for several years, conducted classes, and occasionally lectured on ships and ship design. Because of such activities, he was rather conspicuously in the public eye, and history evidently overemphasizes Griffiths' and definitely underrates Stephen Smith's contribution to the science of naval architecture and the art of shipbuilding. It is obviously wrong to call Griffiths—as so many writers have—"the father of the American clipper ship." The *Rainbow*, owned by Howland & Aspinwall, was designed by Griffiths and Smith as a sharp-modeled fast sailer, suitable for the China trade, and to be as good as or better than the *Houqua* was expected to be. The *Houqua* was launched a year before the much-advertised Griffiths-Smith ship by the rival firm of Brown & Bell for competitive owners and operators, A. A. Low & Bro. The *Rainbow* had much finer lines forward (i.e., a sharper entrance) than the usual New York-built merchant vessel, and in this respect she resembled, in principle at least, a host of other "sharp-built" craft—both sail and steam. Because a ship built for the China trade departed from the general type of model used in the construction of transatlantic packets or of general traders and transients sailing the waters of the Seven Seas, but in her hull model more closely resembled and copied features that had been and were being used in other sailing vessels (many of them much smaller craft, such as pilot schooners and sloops) or even in steamboats (which were usually built with sharp and hollow-lined "razor-like" bows) is no argument for claiming that a new "type" of ship had been created by Griffiths. If any line can be drawn between the introduction of the so-called clipper type and the ordinary fast sailer of revolutionary days, the early nineteenth century, and of the twenties, thirties, and forties, it is probable that the designing and building of the *Houqua* give as good a point as any for saying: "That vessel was the pioneer of a type where much was deliberately sacrificed for speed in a vessel of sizable proportions to engage in a legitimate and more or less general trade"—distinct from yachts, privateers, smugglers, opium runners, etc.

It is said that the *Houqua* was designed by David Brown, of Brown & Bell, from a model "whittled" by Capt. Nathaniel B. Palmer, with dimensions determined by Captain Palmer and William H. Low while on a voyage from China on the general trader *Paul Jones*. It would appear, however, that Captain Palmer admitted that his ideas as to the model of the *Houqua* were taken from the fast armed American "clipper brig" *Antelope*, then (in 1842-1843) engaged most profitably in opium running between India and China. This fact merely emphasizes the difficulty of definitely pegging any one ship as the pioneer vessel of a type. Both the fast opium runners and the slavers of the nineteenth century were renowned the world over for their speed and beauty. These more or less illicit trades demanded speed, and but little deadweight capacity was required if sufficient deck space and volume were given for carrying human freight. Baltimore built many vessels for the slave trade, generally in the thirties, to the order of Havana or Brazilian merchants as well as vessels for American owners to engage in illegitimate trades and evade foreign warships through speed and handiness. They were rigged as schooners, topsail schooners, brigantines, and brigs and usually ranged from 100 to 400 tons register. Leslie, writing in 1841 of the Baltimore-built slavers, said:

The first thing that struck one about these schooners was their great beam on deck and the flare out of the top sides and bulwark forward; the bow as seen from above being very broad and full

in a line across the cat-heads, but with a stem or cut-water raking aft quickly below into lines of entrance which ran straight back at once into the wedge-like under-water body of the hull. . . .

These clippers were also remarkable for the small amount of what shipwrights call "dead wood" below water; that is, of solid timber about the cut-water forward and run and sternpost aft.

We read of the Baltimore clipper schooners of the first half of the nineteenth century: "Not a few ranged the Indies with the dreaded skull and crossbones flying from their signal halliards"; and again, "These Yankee free-lance clippers were wonderfully speedy and handy, and they consistently proved more than a match for the over-masted sloops (topsail schooners and brigs) of the British Navy." A description of this well-proven fast type of sailing craft is interesting in the light of today: "Great beam placed well forward; fine run aft from a high bow with plenty of sheer to a low stern; relatively low free-board; drag aft [i.e., drawing more water aft than forward]; long, easy water-lines with nothing concave forward; great dead-rise; well sparred and canvased she could sail well because of her great beam and she could be driven because of her full, buoyant bow and good free-board forward." The Baltimore clipper was generally described as a "rakish-looking craft" and "a vessel that self-announced its speed possibilities."

This describes a good sailing model for speed and handiness. Griffiths, Smith & Dimon, and Howland & Aspinwall, in modeling their first "clipper," tried to improve on the sharp, slightly convex underwater bow lines of the Baltimore "clipper" by making these immersed horizontal entrance lines somewhat concave, but they ignored the most desirable big flare above water at the bow and the wide forward deck of the Baltimore-built vessels. In building fast China packets in the early forties (whose performances at sea caused them to be popularly known as China "clippers"), W. H. Webb unconsciously followed more closely the essentials of the Baltimore model; for he gave his ships a big flare above water forward, as he made his early vessels for the China trade merely sharper-ended Atlantic packets, with more deadrise, a less full midship section, and finer lines in general.

The *Helena* (598 tons), built in 1841 by Webb & Allen, New York, for the Griswolds, has been called "the first American tea clipper," and that successful ship contributed to the development of a type for use in trade between the Orient and eastern United States ports, where speed on a long complete passage was demanded rather than the carrying of a big cargo in a single bottom. However, if it can be considered that there was any conspicuous departure in model in the vessels built in the United States for foreign trade, it would seem that the most noticeable changes over previous vessels were to be found in the hull and sail plan of the *Houqua*, built in early 1844, and the *Rainbow*, built in 1845, when size, model, rig, and all factors bearing upon a commercial vessel for deep-sea trade are taken into consideration. The *Houqua* might be called "the pioneer clipper" if it is understood that the distinction is neither pronounced nor definite and that the honor means nothing. In fact, the clipper ship was merely a vessel designed for legitimate trade to meet the demand of shipowners and operators when most other qualities of the ship were generally subordinated to that of speed. Blockade runners, privateers, and illicit traders (such as opium runners, slavers, smugglers, etc.) all called for high speed and generally for but little cargo capacity in weight.

The model of the *Rainbow* was not so sharp nor did she have such extreme concave bow lines as the remarks of the marine fraternity of the forties would lead us to believe; but it was different from that of the ships that these people had become accustomed to see built, and compared with the full "apple-cheeked" bow lines of the Atlantic packets, general traders, and transients that Smith & Dimon were accustomed to construct, the model of the *Rainbow* was conspicuously sharp. It has been said by contemporaries that when the framing of the vessel was erected so that the shape of the ship was clearly revealed, her relative sharpness in relation to the many other vessels that the spectators had seen on the stocks caused a sensation and that her builders and owners were not only ridiculed for building such a sharp-modeled vessel for deep-sea work but also cautioned in regard to the responsibility of sending such an impractical and dangerous ship to sea. Yet we are told that the *Rainbow*, launched January 22, 1845, had been on the stocks for well over a year, and during that time the *Houqua*, one of the early sharp and fast vessels approaching the clipper type, had been built by Brown & Bell for the

Lows and launched May 3, 1844, without causing much interest or exciting much comment. Moreover, Webb, who had built the *Helena* in 1841, a more sharp-lined vessel than the usual model, had built the *Cobota* of similar type in 1843 and was engaged in constructing the 509-ton *Montauk* and the 612-ton *Panama* in 1844—all being popularly described as “sharp-lined China packet clippers.”

The owners of the “Baltimore clipper” *Ann McKim* (Howland & Aspinwall) have been credited with exhibiting a vast amount of courage when they placed the order with Smith & Dimon to build a vessel from a model prepared by John Willis Griffiths (a draftsman in Smith & Dimon’s employ), which, while different from the usual models of the day, was sharp, but far from being of a radically new type. She was, as Carl C. Cutler says, “perhaps the first large ship of the extremely hollow bow type, and in spite of the fact that very similar lines had been incorporated in pilot boats for years, old wiseacres grumbled that her bows were ‘turned inside out.’” The appearance of the new ship as she gradually took shape on the stocks, with the forward frames erected last, we are told, “aroused so much criticism that her owners delayed her completion for more than a year.” It would seem that Howland and Aspinwall did not possess anywhere near the courage and moral fortitude that they have been credited with, for it is said that the model of their new ship was so ridiculed by the New York marine fraternity that they feared that they had erred in their judgment and would gladly have discontinued building the vessel if they had not proceeded so far and could have got out of it without experiencing a heavy financial loss. When the New York *HERALD* announced “the launching of the *Rainbow*, a new clipper ship for the China trade,” it made no comment on the freakiness of the ship’s model or of any “extreme hollow bow lines,” but merely said: “The *Rainbow* holds out a promise, we should judge by her model, of great speed.”

Boston and environs had built some very good, fast vessels before Donald McKay modeled the sharper *Reindeer* (800 tons; launched June 9, 1849), which he and the marine fraternity of Massachusetts promptly designated a clipper, but the world was moving fast. When McKay launched the *Stag Hound* on December 7, 1850, after Samuel Hall had put overboard the real (but moderate) clipper *Surprise* (designed by a brilliant young naval architect, Samuel H. Pook, of Boston), the *Reindeer* ceased to be considered a clipper and became merely one of the many fast sailing ships of pre-clipper type built in the late forties—a category in which, however, the historic *Rainbow*, *Sea Witch*, and *Oriental* (built 1845-1849) would have to be placed. Some authorities still feel that the 908-ton *Sea Witch* (a much improved *Rainbow*), built in 1846, was “for her inches and type the fastest sailing vessel ever built”; in any event, she made sailing records that have never been beaten. McKay’s *Stag Hound*, built in late 1850 at East Boston near Hall’s shipyard, where Pook’s record-breaking *Surprise* was constructed, brought forth a great deal of comment from the marine fraternity because of her sharpness of model, and if the *Surprise* (a fine, but excellently modeled ship), had not been built a short distance from her a few months earlier, the reception given the *Stag Hound*’s sharp model in Boston in the winter of 1850-1851 might have been very similar to that given the *Rainbow* model in New York in 1844-1845. Donald McKay was personally responsible for a lot of the publicity given the “extreme sharpness” and other claimed “original features” planned to “achieve supreme speed” that were said to be incorporated in the *Stag Hound*, which was heralded by McKay as the “sharpest, fastest and largest merchant ship in the world.” We are told that the “oldest and most conservative” Massachusetts authorities were doubtful of the stability and seaworthiness of the *Stag Hound* and that Walter R. Jones, the leading marine underwriter, “than whom there was no one who knew more about a ship,” said to her master, Capt. Josiah Richardson: “I should think you would be somewhat nervous in going so long a voyage in so sharp a ship, so heavily sparred.” Richardson replied: “No. I am not nervous about sailing in her and I would not go in the ship at all if I thought for a moment that she would be my coffin.” Yet it is well to note that Griffiths’ pioneer sharp ship, the *Rainbow*, under the command of Captain Hayes, sailed from New

York bound for China via Valparaiso on March 17, 1848, when three years old, and was never thereafter heard from.

It is surprising that so much hullabaloo was made in Boston over McKay's *Stag Hound* and so little was said about the fine Pook-designed and Sam Hall-built *Surprise*, which was the better and faster (even though smaller) vessel and, moreover, the first real clipper ship constructed in Massachusetts and New England. Before the *Stag Hound* was built, McKay had commenced boasting in regard to her, what she was going to be, and what she would do, and at a conference with the press, when about to lay the keel, he falsified the ship's size and dimensions and made extravagant claims about her sharpness and speed. McKay officially announced the ship would be of 1,200 tons and 180 ft. long on the keel; then, having deliberately deceived his competitors, he promptly proceeded to build a ship 334 tons (or 28 per cent) larger and 27 ft. longer on the keel than he had publicly stated. As a matter of fact, people did not care how big the much-heralded flyer was going to be, but McKay, in his egoism, thought they did. A comparison of his "first real clipper" and the earlier Pook-Hall clipper, launched at East Boston sixty-three days before McKay's highly publicized pioneer sharp and fast clipper, is of interest:

Name of Clipper	Designer and Builder	Launched	Tonnage	Dimensions in Feet	Record of Maiden Passage to California		
					Left New York	Arrived San Francisco	Length of Passage
SURPRISE	Pook; Hall	Oct. 5, 1850	1,261.6	183¼ x 38¾ x 22 (deadrise 30 in.; main yard 78 ft. long)	Dec. 13, 1850	Mar. 19, 1851	96 days 15 hours
STAG HOUND	McKay; McKay	Dec. 7, 1850	1,534.1	215 x 39¾ x 21 (deadrise 40 in.; main yard 86 ft. long)	Feb. 1, 1851	May 25, 1851	113 days

The *Stag Hound* was built as a Cape Horner and was generally used in that trade, showing only moderate speed for an extreme clipper during the years 1851-1858, in which she was so engaged (best westward run, 108 days; slowest, 127 days; average of seven passages, 117½ days, port to port). The *Surprise* was intended by her owner, A. A. Low & Bro., New York, for the China trade, and she made a splendid record in that run and was a big money-maker. Her best passage in the oriental trade was a run of 83 days from Shanghai to New York.

The *Rainbow*, the first American clipper of the Smith & Dimon (Griffiths) type of "sharp and hollow forward lines," was built for speed and proved her speed in good seas and under favorable sailing conditions. She foundered off the Horn in 1848 after a short life of only three years, important, however, in its effect on the mercantile marine of the world. Of the other early clippers that were prototypes of the world-famous Cape Horners of the fifties and of the China-Britain tea clippers of the fifties to seventies, the pioneer *Houqua* of 583 tons, designed by Capt. "Nat" Palmer, performed well in service for twenty-one years and was lost in the China Sea. The *Sea Witch* (908 tons), built in 1846, was wrecked on the Cuban coast when ten years old. The *Samuel Russell* (957 tons), built in 1847, was wrecked when twenty-three years old. Donald McKay's first real clipper, the *Stag Hound* (1,534 tons), built in 1850, burned off Pernambuco when eleven years old; but Samuel H. Pook's *Surprise* (1,261 tons), built the same year, was twenty-six years old when an incompetent local pilot put her on the rocks in Japanese waters.

It is an acknowledged fact that the so-called deep-sea clipper ship—whether or not the pioneer of the class, or type, was originated in New York, Baltimore, or elsewhere—was conceived and developed in the United States. Aberdeen, Scotland, built some sharp-lined heavily canvased sailing craft in the late thirties and forties to compete with steamers in the British coastal trade, and these vessels have been termed "Aberdeen clippers" just as a somewhat similar type of vessel built on the Chesapeake at a much earlier period has been called

the "Baltimore clipper." The name "clipper" as used in the nineteenth century to describe a type of fast sailing vessel follows the definition "that which clips, moves swiftly, or scuds along." There were, in the thirties and forties, schooners, brigs, and brigantines that were popularly described as "clippers" because of their relative sharpness of model, large sail plan, and speed, but the "true" clipper was generally accepted to mean "a fast-sailing, sizable, lofty and heavily canvased full-rigged ship, with a sharp bow"; popularly, this meant a large (for the day) square-rigged ship carrying a wealth of canvas, with concave water lines forward and a clean run aft.

The China tea trade, followed by and running concurrently with the California Gold Rush trade boom and the Australian gold find, developed an unprecedented demand for speed during the years 1849-1856, and the very fast small sailing ships built in Britain during the fifties and sixties to meet this requirement were "clippers." The need for fast transportation of tea between China and Britain (following the opening of British ports to foreign ships in 1849-1850) continued the use of clippers in that trade when the original great cry for speed to California had been stilled, and later a demand for speed in carrying wool from Australia to Britain was responsible for the wool clippers. Generally, however, the clipper ship era was as brief as it was spectacular.

It has been said by a British marine historian: "The China tea clippers and the Newfoundland fish-boxes [as they were called] were the hardest-driven ships afloat because they had to run for market." This is an exaggeration, for such vessels were merely driven hard as were all United States-owned clipper ships and the packet ships before them, and no China tea clipper was ever driven harder than an American regular transatlantic packet in the twenties, thirties, forties, and fifties or more spectacularly than was the *Dreadnought* in this trade around mid-century when sail was fighting steam. The Newfoundland fish traders included some well-modeled vessels, which sailed out of St. John's, and in the season there was always a race, for the first ship to reach Pernambuco with her cargo would get the best prices for her fish. The owners made heavy bets on their ships (£400-£500), and the winning captain was paid a cash bonus plus the profit on a number of drums of fish. This resulted in hard driving, the carrying of sail to the limit, the straining of hulls, and at times very wet passages; but it was the blue-nose skippers of these Newfoundland fish ships, more than the models and spar plans of the vessels themselves, that caused the enthusiastic champions of these fish traders to rate them with the clippers.

Prior to the time of John W. Griffiths, Stephen Smith (of Smith & Dimon), William H. Webb, Capt. Nathaniel B. Palmer, and David Brown (of Brown & Bell), all of New York, the general belief of American shipbuilders was that it did not much matter how roughly a vessel entered the water so long as she left it smooth behind her. Griffiths publicly denounced the prevalent opinion, but he was only partly right in what he advocated, and what American builders fundamentally believed—before being temporarily converted to the Griffiths concave, sharp-bow "clipper" idea—proved to be also partly true.

In the first half of the nineteenth century, American shipbuilders spent much time studying the form of fishes, and the more analytical investigators cut them into sections and plotted their shapes in model form. What was learned from a study of fish and creatures that live and move swiftly in the sea did not inspire the underwater shape of the American clipper, but had encouraged a gradual improvement in model of the Baltimore clippers, with their rounded and buoyant forward floors and sharp sterns, and the carrying of the maximum cross-sectional area well forward. The mid-century advocates of fast "clipper" ships branded vessels of the generally accepted model as the "codfish under-body" type. As a matter of fact, however, in the fourth decade of the twentieth century, it has been proven that part of the old idea of model for speed is the ideal for air transportation and is the basis of the modern fad of "streamlining." Moreover, marine experience has taught that slightly convex load water bow lines—reasonable and in moderation, with a fine run aft—are excellent for relative high speeds at sea, provided the "rising speed" is not approached (in an engine-driven power

craft), in which event the fine run aft must be vertical rather than horizontal. Whereas the lines aft must still be "clean," the load water line as it appears in a horizontal section view must be extremely full aft and act as a buoyancy holding platform, from which the craft is held up as she pivots and raises the bow more and more as the high speed is increased.

The Griffiths followers, in their fervid advocacy to reform the model of fast American sailing craft, referred to Baltimore clippers as vessels with "pumpkin-like bows carried high." They affirmed that no such "round head fish models" could be fast and that "unless they cut the water instead of pushing it aside—and ahead—they were not clippers." No matter what Griffiths and his disciples said and believed, history proves conclusively that the so-called Baltimore clippers were very fast vessels and obtained an international reputation for speed. Baltimore vessels were flush-decked and generally schooner-rigged, sometimes brigs and brigantines. However, outside of such an unusually big vessel for the type as the yacht-like *Ann McKim* of 494 tons, they seldom, if ever, carried more than two masts, so they were not "ships." They might be properly termed "clippers," but not "clipper ships." The use of the word "clipper" for the fast Baltimore sailer might be deemed inaccurate in the light of today, which has been influenced by the designation of the forties, for such craft positively did not have "sharp concave lines forward"; nevertheless, they were fast, "moved swiftly, clipped and scudded along." Any type of vessel that does that is naturally a clipper according to the fundamental meaning of the word, even if it has not concave bow lines nor three masts, all square-rigged, and is not technically a "ship."

The so-called Baltimore clippers were relatively small vessels. As they had been built primarily for speed, they had a small displacement for their length, and they had been given a small maximum transverse area, with big deadrise, which Griffiths and his school at first followed, but which Capt. "Nat" Palmer and Edward K. Collins, in the design and operation of the Dramatic Line of transatlantic packets (built as early as 1836-1838), had convincingly proved was inferior to a flat floor in deep-sea work, particularly in heavy weather. There was much that was sound for certain types of vessels in the Maryland idea, which had produced "amazingly fast sailers that for privateer work had no equal" and had a fine record in the War of 1812 and as dispatch boats, scouts, slavers, smugglers, illicit runners, blockade "wasps," and pirates.

The advocates and champions of the early extreme American clippers were one and all extremists. W. H. Webb, in 1851, was inoculated with "the speed-crazy bug" by the demands of owners, but he quickly recovered and soon denounced "extreme" clippers as senseless, uneconomic craft that would ruin shipowners and kill shipbuilding. The sole idea of Griffiths, of New York, McKay, of Boston, and their following seems to have been the designing and building of sailing vessels with the greatest possible speed, and this without regard to carrying capacity (and money-making), seagoing and sea-keeping properties, comfort, operating expenses, maintenance charges, depreciation (or amortization), or even safety. The theory of Griffiths, as stated by him, subordinated all other features of design to speed, but he said that the Baltimore clipper had done practically the same thing and was still in demand and that his model was not only an improved Baltimore clipper but also a real "clipper" that could and would outsail any vessel afloat. The followers of Griffiths, in their first clipper ship creations, went to sharp concave bows and to big deadrise and relatively small transverse midship cross section of the immersed body. Around mid-century, none was a more ardent (but not admitted) disciple of Griffiths than Donald McKay, of Boston (born in Canada in 1810, apprenticed to Isaac Webb, the New York shipbuilder, in 1827, and a builder at Newburyport, Mass., 1841-1845).

American ship designers and builders (Griffiths, Smith, Webb, Pook, Hall, McKay, etc.) discarded many of the characteristics of the Baltimore type of fast sailer when they initiated the American clipper ship, although as this type was developed, it was greatly improved—and this in essentials affecting seaworthiness and commercial properties. There was a big difference between the last of the American ships, even of the so-called extreme, or "out-

and-out," clipper type (not to mention the more normal clipper and the still more commodious "medium" clipper type) and the original New York builders' models. In the very early 1850's, Webb had advocated a rather flat floor for a clipper or any other type of sailing ship for heavy weather service in rough water and a greater, but still moderate deadrise for a fast vessel built for trades that required crossing the tropics, where "ghosting along in the doldrums" was important. Captain Palmer, the champion of the flat-floored model for the North Atlantic, urged some deadrise for ships engaged in the China and Indian Ocean trade, but advocated a flat floor for a transatlantic packet and a Cape Horner.

Capt. Nathaniel B. Palmer, after experience with flat-floored coasting packets built for the New York-New Orleans trade, became convinced that a transatlantic packet would sail well and prove to be a more seaworthy and faster vessel in the turbulent North Atlantic trade if she was built with a flat floor and a full transverse midship section. Captain Palmer convinced Edward K. Collins, organizer, principal owner, and manager of the new Dramatic Line of transatlantic sailing packets to operate between New York and Liverpool (in competition with the old established Black Ball, Blue Swallowtail, and Red Star lines), that packets with but little deadrise and a full midship section would be better sea boats, more comfortable, carry more, and be fully as fast as or faster than ships built following the usual model, with the result that the new Dramatic liners built in 1836-1838 (the *Shakespeare*, *Garrick*, *Siddons*, *Sheridan*, and *Roscius*) were modeled with flat floors and rather quickly gained the reputation for being the best fleet of liners in the North Atlantic trade. Capt. Charles H. Marshall, who moved up from the quarter-deck of a Black Ball packet to joint ownership and control of that famous pioneer line, referred in the late thirties to the trend in the modeling of packet ships as follows:

During my being in the line from 1822 to 1832, I do not think the models of the ships were much changed; but they were increased in size. The general impression then among merchants, and even among nautical men, was that to produce fast sailing it was necessary to build the ships with sharp bottoms, by giving them much *dead rise* and consequently abridging their carrying qualities. It has been found, however, that our predecessors were altogether mistaken in their notions of gaining speed by *dead rise*; it has such a tendency to increase the draft of water, as to produce no speed! It was no uncommon occurrence for a ship of 400 tons to have, in those days, 26 inches *dead rise*. The present models are altogether changed. Our

largest ship, say, the *Cambridge* [of 798 tons; built by Webb in 1837], has about 17 inches *dead rise* and were I to build again, I would reduce it to 12 inches. The effect of this is to give buoyancy, and with fine ends so as to secure good steering, the ship will evidently go faster through the water. I should not be surprised if this model were to be adopted for vessels of war.

The packets that have been built during the last few years are much greater carriers than those formerly built. They are not only larger but much fuller bodied, caused by less *dead rise*; preserving, however, the same sharpness at each end, and are much faster sailers, more comfortable, have less motion, and are much better sea boats.

The designer and builder of a ship could never guarantee the average speed or sailing performance of a vessel, but only the possibilities for speed. What a ship's record under canvas actually became with the years was dependent largely upon the quality of the command, the capabilities of the crew, the maintenance and conditioning of the vessel, the orders of the owners as to hard or conservative driving, the time of the year when long passages (subject to variable seasons) were made, and Dame Fortune, with good luck or bad luck as to winds, seas, and all influencing conditions that affect the performance of a sailing ship at sea. The ship with the fastest record, either for a single passage or expressed as an average length of passage or speed in knots per hour through the years, was not necessarily the fastest ship. Some of the best vessels afloat, rated from the standpoint of quality of design and construction, performed relatively poorly as far as recorded speed was concerned, and some ships that made splendid records were, in fact, mediocre sailers. The ability to sail fast was not enough to make a fast ship, for to attain the speed of which she was capable a ship had to be handled and driven well and encounter favorable sailing conditions. Sister ships, even when engaged in the same trade over a term of years, seldom showed generally similar records, even when the passages made were of relatively short duration and continued through

all the seasons of the year. The Dramatic Line triplets, *Garrick*, *Siddons*, and *Sheridan* (each of 895 tons and built from the same lines), give a case at point. During ten years of steady service in the North Atlantic packet trade, with each ship operating under the best possible management and under captains who were selected and highly paid for their demonstrated ability to get the most out of a ship, the *Garrick* showed an average length of westbound transatlantic passage from over two to a strong three days shorter than that of her two sisters, and her best westward passage of 18 days is four days faster than the best run of either the *Siddons* or the *Sheridan*. Robert G. Albion, in *SQUARE-RIGGERS ON SCHEDULE*, says: "Designing was a tricky game. A year after building the *Oxford*, Webb turned out the next Black Ball liner, the *Cambridge*, fifty tons larger, but a whole week slower in the average of the runs. Altogether, it was dubious business to predict from a half model, or even from a newly launched ship, how she would behave in action."

Captain Marshall, representing the owners of the Black Ball Line, was quite proud of the *Cambridge*, and she apparently was a comfortable, reliable ship; but the average length of her westward transatlantic passages has been stated as 38 days as against 34 days for that of the *Oxford*. When Webb built his next Black Ball packet, the *New York II*, in 1839 and increased the tonnage to 862 tons, the new vessel averaged 37 days for her westward crossings. Both the big *Isaac Webb* of 1,359 tons (built in 1850) and the *James Foster, Jr.*, of 1,410 tons (built in 1854) required 36 days for the average length of westward passages, and their best runs were 25 days and 28 days, respectively, as against 23 days for the *Cambridge* and 21 days for the *Oxford*. However, it is well to note that in this period of designing and building larger Black Ball transatlantic sailing packets (with flat floors and a high midship section coefficient) and as the years went by following the building and tests at sea of the early Dramatic liners, Webb, in 1843, produced the *Yorkshire* of 996 tons, which proved to be the fastest transatlantic sailing packet of all time. The *Yorkshire* made the most fast passages—and the record one—"uphill" (on the westward run). Although she encountered far more than her share of "rotten luck" during her continuous service of eighteen years (1844-1862) in the trade, with a resulting few long passages (up to 58 days), her 29-day average length of westward passages has been beaten by only one ship—and that by the largest of all the regular packets, the "big and lucky" *Amazon* of 1,771 tons (78 per cent bigger than the *Yorkshire* and built eleven years after her), whose fastest westward run was eight days longer than that of the *Yorkshire*. The *Amazon*, however, during her fourteen years of service in the trade, never once encountered severe adverse sailing conditions, with the result that her average passage to the westward occupied only 28 days (as against 29 days for the *Yorkshire*), and her longest passage was made in 36 days.

It has been said that "the model of the *Yorkshire* shows a ship that looks as if she would not be fast enough to get out of her own way." The packet was very full, with a wide rounded deck forward, pronounced convex water lines, and great buoyant (but heavy-looking) above-water ends; she had a small amount of deadrise and a full midship section, but even her prismatic coefficient was high, and this "greatest of all Atlantic packets" had both a model and rig as different from those of an extreme clipper ship of the early fifties as a ship, with any pretense to speed in any deep-sea trade, could have. Yet a comparison of the lines of Webb's fastest transatlantic packet *Yorkshire* and of his "pioneer China 'clipper' *Helena*" (each built in the early forties) shows not only a family resemblance but also a striking similarity. The *Helena* had a midship section more suitable for the China Seas and tropics than the Atlantic; otherwise, she was a *Yorkshire*, with the same character of lines sharpened somewhat, particularly at the bow. She was an Atlantic packet adapted for the China trade, in which she performed so well that she was referred to as a "clipper." Moreover, some of the ships built and operated as packets in the Atlantic did quite well in the China service, and when driven by "Yankee" skippers, they had but little trouble in beating British ships in the trade prior to the early fifties.

Five of the original flat-floored New York-New Orleans packets were built in 1831 at four different New York shipyards by the owners, who wanted to get the full benefit of competition among highly qualified naval architects and experienced shipbuilding firms, so that they would be assured of obtaining the best and fastest packets possible. The owners had prepared the general plans, and they fixed the approximate dimensions, outlined the rig, and specified the type of model, fullness, carrying capacity, etc., but left the lines and details to the builders. The five packets, as finally built, showed an extreme variation of only three feet in length, nine inches in beam, and five inches in depth. However, there was no similarity in their sailing performances, the average length of passage per ship varying from 15.1 to 21.5 days (or 42 per cent), and the best run of each ship varied from 10 to 16 days. Two of the ships showed up remarkably well, and two were about as speedy as had been anticipated; but the fifth ship was a big disappointment to her owners in speed, even though she proved to be a very comfortable boat in the service. Although these five New Orleans packets built in 1831 varied materially in their sailing performances, they were all "good sea boats" and were all "flat-floored" and quite beamy, having a ratio of length to beam of $4\frac{1}{3}$ to 1. Historians tell us that the employment of these ships in the new "Louisiana Line" was "an important step in the speeding-up and improvement of the New Orleans-New York packet service."

One of these ships, the *Natchez* of 523 tons (built by Webb & Allen, New York), ran two years as a New Orleans packet and had a good speed record in the trade, with an average length of passage of 16.7 days (best run, 13 days), when she was removed to participate in the South American trade. In the early forties, the *Natchez*, notwithstanding her flat floor, wide beam, and shallow draft, designed for service that required navigating the lower Mississippi, was put in the China trade, and Capt. Robert H. (Bob) Waterman, with transatlantic packet experience and a driver, was in command. On April 3, 1845, the *Natchez* arrived at New York only 78 days from Canton and Macao, and the flat-floored packet (fourteen years old) had established a speed record that only one vessel, the *Sea Witch* (908 tons; built in 1846), commanded by the same skipper, has ever beaten. The greatest clipper ship passages of the fifties from China over the same course to New York, made by the *Sea Serpent* (1,402 tons) in 1856 and the *Eagle Wing* (1,174 tons) in 1859, were one and four days, respectively, slower than the 1845 passage of the "old flat-floored New Orleans packet *Natchez*," which had first brought China to only "11 weeks from New York."

Sometimes a ship made fast passages and showed high speed under one captain and never performed well under any other. The combination of a ship and a skipper is responsible for many outstanding sailing performances. Other ships have sailed equally well under different masters and at times have made record or near record runs under admittedly mediocre command. Some ships have been consistently lucky, others unlucky; some have had spells of rare good fortune, whereas some very fast sailers have had a mediocre career, uneventful as far as the length of sailing passages or day's runs is concerned, and many ships of quality have got their name in the news only because of some calamity that befell them.

From the early fifties, such builders as William H. Webb sought to rationalize the Griffiths basic convictions in regard to clipper ship design, and this while apparently concurring with its fundamentals. Samuel H. Pook, of Boston, America's outstanding designer of clipper ships (who achieved greatness in his product notwithstanding exasperating and detracting handicaps) urged from the beginning of the clipper ship decade, however, a big midship section, small deadrise, fine ends, a good flare forward, and good above-water buoyancy at both ends. Webb rather promptly endorsed Pook's ideas, but McKay followed quite reluctantly some time later. In the early days of the republic and throughout most of the first half of the nineteenth century, the design of naval vessels had a peculiar and pronounced effect on the modeling of merchantmen built for speed. Hence fast merchant ships were designed with big deadrise and what was termed a "frigate midship section," and it took years to kill the popular notion and well-developed conviction that a small cross-sectional

area "like that of a frigate or sloop of war" was a prime essential for speed in any vessel—naval or mercantile. When the Pook-designed clipper *Defiance* of 1,691 tons, under the command of Capt. Robert McCerren, ran from Rockland, Maine (where she was built), in late 1852 to Fire Island at a speed of 18 knots and, continuing, sailed from there to Sandy Hook at a 20-knot clip, this sailing performance made a deep impression on the country's owners, designers, and builders alike, and even ardent advocates of a sharp wedge-shaped bottom had to change their views. The *Defiance* had a very flat floor, with only 10 inches deadrise and a full midship section; yet she had traveled over a measured course, with no current to help her, at a rate of speed no ship—not even with a sharp, or "frigate type," bottom—had ever been able to attain. Gradually, the American "clipper" took on a form of hull with sharp and generally concave water lines forward; a moderate flare above water, with a good holding overhang forward; a short and buoyant above-water stern, with a fine run below water; a relatively full midship section, with small deadrise; and a good beam to give stability to carry sail, to stand up stiff with holds swept clean, and also to add to the carrying capacity.

The clipper reached its perfection as to type not in such extreme ships as Webb's *Challenge* (2,006 tons), *Comet* (1,836 tons), *Gazelle* (1,244 tons), and *Swordfish* (1,036 tons), all built in 1851, and McKay's *Flying Cloud* (1,782 tons) and *Flying Fish* (1,505 tons), also built in 1851, the *Sovereign of the Seas* (2,421 tons), built in 1852, *Empress of the Seas* (2,197 tons), *Romance of the Seas* (1,782 tons), and the mammoth *Great Republic* (4,555 tons), all built in 1853, nor in the *Lightning* (2,084 tons), built in 1854, but in the later-built medium clipper packets such as the *Andrew Jackson* (1,679 tons), launched at Mystic, Conn., in 1855, which in 1860 established both the Cape Horn and the transatlantic west-bound sailing records, and in the 1853-built clippers of a rather moderate type such as Webb's *Young America* (1,961 tons) and the Mystic-built medium clipper packet *David Crockett* (1,679 tons), each of which was kept operating in the Cape Horn trade until 1883. Webb's *Invincible* of 1,769 tons and McKay's *Staffordshire* of 1,817 tons, each of the clipper packet type and built in 1851, Pook's *Red Jacket* of 2,305 tons, built in Maine in 1853 (and probably the fastest of all clippers), and later such fuller medium clippers as Webb's *Intrepid* of 1,173 tons, built in 1856, were not only outstanding but also, as horsemen say, "hard to fault."

The British persisted in building "clippers" with a beam far too narrow for either speed or safety, with a "weak and slack" midship section, but with hollow water lines forward and a good run aft. The speedsters *Thermopylae* and *Cutty Sark*, Britain's greatest clippers, built in 1868-1869 of composite construction primarily for the China tea trade, were of this general type and had yacht-like lines, with a small area of midship section. As a result, they had no initial stability, would not stand up straight when light, and had to carry ballast when loaded with a homogeneous cargo. However, Robert Steele, of Greenock, Scotland, who, it has been said, was the builder of "Britain's finest and fastest real clipper," believed in and finally adopted a full midship section, with fine ends. Griffiths' and Smith's *Rainbow*, whereas given sharp water lines forward, was not as concave-lined as generally reported nor as a host of other vessels that followed her, and it would seem that her sharpness of model has been much exaggerated. Her designer erred (even for the trade for which she was designed) in giving her, like other early "clippers," too large a deadrise and a "too easy flowing bilge." Later, practically all American builders followed Pook's initiative and designed their clippers with a full midship section and a flat floor. In this respect, McKay's four clippers of 2,100-2,600 tons, built in 1854-1855 for the Australian trade, and Webb's *Young America* of 1,961 tons, built in 1853 as a Cape Horner, resembled Pook's *Herald of the Morning* of 1,294 tons, designed as a China, India, or California trader. Incidentally, this Pook clipper, built by the firm of Hayden & Cudworth, Medford, Mass. (which was much more co-operative with the designer than most other builders, such as Samuel Hall, of East Boston), was generally considered in the harbors of the world as "the handsomest clipper ship afloat." This vessel, with a run of 99 days, made the fastest westward passage of the

Horn to California in 1855 and, with spars, sail area, and crew reduced for economy's sake, made a run over the same course in 1860 in 108 days. She outlived practically all her famous contemporaries and was under British registry in the early 1890's. The *Herald of the Morning* was said to be a "true medium clipper" and carried in deadweight 1.24 times her old registered tonnage and 1.44 times her tonnage by the new (1865) measurement. She has been described as "an ideal model for carrying well at high speed" and as being "a perfect gem in both hull and rigging." In her twenty years as a Cape Horner under the American flag, she made eighteen westward passages; on the six of them made in the fifties, she averaged only 112 days, and on all of her fifteen westward runs to San Francisco (1854-1873), most of them under a cut-down "economy rig" and with a small crew, she averaged less than 125 days.

Clipper Ship Models and Sailing Characteristics

It is probable that many of the small early clippers were intrinsically faster than the later ships—at least under ideal or not too severe sailing conditions and over the average deep-sea sailing route. One of the fastest of all the clippers built (in general trade) was the *Sea Witch*, but she and all others of the earlier clippers were too small to match the big later ships, particularly the McKay-built clippers, in fast passages on such routes as around Cape Horn and running eastbound before westerly gales in the North Atlantic or in the Roaring Forties of the Southern Hemisphere. The *Sea Witch*, if properly taken care of and well handled, would have continued for many years to make a wonderful record as a China clipper, in which trade she established an all-time sailing record. The shorter record passages of the later clippers over certain trade routes were undoubtedly due not to better models but to increased size, with relatively more canvas, plus very hard driving. The earlier and smaller *Sea Witch* (908 tons), built in 1846 by Smith & Dimon, of New York, and the *Samuel Russell* (940 tons), built in 1847 by Brown & Bell, also of New York, had excellent models for their day and the trade for which they were designed and constructed.

It has been said, "The fast passages of the clippers built for the California run were the result of great power—stability and big sail spread—and very hard driving, rather than unusual, fast models." From a naval architect's point of view, the best-modeled clippers—of both the extreme and more moderate types—were probably the *Red Jacket* (2,305 tons), *Herald of the Morning* (1,294 tons), and *Surprise* (1,262 tons), designed by Pook; the *Comet* (1,836 tons), *Swordfish* (1,036 tons), *Young America* (1,961 tons), and *Intrepid* (1,173 tons), designed and built by Webb; and the *Flying Cloud* (1,782 tons), *Westward Ho* (1,650 tons), and *James Baines* (2,515 tons), built by McKay.

Donald McKay's *Flying Cloud* has been called "the supreme extreme clipper in the Cape Horn service." Such a statement is hardly correct. Whereas the *Flying Cloud* is credited with runs to California of 89 days 21½ hours in 1851 (anchoring at San Francisco August 31) and 89 days 8 hours in 1854 (with a reported arrival at San Francisco April 20), these are not the only 89-day westbound runs officially recorded; for the medium clipper *Andrew Jackson* of 1,679 tons, built in 1855 at Mystic, Conn., made the all-time record run from New York to San Francisco in 89 days 4 hours, sailing from New York at noon of Christmas Day, 1859, and arriving at San Francisco on March 23, 1860. Fourteen clippers completing four or more westbound passages around the Horn during the years 1850-1860 show a better average time for their voyages, port to port, than the *Flying Cloud*. The best average time

for a clipper making four complete westbound passages is 103.3 days, which record is held by the less publicized but remarkably uniform fast sailer *Westward Ho* of 1,650 tons, built by McKay in 1852. The best record for average time on five voyages in the clipper ship decade is held by the *Andrew Jackson* with 105.2 days. (The average of four passages after her spars were resteped and properly balanced, following her maiden and "try-out" voyage, was only 99½ days—an amazing record for steady, fast sailing.) A good record for average time of a sailing vessel on all her Cape Horn westbound passages (1855-1862), seven in number, is held by the *Andrew Jackson* with 106.1 days, but she averaged only 102.5 days for her last six—a record. The *Flying Fish* also made seven outbound California passages (1851-1857) and averaged 105.6 days; but the average length of all the five westward runs made by the *Andrew Jackson* in the clipper ship decade of the 1850's was 105.2 days, and this included her long maiden passage made with an inferior rig. The average time of the *Flying Cloud* on her six around-the-Horn voyages, port to port, was 115.7 days, but on five runs under Captain Creesy (1851-1855) he reported a splendid fast average of 101.8 days. (The little *Sea Witch*, which was not built for the Cape Horn trade and was unsuited to that service, made three Cape Horn passages [1850-1852] and averaged only 105 days; her best run was 97 days—a record when made in 1850—and her slowest, 110 days.)

The *Flying Cloud*, as well as all of Donald McKay's clippers and almost all of the ships built as clippers in United States eastern yards, made some fast runs and was a great speedster under favorable sailing conditions. Her two wonderful voyages around the Horn were negotiated under propitious circumstances, with favorable winds and kindly seas. Some voyages of the *Flying Cloud* were "not so good." In 1856, on her last voyage to California around the Horn, it took her 185 days, because of partial dismasting (and putting into Rio for repairs), to reach the Golden Gate, and on her westbound passages of 1852 and 1855, she was beaten by several other fast clippers. The *Flying Fish* beat her time by twenty-three days in 1852 and the *Antelope* (of New York) by twelve days in 1855; whereas in 1853 the *Hornet* beat her by one day, sailing in a race from off Sandy Hook, where the vessels were in company, to the Golden Gate.

Many of the voyages of every clipper ship of outstanding reputation and of noteworthy speed, when sailing under unfavorable conditions, were far from being meritorious performances. Not one of the extreme, or "out-and-out," clippers was a great sea boat or a fast sailer in bad weather and head winds. Many a sailing packet could run away from a clipper in heavy weather on the North Atlantic. The Yankee clippers had a natural tendency, because of model, to cut through and drive into seas without lift, and this natural wetness proved a handicap in the utilization of their great propelling power; at times, their relatively low freeboard was an additional detriment to speed realization. The extreme clipper can be likened to the modern high-speed and fine-lined torpedo boat destroyer or naval cruiser, which, in smooth water and under good, favorable conditions, will show a terrific burst of speed; but on a run across the North Atlantic Ocean (particularly westbound in winter) or in the Roaring Forties of the Southern Hemisphere, against wind and seas, a fuller-bodied merchant vessel of far less trial trip speed and of infinitely less theoretical speed potentials, with a beamier and fuller hull and less propelling power, will make an ocean passage even in average weather and in average seas—not to mention heavy weather and high, rough seas—in much less time and with greater comfort and safety.

The British clippers—wood, composite, or iron—were notoriously "wet ships." The Aberdeen White Star as well as the Orient Line clippers and Devitt and Moore's speedy "out-and-out" clippers in the Australian service were particularly wet when they were hard driven. The *Darra* (999 tons), built in 1865 by Hall, of Aberdeen, for the Orient Line, was a sharp-bowed, composite clipper. After a fast passage of 70 days in the outbound run to Adelaide, her captain wrote: "We dived off the Cape [of Good Hope] and came up to blow off the Leeuwin [southwestern Australia]." Britain's first iron China clipper, the *Lord of*

the Isles (770 tons; built in 1853), was known as "The Diving Bell." All of the fastest British clippers in this trade were given a bad reputation for wetness, and we read that these hard-driven fine-lined ships, as beautiful as they were fast, "generally travelled through the water instead of over it."

The small extreme clipper *Swordfish* (1,036 tons American and 730 tons foreign measurement), built in 1851 by W. H. Webb, of New York, was very sharp, with lofty spars and a great spread of canvas. She was modeled and sparred as a speedy China packet, but surprisingly, for her size and design, had a great record as a Cape Horner. In the China trade, during a fast run of 98 days from New York to Shanghai in 1859, while running her easting down (not far from the Cape), the little ship encountered a succession of very heavy westerly gales. As she was deep laden, tremendous seas boarded her from both stern quarters, and the vessel was flooded for days while she "scudded under bare poles at the rate of 14 knots." The crew deserted the ship at Shanghai, declaring that she was "too wet for either comfort or safety"; but the *Swordfish* had a good name, a new crew was quickly signed, and on her run back to New York the clipper established an all-time record of only 81 days from Shanghai to New York (or to any other East Coast U. S. A. port).

An old writer, commenting on the sharp clipper bow, said that it was "less powerful in heavy weather and could not be driven." Such a bow "would go through the seas rather than over them" and made "very wet and uncomfortable ships to sail in." In this respect, it is interesting to read a letter written May 17, 1892, by Capt. Joseph Wilson, of Sunderland, England, with reference to the extreme, sharp-lined old American clipper *Challenge* (2,006 tons) of the vintage of "the hysterical, speed crazy" 1851, which he bought in London, when she was fifteen years old, "during a sort of monetary panic," renamed *Golden City*, and sent to sea:

On a wind, going clean full on all sails drawing she was hard to beat; she was a dangerous ship to stay; that is, in a strong wind and sea, and that was eventually the cause of her loss. Though to look at, in every way a very handsome appearance, both in hull and rig, no handsomer to be seen, yet in detail there were some serious errors. The principal error was a hollow water-line; this was such a mistake. A good-sized pilot coble, in trying to get alongside in perfectly smooth water with ship towing only seven knots, was upset by the curl of the wave caused by this hollow; a sea of three feet was always curling up between the stem and fore-

rigging when going fast and in ballast. This effectively stopped her from being the fastest ship afloat. . . . On her last voyage to Java, in a heavy gale off the Cape of Good Hope, when running before it, and going 12 or 13 knots, a sea broke clean over her quarter, swept 7 men off the main deck, killed the captain on top of the house, took clean away the wheel and officers' house. . . . All the officers in the house were lost but the third mate. . . . The ship made no water and arrived out, but another captain had to be sent out and the ship lost her season.

The *Challenge* undoubtedly had faults incidental to all extremely sharp clipper ships; but her forward lines would never make a wave when she was being towed at 7 knots "in perfectly smooth water" to upset a "good-sized pilot coble" or even a properly handled small dinghy, and her behavior off the Cape of Good Hope is indicative more of faulty seamanship than unusual model defects. The *Challenge*, under American command, crossed the Pacific from "off Japan" to San Francisco in 18 days—a record—and then ran from San Francisco to Honolulu in 8 days. In the fall of 1852, she beat the cream of the fleet in the China-Britain tea race (including the new British clippers *Chrysolite*, *Stornoway*, and *Challenger*) and made the record run of 65 days from Anjer to Deal (London). The vessel was wrecked off the French coast in 1876, when twenty-five years old.

That English ship designers, owners, and sailing masters felt that some of the big extreme American clipper ships went too far with concave water lines forward is proven by the fact that a Yankee clipper (the *Lightning*, built by McKay for British owners in 1854) had the hollow in the bow filled in with shaped and fitted wooden blocks—a difficult operation and one almost impossible to perform practically so that the added material would hold

against the frictional and pounding abuse of seas and weather. Bearing upon this, it is interesting to see how Donald McKay, in the *SCIENTIFIC AMERICAN* of November 26, 1859, waxed indignant at such treatment of a ship of his:

Although I designed and built the clipper ship *Lightning* and therefore ought to be the last to praise her, yet such has been her performance since Englishmen learned to sail her that I must confess I feel proud of her. You are aware that she was so sharp and concave forward that one of her stupid captains who did not comprehend the principle upon which she was built, persuaded the owners to fill in the hollows of her bows. They did so and, according to their British bluff notion, she was not only better for the addition, but would sail faster, and wrote me to that effect.

McKay then goes on to say that on the following passage of the *Lightning* from Britain to Australia, the seas "washed the encumbrance away on one side" and that when she returned to Liverpool, "the other side was also cleared away." McKay either did not know or was too prejudiced to admit that the experience of the British in plugging up the extreme hollows forward in the *Lightning* indicated that the change positively did not hurt but probably improved the sea performance of the ship. Such lining-up on the outside of the hull, however, with patches in constant contact with the sea, was a practical impossibility, and the owners naturally did not want to injure the structure, planking, and copper sheathing of the vessel by the frequent application of shaped blocks of wood, with the driving of spikes or drilling for bolts, etc. Moreover, this patching caused leaks, and the underwriters tabooed the practice.

An historian has said:

The clippers made some wonderful passages, but it was at a big price. Their holds were small and, considering that their power cost them nothing, their running expenses were high. Their big sail area, which was kept set until the last moment of safety, demanded a large crew. Although they paid little and fed extremely cheaply, the total cost was considerable. The clippers were exceptionally uncomfortable. Their knife-like bows were apt to cut into the sea instead of rising to each one, and

their low freeboard kept the decks constantly awash in any weather. It is not surprising, therefore, that when employment was plentiful, many seamen avoided signing on in the clippers when they could, and a premium had to be paid, either to the sailor or to the crimp and keeper of a seamen's boarding-house, who supplied ships with crews. If paid to the crimp, the premium generally came out of the sailor's pocket in the long run.

The strain of racing tended to stress and wrack the clippers to pieces, so it is amazing that so many of them lived to a ripe old age, which is proof of their splendid construction. However, heavy depreciation had to be allowed, and many were in service only a few years. It has been said that "a few of the clippers disappeared while sailing right under water with a press of canvas by being overwhelmed by a big sea coming over their sterns as they ran before it, or when they lay helpless with their beautiful rig a raffle of wreckage." This statement refers to British clippers and may be based on known facts, but it seems that there is no authentic record of the loss of any United States clipper by sailing to her doom when running before heavy gales and seas.

The old sharp-ended wooden clippers were wet ships, and they were often shunned by able-bodied and experienced fo'c's'le hands because of this extreme wetness and, furthermore, were "roundly cursed as workhouses where no seaman ever had a chance to keep a dry skin." Spray in sheets flew across the old clippers, which usually sailed with a great spread of canvas and "with lee scuppers boiling with white water to the hatch coamings"; yet it is said that such ships seldom were severely damaged by shipping heavy seas forward and that, "being of wood, they were more buoyant"—an erroneous conception of the virtue of wood over iron. The clippers on the Western Ocean made all their fast passages eastbound, going with the wind and sea, and in all other waters they sailed well and made their good time under similar favorable conditions. If driven hard directly into a head sea, they would have plowed in, shipped heavy seas forward, and acted more as submarines until the ship collapsed under the stresses to her forward structure. The iron clippers, when their bottoms were clean, acted

just as well—and just as badly—at sea as the wooden clippers, but they had less “give” and were usually stronger. The fine bow lines generally given to clippers were apt to smother them and pull down their speed in bad weather, but such lines were neither materially helpful nor harmful for “ghosting” (the ability to slip through the water in the lightest of airs), which was a highly desirable quality and essential to the making of good passages in the doldrums. However, the smallest possible wetted surface in relation to displacement and a tremendous sail plan, carried high with moonsails and wide with stunsails, have more influence than shape and dimensions of model in moving a ship at a “respectable” speed in extremely light tropical airs and a smooth sea. Also, the weight to be moved in relation to area of effective sail spread is a prime contributing factor in “ghosting” in light airs.

The value of the “run” of the ship, or the after lines, in obtaining speed was generally appreciated in the building of clippers and of most other American sailing craft constructed following the War of 1812. In some clippers, however, fine lines aft were carried to excess, which, with a deficiency in buoyancy both below and above the normal load water line, led to their being disabled by pooping and even possibly, it has been said, to a few sharp British clippers’ “disappearing entirely.” In the spar and sail plan of clippers, there was a steady tendency toward increasing height and making them super-lofty until sanity commenced to reassert itself in the mid-fifties.

In the extreme clipper ship days, the prime thought of designers was to create a hull that could be driven through the water with minimum resistance. There is a great difference between water and air resistance, and the all-important factor to be considered in the realm of speed in the design of a vessel is the reduction of wave-making resistance of the model to the greatest possible degree consistent with the attainment of other qualities, such as (1) carrying capacity for which the vessel is to be built and (2) seaworthiness, with sea comfort. In the second quarter of the twentieth century, the general use of airplanes has made the world air-minded, and a streamlining craze has developed in America to a ridiculous degree. Streamlining in air and water follows entirely different principles and should not be confused, and models for high-speed propulsion through the air would develop tremendous resistance in water. Only a ship’s upper works are subjected to air resistance, and the force to overcome it is practically negligible, expressed in horsepower, on the average vessel driven through the water at an average speed. In moderation, streamlining of motor cars may be justified and at very high speeds becomes extremely desirable; but streamlining in the United States has become a fad, and even low-speed vessels in the late 1930’s and early 1940’s are being designed and built on so-called streamlined principles at a substantial increase in cost to conform with what is nothing more, as far as naval architecture is concerned, than a popular “eye-sweet” shape or fashion. The increase in speed through the water of most of these “modern streamlined” vessels or the reduction in fuel is, or will of necessity be, so small that it cannot be measured. The main hull of a seagoing vessel above water, to obtain the greatest speed, comfort, and dryness, should positively not be streamlined, for a pronounced flare of the bow lines above water is highly desirable at sea.

It is said that the *James Baines*, of the Black Ball Line, “crossed the highest yard under heaven when she mast-headed her famous moon-sail at the main.” There were many sailing craft that sent up sliding gunter masts which extended some fifteen to twenty feet above their trucks and on which was set a raffee, Bermuda sail, or balance lug tacked and sheeted to the skysail yardarms. The British called this sail a “lateen moon-raker,” but many seafaring men called such sails skyscrapers, stargazers, angel’s footstools, moonsails, butterfly-sails, heaven-disturbers, etc. Such spar and sail plans required a big and competent crew to operate them, and, moreover, the expense of repairs and replacements was great. Economic conditions forced sanity to be expressed in both the sharpness of ship models and the spar and sail plans, where safety, balance, and a scientific and sane consideration of the “fitness of things” had been unavailing and, to a great degree, fanatically ignored. During the latter

part of the fifties, in ordinary competitive ocean trade, conservatism in spar dimensions, sail spreads, and the installation of stunsails and super-canvas was forced on both owners and skippers; for the expenses of operation had to be reduced, which meant fewer repair bills and smaller crews. The British China tea clippers carried their excessive canvas to a much later period, but the reduction in March 1880 of the spar and sail plan of the crack British, China, and Australian clipper *Cutty Sark* of 921 tons (built on the Clyde in 1869) illustrates the trend that spread among owners of the oversparred and sharp-modeled square-riggers of all trades and flags. The *Cutty Sark*, after several years in the tea trade, had 9 ft. 6 in. cut off her lower masts and 7 ft. off her lower yard; her upper masts and yards were shortened in proportion, while her skysail yard was entirely eliminated. The result was an increase in stability and a pronounced decrease in repair and operating expenses. The reduction in spar and sail plan had no apparent effect upon the vessel's speed in strong winds, for under such conditions she could henceforth carry her royals when they would have been furled while operating with long yards under her builder's original sail plan. However, the lessened maximum sail area is said to have taken "at least a knot per hour off her speed in light winds," and she lost much of those conspicuous "ghosting" powers that were such a well-known hallmark of the relatively small British clippers in the China trade.

We read that the crack British China tea clipper *Thermopylae* of 948 tons (built by Hood, Aberdeen, in 1868) was an outstanding, good sea boat in her time and ranked unusually high for seaworthiness and for sustained speed at sea. She was fine-lined forward and had a very rounding bottom, with no flat floor, a big flowing bilge, and a deep wood keel with concave bottom planking over concave steel frame running to it; yet she had the redeeming feature of a good, buoyant above-water stern. It was reported of her: "She is very wet when pressed through a head sea, but has such a good bearing aft that she does not scoop up the seas over her stern like most of the [British] clippers."

Sailing ships of the early fifties, designated as clippers because of their speed, were not all of the beautiful yacht-like "Yankee" (and New York) type, by any means, as is proven by the description and the sailing record of the *Marco Polo*, the pioneer ship of the Black Ball Line English-Australian packet service. This ship, built in 1851 by Smith, of St. John, New Brunswick, was described, when she first appeared in Liverpool, as "a common six-year Quebec timber ship, as square as a brick fore-and-aft, with a bow like a savage bulldog; a big, thick lump of a black ship with tremendous beam." This is not a very appealing description of a ship that quickly jumped into popular favor and was soon advertised in England as an extremely fast, comfortable, and commodious sailing vessel. It is said that the appearance of the model of the *Marco Polo* above water was so much against her that a McGee of Liverpool was able to "buy her cheap" at the end of her first voyage from Louisiana to Liverpool with cotton, and he sold her, it is said, "at a big profit" to James Baines (who certainly knew a ship) after Baines inspected the vessel in dry dock and promptly saw her real quality and possibilities. The *Marco Polo* below water was an entirely different vessel from what she seemed to be above water. She was flush-decked, without poop or forecastle, had three complete decks, and was high-sided. Baines fitted her out for the Australian emigrant service. With good beam (high freeboard and great substance above the water), she sailed on a comparatively light load line and, we are told, was peculiarly "dry and buoyant instead of wet and hard-mouthed like most of the general run of clippers." She proved "easy in a seaway and a very steady and comfortable vessel without any tendency to heavy, quick rolling."

The *Marco Polo* was a ship whose performance astonished the shipping fraternity—if not James Baines. Later, it was generally felt that there was a touch of genius in the modeling of the vessel. After her maiden round voyage to Australia, she bore a canvas between her fore and main masts on which was painted, in huge black letters, "The fastest ship in the world." This is the ship that had been ridiculed and described by an English marine reporter, less than a year before, as a big, thick lump of a ship, and as square as a brick. It is true

that the *Marco Polo* was both beamy and deep, being 185 ft. long, 38 ft. beam, and 30 ft. deep (a ratio of length to beam of 4.87 and of length to depth of only 6.17). She was of 1,625 tons register, and while said at first to be of 2,000 tons burthen, she was advertised by James Baines in June 1852 as of 2,500 tons burthen. The *Marco Polo* was a very deceiving vessel. With her high freeboard, she had a full, flaring bow above water, with almost a circular forward deck, and a full, buoyant stern above water aft. She had a big, full midship section, with little deadrise, and a rather quick bilge, but with all this, she had a fine entrance at and below water and a clean, fair run aft. She was very heavily and strongly built and had the appearance of a frigate, but under water she had a model for speed and above water a very commodious model, ideal for passenger carrying, and one that would keep her dry and comfortable and show speed when sharp-ended clippers were shipping seas and taking in sail. She was a good vessel to sail in any waters and would have made a most excellent and fast clipper packet in the transatlantic trade. Before the *Marco Polo* was sent out by Baines on her maiden voyage under the Black Ball Line flag, he had so much confidence in his own judgment of the vessel's capabilities that he boldly described and advertised her as "the splendid new frigate-built ship *Marco Polo*, which, it is expected, will sail as fast as any ship afloat."

It is surprising that early American steamers such as those built for the New York-Isthmus of Panama route on the Atlantic side and the Panama-San Francisco route on the Pacific, to carry mail and passengers from the East to the West Coast, had the fine-lined models of protected water steamboats that carried but little more than passengers and fuel, and whereas their speed, because of the power of the machinery installed, was low, they had models suitable for being propelled at twice the speed at which they were operated. These early side-wheel wood steamboats had a sharp deck forward as well as fine concave water lines, with practically no flare, and must have been wet boats in any kind of seaway. Why early steamships designed for ocean work were modeled like river and sound steamboats is unknown, but it was a grave mistake that persisted to a great degree on both sides of the Atlantic for some three-quarters of a century.

It is interesting to note that the description of the sailing clipper packet *Marco Polo* shows that the vessel—like the American transatlantic packets—possessed to a considerable degree the features of model now being advocated by leading, competent naval architects in opposition to the long-established British thought, which advocated narrow forward above-water and deck lines and concave wave-line entrances. This school of model designers proved most persistent, and the influence of this early prejudice could be seen even to the thirties of the twentieth century in the design of many high-powered British liners, which were notoriously wet and uncomfortable boats in heavy weather, although they did show satisfactory speed, considering displacement and power, in smooth water. The *Campania* and *Lucania* of the Cunard Line (of some 12,000 tons and 30,000 H.P.; built in 1893) and, later, the *Mauretania* and *Lusitania* (of some 32,000 tons and 68,000 H.P.; built in 1907) were wet and unpleasant vessels for passengers, even though the latter two (and in this respect they differed from the earlier pair of sisters) were very fast vessels. It was a common saying in the transatlantic service, however, that when crossing westbound the *Mauretania* was a submarine and "went under leaving the Scilly Islands, coming up at Nantucket."

Designers and builders of mail, passenger, and cargo deep-sea steamships since the middle of the nineteenth century could have profited much and produced far better, more seaworthy and comfortable vessels, with a higher sustained ocean speed, if they had followed more the models above water of the medium clipper sailing packets developed as the result of the vast experience of the operators of merchant sail in the North Atlantic, Cape Horn, and Australian trades during the 1850's and the accumulated knowledge of builders, commanders, and managing operators of sailing ships prior and subsequent to that historic decade.

Seagoing Sailing Models and Rigs—Ratios of Prime Dimensions and Effect on Stability, Sea Comfort, and Strength

The best "heavy weather sailers" that the world has ever known were the American-built, owned, and operated transatlantic sailing packets built in the thirties, forties, and fifties. Of a fleet of 188 regular packets in service in ten New York transatlantic lines during what can be termed the real transatlantic sailing packet era (1818-1858), the 20 ships with the best average sailing performance records on the severe westbound crossing were built in the following years: 1824, 1832, 1834 (two), 1836, 1843 (all-time speed record), 1844, 1845, 1846 (three), 1847 (two), 1848, 1850, 1851, 1853, 1854 (two), and 1855. The leaders were the *Amazon* (1,771 tons), built in 1854 by Westervelt, of New York, for the Black X (London) Line, which averaged 28 days on her westbound crossings during a period of fourteen years, and the *Yorkshire* (996 tons), built in 1843 by Webb, of New York, for the Black Ball (Liverpool) Line, which averaged 29 days on westward passages for the eighteen years that she was in the service. Whereas the best westward crossing of the big *Amazon* was "a smart run" of 24 days, the *Yorkshire* made a westbound passage in the record time of 16 days, port to port, and another in 21 days. Webb's *Yorkshire*, the best of all Atlantic sailing packets of pure type, made eleven of her first fifteen westward passages in from 16 to 30 days and had a better speed record than his *Great Western* (1,443 tons), built in 1851, or his *Neptune* (1,406 tons), built in 1855. The ten fastest packets in the New York transatlantic service averaged 1849-1850 for construction, and if we eliminate the *Phoenix* (1,487 tons), which operated only two years for the Red Star (Liverpool) Line before she was put in long-voyage trade, the nine vessels averaged about 18¾ years each in the world's most severe packet trade and further averaged for some 1,512 ship-years (i.e., number of ships multiplied by total years of service) only 30¼ days for all westward Atlantic crossings.

The transatlantic packets were fast and most able, seaworthy, powerful ships, but they were far from being clippers. The turbulent North Atlantic, particularly in the wintertime, with its westerly gales, is not a clipper ocean, and the transatlantic "ferry" was no route and trade for a clipper ship. The sailing packets were fuller and generally beamier, with more buoyant ends, than the clippers and were given a more conservative spar and sail plan suitable for wind and sea conditions usually encountered. As the Atlantic packets became larger, the ratio of their length to beam naturally increased, but they were generally beamier than the clippers of corresponding size built about the same time. The following records the ratio of length to beam of six outstanding Atlantic packets built from 1836 to 1854:

Name of Vessel	Year Built	Tonnage	Ratio Length to Beam	Name of Vessel	Year Built	Tonnage	Ratio Length to Beam
GARRICK	1836	895	4.46	DANIEL WEBSTER	1850	1,545	4.73
YORKSHIRE	1843	996	4.60	GREAT WESTERN	1851	1,443	4.73
NEW WORLD	1846	1,404	4.62	HARVEST QUEEN	1854	1,383	4.71

The *Daniel Webster* was built by Donald McKay, East Boston, Mass., and during the same year (1850) that he built this packet, he constructed his first clipper ship, the *Stag Hound* of 1,534 tons (practically the same tonnage as that of the *Daniel Webster*), with a ratio of length to beam of 5.4 to 1. The packet *Great Western* was built by W. H. Webb, New York, in 1851, at the same time as that master builder was constructing the two famous clippers

Challenge of 2,006 tons and *Comet* of 1,836 tons, which had a ratio of length to beam of 5.34 and 5.64 to 1, respectively.

The last-built sailing packets and general traders, designed primarily for the Atlantic service, are typified by the following vessels:

Name of Vessel	Year Built	Tonnage	Ratio Length to Beam	Name of Vessel	Year Built	Tonnage	Ratio Length to Beam
AMAZON	1854	1,771	5.14	HUDSON (II)	1863	1,801 (new)	4.88
HAMILTON FISH	1856	1,628	5.00	NE PLUS ULTRA	1863	1,394	4.59
ALEXANDER MARSHALL	1860	1,232	4.84	CHARLES H. MARSHALL	1869	1,683 (new)	4.53

The *Amazon* of the London-New York Black X Line, built by J. A. Westervelt, New York, operated for fourteen years in the service and was the largest as well as probably the fastest of all regular packets, although her best westward passage occupied 24 days as against 16 days for the *Yorkshire* and *Harvest Queen* and 18 days for the *Garrick* and the *New World*.

The *Charles H. Marshall* (Black Ball Line, New York-Liverpool), built by Webb, of New York, was the last sailing packet constructed for Atlantic service, and the *Ne Plus Ultra* (Red Swallowtail Line, New York-London), built in Thomaston, Maine, was the last sailing packet engaged in trade on the Atlantic. She ended the last voyage ever made by a sailing vessel in the transatlantic packet service when she arrived in New York from London on April 18, 1881.

The following records the ratio of length to beam of McKay's outstanding clippers from his first ship of this type, built in 1850, to his biggest vessel, built in 1855, excluding the mammoth *Great Republic* (originally of 4,555 tons, but cut down before making any voyage to 3,357 tons), which was a "white elephant" and has been described as "a jinxed freak":

Name of Clipper	Year Built	Tonnage	Ratio Length to Beam	Name of Clipper	Year Built	Tonnage	Ratio Length to Beam
STAG HOUND	1850	1,534	5.42	SOVEREIGN OF THE SEAS	1852	2,421	5.77
FLYING FISH	1851	1,505	5.24	LIGHTNING	1854	2,084	5.68
FLYING CLOUD	1851	1,782	5.54	DONALD MCKAY	1855	2,594	5.72

The *Flying Fish* actually holds a better average length of passage record on the Cape Horn run, port to port, than the more highly publicized *Flying Cloud* (the "California Greyhound"), even though the best passage westbound of the *Flying Fish* was a run of 92 days 4 hours, while the *Flying Cloud* is credited with two runs of between 89 and 90 days. The *Flying Fish* made seven voyages from New York to California, with an average length of passage of only 105.6 days; whereas the *Flying Cloud* made six such voyages and averaged 115.7 days (all in the "speed crazy fifties"). The *Flying Fish* was remarkable for uniform good sailing; her "slowest" run around the Horn westward was a fast passage of 114 days, while in 1856 the *Flying Cloud*, after being partially dismasted, took 185 days on her last California voyage to complete her last outward passage via Rio de Janeiro. The *Flying Fish*, said to be "McKay's sharpest clipper," won what has been described as Maury's "Deep-Sea Derby" in the winter of 1852-1853 from East Coast U.S.A. ports to San Francisco, but she did not do it in any "walk-over." Although she made her record passage of 92 days 4 hours in this race, the

smaller, less heralded, and more conservative *John Gilpin* of 1,089 tons made the run in 93 days 20 hours and was anchored in San Francisco Bay a day before the arrival of the *Flying Fish* (which had sailed after her). In this race, the *John Gilpin* beat the *Flying Fish* over the Pacific half of the course; for the clippers were together off the Horn, and the "*Fish*" had been some two days ahead of the "*Gilpin*" when they crossed the Pacific equator.

Webb's *Swordfish* of 1,036 tons, built in 1851, beat McKay's *Flying Fish* by ten days in the famous race to California in 1851-1852. The *Flying Fish* was 469 tons, or over 45 per cent, larger than the *Swordfish*, and these clippers were constructed at the same time, the former at East Boston and the latter at New York. This difference in size gave the larger vessel a great natural advantage over the smaller one when making a westward Cape Horn passage under similar sailing conditions. The *Swordfish*, which was possibly the fastest of all extreme clippers of her size under favorable wind and sea conditions, was, moreover, a very beamy vessel, with a ratio of length to beam of only 4.64 to 1 as against 5.24 to 1 for the *Flying Fish*. Samuel H. Pook's *Surprise* (1,262 tons) and *Witchcraft* (1,310 tons), built in 1850 (at the time McKay was building his *Stag Hound*), had ratios of length to beam of only 4.74 and 4.80 to 1, respectively. Pook's later big clipper *Red Jacket* of 2,305 tons, built in 1853, had a length of 251 ft. and a beam of 44 ft.—a ratio of 5.71 to 1; but his *Herald of the Morning* of 1,294 tons, built the same year, had a length of 203 ft. and a beam of 38 ft.—a ratio of 5.34 to 1. Webb's fast, famous, and eminently successful *Young America* of 1,961 tons, built in 1853, which was in steady service in the severe around-the-Horn trade for thirty years (before she was sold to foreign owners), had a length of 243 ft. and a beam of 43.2 ft.—a ratio of 5.62 to 1.

British merchant sailing vessels have always been conspicuously narrow of beam compared with American ships, and the fault seems to have originated with the British tonnage measurements, which, in fact, penalized beam. The result is that British ships have lacked in initial stability, have required ballast and nonrevenue-producing deadweight, and have been of inferior design as far as the science of naval architecture is concerned. Any sailing vessel that requires ballast to keep her standing up straight when light or when loaded with a homogeneous cargo is defective and unworthy of being deemed the product of a competent designer or naval architect. Conditions are different with passenger steamships fitted with water ballast tanks and a double bottom and which seldom load with homogeneous light bulk cargoes; such vessels, however, should never be designed so that they are required to carry sea water deadweight in the tanks when laden with cargo, etc., although it is sometimes good design to plan intentionally to use some water in the double bottom (built as ballast tanks) when absolutely light—without cargo, fuel, or fresh water aboard—in order not to make the vessel, when laden, too stiff for passenger comfort at sea. Any vessel with too large a metacentric height is too stiff as far as motion at sea is concerned and has a short period of roll. Her quick, jerky movements upset passengers and cause violent motions, and such quick, deep rolling is generally harmful as well as uncomfortable. Even a sailing vessel, to be well designed and properly laden, should not have too much initial stability on a sea voyage, or she is apt, when rolling, to act as if she "was trying to jerk her masts out." Such a vessel, however, when light in port, should stand up straight and when sent to sea, light (in ballast) or deep laden, should be stiff enough to carry all the canvas needed to give her speed, and this with an easy and slow period of roll and sufficient natural stability associated with the model, rig, and lading (metacentric height, center of effort of sail spread, freeboard, etc.) to resist being thrown on her beam ends or being readily dismasted in squalls.

Basil Lubbock, the British marine historian, says that in comparing the measurements of big United States-, Canadian-, and British-built clippers, the most noticeable point is the greater beam of the American and the greater length of the British vessels. He gives the following ratios of length to beam, while omitting to mention that the British-built *Schomberg* was admittedly an attempt to copy the big U.S.A. McKay-built clippers in both size and model.

Name of Clipper	Built	Ratio L. to B.	Name of Clipper	Built	Ratio L. to B.	Name of Clipper	Built	Ratio L. to B.
LIGHTNING	U.S.A.	5.54*	JAMES	U.S.A.	5.70	SOBRAON	Britain	6.80
RED JACKET	U.S.A.	5.54*	BAINES			MARCO	Canada	4.86
CHAMPION OF THE SEAS	U.S.A.	5.55	DONALD McKAY	U.S.A.	5.72	POLO		
			SCHOMBERG	Britain	5.82	WHITE STAR	Canada	4.84

* American figures give the LIGHTNING and RED JACKET a ratio of 5.68 and 5.71, respectively.

The relatively big beam of the Canadian vessels is significant, and they proved to be as good and fast sailers as they were able vessels. Following the construction of the *Schomberg*, which was a failure (and Britain's only big clipper built in the fifties), the *Sobraon*, built ten years after her, reflected the British idea of "proper proportions for a merchant ship."

The British have always believed until recent years, when experiments in model testing basins as well as actual experience at sea convincingly proved their error, that a narrow beam was the first essential for speed. United States builders, designers, shipmasters, and shipowners in general seem to have differed with British views in this respect—and this quite generally and consistently—from colonial days. Soon after the turn of the century, an American naval architect designed a steamship of 10,000 tons displacement with a speed of 16 knots per hour, and he gave her a beam of 53 ft. and modeled her for economic propulsion and sea comfort. A contracting builder of the hull and machinery had a model made from the lines of the vessel tested in an experimental tank for resistance together with two other models, one of which copied mathematically the identical lines as laid down by the naval architect; but as the builder thought that the proposed vessel was too beamy, he had a model made decreasing the beam to 50 ft. and increasing the other dimensions to give the same dead-weight capacity. Tests of the two models in the experimental basin showed that the beamier vessel, as originally designed, was the better of the two boats, and the resistance of the model made from the naval architect's lines was "unusually low." The builder, who was to guarantee speed (because of a new type of machinery with twin screws that he desired to install in the vessel) questioned the lines as drawn by the naval architect, which threw the center of buoyancy well forward when the vessel was light in order to keep the large single screw immersed, the vessel gradually coming to an even keel as she was loaded with a homogeneous cargo. The designer's lines gave slightly convex horizontal load water lines forward, with a pronounced flare above water and a very clean run aft as well as plenty of buoyancy above and excellent diagonals throughout. The builder had a third test made with a model, made from revised lines, for a twin-screw vessel, which, with the naval architect's stipulated dimensions, had concave water lines forward and a fuller run, with the center of buoyancy moved farther aft, as the same displacement was obtained. This model, in water basin tests, showed definitely inferior in resistance and speed to the designer's original model; moreover, she showed that she would not be as good a sea boat. This series of tests demonstrated in the first decade of the twentieth century not only that narrow beam did not contribute to a vessel's speed during a range appropriate to a vessel's size and model but also that a sharp entrance, with hollow, or concave, horizontal water lines forward, was not an essential for speed and might operate in the other direction, particularly in a seaway.

The extreme clipper ship *Great Republic*, as rebuilt, is of particular interest in comparison with the last big Bath-built wooden ships. Both the *Shenandoah* (Sewall's most successful big wooden vessel) and the *Roanoke* (Sewall's largest wooden ship) were, like the *Great Republic*, four-masted shipentines. The following shows the official registered dimensions of these three large wood vessels, with proportions and ratios set forth:

Name of Vessel	Year Built	Tonnage	Dimensions in Feet			Ratio		
			Length	Beam	Depth	Length to Beam	Length to Depth	Beam to Depth
GREAT REPUBLIC (as rebuilt)	1855	3,357	302.0	48.4	29.2	6.24	10.34	1.66
ROANOKE	1892	3,539	311.2	49.2	29.2	6.32	10.66	1.68
SHENANDOAH	1890	3,406	299.7	49.1	28.6	6.10	10.48	1.72

The *Shenandoah* was the best of a quartet of "big" wood sailing vessels built by Arthur Sewall & Company, of Bath, Maine, and she was said to have been constructed from a full model designed to produce "an excellent, commodious carrier and a fair sailer of a size and with proportions considered ideal for the purpose." The *Roanoke* was merely a Sewall duplicate of the *Shenandoah* model, with some 12 ft. (increase of 11.5 ft. in registered length) added midships; this was deemed an "economic stunt" by the builders to give a larger vessel without changing the ship's lines or requiring new drawings. As a result, the *Roanoke* was not as well sparred and balanced as the *Shenandoah* nor as well proportioned and modeled, and she was more of a secondhand sort of job than the quite successful *Shenandoah*. It is not surprising, therefore, to know that in actual service the *Shenandoah* was much the faster, handier, and stronger vessel of the "big two" of the famous Sewall quartet of wood sailing ships built in 1890-1892. In reality, the *Shenandoah* was built from the same "49-foot beam and 29-foot deep model" as the Sewall three-masted ship *Rappahannock* of 3,185 gross tons, the first of the Sewall "Big Wood Four," which was launched in January 1900, ten months before the *Shenandoah* was put overboard. The registered length of the *Rappahannock* was 287 ft. 2 in. as against 299 ft. 7 in. for the *Shenandoah* and 311 ft. 2 in. for the *Roanoke*; so the proportion of the original model (length to beam) from which the Sewalls built their three largest wood vessels was 5.86 to 1. The *Rappahannock*, the biggest three-masted ship in the world, was too big for that rig and could not get a crew to handle her; if she had been well sparred and balanced as a four-masted shipentine, the *Rappahannock* (destroyed by fire in 1891) would most probably have been as much faster and handier than the *Shenandoah* as that vessel was superior in sailing qualities to the *Roanoke*.

American shipbuilders, unfortunately, had a vicious habit of developing a model for a sailing ship and then of adding a few feet more to her length when they framed her; but far worse than this practice was the building of a second ship from the model of a successful and satisfactory vessel, with the arbitrary addition midships of a substantial footage intended to add to the tonnage and carrying capacity of the new ship over the one built and to get such a vessel constructed without the expense involved in making a model and the laying down of new lines. It is not surprising that "duplicates" of good sailers, but of increased length, were often unbalanced, unhandy, and generally unsatisfactory in their performance. Arthur Sewall & Company continued this bad habit even in its steel ships. The *Erskine M. Phelps* was a fairly good vessel and became known as "the clipper of the Sewall-built steel fleet." All of the steel shipentines built by the Sewalls after the "*Phelps*" in 1898 were merely that vessel lengthened 20 ft. by an added slab-sided midship body. Not one of the six ships that followed the *Erskine M. Phelps*, i.e., the *Arthur Sewall*, *Edward Sewall*, and *William P. Frye* (built for their own account) or the *Astral*, *Acme*, and *Atlas* (built for the Standard Oil Company), was in the same class with the "*Phelps*" as a handy, smart sailer; neither were these vessels as strong or as satisfactory at sea and in service.

All of the following Sewall-built steel shipentines had the same beam and midship section, and all, with the exception of the *Dirigo* (the pioneer of the fleet), had the same lines at both bow (entrance) and stern (run), the difference in model of the last seven Sewall shipentines being due to variation in the length of the parallel middle body. The tonnage was

increased in the later-built vessels by raising the deck a few inches and increasing the size of the midships deckhouse and running it out to the ship's sides.

Registered			Registered		
Name	Gross Tonnage	Length in Feet and Inches	Name	Gross Tonnage	Length in Feet and Inches
DIRIGO	3,004	312-0	ASTRAL	3,292	332-3
ERSKINE M. PHELPS	2,998	312-1	ACME	3,288	332-2
ARTHUR SEWALL	3,209	332-0	WILLIAM P. FRYE	3,374	332-4
EDWARD SEWALL	3,206	332-0	ATLAS	3,381	332-4

The Sewalls' second steel shipentine, the *Erskine M. Phelps*, had the identically same dimensions as the *Dirigo*, the pioneer Sewall steel ship built four years earlier from British designs and under British supervision; but the lines of the "*Phelps*," launched in 1898, were slightly different from those of the *Dirigo*, although the changes made were not great and had to be guaranteed not to (1) lessen the ship's carrying capacity or depart from a 3,000-ton registered tonnage, (2) change any of the pioneer ship's dimensions, or (3) involve more than minor changes in templates which would add to the cost of building the second Sewall steel ship.

The following ratios of length to beam of certain outstanding American clippers, Down Easters, and the Sewall big wood and steel square-riggers are of interest and show the effect of lengthening the models of (1) the *Rappahannock* to build the *Shenandoah* and *Roanoke* and (2) the *Erskine M. Phelps* to produce the *Arthur Sewall* and five other steel shipentines of similar dimensions:

Name of Ship	Type and Tonnage	Year Built	Ratio Length to Beam	Name of Ship	Type and Tonnage	Year Built	Ratio Length to Beam
YOUNG AMERICA	Clipper; 1,961 tons	1853	5.62	SUSQUEHANNA	Post-Down Easter; 2,744 tons	1891	6.07
RED JACKET	Clipper; 2,305 tons	1853	5.71	ROANOKE	Post-Down Easter; 3,539 tons	1892	6.32
JAMES BAINES	Clipper; 2,515 tons	1854	5.70	DIRIGO	Full-bodied British type; 3,004 tons	1894	6.92
HENRY B. HYDE	Down Easter; 2,583 tons	1884	5.95	ERSKINE M. PHELPS	Full-bodied sailer; 2,998 tons	1898	6.92
A. G. ROPES	Down Easter; 2,460 tons	1884	5.78	ARTHUR SEWALL	Full-bodied sailer; 3,209 tons	1899	7.36
RAPPAHANNOCK	Post-Down Easter; 3,185 tons	1890	5.87				
SHENANDOAH	Post-Down Easter; 3,406 tons	1890	6.10				

The first nine of the above vessels, all built prior to 1894, were constructed of wood, and the last three, built in or after 1894, were of steel. The three clippers, two Down Easters, and the *Rappahannock*, the first of the large full-bodied post-Down Easters, were full-rigged three-masted ships, but the remaining six vessels were rigged as four-masted shipentines (i.e., square-rigged on the fore, main, and mizzen masts and fore-and-aft-rigged on the jigger, or spanker, mast).

That the Sewalls made a mistake in adopting a British model for the *Dirigo*, their first steel ship, and in maintaining as standard the beam of 45 ft. for all the four-masted steel shipentines (of from 3,000 to 3,400 tons) that they afterwards built during the era of sail,

while sparring and rigging them in a pseudo-Down East fashion and putting Yankee skippers on them, is indicated by the close shave of the *Dirigo* on her maiden voyage and the disappearance at sea of the longer *Arthur Sewall*. The *Dirigo* (3,004 gross and 2,855 net tons), launched into the Kennebec on February 3, 1894, was entirely British from the keel up to and including her deck arrangements. She was designed by J. F. Waddington, an Englishman, and built (and to some degree fabricated) of British steel. Above deck, she was American, and she was commanded and officered by Yankees. On April 26, 1894, the *Dirigo* sailed from Philadelphia loaded with case oil for Japan, with Capt. George W. Goodwin, a native of Maine, in command. When in Lat. 29° S., Long. 30° W., the vessel, according to her skipper's official report, "was thrown on her beam ends and everything moveable washed overboard." Captain Goodwin continued: "We were in that condition all night, all the ropes, braces, etc., trailing astern. I never thought a ship could go over so far and get back again." He also reported that the ship "has been very tender the way she is loaded now" (with a homogeneous cargo of case oil and no ballast), and he added: "I have gotten used to her now but at first it was more than I was used to and when she was on her beam ends I thought she was there for good." Mark W. Hennessy writes of the *Dirigo's* "keeling over until her people were looking down into Davy Jones' locker and the door wide open—a most unpleasant sight." The Sewalls apparently ignored the fact that the *Dirigo* had a ratio of length to beam of 6.92 to 1, whereas their own recently built wood ships had a ratio of from 5.87 to 6.10 to 1 (except the *Roanoke*, which was a lengthened *Shenandoah* and a dull sailer and had a ratio of 6.32 to 1), and that the best Down Easters had corresponding ratios of around 5.80 or 5.90 to 1. Possibly, however, knowing nothing of the science of naval architecture, they had been influenced to believe the ridiculous statement of the British that an iron ship should have a narrower beam than a wooden one.

Capt. James F. (Jim) Murphy, of Bath, Maine, gained an enviable reputation as skipper of the Sewall wood four-masted shipentine *Shenandoah*, which was a much shorter but four-foot beamier vessel than any of the Sewall steel fleet. Murphy not only was appointed to the command of the *Arthur Sewall* (a lengthened "*Phelps*") when she was building but also was given the job by the Sewalls of sparring and rigging that new 3,209-ton vessel. Captain "Jim" apparently made one serious mistake when he decided—against the advice of old salts—to use standing upper topsail yards on his new command. Experts who knew the Sewall ships have always felt that when "the luckless '*Arthur*'" went missing, the fixed topsail yards "tripped" the vessel in a quick, strong blow and that lacking initial stability, she capsized and went over all the way, failing to recover herself finally as did the *Dirigo* when she was knocked over on her beam ends. The disaster to the *Arthur Sewall* occurred in 1907, when Capt. Burton Gaffry was in command, for Captain Murphy had left the ship in disgust after making one complete voyage on her. She sailed from Philadelphia April 3, 1907, on a Cape Horn passage, with 4,900 tons of coal aboard for the American fleet in the Pacific, and when she was "over ten months out and no word of her," Lloyd's, on February 8, 1908, posted the *Arthur Sewall* as "missing." The big shipentine went to sea and disappeared. There was not a single survivor nor any evidence to tell where, how, and why her end had come. Hennessy, in SEWALL SHIPS OF STEEL, has well said, however:

But if anyone did, Goodwin of the pioneer *Dirigo* had in his mind a pretty good idea as to what might have happened to Burton Gaffry and the *Arthur Sewall*. His ship on her maiden voyage had gone over on her beam ends so far that it was nip-and-tuck whether he would live or drown. It was easy—too easy—for him to picture Gaffry of

the *Arthur Sewall*, a man of his own hardy, deep-water breed, a brother Down Easter, and a ship's company going down with a fine ship in grim fulfillment of their sailors' destinies, the like of which had not befallen him and his *Dirigo* only because, to his mind, the pioneer steel ship had not carried standing upper topsail yards.

The *Arthur Sewall*, on her first voyage with Captain Murphy in command, got into trouble with the surveyors at San Francisco, who rightly insisted that the 332-ft. ship should have more freeboard than the 312-ft. *Dirigo* and *Erskine M. Phelps* of the same beam and depth, and they demanded a freeboard of 6 ft. 6 in. if the ship was to be insured and carry

wheat to England. This, it was said, meant 8 in. less draft than she had on her outbound passage, and the Sewalls objected strenuously, but soon found that competent judges were of the opinion that, in their avarice for freight revenue, they were overloading their ship. It was ruled that increasing the length of the *Arthur Sewall* 20 ft. over that of the *Erskine M. Phelps* meant that the longer ship would have to have 3 in. more freeboard. On the ships that the Sewalls built after this disagreeable fact was brought home to them, they kept the same model as the *Arthur Sewall* and the *Edward Sewall*, but raised the deck beams a few inches and lowered the height of the bulwarks above deck to overcome this handicap.

Whereas Arthur Sewall & Company was the reputed owner of the Sewall fleet of ships, the firm actually owned an insignificant percentage of them, but figured on making money by building and then operating them for the real owners. The three members of the Sewall company (Arthur, William D., and Samuel S.) actually owned only 1/64 each of the *Arthur Sewall*, i.e., only 4.7 per cent of her all together. They deemed it to their interest "to build cheap," so as to make more money on the sale of fractions of their ships to investors; hence after making a mistake in the adoption of the design and dimensions of the *Dirigo*, a British type of ship, they refused to change the model even when bigger ships were desired. They not only continued to build ships of inferior design but also made inherent faults worse as they lengthened the ships, to say nothing of letting a captain in their employ, then in popular favor, fit the *Arthur Sewall* with dangerous fixed upper topsail yards. The real owners of the Sewall fleet of steel shipentines would have received much more money from their investments if Arthur Sewall & Company had been less penny-pinching and had employed competent naval architects and built modern "steel" ships of American design, following American traditions, for Down East Yankees to operate.

Throughout the era of sail, the length of the main yard of a square-rigged vessel has been generally based upon the beam of the vessel, the beam being the most important dimension affecting initial stability and sail-carrying power. In the clipper ship era, additional canvas was carried high, and the length of the main lower yard was generally kept quite constant at about twice the beam, with royals and skysails and still higher sails added to the usual lower square sails, topsails, and topgallant sails. Some clippers were fitted with only four yards, but most of them and all the extreme clippers had five, with the topsails becoming so large that it became economically necessary to divide this sail in two parts. The result was that by the middle of the fifties a good clipper rig carried a lower main square sail (or main course), a lower and an upper topsail, a topgallant, a royal, and a skysail, all on yards, making six square sails and yards to a mast (or at least to the mainmast), although the fore and mizzen—one or both—might not carry a skysail. The rig of the Baltimore clipper *Seaman's Bride* of 668 tons, built in 1851, is of interest. Whereas this ship carried six yards on each of her three masts, she was fitted with a large lower course, a big topsail and quite sizable topgallant sails, a royal and a skysail, and above these she carried on each mast still another square sail, which was called a moonsail. If this loftily rigged vessel, which incidentally was not outstanding for her sailing performances, had had her topsail divided into two parts, she would have had seven yards on each mast and a record number of eight if the topgallant sail had been similarly split into a lower and upper topgallant.

A few other American clippers "crossed a moon-sail yard high in the heavens." The extreme clipper *Hurricane* of 1,608 tons, built at Hoboken, N. J., in 1851, carried a moonsail on the mainmast, and the *Phoenix* of 1,458 tons, built at Cape Elizabeth, Maine, in 1854, was fitted with moonsails on both the fore and main masts. The *James Baines* of 2,515 tons, built in 1854 by McKay at East Boston, had originally five yards on the mainmast and four yards on the fore and mizzen masts; but later, we are told, skysails were added to the fore and mizzen, a moonsail on the main, and the skysails were fitted with studding sails. The moonsail on the mainmast of the "*Baines*" was popularly known as the "tiny bulldog," and the ship became notorious for its "light weather kites." We read that the *James Baines* under full sail was "a cloud of canvas with 38 sails set."

The topsail of a full-rigged ship, which was high enough to get the full benefit of the wind and was probably the most effective sail on a square-rigger, became so large and required so many men to handle it that, in the clipper ship era, it became desirable and, in fact, economically necessary to divide it into two parts; hence the general use of the lower and upper topsail, with a yard that could be raised and lowered. Later, the topgallant sail was similarly treated, and some vessels were fitted with a lower and an upper topgallant yard and sail. When this was done, the total number of yards on a mast was very occasionally (as in the case of the late Down Easter *A. G. Ropes*) increased to seven, and the vessel carried on each of her three masts a main lower, a lower and an upper topsail, a lower and an upper topgallant sail, a royal, and a skysail. The *Admiral*, a Down Easter of 2,212 tons, built in 1875 at Yarmouth, Maine, had iron lower masts and lower main and lower topsail yards, and she also crossed seven yards on each of her fore and main masts and six yards on the mizzen; fitted with double topgallant sails, with royals and skysails above, the *Admiral*, like the "*Ropes*," was a beautiful ship under full sail. The Sewalls' last big full-rigged ship (the largest three-master ever built) was a "3-skysail ship with double topgallants" and carried seven yards and square sails on each of her masts. The other three vessels that followed her of Sewalls' "Big Wood Four" (rigged as four-masted shipentines) carried six yards on each mast, with one topgallant sail, as did Sewalls' first steel four-masted shipentine; but later vessels of the steel fleet, such as the *Astral*, carried upper and lower topgallant sails and a royal, but no skysail yards.

All of the Sewall-built four-masted shipentines—both wood and steel—carried six yards on each of the fore, main, and mizzen masts, and the lengthened *Erskine M. Phelps* models, such as the *Astral*, while they carried no skysail, had the same lofty masts and carried the royal high above double topgallant sails. For ships lacking in beam and with the length of the lower main yard 2.12 times the width of the ship, it is amazing that the uppermost yard should have been made 57½ ft. long, or 1.27 times the beam, as against 46 ft. (1.02 times the beam) on the *Dirigo* and *Erskine M. Phelps*, 43 ft. (or .88 times the beam) on the *Rappahannock*, 46 ft. (or .94 times the beam) on the *Shenandoah*, and 41 ft. (or .91 times the beam) on the *Susquehanna*. We are told that among the British-built sailers in the oil trade, the Sewall-built and sparred trio of Standard Oil shipentines (*Astral*, *Acme*, and *Atlas*) had the reputation of being very loftily and widely sparred; that "their royal yards were actually 56 feet in length," and "on more than one occasion they took the topgallant masts over the side." This refers to the top yard in the place of the usual skysail, and it measured even more than the 56 ft. stated; for the builder's plans show 57½ ft., or 60 per cent the length of the lower main yard, against 45 per cent on the *Rappahannock*, 50 per cent on the *Shenandoah* and *Dirigo*, and only 29.3 per cent on the crack Cape Horn clipper *Flying Cloud*.

The length of the main yard used on typical American ships, from a transatlantic sailing packet (which usually had four yards on a mast) to the Sewall-built four-masted steel shipentine *Astral's* construction in 1900, and the relation of the spread of this yard to the beam of the vessel are set forth comparatively herewith:

Year Built	Name of Vessel	Rig	Type	Tonnage	Length of Main Yard in Feet	Beam of Vessel in Feet and Inches	Ratio Length of Main Yard to Beam
1836	ROSCIUS	3-masted ship	Atlantic packet	1,030	75	36-4	2.06
1850	SURPRISE	3-masted ship	Clipper ship	1,268	78	38-8	2.02
1851	TYPHOON	3-masted ship	Clipper ship	1,611	80	41-0	1.95
1851	WITCH OF THE WAVE	3-masted ship	Clipper ship	1,498	81	40-0	2.02
1851	FLYING CLOUD	3-masted ship	Clipper ship	1,782	82	40-8	2.02
1851	CHALLENGE	3-masted ship	Clipper ship	2,006	90	43-2	2.08

(Continued on next page)

Year Built	Name of Vessel	Rig	Type	Tonnage	Length of Main Yard in Feet	Beam of Vessel in Feet and Inches	Ratio Length of Main Yard to Beam
1852	SOVEREIGN OF THE SEAS	3-masted ship	Clipper ship	2,421	90	44-7	2.02
1853	DREADNOUGHT	3-masted ship	Transatlantic clipper packet	1,413	79	39-0	2.03
1853	GREAT REPUBLIC	4-masted shipentine	Clipper ship	4,555	120	53-0 (reported)	2.26
1855	GREAT REPUBLIC (as rebuilt)	4-masted shipentine	Clipper ship	3,357	100	48-4	2.07
1854	LIGHTNING	3-masted ship	British-Australian clipper packet	2,084	95	42-8	2.22
1854	CHAMPION OF THE SEAS	3-masted ship	British-Australian clipper packet	2,447	95	45-6	2.09
1854	JAMES BAINES	3-masted ship	British-Australian clipper packet	2,515	100	44-9	2.23
1855	DONALD McKAY	3-masted ship	British-Australian clipper packet	2,595	100	46-3	2.14
1869	GLORY OF THE SEAS	3-masted ship	Post-clipper ship	2,009	96	44-1	2.17
1884	HENRY B. HYDE	3-masted ship	Down Easter	2,583	90	45-0	2.00
1890	RAPPAHANNOCK	3-masted ship	Post-Down Easter	3,185	95	48-9	1.95
1890	SHENANDOAH	4-masted shipentine	Post-Down Easter	3,406	92	49-1	1.87
1891	SUSQUEHANNA	4-masted shipentine	Post-Down Easter	2,744	88	45-1	1.95
1892	ROANOKE	4-masted shipentine	Post-Down Easter	3,539	95	49-2	1.93
1894	DIRIGO	4-masted shipentine (steel)	Full-bodied British type sailer	3,004	92	45-11½	2.04
1900	ASTRAL	4-masted shipentine (steel)	Full-bodied British type sailer	3,293	96	45-4	2.12

It is interesting to note that the relative length of the main yard in relation to the beam of a ship held about the same throughout the era from the thirties to the end of square-rigged sail and that only Donald McKay (when building big, fast clipper packets and his *Great Republic* for the Australian trade and when he sought to rehabilitate himself as a builder of fast Cape Horners in 1869) and the Sewalls, in their last big narrow steel shipentines, departed to any pronounced extent from the old established rule that "the proper length of lower main yard should be twice the beam of the ship." It is surprising and significant that when the Sewalls built their first large wood shipentine, the *Shenandoah*, and gave her a main lower yard 92 ft. long (1.87 times the beam), they should give their first steel shipentine the same length of main lower yard (92 ft.), although the steel vessel was 4 ft. narrower, and this increased the ratio from 1.87 to 2.04. The *Shenandoah* proved in service to be a stable, relatively fast and successful ship, but the *Dirigo* (built from a British model) was much slower and tender and was clearly deficient in initial stability. Notwithstanding these self-evident facts, when the Sewalls increased the size of their steel shipentines by merely adding to their length and retained the same beam (to permit of cheaper construction costs), they lengthened the main lower yard 4 ft. and increased the ratio of length of yard to beam from 1.87 in the *Shenandoah* and 2.04 in the tender *Dirigo* to 2.12. This procedure was undoubtedly a contributing cause to the loss of the *Arthur Sewall*, which "went missing" in 1907.

It is also worthy of recording that the largest sailing ship and the only five-masted full-rigged ship ever built in the world had a ratio of length of main lower yard to beam of 1.90 to 1. This was the *Preussen*, "the Pride of Prussia," built in Germany in 1902 as a nitrate "clipper"; this tremendous vessel of 5,081 tons was 407.8 ft. long, had a beam of 53.6 ft., and was fitted with a main lower yard 102 ft. long.

MERCHANT SAIL

The following table has been compiled from available data to show the number and length of the various yards on several outstanding square-riggers of the clipper ship, Down Easter, last "big" wood, and the brief (1894-1902) steel eras of American-built merchant sail:

Year Built	Name of Vessel	Type	Tonnage	Beam in Feet and Inches	Number of Yards on					Length of Yards on Mainmast in Feet				
					Fore-mast	Main-mast	Mizzen-mast	Main-Lower	Top-sail	Upper-Top-sail	Top-gallant	Upper-Top-gallant	Royal	Sky-sail
1850	STAG HOUND	Clipper; 3-masted ship	1,334	39-8	5	5	5	86	68	—	53	—	44	32
1851	FLYING FISH	Clipper; 3-masted ship	1,505	39-6	5	5	5	80	64	—	49	—	39	31
1851	FLYING CLOUD	Clipper; 3-masted ship	1,782	40-8	5	5	5	82	64	—	50	—	37	24
1851	NIGHTINGALE	Clipper; 3-masted ship	1,060	36-0	5	5	5	71	59	—	42	—	32	25
1851	WITCH OF THE WAVE	Clipper; 3-masted ship	1,498	40-0	5	5	5	81	63	—	48	—	38	30
1851	CHALLENGE	Clipper; 3-masted ship	2,006	43-0	5	5	5	90	71	—	47	—	35	23
1851	SOUTHERN CROSS	Clipper; 3-masted ship	938	36-0	5	5	5	72	57½	—	41	—	30	20
1852	WESTWARD HO	Clipper; 3-masted ship	1,650	40-6	5	5	5	80	64	—	48	—	39	21
1852	SOVEREIGN OF THE SEAS	Clipper; 3-masted ship	2,421	44-0	4	5	4	90	70	—	53½	—	42	35
1852	QUEEN OF THE SEAS	Clipper; 3-masted ship	1,356	38-8	4	4	4	78	62	—	47	—	36	—
1853	EMPRESS OF THE SEAS	Clipper; 3-masted ship	2,197	43-0	4	5	4	90	70	—	53½	—	42½	31
1854	CHAMPION OF THE SEAS	Clipper; 3-masted ship	2,447	45-6	4	4	4	95	74	—	51	—	42	—
1854	LIGHTNING	Clipper; 3-masted ship	2,083	44-0	4	5	4	95	72	—	52	—	40	32
1854	JAMES BAINES	Clipper; 3-masted ship	2,515	44-9	4	5	4	100	75	—	54	—	40	30
1884	HENRY B. HYDE	3-masted ship (Down Easter)	2,383	45-0	6	6	6	90	82	74	61	—	50	40
1890	RAPPAHANNOCK	3-masted ship (post-Down Easter)	3,185	48-9	7	7	7	95	87	77	70	64	53	43
1890	SHENANDOAH	4-masted shipentine (post-Down Easter)	3,406	49-1	6	6	6	92	84	76	66	—	56	46
1891	SUSQUEHANNA	4-masted shipentine (post-Down Easter)	2,744	45-1	6	6	6	88	80	73	60	—	50	41
1892	ROANOKE	4-masted shipentine (post-Down Easter)	3,539	49-2	6	6	6	95	86	77	66	—	55	44
1894	DIRIGO (steel)	4-masted shipentine (full British type)	3,004	45-1½	6	6	6	92	84	76	65	—	55	46
1900	ASTRAL (steel)	4-masted shipentine (full British type)	3,293	45-4	6	6	6	96	84	79½	75	67½	57½	—

When the Sewalls were building their fleet of steel four-masted shipentines, the Standard Oil Company gave them orders for three vessels made from the same plans and molds used by the Sewall firm in building the *Arthur Sewall*, *Edward Sewall*, and, later, the *William P. Frye*. The Standard Oil Company wanted to consider putting a double bottom in its ships to carry water ballast, but the Sewalls discouraged this, their arguments, written as late as 1901, being:

The extra weight resulting from the tanks, say about 135 tons, would add some six inches to the light load draft of the ship, and in carriage of all cargoes which will load ship to her deadweight capacity, of course she would carry 135 tons less than if she was not fitted for water ballast. Roughly, we consider the expense connected with ordinary ballast, which would be saved, would be offset by the loss of freight on deadweight cargo thrown out by weight of ballast tanks, and that the net advantage would be practically the saving of time to ship made possible by water ballast.

In the 1890's, when the Sewalls first switched from wood to steel shipbuilding, a Bath naval architect suggested to them a beamier ship than the one of 45 ft. designed by the British and emphasized the economic feature of water ballast tanks. After the *Dirigo* was built according to British plans, the Sewalls considered building their next ships with double bottoms, but were advised that the dimensions were not appropriate for such construction, as the naval architect asserted that the *Dirigo*, with a homogeneous cargo and filled holds, was tender and that, with a double bottom empty of water ballast, the cargo would be carried higher, the center of gravity of ship and cargo raised, and the metacentric height and initial stability lowered. It was urged that on a 312-ft. vessel the beam be made not less than 47½ ft. and on a 332 ft. vessel, some 49 to 50 ft., with a ratio of length to beam of about 6.6 to 1. The Sewalls, however, insisted on using their 45-ft. beam molds, but were "scared off" the use of a double bottom.

It is significant that after the Sewalls had finished building their fleet of steel four-masted shipentines and desired to keep in business as constructors and operators of sailing vessels, they tried to raise money to build a five-masted barkentine to carry 5,400 gross tons of cargo deadweight, which they affirmed could be operated with only two-thirds of the crew of a shipentine. This vessel, they stated in their prospectus, would be 47 ft. beam (two feet more than the previous steel ships that they had built). Also, "The vessel will be equipped with 2,100 tons of water ballast, which will give her a draft of about 15 feet in ballast, or sufficient to enable her to make a ballast passage in the best sailing trim." The Sewalls had always declined to equip their ships with steam pumps and had even eliminated bilge pumps, but when trying to interest capital to invest in their last proposed sailing vessel, the five-masted barkentine, they wrote: "Of course the vessel will be equipped with steam appliances for working ship, pumping ballast and handling cargo." With a 2-ft. beamier vessel than they had ever built before, fitted with a double bottom and arranged for water ballast (which practice they had previously denounced) and equipped with modern appliances (which they had frowned on for years), they notified possible investors that "conservative estimates show that the vessel would pay full insurance and about 13½ per cent on her cost in addition thereto annually." It is just as well that the Sewalls did not build the five-masted barkentine that they proposed; for the Sewall five-masted steel schooner *Kineo*, in her disastrous voyage around the world eastbound in 1905-1906, proved that the fore-and-aft rig was positively unsuitable for long-voyage work on the Seven Seas. The *Kineo*, under the able command of Capt. Frank W. Patten (experienced with both square-riggers and schooners) could not follow her course, but after leaving Manila was driven down to Brisbane, Australia, for repairs, dry-docking, food, water, and hospitalization of crew. On the last leg of the voyage, the schooner was 205 days in sailing from Kahului (Hawaiian Islands) to Philadelphia; she was partially dismasted five times and reached port without a mast hoop left. Although the vessel was sailing the easy way to the eastward and was not attempting a westbound rounding of Cape Horn, Captain Patten reported: "My experience in the *Kineo* off Cape Horn is a repetition of what the *Gov. Ames* went through and what every other big schooner will go

through." The Sewalls made a big mistake in sending the *Kineo* on this around-the-world voyage—even sailing eastbound; but it proved for all time that the schooner rig is limited to coasting work and then to vessels of small or moderate size. The barkentine that the Sewalls tried to raise money to build was four-fifths fore-and-aft schooner and only one-fifth square-rigger.

The British generally have been willing to spend a little money to design a new ship rather than "hash over" old lines, but in the seventies British shipowners started a bad practice of increasing the length of old ships that, they felt, had become too small for the trade; they sought to solve the problem of keeping their ships up-to-date—when every year saw an increase in size—by lengthening them, and it is positive that the practice cannot be called a success. In the 1860's, 1870's, and 1880's, one of the disadvantages of the iron ship, openly admitted by British owners, was her excessive fouling on long voyages, often on routes where dry docks were not readily available, and, in any event, dry-docking required time and was costly; whereas well-built copper-sheathed wood ships could keep the sea for years and always show good speed because of clean bottoms. From the late forties, the arguments advanced in Britain regarding iron ships were lighter weight, which meant increased cargo-carrying capacity on the same dimensions, ease of building in Britain of British materials, and later relative cheapness in competition for a sizable ship built of wood. In the seventies, a new claim was made for the iron vessel—both sail and steam—to the effect that "if a bigger vessel is needed in the trade, an old iron hull can easily be lengthened to meet the new requirements."

In 1875 the *British Princess*, one of the two pioneer iron ships of the British Shipowners Company, of Liverpool, built at Birkenhead in 1864, was lengthened and converted into a "barque." Her length was increased from 212.7 to 246.7 ft., which by an addition of 34 ft. midships raised the tonnage from 1,230 to 1,480 tons. The *British Peer*, built by Harland & Wolff, Belfast, in 1865 for the same owners and the fastest ship in their fleet until the *British Ambassador* of 1,794 tons came out in 1873, was lengthened in 1878, her length being increased from 218 to 248 ft. (an addition of 30 ft. midships) and her tonnage from 1,230 to 1,428 tons. This ship had once sailed to within 1,000 miles of London when 85 days out from Calcutta, but her passage was then spoiled by head winds. The lengthening process played havoc with the ship's sailing powers, however, and she never made another outstanding passage. Each of these lengthened ships was disposed of by sale in 1883. The *Ganges* (839 tons), built in 1861 by Pile, of Sunderland, was the clipper of the Indian coolie fleet and was owned by Capt. James Nourse. This ship had a great reputation for fast runs, but following the "evil example" of other British shipowners, Captain Nourse decided to make her bigger—in a day of bigger ships—by adding 35 ft. to her midships body. The tonnage was increased to 1,161 tons, but the speed of the *Ganges*, it was admitted, "was entirely spoiled by the lengthening," and she also lost "much of her handiness." The *Ganges* did not long survive the change made to her hull and rigging plan, and she was wrecked on October 14, 1881.

Every old ship, lengthened, is a weakened ship because of the increase in her ratio of length to depth, which ratio is an index of natural structural strength—based on dimensions alone. The beam of a vessel (whereas the most costly dimension) is of prime importance as far as stability is concerned, and the ratios of length to beam and to depth (also of beam to depth and to draft) are of great significance. When strength of a vessel is considered, the depth and the ratio of length to depth are of the greatest moment; but the depth to be considered is that from the keel to the top of the highest continuous strength deck amidships. Light shelter, or weather, decks that cannot withstand hogging and sagging stresses when a vessel is pitching and being supported by wave buoyancy midships and at the ends, alternately, detract from, rather than add to, the strength of a ship, for they add to weight and cannot resist stresses; hence the necessity of expansion joints in the upper decks and in high midship super-structures of modern vessels. The unusually strong and able Atlantic Coast steamships of the *Momus* class, built in 1906, were unique in that the upper deck, well

over half the vessel's length amidships, was made the strength deck and the top part of the structural beam to resist hogging and sagging stresses, and although this deck was cut by hatches toward the ends of the ships, which hatches extended the full beam of the vessels with doors on the sides between the main and upper decks, massive steel girders carried stresses from the high upper deck amidships to the main deck (which was some nine feet lower) at the ends.

It is difficult to make comparisons of the ratio of length to depth of vessels unless the nature of the stated depth dimensions is understood. The depth of hold is not the strength dimension, but if all vessels were measured uniformly, such a depth and its ratio to length would be of value for purposes of comparison. However, the official dimensions of some vessels, with a light upper, weather, or shelter deck, give the depth of hold as measured to this deck; whereas others are measured to the main deck below it. The real depth of a ship (molded; from the upper continuous strength deck to the keel) is the most important dimension of a structure built to resist stresses at sea when said structure ceases to be supported by buoyancy uniformly throughout its length; this support, however, varies according to the height and length of waves, which alternately supply a great measure of support and then withdraw it from a maximum to a minimum. If the ratio of length to depth of the structure is high, the upper and lower strength members of the structure (i.e., deck and sheer strakes on the top and keel, garboards, and bottom planking or plating on the bottom, with longitudinal stiffening, on both the upper and lower members of the girders) should be increased proportionately, to resist hogging and sagging stresses, as the ratio is increased above normal and can be reduced as the ratio of length to depth is reduced. It has been a vicious practice, continuing a custom of early days, to add weight to the ends of a ship, where there is but little buoyancy and support from the sea. Equally fallacious (if not more so) and also based on ignorance has been the habit of cutting what should have been a continuous longitudinal strength deck by wells and the breaking of the upper member of the girder anywhere throughout some half to two-thirds of its middle length.

The big sailing vessels of the last decade of the nineteenth century and of the early twentieth century proved extremely dangerous when relatively light or in ballast. The boast that they would stand up when light meant nothing, for with their scow-like hulls and flotation line when at light draft, they naturally had a positive metacentric height. However, with the propelling power applied by pressure against the sails at an extremely high center of effort above the center of gravity, coupled with a relatively small weight of the vessel when light, in ballast, or even light-laden, the heeling or careening force was great. The natural stability of a hull varies as the square of the beam is divided by the draft. As an illustration, a ship 53 ft. beam and drawing 24 ft. of water has about 38 per cent more natural stability of model (all other factors being constant) than one of 45 ft. beam and the same draft and 47 per cent more than a vessel of 45 ft. beam and 25 ft. 6 in. draft. (This comparison deals with proportions of the immersed hull alone and ignores such weight factors as center of gravity and also variation of freeboard; it deals essentially with the position of the metacenter and the center of buoyancy—essentials of the immersed hull model.)

Both the big European-built square-riggers *France I* and *Maria Rickmers* were lost at sea because of an underlying model weakness—too small a margin of safety in initial stability. The *France I* was ten years afloat before she came to grief, but she was a notoriously tender ship even when loaded and was often in trouble. The *Maria Rickmers* gave her crew some nasty shocks on her maiden outward voyage (reported "well-laden") from Germany to the East, and she was lost at sea on her way home, never completing, therefore, her maiden voyage. The time and general performance of the *Maria Rickmers* on her voyage to Singapore (occupying 88 days notwithstanding the installation of much-heralded auxiliary power) so exasperated her German owners that they cabled a meanly worded reprimand to the skipper, evidently blaming him for the ship's crankiness, tenderness, lum-

beringness, and deficiency in speed, and this message of official censure so shocked the captain that he dropped dead upon reading it. On the return voyage, under a new command, the ship was lost with all hands on board, and the only tenable explanation that has been advanced is that while her new captain was attempting to drive her to make the utmost speed, to please her owners, the vessel turned turtle.

*British Propaganda Regarding American "Softwood" Ships and Claims
of Inferiority to British "Hardwood" Ships—Both Built of
Similar Timbers—Inability of Britain to Construct
Good Sizable Wood Merchant Sailing Ships*

British shipbuilders, during the forties, fifties, and sixties, following their eclipse by more capable and imaginative American ship designers, builders, and operators, persistently and falsely referred to American-built vessels as "softwood" ships and to their own product as "hardwood" ships. As a matter of fact, in the wood shipbuilding days before the advent of iron, the American and British merchant sailing vessels were built generally of the same hard woods, and much of the material entering into the construction of British ships was either obtained in America or ordered from other countries to duplicate and be "as good as" the timbers, planking, etc., used in its ships. One of America's early real clippers, the *Oriental* of 1,003 tons, launched August 4, 1849, by Jacob Bell, New York, for A. A. Low & Bro., New York, for the China trade, was described in the New York COMMERCIAL ADVERTISER of August 6 as "a splendid vessel . . . built of white oak, live oak, locust and cedar, her flooring being of white oak"; yet the *Oriental* is one of the ships that the British marine historians specifically—but erroneously and with prejudiced ignorance—refer to as a "softwood" ship.

The contemporary press account of the construction of the clipper ship *N. B. Palmer* (1,400 tons), which was launched from the yard of Westervelt & Mackey, New York, on February 5, 1851, says: "The materials of which the ship is built are white oak, live oak, locust and cedar; her lodging knees and hanging knees are of white oak—not hachmatack." Evidently, the *N. B. Palmer* was just as much of a hardwood ship as was ever built in England, and she is typical of the construction of the high-class United States-built clippers of that period. Incidentally, the *N. B. Palmer* was a much more admired and popular vessel in the China trade than any British-built tea clipper or any type of British merchant sailing ship. A model of the handsome ship was exhibited, upon request, at the Crystal Palace Exposition (a sort of World's Fair) held in London in 1851, and we are told that on the occasion of the celebration of Queen Victoria's birthday at Hong Kong in 1863 the American clipper *N. B. Palmer* was honored by being selected from the large fleet of fine ships lying in the port as "the gem of the harbor." She was literally covered with flags during the day and illuminated with lanterns at night—a truly surprising recognition of the quality of an American clipper by British harbor authorities.

We read in the contemporary press that McKay's *Sovereign of the Seas*, built in 1852, had "her frame entirely of seasoned white oak" and that "her planking, ceiling and decking" were of "the best hard (southern) pine," with knees in the hold and "all hooks and stanchions throughout of oak" and "the 'tween deck knees of hachmatack." According to the press, the *Southern Cross* (938 tons), built in 1851 by E. & H. O. Briggs, East Boston, had her keel construction of rock maple, the frame entirely of white oak "seasoned with

fine salt," stanchions of oak, knees of oak and "hacmatack," and planking, ceiling and decking of southern hard pine. Sometimes the weather deck was made of selected tough white pine, which made a beautiful and strong quality job. Most of the big American ships built after 1850 were diagonally braced, or strapped, on the outside of the framing by iron plates about four inches wide placed some four feet apart.

British marine historians seem to enjoy writing of the low longevity of American "softwood" ships and of the superior life and better service obtained from British-built wood ships, all of which is not only ridiculous and outrageously partisan but also essentially false. British builders could never construct a large first-class wooden merchant ship to compete with American or even Canadian tonnage, and until Britain turned to iron (and in its composite ships used Indian teak planking over iron frames, beams, etc.), no British shipbuilder ever produced a large merchantman that was comparable in sailing performance, strength, and life with the product of the United States shipyards. The record of American-built wood packets, fast and none of them very large, for being buffeted and steadily hard driven for decades, with success, against the gales and seas of the North Atlantic is unequalled in the annals of shipbuilding—either steel or wood. When these transatlantic sailing packets became too small and too old-fashioned for the service, most of them entered other trades and as whalers, general traders or transients continued for many more long years to give satisfaction to their owners and make profits for them. The falsely designated "softwood" American ships referred to by British historians were admittedly "hard driven and well sailed," but it is said that they could not be operated in competition with British composite ships (using iron and teak wood) or with iron ships of clipper or medium clipper model and big sail spread. Naturally, large wood ships built in the early fifties, on which sail was piled and regarding which orders were given to drive them to the utmost during an era when speed was king, could not be expected to compete some fifteen or twenty-five years later in the cost of maintenance and repairs with smaller metal-framed and teak-planked or iron ships that never equaled them in performance at sea when in their prime nor encountered the same pressure of service that was in effect in the fifties.

Britain was never successful in building large wooden merchant ships. It could not compete with America (either the United States or Canada) in the design and construction of wood vessels; hence the prevalent British tendency to belittle American wood ships, which were falsely designated as "softwood" ships. Even relatively modern historians of the British marine scorn the claimed fragile "softwood" vessels built in America that "soon became waterlogged" and structurally unsafe and unfit to drive. Such skepticism and denunciation are not the expression of an honest belief and show nothing but national prejudice and sensitiveness to inferiority, coupled with propaganda. British wood shipbuilders used oak, elm, and "pitch" (or yellow) pine generally, and, according to their records, the oak was usually obtained from abroad—Africa, America, and the Baltic States. The elm was either American or English, and better hard pine, in both quality and price, could be obtained in America than anywhere else. According to British propaganda, British shipbuilders using these woods produced "hardwood" vessels, but American shipbuilders using the same woods were accused of building "softwood" vessels. Carl C. Cutler, in *GREYHOUNDS OF THE SEA*, refers to this inconsistency and intentional British criticism quite aptly:

American clippers have been criticized by those whose duty it is to know better, as being frail built, soft-wood ships. . . . The fact is that never in the history of the world, before or since, have ships been rigged so heavily or driven so relentlessly as were the American clippers in the early California trade. One has only to read the details of construction to know that in their day better

ships were not built. Many a "soft-wood" ship was oak or better from shoe to broad teak rail, while few clippers had less durable stuff than the heavy hard pine of Georgia with generous white and live oak timbers at critical points. The wracking below and the wreckage aloft were not the result of faulty construction, but of the condition under which these ships sailed in the hard journey around the Horn.

It was in the Dominion of Canada—part of the British Empire—that softwood ships were built in the sixties and seventies, and these generally for British owners (although some

were built for French register). During the fifties, Quebec and New Brunswick (Nova Scotia) constructed medium- and large-sized ships of clipper models "on spec" and sent them across the ocean to sell in the British market. Although such ships were rated low by the British around mid-century, yet the brilliant success of Yankee clippers, the tremendous output of United States shipyards, with the capturing of world trade on sheer merit by the Americans, and the Gold Rush to Australia caused the British—after the fine performance of the *Marco Polo* as a colonial packet in 1852—to welcome the opportunity to acquire this once despised Canadian tonnage. These ships, built cheaply in the eastern provinces of the Dominion, were attempted copies of United States ships and were generally fairly well built with good materials but with little finesse; they lacked the class, beauty, and art of the Yankee clippers, but British buyers "got all they paid for." During the Civil War, with the United States merchant fleet somewhat paralyzed, Britain made big demands for tonnage from Canadian yards, and Quebec shipbuilders in the sixties and seventies built large quantities of "softwood" ships, substituting spruce for oak framing. They had a tremendous quantity of spruce economically available, and Canadian shipbuilders even went so far as to get British Lloyd's to give them a fairly good rating as Empire-built spruce (or softwood) ships. It was in Canada and not in the United States that these softwood ships were built, and the two reputed owners of one well-known firm (McKay & Warner) building such vessels at Quebec had received good experience constructing wood ships in the United States. The McKay of this firm was Lauchlan McKay, a brother of Donald McKay, of East Boston, a thoroughly competent ship carpenter who went to sea as "Captain" McKay in nominal command (with a captain-mate under him) of such McKay ships as the *Sovereign of the Seas* in 1852. Lauchlan McKay built an inferior copy of the Yankee type of ship in Canada following his return to his native country; but while he and other Quebec (and later Nova Scotia) shipbuilders were constructing spruce ships, which, it was claimed, would "lower cost, reduce the weight of hull, and increase the deadweight capacity of the vessels built," New England shipyards were actually engaged in cutting the claimed scarce and expensive hardwood timber still growing in the Dominion for use in the building of Yankee ships.

James Baines, of Liverpool, England, appreciated the excellence of American-built clippers and in 1853-1855 had Donald McKay build for him and the British Black Ball Line (running between Liverpool and Australia) four big, fast ships (*Lightning*, 2,083 tons; *Champion of the Seas*, 2,447 tons; *James Baines*, 2,525 tons; and *Donald McKay*, 2,594 tons). He was always desirous of having his ships built in Britain and of patronizing home industry; so, after listening to the claims and promises of Hall, of Aberdeen, he gave that designer and builder, in the fall of 1854, an order to build "a big wood clipper" of 2,600 tons (builder's measurement) to be superior in strength and at least equal in speed to any McKay clipper. Hall talked of "hardwood" and his contemplated "more durable" construction. Baines was evidently so impressed with Hall's claims for his new ship, the *Schomberg*, that he proclaimed her the flagship of the Black Ball Line and, taking his best driving captain ("Bully" Forbes) from the *Lightning*, urged him to make a fine showing with Britain's largest and newest clipper and the only wood ship ever built in Britain that could even be considered as competing with the American-built clippers for size. The result was disastrous. The *Schomberg* proved to be a slow sailer, a very unhandy and nonresponsive vessel, structurally weak, and in both design and construction a pronounced failure. Commander Forbes was chagrined, became humiliated as he thought of his proud boast of "Sixty days to Melbourne," and then gradually grew disgusted and indifferent. The ship never completed her outbound maiden voyage, and when she went ashore on a shoal near Cape Otway, after a surprisingly slow passage, it was claimed that the disastrous end of a most unsatisfactory and disappointing voyage was "due to the captain's negligence." The *Schomberg*, whose hull was quickly "battered to pieces by the seas," being apparently lacking in structural strength, was Britain's first, last, and only attempt to build a large, fast wood clipper.

Longevity of American-built Wooden Sailing Ships

Around mid-century, the underwriters rated wood deep-sea sailing ships when built as fair risks for eight, ten, or twelve years. In these days of steel construction, with world-wide facilities for dry-docking and conditioning, the best vessels are not expected to last more than twenty years. With these figures of "anticipated life" in mind, the following record, selected at random, of longevity of certain early American wood ships—scornfully referred to by the British as "softwood" ships and persistently discriminated against by British insurance companies—will be of interest.

The *Truelove*, an American wood ship of standard construction, built in Philadelphia in 1764, after twenty years of service as a merchantman and privateer, was acquired by the British and put into the whaling trade, in which she operated for eighty-four years from English ports. She was then used as a general trader in crossing the Atlantic and continued her useful career until she was broken up in England in 1874, when 110 years old. The American whaler *Charles W. Morgan*, built in 1841, was steadily used in hunting whales in the Seven Seas for over sixty-five years. She set out on her last cruise in that waning business in 1906. When a century old, the "*Morgan*" was towed to her present berth at Mystic, Conn., where she will be preserved as a museum of whaling and an exhibit of old American wood ship-building for long years to come. The *Rousseau*, a venerable American whaler, sailed the seas for ninety-seven years, and the *Triton* operated in the trade for seventy-nine years. The *James Arnold*, built at New Bedford, Mass., in 1852, was sold in 1894 and, when forty-two years old, commenced a new career under the Chilean flag; she served as a whaler and a merchantman with great satisfaction and in 1925, when seventy-three years old, was known to be operating at sea with profit to her Chilean owners. The *Maria* (202 tons), built at Pembroke, Mass., in 1782, was a whaler used by the famous William Rotch on a journey from Nantucket to London in 1785, and she was reported to be "still operating as a whaler in 1872, when 90 years old." Other American-built wood ships with a long record of service are:

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| <i>Pacific I</i> —built in 1807 (384 tons); in service seventy-five years, part of which as a packet in North Atlantic trade and most of the balance as a whaler. | <i>Simoon</i> —built in 1852 (1,436 tons); in 1912, or sixty years later, she appears in the register as the Norwegian bark <i>Hovding</i> . |
| <i>Syren</i> —built in 1851 (1,064 tons); after seventy years of service was still in operation as bark <i>Margarida</i> in the Argentine. Said to be "the longest lived" of the old American clipper fleet. | <i>Stephania</i> —built in 1819 (315 tons); sold to Australians for continued service in 1868. Went under British registry as <i>Onward</i> and lost in 1870, when fifty-one years old. |
| <i>Desdemona</i> —built in 1823 (294 tons); in service for sixty-nine years or more, part of which as a packet in North Atlantic trade, but mostly as a whaler. Still registered at New Bedford in 1895, when seventy-two years old. | <i>Duchesse d'Orleans</i> —built in 1838 (798 tons); ran fourteen years as transatlantic packet (Havre Line). Was sailing from Baltimore in 1866, and reports say that she remained in useful service for over half a century. |
| <i>Dashing Wave</i> —built in 1853 (1,180 tons); lost as a barge after sixty-seven years of service, part of which as a Cape Horn clipper. This clipper carried shot from the Confederate cruiser <i>Alabama</i> embedded in her timbers for over fifty-seven years. | <i>Expounder</i> —built in 1856 (1,176 tons); lost as a barge after fifty years of service, part of which as a Cape Horn clipper. |
| <i>Amethyst</i> —built in 1821 as a Boston-Liverpool packet (350 tons); then a whaler, merchant ship, and still later a whaler. Went missing in the Pacific in 1885, when sixty-four years old. | <i>Illinois</i> —built in 1826; a coastal packet for eight years and a whaler for forty-two years. Sank by collision in Arctic in 1876, when fifty years old. |
| | <i>John Wells</i> —built in 1822 (366 tons); in service for forty-nine years, part of which as a packet in North Atlantic trade. Lost as a whaler in Bering Strait ice jam in 1871. |

- Hercules*—built in 1816 (334 tons); in service for forty-nine years or more, part of which as a packet in North Atlantic trade and thirty-eight years as a whaler.
- Florida*—built in 1822 (522 tons); an Atlantic packet, general trader, transient, and whaler (1845-1861). Lost in Arctic in 1871, when forty-nine years old.
- Competitor*—built in 1853 (871 tons); renamed *Edward* and in service, under Finnish registry, when forty-eight years old.
- Mary Whitridge*—built in 1855 (978 tons); lost as a barge after forty-seven years of service, part of which as a Cape Horn clipper. A holder of a transatlantic speed record.
- Corinthian*—built in 1822 (401 tons); in service for forty-six years, part of which as a packet in North Atlantic trade and for thirty-seven years (1831-1868) as a whaler.
- Courier*—built in 1817 (381 tons); in service for forty-four years. Sold to U. S. Government and sunk during Civil War to blockade Confederate port.
- John Jay*—built in 1827 (502 tons); an Atlantic packet (seven years), transient, and whaler (seven years). Was registered at San Francisco in 1870, when forty-three years old.
- William Thompson*—built in 1821 (495 tons); in service for forty-two years, part of which as a packet in transatlantic trade and for thirty-three years (1830-1863) as a whaler.
- Meteor*—built in 1819 (325 tons); in service for forty-two years, part of which as a packet in North Atlantic trade. Sold to government in 1861 and sunk in Stone Fleet to blockade Confederate port.
- Nightingale*—built in 1851 (1,060 tons); a yacht-like clipper with a unique, diversified career in all parts of the world. In service for forty-two years before she was lost as a Norwegian bark in the North Atlantic.
- N. B. Palmer*—built in 1851 (1,400 tons); disappeared in 1892 when forty-one years old, after eventful career as a hard-driven clipper on the world's ocean routes, including around-the-Horn service.
- Wild Pigeon*—built in 1851 (996 tons); sold to British during Civil War and later went under Spanish flag. In service for forty-one years.
- Hudson*—built in 1822 (368 tons); in service for forty-one years or more, part of which as a packet in North Atlantic trade and part (1833-1863) as a whaler. In 1863, when forty-one years old, sold at Honolulu and renamed *Hae Hawaii*.
- Hibernia*—built in 1830 (551 tons); an Atlantic packet, a transient, and a whaler; still registered at New Bedford when forty years old.
- Sea Serpent*—built in 1850 (1,337 tons); an extreme clipper ship with a fine sailing record. Sold to Norwegians in 1874, when twenty-four years old, and renamed *Progress*. In 1890, when forty years old, was still listed in registers.
- Huntsville*—built in 1831 (522 tons); a fast coastal packet, transient, and for fourteen years a whaler. Registered at San Francisco in 1870, when thirty-nine years old.
- Malay*—built in 1852 (868 tons); in service for thirty-nine years, part of which as a Cape Horn clipper.
- Hannibal*—built in 1822 (440 tons); a packet, transient, and from 1843 to 1861 a whaler, operating for thirty-nine years.
- Rattler*—built in 1852 (1,121 tons); in service for thirty-eight years, part of which as a Cape Horn clipper.
- Samuel Robertson*—built in 1825 (421 tons); a general trader (1825-1833), an Atlantic packet (1833-1834), a whaler (1835-1859), and a transient (1853-1863). Had a sea life of thirty-eight years.
- Cortes*—built in 1820 (381 tons); an Atlantic packet (1822-1827) and a New Bedford whaler (1828-1857). Burned by crew in Indian Ocean in 1857, when thirty-seven years old.
- Liverpool*—built in 1843 (1,077 tons); in service for thirty-seven years as hard-driven transatlantic packet; when line ceased operations in 1880, was diverted to general (transient) trade.
- David Crockett*—built in 1853 (1,679 tons); converted into barge in 1890 after thirty-seven years of service, twenty-nine years of which as a clipper in the severe Cape Horn California trade.
- Ontario I*—built in 1830 (489 tons); an Atlantic packet and from 1843 a whaler. Damaged by collision in North Pacific and abandoned by mutinous crew in 1866 after thirty-six years of sea life.
- Cambria*—built in 1826 (362 tons); in Atlantic packet service for five and a half years, then a whaler for thirty and a half years. In 1862, because of Civil War, was "sold foreign" when thirty-six years old. Length of total sea life unknown.
- Brighton*—built in 1824 (354 tons); an Atlantic packet and whaler. Condemned at Sydney, Australia, in 1859, when thirty-five years old.
- Bayard*—built in 1819 (339 tons); an Atlantic packet, transient, and whaler. Last reported in Arctic in 1853, when thirty-four years old.
- Golden State*—built in 1852 (1,363 tons); an extreme clipper. Sold in 1883 and operated "foreign" in North Atlantic. Wrecked on Cape Elizabeth, Maine, in December 1886, when about thirty-four years old.

- Charles Carroll*—built in 1828 (411 tons); an Atlantic packet for twelve years, transient for four years. In California Gold Rush in 1849 and a whaler for seventeen years until wrecked and condemned in 1862, when thirty-four years old.
- New World*—built in 1846 (1,404 tons); in service for thirty-four years as hard-driven transatlantic packet; when line ceased operations in 1880, was diverted to general (transient) trade.
- Sir Robert Peel*—built in 1846 (940 tons); in service for thirty-four years as hard-driven transatlantic packet; when line ceased operations in 1880, was diverted to general (transient) trade.
- Young America*—built in 1853 (1,961 tons); sold to Austrians after twenty-nine years of steady, severe Cape Horn service and lost when thirty-three years old.
- Canada*—built in 1823 (525 tons); an Atlantic packet for twelve years, a transient, in California trade (1849-1851), and a whaler for eleven years. Lost on Brazilian coast in 1856, when thirty-three years old, due to fault of Brazilian officials.
- Erie*—built in 1829 (451 tons); an Atlantic packet for eleven years, then a transient, and in 1847 became a whaler. Dismasted off Cape Horn and abandoned in 1862 after thirty-three years of sea life.
- James Monroe*—built in 1817 (424 tons); an Atlantic packet for five years, then a Cuban trader. Was a whaler for seventeen years (1832-1849). Sold at San Francisco when thirty-two years old and end not known.
- National Eagle*—built in 1852 (1,095 tons); disappeared after thirty-two years of service, part of which in Cape Horn trade.
- Onward*—built in 1852 (874 tons); sold Callao, November 1884, after thirty-two years' hard service as a clipper, part of which in Cape Horn trade.
- Brewster*—built in 1855 (984 tons); sold to Norwegians when thirty-one years old and renamed *Fama*.
- Saratoga*—built in 1832 (542 tons); a New York-New Orleans packet for thirteen years and a whaler for fifteen years. Sold at Barcelona in 1863, because of Civil War, when thirty-one years old; end not known.
- Fleetwing*—built in 1854 (896 tons); in service as a clipper for thirty-one years, part of which in Cape Horn trade.
- Swallow*—built in 1854 (1,435 tons); disappeared after thirty-one years' service as a clipper, part of which in Cape Horn trade.
- Game Cock*—built in 1850 (1,392 tons); a famous, hard-driven clipper and record-maker; disappeared from register after thirty years of service on the Seven Seas.
- Pride of America*—built in 1853 (1,826 tons); lost after thirty years of ocean service as a clipper.
- Twilight*—built in 1857 (1,482 tons); disappeared from register after thirty years of ocean service as a clipper.
- Webfoot*—built in 1856 (1,091 tons); wrecked on Cape Flattery and lost—through no fault of the ship—when thirty years old.

Among a host of other long-lived American wood ships may be mentioned the following clippers:

- Ocean Telegraph*—built in 1854 (1,495 tons); sold abroad; renamed *Light Brigade* and converted into a coal barge when twenty-nine years old.
- Galatea*—built in 1854 (1,041 tons); sold to the Norwegians for continued service when twenty-eight years old.
- War Hawk*—built in 1855 (1,067 tons); burned—through no fault of the ship—when twenty-eight years old.
- Criterion*—built in 1855 (1,387 tons); sold abroad for continued service when twenty-seven years of age.
- Great Western*—built in 1851 (1,443 tons); sold to Pacific owners for continued service after twenty-seven years of severe service as North Atlantic packet.
- Surprise*—built in 1850 (1,261 tons); a record-making, hard-driven clipper. Wrecked on sunken rocks off Japanese coast—through no fault of the ship—after twenty-six years of service, part of which in Cape Horn trade.
- Good Hope*—built in 1855 (1,295 tons); ran ashore and wrecked—through no fault of the ship—when twenty-six years old.
- Prima Donna*—built in 1858 (1,529 tons); in active service (U.S.N.) during Civil War; sold to Austrians for continued service when twenty-five years old.
- Fearless*—built in 1853 (1,184 tons); sold to Norwegians for continued service when twenty-five years old.

*Improvement in American Ships in the First Half of the
Nineteenth Century and the Forcing of Britain
into Iron Construction—and Steam*

The design of American sailing vessels steadily improved throughout the first half of the nineteenth century, and as trade developed bigger ships were built. A packet or trader that was of suitable, economic size in 1820 to engage steadily in one particular trade was usually too small to meet effectively the demands of 1830, not to mention 1840 or 1850, etc. Better and larger vessels were built, and as size increased the ships naturally became less chunky in model; for small ships engaging in commerce on waters such as the North Atlantic had to be very beamy, buoyant vessels in order to obtain the greatest possible seaworthiness and power of model in very small dimensions and to conform with the limited demands of the trade.

The initiative and careful planning of Americans, in a desire to build and operate ships to meet economically and adequately the demands of the trade and give satisfaction to passengers and shippers, were exemplified in the North Atlantic as far as sailing ships were concerned from the origination of the packet line system of operation in 1818 to the end of sail. Throughout this entire period of about half a century, United States-built, owned, and operated packets held an absolute monopoly, because of the quality of the ships and service, in the realm of sail in the North Atlantic "ferry." Britain owned some ships that sailed between British and Canadian ports, but not a single British (or Canadian) packet sailing ship operated in any line, or regularly on a schedule, between any European and United States port. Only by turning to steam did Britain get a foothold as a carrier in transatlantic trade.

From colonial days, Americans showed talent and leadership in whaling, and during the wars with Britain special efforts were made by that nation to kill the American whaling industry. In 1815 it looked as if it had succeeded, but neither Britain nor any other nation could build and operate whalers to compete with Nantucket and later—as the ships went farther afield and had to be bigger—with New Bedford (on the mainland and favored with deeper water). For whaling, a ship had to be extremely seaworthy, small, and burdensome, with a full buoyant bow; speed in such service was not required, but the early small transatlantic packets had ideal hulls for whaling, and many of them, when too small for passenger packet service, were converted into whalers and participated creditably in that highly specialized and dangerous business. American whalers led the world in initiative and quality and in reliability and efficiency of construction to achieve economically the desired objective; moreover, American whalers were outstandingly adventurous, resourceful, courageous, and successful. They were the world's greatest explorers of the Seven Seas. They covered the waters of the entire globe, from the icebound Arctic to the Antarctic, and hunted whales in the torrid tropics as well as in the temperate and frigid zones of both hemispheres. American superiority in whaling was the combined result of superior ships and equipment and of unequalled men and methods. When Britain acquired American whaling ships (by capture or purchase) and built copies of them, it could never obtain results comparative with those of American-built and operated whaling vessels.

The period from the twenties to the fifties of the nineteenth century was "the Golden Age" of American whaling, and tonnage engaged in the industry increased about fivefold from the early twenties to the forties. In 1842, out of the entire world's whaling fleet of 882 vessels, 652 (or 74 per cent) were American vessels, and in 1846 the United States owned as registered whalers 678 ships and barks, 35 brigs, and 22 schooners valued at \$21,-

000,000 and employing 70,000 persons. Whaling voyages had become longer with the years as more remote waters were visited and hunted, and most of these adventurous expeditions occupied from two to four years, with many of the ships operating in uncharted waters and out of contact with the civilized world for long periods at a stretch. The Civil War and the appearance in the market in quantity of mineral oil caused the decline in American whaling. In 1858 the United States whaling tonnage was over 198,600 tons; in 1865 it was down to 84,200 tons; in 1867 to 52,400 tons; and by 1901 to only 9,500 tons. American whaling ships steadily improved in quality from the early days of the republic to the Civil War; but after mid-century the industry suffered much from the deterioration of the crews, and during the Civil War Britain did all it could, by backing the South with armed raiders to prey on United States whalers, to kill the American whaling industry. As a result of the war, the increasing substitution of mineral for whale oil, and the desertion of the sea by both American capital and American youth, the United States virtually abandoned whaling, and when the demand later returned for whale products, America left the field for other nations to exploit with large factory iron whaling steamers. As long as whaling could be profitably conducted by deep-sea square-rigged vessels manned (both the ships and their small whale-boats) by Americans, United States-built, owned, and operated whalers were supreme. From a period closely following the end of the War of 1812 to the close of the Civil War, both the transatlantic sailing packets and the square-rigged deep-sea whalers of the United States gained pre-eminence by sheer merit and declined because of conditions and forces at work outside of themselves. The period of glory of the real clipper ship was more spectacular and abrupt in both rise and fall; it occupied only half a decade in building, and the Atlantic sailing packet, the whaler, and the clipper ship—three most important factors of the American merchant marine—practically passed out of the picture at about the same time.

Britain boasted in the days of the young republic that the United States could never develop any worth-while trading with China and the Orient and that, with no foreign possessions or colonies, the United States could never become a maritime power; but American ships, nevertheless, persisted in trading with China and other known important foreign ports and beat the British in opening up new markets and initiating new channels of desirable commerce that led to volume. Throughout the first half of the nineteenth century, American ships led the way, and it was Britain, notwithstanding its power, maritime naval greatness, and mercantile marine advantages, that did the following. However, in the extension and development of its far-flung empire, "on which the sun never sets," Britain consistently, either openly or subtly, sought to handicap and weaken the ever-growing American merchant fleet in its voyages on the Seven Seas. In all trades, instead of remaining static in type of vessel and in methods of operation (as did the British), Americans constantly sought to improve their merchant shipping and gain competitive advantage through a high quality of tonnage and service. United States ships of relatively small size had the audacity to compete with the big, magnificent and lordly ships of the British East India Company in the China trade and ultimately beat them, causing a complete change in both the type and character of service of the British vessels and in the nature of handling the ships themselves at sea. It was in the United States-China trade that both the long-voyage packet ships and the "clipper" idea in modeling, sparring, and sailing ships were born. In the thirties and early forties, American ships of capacity and comfort raced between Chinese and United States ports, and prior to the real clipper ship decade of the fifties, fast American ships of a thousand tons were taking the place of "marvellously good and fast reliable United States ships of some three to five hundred tons," which had been considered "big and unbeatable" during the rapidly changing years of the first half of the forties.

The success of fast United States-built sailing ships discouraged British shipowners as early as the thirties, and when British owners commenced to demand less loitering and better passages from their super-conservative shipmasters, who were impregnated with tradition, the cry went up from the seafaring fraternity: "Give us ships such as the Yankees have."

Therefore, pressure was put, more and more, on British builders, but "the old methods of building and the old designs," which, it was claimed, had given ample satisfaction for years, were deemed good enough. Steamboat competition in British coastwise trade had caused "clipper" topsail schooners to be built at Aberdeen in an attempt to hold the business for sail. However, it required the repeal of the exclusive Navigation Act in 1849 to wake Britain out of its self-satisfied lethargy, and the first passage of an American ship from China to England in 1850 conspicuously demonstrated to the British Government and nation as a whole (as well as the marine fraternity) the overwhelming superiority in speed, size, and quality of United States vessels in general ocean trade. It is generally felt that it required "out-and-out" American clippers engaged in what heretofore had been exclusively British ocean trade to jolt the British out of their complacency and false egoism; this is incorrect, for the first American ships to deliver China tea to Britain were not real clippers according to the designation of the fifties but fast sailing ships of pre-clipper type. The historic ship *Oriental* (1,003 tons), the pioneer of the "Yankee invading clipper fleet," was laid down by Jacob Bell, of New York, early in 1849 for the Low brothers and the United States-China trade. She was generally similar to, but somewhat larger than, the *Samuel Russell* (957 tons; launched from the same yard for the same owners and the same trade in August 1847), and she was built not as an extreme clipper for the "speed crazy" California trade and not with the China-Britain nor any other form of British trade in mind. It was on her second voyage to Hong Kong that British merchants offered this American ship over twice as much per ton as the prevailing freight rate being paid the best British ships to carry a cargo of tea to London, and the *Oriental*, accepting this highly remunerative freight offer, made a record run of 97 days, deep laden, from China to the West India dock at London in August-December 1850; by doing so, the so-called "Yankee clipper" jolted the British shipowners and shipbuilders and forced them to take either a back seat or vigorous steps to combat American shipping competition as far as ocean marine transportation with sailing ships was concerned.

It is also an error to say that "following the passage of the *Oriental* a fleet of American clippers promptly obtained a monopoly of the China-British tea trade." United States-built sailing ships certainly got profitable cargoes quickly following the repeal of the restrictive British Navigation Act and were paid premiums over British ships to carry China tea to England, but these vessels were not clipper ships. Of eighteen American ships that sailed from Chinese ports with tea for London from August 1850 (when the navigation bars in that trade were let down) to July 28, 1851, when the first of the real American clippers sailed for London with tea, not one qualified for the designation "clipper," and this applies to the fast and commodious crack sailer *Oriental* (a "near clipper," which sailed for China with tea for London twice within that year—the first time on August 28, 1850, and the second time on July 16, 1851). The first real American clippers—of either medium or extreme type—to make passages with tea from a China to an English port were the *Surprise* of 1,261 tons (launched October 1850), which sailed July 28, 1851; the *White Squall* of 1,119 tons (launched August 1850), which sailed September 8, 1851; and the *Witch of the Wave* of 1,498 tons (launched April 1851), which sailed with tea for London on January 5, 1852. None of these clippers and none of the fleet that followed them in the China-Britain tea trade was built (as were British vessels) for that particular service, and all were handicapped in the China Seas and the tropics because of their size and weight, the American clippers being designed primarily for the turbulent Cape Horn California trade.

The United States-built and owned ships that participated in the Britain-China tea trade prior to the advent of real clippers (but which were popularly but erroneously termed "Yankee clippers" by the British) were merely American vessels, either ship- or bark-rigged, built before the real clipper ship era for ordinary ocean trading. Among these vessels were the following: the full-bodied but fast and handy *Wisconsin* of 925 tons, built at New York in 1847 as a Canton trader (she ran to London in 96 days); the old packet *Roman* of 492 tons, built at New York in 1825, which could outsail any British ship in the trade; the *Argonaut*

of 575 tons, built at Medford in 1849 as a Canton trader, which, it was always boasted, "made passages in clipper ship time"; the *Rose Standish* of 939 tons, built in 1849 at Newcastle, Maine, not to make speed but to carry cargoes and make money; the *Far West* of 598 tons, built at Newburyport, Mass., in 1846 to "carry well and make good passages trading with the Far East"; the *Susan G. Owens* of 735 tons, built at Baltimore in 1848, and the bark *Inca* of 376 tons, also built at Baltimore in 1840; the *Charles* of 387 tons, built at Kingston, Mass., in 1836, etc. In the latter part of 1851, between the sailings of the American clipper ships *White Squall* and *Witch of the Wave*, such American vessels as the *James-town* (1,151 tons; built at New York in 1847), a fast and sizable full-bodied ship, and the smaller barks *Greenpoint* (500 tons; built at New York in 1849) and *Behring* (275 tons; built at Newburyport, Mass., in 1842) sailed from China to Britain with tea and were popularly but most wrongly designated "American clippers."

The British shipowners deemed a ship of over 500 tons as too big for the China trade and claimed that a well-canvased vessel of from 300 to 500 tons held a six- to eight-day advantage over a larger and heavier ship of some 1,000 to 1,200 tons in the run from China to Britain traversing the China Seas and the doldrums of the tropics. Merchants, however, liked the "big American clippers," and after the 1,003-ton *Oriental* made her record passage, they were willing to pay a premium, when shipping teas, for size as well as for nationality of a carrying vessel. When the clipper *White Squall* of 1,119 tons appeared at Hong Kong, the merchants and the press were enthusiastic about her size as well as her rig, sharp lines, and trimness. It has been said that in the late fifties Britain, because of concentrating on building only small clippers (ideally suited for the China trade), won back the tea-carrying trade between China and Britain, which she had lost to "the Yankees" in the early fifties. This is incorrect, for it was the American clippers themselves that caused the trade to become unprofitable to them because of the tremendous tonnage built, primarily for the California one-way trade, and the need of the units of this big fleet to obtain a cargo to carry from the Pacific to the North Atlantic caused a big tonnage of American ships to compete with each other until they drove the freight rates so low that the business became highly unprofitable. China could supply cargoes of tea for big ships at intervals, but did not produce tea enough to load a large fleet of big ships over any period of time. When America became disinterested in transporting tea from China to England, the British, with their little ships carrying relatively small cargoes and sailing to suit the tea crop, were able to handle the business in a manner acceptable to the tea growers and merchants at both ends of the run. This followed a period in which Chinese stocks had become depleted and British warehouses were jammed full of tea, so that much of it would not reach the consumer for a year or more.

Why Britain was practically forced into the use of iron in the place of wood in the construction of vessels in excess of some 1,200 tons is well indicated by its inability to produce a single large wood clipper ship for any ocean trade and particularly for its colonial Britain-Australia emigrant packet service, where the need of good, fast vessels of relatively large size and big internal capacity was very great in the fifties. In the forties, the British ships running out to Australia were very small (generally 300 to 400 tons). Convicts and emigrants were treated much alike and subjected to abominable, inhuman conditions because of overcrowding and lack of sanitation in what were described as "loathsome dungeons" below decks, where they were likely to be battened down for days during bad weather in the Roaring Forties of the Southern Hemisphere (from the Cape of Good Hope running eastward) and to suffer from extreme heat and cold during a long drawn-out voyage of six months or more from the North Atlantic to the South Pacific. Following the gold find in Australia in 1851, Britain felt the need of big, fast ships for the colonial trade and, in addition to the *Marco Polo*, acquired many Canadian-built wood vessels of about 1,000 to 1,500 tons. The arrival in Liverpool and the voyage to Melbourne of the big chartered United States clipper *Sovereign of the Seas* (2,421 tons) in 1853 impressed the British with the advantage as well as the

need of big clippers in the Australian run; hence Baines's contract with Donald McKay, of Boston, for four very large clippers (of 2,100 to 2,600 tons each) and the purchase of two 2,000-ton medium clipper packets on the stocks (which McKay was building on speculation) for service in the colonial Liverpool Black Ball Line and the rival White Star Line's acquisition of the Maine-built *Red Jacket* (2,305 tons), the Boston-built *Blue Jacket* (1,790 tons), and other American-built clippers.

The purchase by British shipowners of Canadian-built ships was not taken very kindly by the British public, but when the Australian packet lines commenced buying many big ships from the United States, resentment ran high, bitterness developed, and politics stepped in. James Baines felt compelled to explain fully his reasons and, to placate the public and government, placed an order with a leading British firm for the construction of one big clipper "to equal the Yankee clippers in size, quality, and speed." In 1854, Hall, of Aberdeen, the builder of Britain's fastest clippers, was given a contract by Baines to construct for his Black Ball Australian line "a monster emigrant clipper of 2,600 tons," and Britain's one and only large wood sailing ship (said to be a copy of McKay's big American clippers—only "better and stronger built, and faster"), named the *Schomberg*, was the result. This vessel, which was, in reality, somewhat smaller than the American-built *James Baines* and *Donald McKay*, was reported as costing £43,103 (about \$210,000)—a goodly sum. The builder boasted not only of the ship's superior model and potential speed but also of her "extraordinary strong and novel construction," which, it was felt, would revolutionize big wood shipbuilding and give greatly increased strength and longer life to the hull. Hall also went to an extreme in sparring and canvassing the ship, so that he could get the maximum driving power "in his passion for speed." The main yard was made 110 ft. long and was larger than that of any other sailing vessel ever sent to sea.

Capt. "Bully" Forbes, the driver who had sent the *Marco Polo* and the fast Yankee clipper *Lightning* to their records, was placed in command of the *Schomberg*, with orders to "force her and make a 60-day run to Australia and beat the record of all Yankee ships." On October 6, 1855, after an unusually long time spent in the building and rigging of "the finest and fastest merchantman in the world," the *Schomberg* left Liverpool, cheered on her way by a tremendous crowd of patriotic and boastful well-wishers, with a big canvas flying conspicuously from her rigging, on which was painted, "Sixty days to Melbourne." At midnight of December 27, when 82½ days out from Liverpool, the pride of the British merchant marine, being clumsy to handle, "slid up on a sand bank 35 miles west of Cape Otway." Captain Forbes, disgusted with his ship and her failure throughout the passage to sail or handle well, went below, angrily shouting to the mate, "Let her go to Hell and tell me when she is on the beach." The next day, the passengers were safely removed and put aboard the steamer *Queen*, which, fortunately, hove in sight; but the "finest and strongest wooden vessel" in the world, according to her optimistic and boastful British builders, could not withstand the stresses encountered, quickly went to pieces, and was a total loss. At the official inquiry in regard to the disaster that befell Britain's first and only big wood ship, many passengers declared that Captain Forbes "was so disgusted with the slowness of the passage that he let the ship go ashore on purpose," which is, of course, ridiculous. That Forbes was greatly disappointed and disillusioned in regard to the ship's speed and thoroughly disgusted with her sailing qualities is well known, for he did not fail so to express himself and compare her with the fast Yankee-built *Lightning*, which "could fly and handle like a yacht." However, the unfortunate drifting of the *Schomberg* on an uncharted shoal proved that notwithstanding all the claims of her British builder, the vessel was as structurally weak as she was slow, and experience with her resulted in the denouncing and condemning of British building of sizable wood hulls and greatly boosted the substitution of iron as a construction material for all vessels—sail and steam.

Later, Hall, of Aberdeen, built the world's largest composite ship, the *Sobraon* of 2,131 tons, which was launched at Aberdeen in November 1866. This full-rigged ship had iron

framing, beams, longitudinal stiffening, and bulkheads, but was planked with thick selected Indian teak; her masts and lower yards were also of iron. The *Sobraon*, which made only one round voyage a year—and that between London and Australia—was smaller and slower than the big Yankee clippers of the mid-fifties that were built for the Australian trade. She had a beam of only 40 ft., but she was a successful and popular ship, lasted for twenty-five years (until 1891) in the service, and was then sold at Sydney for use as a reformatory ship.

It is a moot question as to whether or not the speed craze brought about by the California Gold Rush and Australia gold find, with the unprecedented British colonial emigration movement, contributed much that was worthy in a lasting sense by the almost exclusive construction for a few years of clippers in which every other fundamental and essential quality of a ship was subordinated to speed. The clipper era was naturally the high-speed period for sailing vessels, and phenomenal speed records were made by the large and powerful clippers for day's runs and for parts of long voyages negotiated under unusually good sailing conditions of strong, favorable wind and a satisfactory sea (at times further assisted by a good current); however, the time taken by extreme clippers to complete long ocean passages, port to port, was never as short as the fast sailing qualities of such ships would suggest as possible in relation to the performance on the same trade routes of (1) fast sailers in pre-clipper days or (2) far more commodious and economically operated ships in post-clipper days. It would seem that the construction of extreme, or "out-and-out," clippers was never warranted for the general deep-sea mercantile trade; for a reduced average time spent on a voyage of 10 or 15 per cent would not seem to counterbalance—except under unusual and temporary conditions of trade—a reduction in paying cargo-carrying power of some 30 to 50 per cent and a great increase in the number of crew, maintenance and operating expenses, etc. Again, it was proven that "out-and-out" clippers were unsuited for the North Atlantic trade, even when individual cargoes were not large and business westbound was in emigrants, which the clippers could well carry. Extreme fineness, with lofty spars, long yards, and big sails, simply did not fit the sailing conditions in the turbulent Atlantic, where western gales and "mountain-high" seas might be encountered and could be expected, particularly during the winter season (November to April). In the Roaring Forties of the Southern Hemisphere, the real clippers did well one way, provided the wind did not roar too much and the seas did not run too high nor were broken too much. The course set during the clipper ship era for a voyage between a North Atlantic port and Australia (or New Zealand) called for sailing eastward around the globe, running out via the Cape of Good Hope and home via Cape Horn, thus obtaining the full benefit in sailing of the prevailing winds. It has been said that the extreme clippers in heavy weather "were really one-way traffic boats." If a favoring wind blew too strong and kicked up too much of a sea, such vessels, however, were apt to be pooped by a following sea, and some of them suffered severe damages in this way; even the largest of all the clippers, Donald McKay's *Great Republic* (3,356 tons), was seriously injured running eastward around the Horn and shipping solid seas over her stern quarter, which battered in the deck, broke several deck beams, took large quantities of water below, and caused the damaged vessel to sail under easy canvas to the Falkland Islands, where substantial repairs had to be made before she could proceed on her passage to London.

Moderation in model fineness and in the spar and sail plan of a sailing vessel was generally warranted in the nineteenth century. For a few years, a bonus was paid for speed on the China, California, and Australia runs, but the period when it seemed justifiable to build extremely fine and overcanvased vessels for these routes was very brief (1850-1854). High speed (with handiness) was always in demand for what may be termed illicit trade, and such business invariably required but little deadweight carrying ability. Opium runners and slavers had to be fast enough to evade the warships on patrol to put a stop to the business. West Indian prohibited trade runners had at times to operate virtually as smugglers, and in such days and trade, "speed was king"—as it was with the motorboat rum runners in the United States during the absurd days of the prohibition of alcoholic beverages. The

China tea trade did demand speed in the forties and fifties, and this business continued to put a premium on speed throughout the sixties and seventies. Finally, because of the demand for speed, the trade was given to steamers, and sail was inevitably defeated in that ocean trade—as it was a few years earlier on the North Atlantic and several years later in the run between British and Australian ports.

At an early date, Britain felt the need of building even small clippers of iron for the China trade, and in the sixties the tea clippers were generally of either composite or iron construction. Wood ships, however, were preferred for long years for the carrying of tea, and iron ships were not liked in this trade; yet several iron clippers were built for it, but throughout the sixties composite construction using iron frames, beams, and longitudinals and Indian teakwood planking was preferred. British wood ships, after the trading bars were let down at mid-century, were not highly considered by shippers, even in the China trade, and owners were constantly clamoring for better constructed and stronger British-built wood hulls. Wood construction was supplanted by the use of iron for British-built vessels in the Australian trade when United States- and Canadian-built "big wood ships" lost their usefulness through age (and abuse) or became too large for the rapidly diminishing emigrant passenger trade. The British-Australian wool clippers were constructed of iron, and a large fleet was built during the period 1860-1891, with the bulk of these iron clippers being launched in 1866-1885 inclusive. A few of the later outstanding Australian packet liners were composite built, such as the *Torrens* of 1,276 tons, constructed in 1875.

The Duthies, of Aberdeen, persisted in building ships of wood for their Australian line until 1868, in which year they launched the *Ann Duthie* of 994 tons, and in 1869 they built the *Abergeldie* of 1,152 tons, "their first ship with iron in her composition." The Aberdeen White Star Line, running between Britain and Australia, built wood vessels of from 343 to 1,174 tons during the years 1842-1866 and alternated with wood and composite ships of from 901 to 1,091 tons during 1867-1870; it built its first iron ship, the *Patriarch* (1,339 tons), in 1869 and from 1871 on confined itself to iron construction. Before the British Orient Line turned to iron for its ships in the Australian trade, it built six composite ships of from 633 to 1,127 tons during the years 1863-1866.

After the clipper ship era and the demand for high speed (at the sacrifice of other most important qualities) had waned, the United States built "half clippers," and these were supplanted for general trade by fast and handy carriers that loaded large cargoes, made passages in good time, performed reliably at sea, and were economic in operation—both as to the number of crew and the cost of repairs and maintenance.

Britain led the United States in the practical utilization of iron as a shipbuilding material simply because that country did not and could not grow the suitable timber needed for constructing its ships. It was dependent on the United States and the Scandinavian (Baltic) countries for the materials required to build and spar wood ships in quantity; whereas Britain possessed a wealth of iron and coal, and the utilization of these natural resources would lead to national prosperity as well as independence and later to predominance in the realm of both iron sail and steam marine navigation. The United States, on the other hand, felt that it had an abundance of timber deemed ideal for ship construction and masting, and it had no occasion, therefore, to become particularly interested in iron ships until the need was more strongly felt to conserve its forests. The size of wood ships, however, is limited, but this handicap does not apply to iron; moreover, it was to be found that iron was a better building material than wood for steamships and particularly for screw-propelled vessels. It was the British merchant shipowners coupled with a popular national feeling that forced the use of iron as a shipbuilding material and the screw as a means of propulsion for steamships in Britain, for the admiralty resisted and strongly endorsed wood construction for warships and paddle-operated wood vessels for subsidized merchant steamers. Unfortunately, the United States, when it authorized the building of a few subsidized steam vessels in the late forties, placed the design or approval of the hull and machinery of these steamers in the hands of

the Navy Department, and it followed the British Admiralty and insisted on the building and operation of wood side-wheel packet steamers.

The British got "the jump" on the United States in the practical operation of steam packets in the North Atlantic "ferry" notwithstanding the fact that steam navigation originated in the United States and had been in successful operation in coastal, lake, and river waters for some thirty years before the British entered the transatlantic trade with steam packets in 1838. Steam propulsion in the Atlantic "ferry" had been agitated for years by farseeing Americans. The *Savannah*, a steam auxiliary sailing ship, had crossed the Atlantic in 1819 (nineteen years before a regular steamer), and the *Robert Fulton* of 750 tons was covering a 2,225-mile course with great success between New Orleans and New York in 10 steaming days as early as April 1820. It was an American who inspired the British into action that gave them the honor of being pioneers in the operation of packets that crossed the Atlantic all the way under their own steam. Whereas it was the American Government, influenced by a prejudiced Navy Department, that caused the exclusive building in the United States of wood side-wheelers as mail carriers and subsidized vessels and discouraged development work in iron construction and the use of the screw propeller (first successfully used by Americans during the War of the Revolution), it was primarily the wood packet ship-owners, with merchants, bankers, and the press, that fought steam navigation for long ocean voyages and limited its sphere of operations in the thirties and forties and, furthermore, fought the payment of subsidies (exclusively to steamships) in the fifties. The leading American sailing packet lines were approached by enthusiasts with vision to take up steamship transatlantic service before the same men (including Cunard, of Canada, a son of Pennsylvania-born parents) succeeded in interesting British capital, and in England they had no sailing packet ownership and friends to combat.

The United States built many large steamship hulls of wood for the transatlantic trade during 1848-1855; these ranged from the *Franklin* and *Ohio* of 2,400 tons to the *Adriatic* of 4,144 tons, built for the Collins Line, and it was during the year that America's biggest wood steamship was built (1855) that the British put into service their first subsidized Cunard transatlantic iron steamship, the *Persia* of 3,300 tons. The *Persia* was a side-wheeler, and because of British Admiralty requirements and prejudices, the Cunard Company was compelled to build side-wheelers until 1862. The first British screw steamship to appear in the transatlantic trade was the big *Great Britain* of 3,270 tons in 1845, and she was the first iron as well as the first screw steamship to operate in the Atlantic "ferry." The four fast American-built Collins liners that made history were wood paddle-wheel steamers of some 2,860 tons, with hulls 290 ft. long and 46 ft. beam; the larger *Adriatic*, the biggest vessel in the world when built, never really operated in the Collins Line because of the withdrawal of U. S. Government support and the line's resulting insolvency, but she had a large wood hull 345 ft. long, 50 ft. beam, and 33 ft. deep—a triumph in wood construction and apparently the maximum size for a wood vessel. The largest wood sailing hull ever built in the world was that of the 3,731-ton six-masted schooner *Wyoming*, constructed at Bath, Maine, in 1909; she was 330 ft. long, 50 ft. beam, and 30 ft. deep. The largest transatlantic wood steamers built in Britain (which succeeded in building a few good, large wood hulls with government backing for subsidized steamers when it failed to produce good, big privately owned sailing ships) were the *Arabia* (2,400 tons) in 1852 and three other Cunarders of 2,200 tons during the period 1850-1854. It was well known by competent, unprejudiced authorities by the mid-century that Americans could lead the world indefinitely in the building and operation of steamships, as they had been doing for long years in merchant sail and were then doing in steam, but "the handwriting was on the wall," and the future for ocean steamships required iron construction and screw propulsion. Britain, because of a prejudiced admiralty, was slow in taking advantage of its opportunities, and by reason of politics, a non-united United States, and the Civil War, America could not act in its highest national interest. In the sixties, Britain again became Mistress of the Seas and commenced to build iron sailing ships and iron

screw steamers to realize fully its destiny and make it impossible for any other nation to challenge its marine supremacy for half a century or more.

The United States, which because of a damnable political situation had withdrawn from foreign trade with steam in the latter half of the fifties, practically threw its deep-sea merchant marine into the hands of the British during the years of the Civil War, and Britain used sizable United States- and Canadian-built wood tonnage to build up and maintain its marine prestige until it could construct its own merchant fleet of iron—both sail and steam. In the seventies and early eighties, American Down Easters competed with British iron sail on the world's deep-sea trade routes, but whereas iron ships had the advantage of lighter weight (and, therefore, an increase in deadweight capacity for an iron ship over a wood one built from the same model), wood ships, with their bottoms copper-sheathed, were faster than iron ships, and the speed superiority of wood over iron became conspicuously evident as the length of the voyage increased. The use of iron by the British in constructing sailing vessels demanded the building of dry docks at foreign stations for cleaning the foul bottoms of their iron vessels, both sail and steam, and these dry docks and repair stations became as important for the successful operation of the merchant marine of Britain as foreign coaling depots for its steamers. No matter how frequently iron ships were dry-docked and their bottoms cleaned and painted, an iron sailing vessel proved to be slower than a wooden ship built from the same model. To combat this handicap, the British built their ships with finer lines than the Americans and thus lost the economic benefit of lighter hulls and correspondingly greater deadweight capacity, for they deliberately lessened the displacement in an effort to overcome the handicap of lower speed. As the seventies and eighties advanced, the British built sharper-modeled ships to compete in speed with wood copper-sheathed American Down Easters until many of the British iron ships were modeled as "half," or "medium," clippers.

Some of the British iron sailing ships with "clipper" characteristics occasionally made a fast passage, and when their bottoms were clean and conditions favorable, they could have been expected to sail better than they did in comparison with much fuller New England-built wood ships; however, the average length of passage of British iron sail in the California-Britain grain trade for a period of four years (1881-1885) was over five days longer than that of the average of all American wood sail participating in that trade during the same period of time. Moreover, the casualties in the aggregate—lost, in peril, and accidents of import—per passage were fewer for American wood than for British iron, British wood, or any other type of competition for the period, thus proving that the American wood ships—withstanding insurance rates—were the best marine risk of any nation or of any type of ship engaged in the trade and the most efficient carriers, considering speed, loadings, etc. British iron generally showed as the second best and British wood (probably generally Canadian-built) the third. On 418 passages made by American wood ships during the years of the survey, not a single life was lost; whereas on 198 passages of British wood, 18 lives were lost. On the 761 passages of British iron, 68 lives were lost, and three of these iron vessels "went missing." Moreover, according to actual records of damages and losses, the American wood ships consistently delivered their cargoes in better physical condition at a British discharging port than did either British iron or British wood vessels.

When Arthur Sewall & Company, of Bath, Maine, bought the four-masted British "barque" *Kenilworth* of 2,293 tons (after she had been burned at Port Costa in 1889 when loading wheat for England) and had her thoroughly repaired and put under the American flag, it became the operating owner of one of the admittedly best ships ever built on the Clyde. The *Kenilworth*, laid down by J. Reid & Company at Port Glasgow in 1887 (and two years old when put under the Stars and Stripes), was described as "a partial clipper, built regardless of expense as good as a modern steel ship can be built," and she made some very good runs. She was fast compared with the fuller-bodied steel shipentines built from a British design in the Sewall yard at Bath during the years 1894-1902, but the steel *Kenilworth*, as a reliable, fast sailer, a carrier, and a sea boat, was decidedly inferior to the wood Down Easter

Henry B. Hyde, built at Bath in 1884 by John McDonald. In December 1891, the *Kenilworth* was dry-docked in New York and, after loading with a general cargo, sailed January 3, 1892, for Puget Sound, with Capt. James G. Baker in command. On March 16, Baker saw how his British-built steel ship, which he proudly called a "clipper," sailed when alongside of a fuller but better-modeled (and rigged) wood Down Easter. Baker reported the incident as follows:

I made a ship astern at daylight and found that she was coming up on us, which is an unusual occurrence. We had a good quarterly breeze E.S.E. At 2 in the afternoon we exchanged signals with the *Henry B. Hyde*. At dark that evening he was about four miles ahead and we never saw him after-

wards. I give that ship her due. I think she is the fastest wooden ship afloat. I was never more surprised in my life in regard to her sailing qualities, but she outsailed us fair and square with all our generalship to prevent.

It is not surprising that Mark W. Hennessy, in *THE SEWALL SHIPS OF STEEL*, wrote: "On March 16 [1892], a white cloud skimming the sea overhauled and swept past the flying *Kenilworth*. The astonished Baker recognized this speeding phenomenon as the famous wooden ship *Henry B. Hyde* built by John McDonald and Henry Lermond at Bath." In 1906-1908, the *Kenilworth*, after making several most creditable westward Cape Horn runs, made a long drawn-out passage over that course and actually required 423 days (a year and 58 days) to complete the journey from Philadelphia to San Francisco (via Montevideo and Rio de Janeiro). This discouraged the Sewalls, and it was the last time that the proud British steel partial clipper was ever sent around the Horn.

In 1899, Sewalls' fastest American-built steel shipentine, the *Erskine M. Phelps*, made her maiden voyage, and Capt. Robert J. Graham was in command. On the outward passage with coal from Baltimore to San Francisco, Graham reported a maximum speed of 14 knots and wrote of his new ship: "As a model she is magnificent. She is, I think, as near perfect as one could expect to get a vessel for carrying purposes. She sails well in strong winds, on one occasion made 13 and 13½ knots and kept it up several hours." Historian Hennessy tells us, however, that the "*Phelps*" completed her maiden passage and sailed into San Francisco Bay "with a rather glum shipmaster in command" and that "the shoe pinched worst" because the Bath wood ship *Henry B. Hyde*, which had gone to sea but eight days ahead of the "*Phelps*," had made (when fourteen years old) still another of her good runs, badly trounced his new steel ship, and "soundly beat Graham's pride." For any metal (or wooden) ship to be beaten by the wood Down Easter *Henry B. Hyde* was, however, no disgrace, for that ship made four consecutive westbound Cape Horn passages, deep laden, from New York to San Francisco during the years 1889-1893 in 108, 108, 105, and 112 days, respectively (an average of 108¼ days), a performance that but very few sharp-modeled clipper ships flying a "wealth of canvas," manned by a big crew, and carrying a relatively small cargo ever equaled in the "speed crazy fifties."

In the early eighties, William H. Starbuck and associates, impressed by the theoretical superiority of iron over wood as a shipbuilding material, decided to build a fleet of American iron Down Easters in the United States and, because of localized iron shipbuilding facilities in the country, naturally decided to build their ships (planned to revolutionize American shipping) on the Delaware River. In 1882, Starbuck had contracted with Goss, Sawyer & Packard, of Bath, to build for him a Down Easter (rather small for the times) of about 1,300 tons, and the *William H. Starbuck* of 1,339 tons was the result. After studying Bath-built ships and obtaining all the information regarding models, rig, and equipment deemed necessary, Starbuck contracted with John Roach & Son, the well-established and reputable iron shipbuilder, of Chester, Pa., to build a 2,000-ton iron Down Easter duplicating in iron the fine, fast and good-carrying full-rigged wood ships being built on the Kennebec River. The *Tillie E. Starbuck* of 2,033 tons, launched into the Delaware on April 14, 1883, was the result, and she was the first full-rigged iron ship built in the United States. Not being entirely satisfied in his dealings with the Roaches, Starbuck made arrangements with Commander Gorringe of the U. S. Navy (retired) to build for him and his associates at a newly formed

yard (The American Shipbuilding Company, of Philadelphia) two "fine 2,000-ton 3-masted ships to be at least equal, if not superior, in speed, cargo capacity and quality of design and construction, to any ships of that size afloat." The first of these "improved metal Down Easters," the *T. F. Oakes* (1,997 tons), was rapidly built, as she entered the water on September 29, 1883, or 150 days (less than five months) after the keel was laid. The third and last of the Starbuck (et al.) iron ships, the *Clarence S. Bement* (1,999 tons), followed in 1884.

The experience gained with this trio of iron Down Easters was so definitely discouraging that it killed all hopes of building iron full-rigged ships in the United States to compete with the excellently designed and substantially built wood Down Easters. The *Tillie E. Starbuck*, which attempted to duplicate a Bath-built wood ship, was the best of the iron trio, but her owner and Captain Curtis (her best commander and a noted sail carrier) admitted that the ship "could not compare as regards speed with wooden ships of her size and date." The "*Tillie*" was lost off the Horn in 1907 (bound east), when twenty-four years old. The *T. F. Oakes* was a heavy, dull, and slow sailer. In 1893 she occupied 195 days on a passage from New York to San Francisco and on March 21, 1897, reached New York 259 days out from Shanghai, after she had been posted as "missing" for some time. The "*Oakes*" was wrecked on the California coast in 1901, when eighteen years old. The *Clarence S. Bement*, it has been said, "was more notorious for the length of her passages than for the shortness of them," and "the only pleasing thing that can be said about this slow-poke of a ship was that she had a beautiful figurehead" (a white swan with outstretched wings). The "*Bement*," in 1901, occupied 222 days on a passage from Yokohama to New York, following which she was sold to San Francisco parties and, in 1904, was destroyed by fire at sea when twenty years old.

It is of interest to note that the best contemporary wood Down Easters (the "*Hyde*" and the "*Ropes*") had a ratio of length to beam of 5.84 to 1; whereas the *T. F. Oakes* and *Clarence S. Bement*, following British rather than Yankee ideas of hull proportions, had 2.1 ft. less beam than the *Tillie E. Starbuck* and a ratio of length to beam of 6.34 to 1. The wood Down Easters "*Hyde*" and "*Ropes*," which were exceedingly fast, had a registered tonnage of 9.59 tons per foot of length; whereas the two "painfully slow" British-proportioned type of American-built iron ships averaged only 7.76 tons per foot of length.

British Lloyd's and the underwriters differentiated so strongly in their marine risk classifications between wood and iron ships (and particularly between United States wood and British iron vessels trading to or from a British Empire port) that higher insurance rates, arbitrarily and emotionally set in prejudice without any scientific basis or regard to the facts of demonstrated experience, had to be paid for both a wood ship and her cargo, with the resultant lower freight revenue per ton received by a wood ship, and this British-controlled insurance monopoly drove even the finest American-built wood Down Easters, first, into undesirable and relatively unremunerative, heavy bulk trades and, finally, entirely from the Seven Seas. However, both iron (or steel) and wood sail the world over had to succumb to the competition of steel steam and power (motor) vessels as time marched on. It is generally believed that the constantly increasing economy of metal ship construction and of high-pressure steam and multiple-expansion reciprocating engines and turbines, the building of coaling (and later oil fueling) stations and dry docks, with repairing and conditioning facilities, throughout the world, and the general use by power vessels of the Panama as well as the Suez Canal drove merchant sail from the seas; but this is only part of the story of evolution, and this mechanical phase, while of vital importance, is overemphasized, with the human element affecting the eclipse and discarding of sail ignored or at least grossly minimized.

As ships grew in size and the economic demands of operation became both complex and exacting, the actual work required in sailing a square-rigger became increasingly laborious and both exacting and wearing to men and officers. A seaman on a steamship had an "easy" job, whereas a forecabin hand on a big deep-sea square-rigger led such an arduous, dangerous

life consisting of a maximum of laborious work, with a minimum of comfort, coupled with extremely small pay, that a berth on a sailing vessel even to an experienced old "tar" lost its interest, and real A. B.'s turned to steam until their seagoing days were over. Boys ceased going to sea in the United States around the middle of the nineteenth century, and in the Down Easter era it became difficult to obtain the right kind of young officers who had worked aft via the forecabin. In the latter years of the century, there was a pronounced shortage of able skippers, officers, and men, and during the early years of the present century it became impossible either to ship capable officers or to sign up a physically strong crew of men to work a square-rigger, even if they were all greenhorns and most undesirable members of society. The Alaska salmon packers, using old ships "bought cheap" and operating economically under sail, with no expense for fuel, got along for years with each ship commanded by an old able sea captain and a mate with some training on a square-rigger; but the old captains passed away or retired broken in health, no younger men could take their places, and both seamen and common labor banned working on a square-rigger, so the packers—the last Americans to use deep-sea sail—had to lay up their sailing vessels, send them to the shipbreakers, and turn to steam.

Unsuccessful Steamers Rebuilt as Sailing Ships in the Last Half of the Nineteenth Century

It is rather surprising to note that in the battle for survival between sail and steam, many vessels built as steamers that proved unsuccessful or at least unprofitable were later converted into sailing vessels and performed quite well for years. The very fast American transatlantic side-wheel steamship *Vanderbilt* of 3,360 tons (length 311 ft., beam 47 ft., depth 31¾ ft.), built by J. Simonson, New York, for Cornelius Vanderbilt in 1856, which in 1859 beat the record of the crack iron-built Cunarder *Persia* by half an hour from New York to Southampton, was withdrawn from Atlantic service in 1860 owing to lack of support by the U. S. Government. The *Vanderbilt* was turned over to the U. S. Navy in March 1862 and laid up at Mare Island, Calif., in mid-1866. In March 1873 (when seventeen years old), she was sold to George Howes & Company, which converted her to a sailing ship, renamed *Three Brothers*. At that time, the press described her as "by far the largest sailing ship in the world," and authorities later proclaimed that she was "the fastest all-round sailer afloat." The *Three Brothers* made many fine passages under canvas and beat many very fast ships. The vessel was highly thought of in England, and in 1880 she was sold to John Williams, of Liverpool, who operated her with success until freights fell so low that she could not make money. In 1885, when twenty-nine years old and after twelve years under canvas, she was sold to the Anchor Line and turned into a coal hulk.

Another transatlantic steamer, the *Ericsson* of 1,902 tons (length 250 ft., beam 40 ft., depth 27 ft.), built in 1852 by Perrine, Patterson & Stack, New York, was converted into a sailing ship when the American Congress made it impossible to operate American steamers at a profit; she ended her days on the Pacific Coast. Another converted steamer that sailed under the American flag was the iron ship *May Flint*, built in 1880 by McMillan at Dumbarton, Scotland, as the transatlantic steamer *Persian Monarch*. This vessel stranded near New York in 1895 and was bought, salvaged, and rebuilt as a full-rigged sailing ship by Charles R. Flint & Company. The *May Flint* registered 3,340 tons and, with her straight stem, was an ugly looking square-rigger; she was an unlucky vessel, under sail as when under steam, and met her end in San Francisco by fire when loaded with a coal cargo.

On November 4, 1865, Napier, of Glasgow, launched the *Pereire*, an iron bark-rigged steamer fitted with engines of 1,000 H.P. driving a screw propeller. Her first owner was the French Transatlantic Line, and for twenty-two years this steamer carried mail, passengers, and freight between Havre and New York. In 1888 the *Pereire* appeared on the seas as the four-masted full-rigged British iron ship *Lancing*, and the record of this vessel was such that she has been described by the British as "by far the most successful of the many conversions from steam to sail." The *Lancing*, which as a steamer measured 3,150 tons gross and as a ship was of 2,785 tons gross, was in service in 1924, when fifty-nine years old and after thirty-six years of operation under canvas, but in the spring of 1925 she was in the hands of Italian shipbreakers.

In a few cases, iron vessels have been changed over from steam to sail, but many early British wood steamers, such as the *Darling Downs* (built on the Thames in 1852), made good time when converted into sailing ships. As a square-rigger of 1,634 tons (length 258.6 ft., beam 40 ft., depth 29.9 ft.), the "*Downs*" became a favorite ship for passengers when running from England to Sydney, Australia. The famous British "clipper" *Tweed* (1,751 tons), with some amazingly fast voyages to her credit, was originally the steam paddle frigate *Punjaub*, built by the Parsees at Bombay, India, in 1854 for the East India Company's navy. She was sent to England in the spring of 1862 to be sold and was bought by John Willis, who promptly converted her into a full-rigged sailing ship. Incidentally, it is of interest to note that *The Tweed* (the former *Punjaub*) had a model reported to have been copied in essentials from a fast French sailing vessel that went ashore on the sandy Indian coast and was measured and had the lines taken off her. It is also said that *The Tweed* was the inspiration for modeling the *Cutty Sark* of 921 tons, a composite clipper ship, built in 1869 at Dumbarton and generally proclaimed to be Britain's fastest sailing ship.

British Composite-built Ships

The British composite-built tea clippers of somewhat less than 1,000 tons register—with a strong iron frame and copper-sheathed teakwood planking—seemed to be ideal for the China tea trade for many long years after the large American clippers had withdrawn from the run; but the British tea clippers, whereas of a yacht type and very fast, were not of a good design from a naval architect's standpoint. Any mercantile vessel is badly designed that is so narrow, with a center of buoyancy and center of gravity so placed, that when light she has negative stability and will not stand up straight. The error is intensified to the point of condemnation when a vessel loaded full with a homogeneous cargo still requires the use of ballast (i.e., nonrevenue-making materials that add to the ship's displacement) in order to obtain the necessary metacentric height (or stability) for sailing.

During a transition period between the building of wood and iron ships, composite construction was popular in Britain for about twelve years for the tea clippers in the China trade and the small Australian wool clippers. The first vessel built using this type of construction was evidently a schooner named *Excelsior*, which was launched in 1850. Bilbe & Perry, of Rotherhithe, built the British composite full-rigged ship *Red Riding Hood* of 750 tons in 1857, but this craft was not a clipper, and she was constructed for general service. The composite clippers seemed to be particularly suitable for the tea trade, where great strength was required and in which iron ships were never popular for two reasons—it being felt that "iron was bad for the tea" and that "iron ships could never equal wooden ships

in speed in light winds." Composite clippers proved themselves to be exceedingly strong and fully able to stand the stresses of hard driving without being twisted out of shape. The period of time in which some of these old composite clippers gave admirable service is amazing, and the *Cutty Sark*, built in 1869, was afloat during World War II, with a hull said to be in very satisfactory condition, and this after being in the water well over seventy years. A prime contributory cause of the long life of some of the British composite ships was the use of iron—not steel—and of selected Indian teak for outside planking. The *Java*, a coal hulk at Gibraltar in 1936, was said to have been 123 years old and was reported to have been built at Calcutta in 1813 entirely of Indian "imperishable" teak.

The British tea clipper *Ariel*, launched on June 29, 1865, on the Clyde, was an outstanding composite ship in speed and general appearance. However, because of her proportions, fine lines, big deadrise, and relatively small midship section area, she lacked initial stability, as did all other British clippers of her type. When launched, she had "100 tons of fixed iron ballast molded into the timbers between the ceiling and the outer skin," and, in addition to this, 20 tons of movable pig iron ballast was carried aboard. When loaded with tea, the *Ariel* also required about 200 tons of ballast. The ballasting of all these British tea clippers was one of the most important problems that their captains had to contend with. Under Captain Keay, the *Ariel* carried a total of 340 tons of ballast on her first voyage, 324 tons on her second, and 310 tons on her third. This skipper claimed that he had found that the ship sailed best when trimmed by the stern. It was said by both her owners and the command that the *Ariel*—contrary to popular opinion—was not "over-hatted." She carried such a cloud of canvas that Captain Keay admitted, however, that she was "a ticklish boat to handle when being heavily pressed" and "always required careful watching."

It was said of both the *Ariel* and the *Sir Lancelot* (practically sister ships) that these clippers, "like all sharp ships, were very wet in bad weather; their petty officers could not show themselves outside the midshiphouse without being drenched in anything of a blow, and they were little better off than water-rats when running the easting down." The *Ariel* achieved immortal fame in the great tea race of 1866, in which such fast British clipper ships as the *Taeping*, *Serica*, *Fiery Cross*, *Taising*, *Falcon*, *Flying Spur*, and many others competed and in which the *Ariel's* race down the English Channel "nip and tuck" with the *Taeping* and the arrival of three clippers in the Downs, "within minutes of each other," all 99 days out from Foochow, China, produced an exciting and unequalled climax in the history of long-distance racing.

It is interesting to note that the composite system of construction has had such a short life among merchant ships, although it still survives to some degree in the construction of yachts. It is also of importance to record that (with but one exception) the system was used in Britain only on vessels that must be considered of relatively small size when compared with that of American clippers built at the same and earlier periods and with the British iron clippers, semi-clippers, and big sailing cargo carriers built later. As before mentioned, the largest composite ship ever constructed was the *Sobraon* of 2,131 tons, built by Hall, of Aberdeen, and launched in November 1866. The *Sobraon* was originally intended to be given auxiliary power, and her sternpost was built accordingly to permit the operation of a screw propeller. This aperture was later filled out with solid timber. In 1892, after some twenty-five years of service, the *Sobraon* was taken off the Australian run and sold to the New South Wales government as a reformatory ship. In 1911 she was acquired by the Australian Federal Government to be used as a training ship. In 1936, after seventy years of service, the *Sobraon* (then named *Tingira*, about to be broken up) underwent a thorough survey, with such a favorable result, which included a surprising report of "excellent physical condition," that the ship's hull, it was said, "is going to be continued in service." It was also reported that plans were being prepared with the idea of rigging the vessel suitably for use with auxiliary engines. The life of the British-built composite ships (teak-planked and copper-

sheathed) of the sixties and seventies has proved to be phenomenal and suggests that the system of construction was not used as extensively as its proven merits warranted.

The 526-ton composite-built British bark *Berean* was constructed in 1869 by Pile, of Sunderland, on tea clipper lines. She was built according to Lloyd's rules as a 19-year A-1 ship, and we are told that in 1887, when she was eighteen years old and Lloyd's senior surveyor made an inquiry as to when the vessel was last caulked, he was told "on the stocks before launching." Lubbock says that it was stated by her owners that up to the end of her career, which came as the result of being rammed in 1910, the *Berean* never (during the entire period of forty-one years) had her sheathing taken off and her teak bottom completely recaulked, even though in 1896 she was sold to the Norwegians and employed for fourteen years carrying ice from Norway to the Thames.

The virtue of wooden and composite ships and their superiority to iron vessels were due primarily to the copping of their bottoms and the ability of such craft to maintain a sea speed in service for long periods of time when sailing the Seven Seas and away from dry-docking facilities. Iron ships fouled badly, and with foul bottoms their sailing qualities, speed, and handiness were greatly impaired. Moreover, a British historian tells us:

The British-built wooden vessels, although constructed of hard-wood, could not in merchant service be deemed satisfactory from the standpoint of strength of structure and length of reliable service with reasonably low maintenance cost. Before Britain generally looked upon composite construction with favor several ships were built, such as the *Min*, *Guinevere*, *Highflyer* and *White Adder*

[built 1861-1862], which were fitted with iron beams, and occasionally iron was used, both for the deck beams and for occasional hold beams, to strengthen the wooden hull, and, incidentally, it was noted with satisfaction that these vessels built with iron beams afforded greater internal volume for cargo storage.

The year 1863 saw the appearance of the first high-class composite clipper built for the Britain-China tea trade. This type of construction continued to be popular and satisfactory in the tea trade as long as that trade lasted, but the last vessels built for this service appeared in 1870. The most famous of the entire British fleet of composite clippers were the *Thermopylae* (948 tons), built in 1868 by Hood, of Aberdeen, and the *Cutty Sark* (921 tons), built in 1869 by Scott & Linton, on the Clyde.

It is significant that of the eighty-five clippers built between 1850 and 1870 for the British China tea trade, the average size of these vessels was only 772 tons, and only two exceeded 1,000 tons, the maximum being 1,126 tons and the minimum 471 tons. Composite clippers appeared in the Australian trade in the early sixties, and some of the larger British tea clippers ended their days in the Australian run, which required larger vessels than the China tea trade.

It is interesting to note that during the height of the composite shipbuilding in Britain (i.e., 1869), one ship was built, the *City of Hankow*, that had an entire brass bottom and iron topsides. This vessel was given a good deal of publicity as being another step in the transition period—this being from composite to iron. On the *City of Hankow*, all the teak planking was eliminated, and brass bottom plates were substituted for the strength plank of the wood and for the copper sheets affixed to the wood for anti-fouling purposes. The great problem here, however, was galvanic action, and apparently the much-heralded transition construction ship was not a success and was never duplicated.

Composite construction was used in the United States in the 1890's for government-owned vessels, and gunboats designed for long voyages in foreign waters as well as lightships, which had to be anchored at sea for long periods of time, were built with steel framing, deck beams, etc., and steel above-water upper hulls and with hard southern pine planking copper-sheathed below the deep load water line; this permitted the vessels to keep the seas, without having their bottoms fouled, for long periods of time. Several U. S. naval vessels, including three 15,000-ton 19-knot heavily armored and armed battleships of the *Georgia* class (designed in 1900), some light cruisers, and the training square-rigged sailing ship *Chesapeake* (built

without any auxiliary power), were constructed with steel hulls that were sheathed below water with hard pine planking and coppered to prevent fouling to obviate the necessity of dry-docking at frequent intervals for bottom cleaning. Galvanic action was the *bête noir* of sheathed construction (wood underwater planking over a steel hull) in the United States; government naval vessels, etc., so constructed experienced so much serious trouble from this cause (the corroding action of copper on iron or steel in water) that the building practice of the 1890's, carrying into the early years of the twentieth century, was soon discontinued.

*The Center of Wood Shipbuilding in the United States Steadily
Moves Eastward—New York, Boston, Bath*

In the sailing packet and what may be termed the pre-clipper days, i.e., the twenties, thirties, and forties of the nineteenth century, New York grew to be the great quality shipbuilding center of the United States. In the fifties and during the clipper ship era, leadership in building (ignoring the number of shipyards and tonnage built, in which Maine led for much of the century) passed to Massachusetts, with activities centering in Boston and environs. As the clipper ship passed as a type because of economic conditions, the gradually improving product of Maine wood shipbuilders, which showed the intelligent and continuous capitalizing of a vast accumulated experience, came into admitted general favor in the United States. The movement of wooden shipbuilding away from New York in the fifties continued to the north-east and away from Massachusetts in the sixties, with Maine (and Bath, "The City of Ships," its center) becoming supreme in American shipbuilding in the seventies and eighties and continuing its unrivaled leadership to the end of sail—both wood and steel. Maine produced, specialized in, and generally concentrated on the Down Easter type of commodious, fast, and handy sailer—a good carrier that was reliable and economic in operations and, moreover, a money-maker.

Whereas Maine gained recognition as an important shipbuilding state when it separated from Massachusetts in 1820, it was not generally known that the new state, even at that early date, was building more vessels and a greater marine tonnage than any other state of the Union. At mid-century, when New York and Boston were waging a fight for leadership in the class of construction that was conspicuously in the public eye, Maine was continuing to build many more ships of a greater aggregate tonnage than either New York or Massachusetts and, as a matter of fact, more than both of these important shipbuilding states added together. In thirty years, Maine trebled its shipbuilding output and in 1849, before the California Gold Rush and the clipper shipbuilding boom, built 82,256 tons of shipping. New York State was second in volume, even though first in apparent quality of construction, with 44,104 tons; Pennsylvania ranked third in total tonnage; and Massachusetts, with 23,888 tons, was in fourth place. In that year (preceding the mid-century), Maine built 1.21 times as much marine tonnage as the states of New York and Massachusetts combined. In 1854, at the height of "the clipper boom," Maine built 168,631 tons of shipping (consisting of 156 full-rigged ships, 2 barks, 78 brigs, 99 schooners, 12 sloops, and 3 steamers); New York State ranked second, producing a total of 72,073 tons of vessels, of which 26 were full-rigged ships; and Massachusetts was placed third with some 48,000 tons. The states of New York and Massachusetts together built only 71 per cent as much marine tonnage as Maine, and the Pine Tree State produced $2\frac{1}{3}$ times as much tonnage as New York State and $3\frac{1}{2}$ times the tonnage built in Massachusetts. By 1855, square-riggers were being built along the entire

coast line of Maine from the Piscataqua River to the Canadian border, and whereas Pennsylvania's floating tonnage was principally in river boats (sail, steam, and barges) and a good part of New York State tonnage was of this class of inland-water craft, Maine built deep-sea vessels almost entirely. Moreover, in 1855, when 213 ships and barks were being built in Maine and Bath was building 56 of these three-masted square-riggers (and Wiscasset 11), there were 46 such vessels under construction in the Waldoboro district, 31 in the Portland and Casco Bay area, 29 in the far eastern Passamaquoddy and Machias districts (excluding 7 in Frenchman Bay), 13 at Belfast, 13 at Bangor and Penobscot, and 7 at Kennebunkport.

The reason advanced for the rapid movement of shipbuilding to the eastward, which began following the termination of the War of 1812 and continued throughout the century and to the end of wood construction, was the desire "to build ships economically near where the timber grew." During the eighteenth and the first decades of the nineteenth century, there was a good measure of truth in this argument, and Maine, as the years went by, was certainly nearer big stands of surviving and available growing virgin timber suitable and desirable for shipbuilding than New York, Boston, or any New York, New Jersey, Connecticut, Rhode Island, or Massachusetts established shipbuilding center. In these arguments of the advantages of Maine for the construction of ships because of its "nearness to the timber," Baltimore (an old established building center) and the South were generally ignored. Wood shipbuilding south of the Delaware was never vigorous, which is surprising, as the South was in reality the greatest source of wood shipbuilding materials in the United States and had a superabundance of hard pine, ideal for planking, as well as a good growth of live oak, which was the best species of oak for ship timbers growing in the country. When the young republic commenced to build a fleet of wood frigates and ships of the line, the naval constructor condemned New England white oak for the framing, but approved and demanded southern live oak.

As the nineteenth century advanced, suitable hardwoods for ship construction, both framing and planking, became more and more cut out, builders had to go farther and farther afield for their timber, Maine lost more and more of the advantage that it once held over New York and other New England states, and gradually the South became recognized as the best source of supply for wood shipbuilding materials in the country and the only available field for the needed hardwood for a ship's planking. When Maine commenced sending to the South for much or most of its timber, the reason advanced for continuing to build ships in Maine in great quantities was that Maine was the only state in the Union where competent ship carpenters were to be found in the desired numbers to build the wood ships required. One Maine ship captain decided to construct ships of Down Easter type near the timber in the Carolinas; he collected a crew of competent, experienced workmen and sent them south to settle and build ships "near the timber," but the experiment was costly, and it was decided that it was cheaper to build wood ships in the state of Maine, in the midst of Maine atmosphere, tradition, and environment, than it was to build in the South, with transplanted men in an entirely different climate and surroundings. During the last decades, when Maine led not only the country but also the world as the builder of fine, big wood ships, hardly any of the timber, planking, masting, or necessary forest products came from stumpage grown in Maine. Trees for masting came from Oregon, but all planking and most of the timber came from the South.

That Maine could build clippers of quality is proven by the fact that the *Red Jacket* of 2,305 tons, designed by Samuel H. Pook of Boston, and believed by some contemporary authorities in America, Britain, and Australia to be "the handsomest, fastest and best clipper ship in the world," was built in 1853 by George ("Deacon") Thomas at Rockland, Maine. The *Rattler* of 1,121 tons, another product of the Thomas yard at Rockland (launched in 1852), made the all-time record run of 28 days from Callao to San Francisco in 1878, when she was twenty-six years old. The *Defiance* of 1,900 tons, another beautiful Pook ship (also built by Thomas at Rockland in 1852), on her run to New York, made 18 knots per hour

to Fire Island and averaged a speed of 20 knots from there to Sandy Hook, which at that time was unheard-of speed for a sailing ship. It is also of interest to note that after George Thomas left Maine in the mid-fifties and moved to Quincy in the Boston, Mass., area, he did not build any more outstanding vessels.

Other fast clippers built in Maine include the *Flying Scud* of 1,713 tons, built at Damariscotta in 1853, which has been credited with making the world's fastest day's run of 449 nautical miles for a ship under canvas and with several fast passages, including a record run of 19 days 20 hours from New York to Marseilles in the winter of 1855-1856. The *Flying Dragon* of 1,127 tons, built at Bath in 1853, reached San Francisco in 1857, 97 days out from New York, having outsailed McKay's big extreme clipper *Great Republic* in the Pacific, and in 1860 she ran from Sydney, Australia, to Hampton Roads in only 75 days. The *Phoenix* of 1,458 tons, built at Cape Elizabeth, Maine, in 1854, ran from Savannah, Ga., to Cork Island in January 1859 in the record time of 14 days 9 hours and, in July 1855, went from San Francisco to Honolulu in only 8 days 17 hours. The *Talisman* of 1,237 tons, built at Damariscotta in 1854 (a rather full ship for a medium clipper), sailed from San Francisco on February 10, 1859, in company with the *Great Republic* and, with a run of 96 days to New York, beat McKay's big, fast clipper by four days. Many other Maine-built clippers are credited with fine sailing performances over ocean trade routes at record or near record speed, and they were generally considered as high-class well-built vessels.

In the mid-fifties, William H. Webb, of New York, advocated a type of ship in which consideration was given to carrying capacity as well as speed and pointed the way, in a measure, in the building of the clipper *Young America* in 1853, which, while very fast, was designed "to carry well for a clipper, be durable, and make money." Webb constructed for this vessel "a wonderfully strong well-modeled hull" and, moreover, created "a ship of great beauty," but because her owners were still clamoring for speed, he sent her to sea (against his better judgment) too heavily sparred. However, the ship carried this sail very well and, it was said, "better than the crew could handle it"; but it is apparent that certain spars, such as the main lower yard, were rather quickly reduced in length, and the *Young America* made her great record as "the best and most reliable Cape Horn clipper," during thirty consecutive years in the trade, under a moderate medium clipper rig. After building the *Young America*, which was technically a "full clipper," Webb constructed no more clippers of the model sharpness of this vessel, and he built no real "extreme clipper" after 1851. When he launched the *Intrepid* (1,173 tons) in 1856 and the steady, fast sailing, and big carrying *Black Hawk II* of 1,109 tons in 1857 (which vessel made twenty westward Cape Horn passages), he followed more closely the economic "Maine idea" for a ship and in the late fifties produced some excellent and reliable money-making carriers designated "medium clippers," which carried well and proved to be fast sailers.

Maine shipbuilders generally did not take kindly to the clipper type of sailing vessel, and they were ridiculed by New York and Boston shipping and shipbuilding interests for their determination to keep on building ships "that would carry enough cargo to make them pay . . . not this year or next, with freight rates absurdly high, but ten years from now when the rates will undoubtedly be low." The name "Down Easter," given to the Maine type of commodious medium-sized full-rigged wood ship, really originated in New York when the product of Maine shipbuilders in the clipper ship days was scornfully referred to as the "slow-poke Down Easter." These Maine builders of ships were ridiculed as "men who are not progressive enough to build in harmony with the demand of the times," which, however, proved to be a fleeting and decidedly uneconomic one after the first three years of the Gold Rush boom had passed and over two hundred and fifty newly built fast clippers commenced competing for around-the-Horn and the world's ocean trade. "Give a Down Easter plenty of time and he'll get there," a New Yorker declared with scorn, "that is, provided you guarantee his profits in advance." When New York deep-sea merchant shipbuilders and owners had passed from the picture, the maligned, conservative builders of Down Easters carried on

and made money in building and sailing wood square-rigged ships for over a quarter of a century, and they built steel ships into the twentieth century and wood coastwise schooners in quantity up to the first World War (1914-1918).

The clipper *Young America*, designed and built in 1853 by William H. Webb, was a better ship, rated in a competitive sense as a money-maker under ordinary or average trade conditions, than Donald McKay's great record-making extreme, or "out-and-out," clipper *Flying Cloud*, built in 1851; the service record of the two ships—in length of sea life and of profitable operation—proves the correctness of the statement made. The *Henry B. Hyde*, an outstanding Down Easter built at Bath, Maine, in 1884, was a better money-maker in the late eighties than the *Young America* in the sixties and seventies and a better ship when rated on the ton-mile-year basis (or cargo carried for distance per year) and operating costs than any sailing ship of her approximate size and cost built anywhere in the world either before or after her.

Donald McKay has been more publicized than William H. Webb (who followed the patriarchal Isaac Webb, aptly referred to since the 1840's as "The Father of Shipbuilders") and is, therefore, more of a romantic figure in the public eye. McKay—a Canadian, who had learned shipbuilding as an apprentice under Isaac Webb in New York and was a contemporary of Isaac's son William H.—had captured the imagination of Boston and of Massachusetts in the very early fifties. McKay had not only a certain element of the marine fraternity but also practically all the state behind him in advertising and boosting his product and, it must be said, grossly exaggerating—at least in a scientific sense—his personal achievements and the sailing performances of his ships. Other talented and quite successful builders of good, fast ships in Greater Boston were thoroughly eclipsed by the publicity given Donald McKay. The more original and modest designer Samuel H. Pook, of Boston, did not have the interests that tell behind him, and he received only a small percentage of the credit and honor that he deserved and truly won competitively. Young Pook was in his early twenties when he achieved fame as a designer of clipper ships, and he was the first naval architect of merchant vessels (sail and steam) in the United States who was not connected with a shipbuilding yard. This fact caused jealousy and lack of co-operation on the part of the builders, and he usually did not receive the backing and necessary support of the owners. His ideas were stolen and honors either withheld or pirated; yet he was the greatest technical naval architect in America during the clipper ship era. Pook quickly sensed the shortcomings of Griffiths' models, and he devoted his efforts toward evolving a more burdensome carrier and even a swifter deep-sea type of ship from utilizing principles copied from the transatlantic sailing packets. Carl C. Cutler, in *GREYHOUNDS OF THE SEA*, says that the theories Pook sponsored "triumphed, and with few exceptions the great racing prizes of the century were carried off by lineal descendants of the Western Ocean packets. After 1852, very few large American ships were built which did not embody the principles followed by Pook."

William H. Webb, of New York, was in the eyes of the metropolitan publicists merely one of a group of prominent shipbuilders. New York honored Webb as one of the outstanding leaders in the industry and as years went by was more and more conscious of his versatility, soundness, ability, and courage as a designer of all classes of vessels and the builder of the best; but New York differed from Boston and neither boosted its sons nor singled out any one in the realm of ship design and construction—sail or steam, clipper or packet—for special recognition. The result was that Donald McKay, of East Boston, became in the minds of the American reading public the greatest and possibly the only outstanding builder of clipper ships in the United States. However, Webb, as well as Pook, was a scientific man and a qualified technical naval architect, which McKay positively was not. In model design, Griffiths, of New York (with Stephen Smith's backing and help), Pook, of Boston, and Webb, of New York, were men of initiative; whereas McKay—like a horde of other good, practical builders—was merely a follower. However, McKay was outstanding among the non-technical men, as he had, besides courage and self-confidence, an uncanny good feeling for

a ship. This characteristic was by no means unique and limited to McKay, however, for Pook and Webb had it to a high degree, and whereas Griffiths was lacking in this attribute, his employer, Stephen Smith, had it, as had also David Brown, Jacob Bell, Jacob Westervelt, all of New York, and John Currier, Jr., of Newburyport, Robert E. Jackson and Samuel Hall, of East Boston, and others. Webb was not as much of an emotional extremist as McKay, and after wandering away on the Griffiths clipper theory and the demand of owners (and the public) with certain very sharp-modeled and overcanvased ships that he built in 1851, Webb seemed to collect himself quickly, and he came to work more and more, while building any kind of ship his trade demanded, on more conservative and sounder principles.

William H. Webb was probably the most versatile technical and practical builder of wood vessels that the world has ever known, and he covered the fields of merchant and naval vessels—both sail and steam. In addition to a large and varied fleet of sailing packets, clippers, and general deep-sea traders (full-rigged ships, barks, brigs, and schooners) for every conceivable kind of trade, Webb designed and built a large number of steamboats and steamships—both paddle-wheel and screw-propelled; many steamed through the Straits of Magellan to the Pacific and operated there with great success for many long years. Webb built steamers from 1847 to 1872, but his really momentous and unequalled achievements in the realm of wood ship construction were the immense wood steam vessels of war that he designed and built, mostly for European governments. In 1858, Webb built the 1,400-ton steam screw corvette *Japanese* for the Imperial Russian Government, followed in 1859 by the 4,600-ton steam frigate *General Admiral* for the Russian Navy; this warship, which was 313.6 ft. long, was 54.5 ft. beam and 33.6 ft. deep and had the largest and heaviest wood hull ever built up to that time. During the period of our Civil War, Webb built two wood ironclads, for the new Italian Navy, and one of these, the *Re d'Italia*, had a 55-ft. beam and was described as a "screw, ram, iron-clad steam frigate of high speed, mounting 32 guns." A still larger armored war vessel was ordered of Webb for the Union Navy, and he produced the "iron-clad screw ram *Dunderberg* of 5,090 tons. Her measurements were stated as length 377.3 ft., beam 72.8 ft., depth 22.63 ft., and her armament was reported as four 15-inch and twelve 11-inch guns. The Civil War was ended when this tremendous vessel, with a wood hull, was completed in 1866, so the big warship was sold to the French. No other wood ship-builder ever even attempted to build such large vessels, subjected to such great stresses, as William H. Webb, and his courage as well as genius was demonstrated by the great success realized in each and all of the numerous and various fields of construction in the realm of naval architecture and engineering in which he engaged.

Donald McKay, the most publicized United States shipbuilder in the early and mid-fifties, thought that he was building a fast ship when he constructed the *Reindeer* of 806 tons in 1849, and he referred to her as his first clipper until satisfied that she was not as fast as he had expected her to be. He determined to build a bigger and much sharper ship, and the *Stag Hound* of 1,534 tons (launched December 7, 1850), an extremely sharp-lined ship, very heavily rigged, was the result. It is said that this vessel's bow resembled that of a steamboat rather than a sailing vessel. McKay had built her primarily for speed, and when she was launched, he proclaimed her to be the largest ship of her class afloat, "longer and sharper than any other vessel in the merchant service in the world," and his "first clipper." The Boston papers said that "every element in her has been made subservient to speed" and that "she is her builder's beau ideal of swiftness." The *Stag Hound* proved fast under certain favorable sailing conditions, but up to the time of her loss by fire in October 1861, she was not the fast, reliable sailer that her designer expected her to be. McKay launched his "Cape Horn Greyhound," the extreme clipper *Flying Cloud* of 1,782 tons, April 15, 1851, and when he put another extreme clipper, the *Flying Fish* of 1,505 tons, in the water in September of that same year, he proclaimed her to be not only his best speed production but also "the world's sharpest and fastest ship." This proud boast was not so very far from the truth, for the *Flying Fish* has since been ranked by some competent historians as McKay's

"finest and fastest" creation. Concurrently with McKay's building of the *Flying Fish* in Boston, Webb in New York laid down and built the smaller *Swordfish* of 1,036 tons, launched September 20, 1851. Webb's boat (of 469 tons less register), while an "out-and-out" clipper and "very sharp," was not quite as extreme as the McKay ship, although some of her crew, after one stormy passage out to Shanghai, objected to her sharp ends, deserted, and called her a "Diving Bell." A memorable race of the day was the contest of these "speed merchants" over a course of some sixteen thousand miles around the Horn. The McKay ship, the *Flying Fish*, was soundly trounced by the sharp but well-modeled and beamy *Swordfish*, the latter completing the run in 90 days 16 hours (the fourth best passage ever made over the course), which was ten days faster than that of the much-heralded *Flying Fish*, whose time, often incorrectly stated as 98 days 18 hours, was, in fact, reported and verified as 100 days 6 hours to anchor outside the bar. The all-time record of the two clippers in the around-the-Horn service, however, naturally gives the speed honors to McKay's much larger *Flying Fish*, with a wonderful record of 105.6 days average for seven passages westbound during the years 1851-1857; whereas the *Swordfish* (of China trade size) made only four voyages to California around the Horn, and her average length of passage was 107 days. Neither of the two ships, however, ever made a slow run to the Golden Gate.

Again, whereas the *Flying Cloud*, McKay's famous extreme clipper, is often credited with the best passage around the Horn, it should be remembered that it was a medium California clipper, the *Andrew Jackson* of 1,679 tons (built at Mystic, Conn.), a fuller and more burdensome vessel without the far-famed sharp, hollow entrance lines, that really made the best time on the run and averaged better on all her westward passages, which covered a period from the mid-fifties into the sixties.

A marine historian has said: "Competent authorities are generally agreed that McKay's masterpieces were the *Stag Hound* (1850), *Flying Cloud* and *Flying Fish* (1851), *Sovereign of the Seas* and *Westward Ho* (1852), and the four ships built for the English Black Ball Line in 1854 and early 1855." The *Stag Hound* is questioned, but to this list is added by many the *Romance of the Seas* of 1,782 tons, built by McKay in 1853 (this beautiful fast ship was, however, designed by George B. Upton, of Boston), and the mammoth *Great Republic* (4,555 tons—as originally constructed), which McKay built "on spec" in 1853 and in which, as his claimed "masterpiece," he is said to have "risked all his wealth." Many other historians class the *Great Republic* with the steamship *Great Eastern* as being a leviathan so much larger than any practical vessel of her day that she was inevitably destined, as designed and constructed, to be a "white elephant." It is apparent that the burning of McKay's big ship at a New York pier before she commenced her maiden voyage permitted practical seafaring and ship-operating experts (i.e., Capt. Nathaniel B. Palmer and A. A. Low & Bro., of New York) to purchase her from the underwriters and reconstruct her by taking off one whole deck, reducing her tonnage 26.4 per cent, cutting some 25 per cent off her sail spread, and changing her rig so that one-half the original number of able seamen could handle her. The *Great Republic*, even with these changes, was a difficult and expensive vessel to operate because of her bulk, great weight, and draft. She was, however, the world's first four-masted shipentine (three masts square-rigged, with fore-and-aft rig on the jigger, or spanker), one of the first big clippers to use double topsails, and evidently the first to employ steam winches to hoist the yards. The *Great Republic*, launched at East Boston on October 4, 1853, was a mistake; for, as built by McKay, she had too much upper hull and carried too large spars, sails, and driving power for her immersed hull. Destroyed by fire at New York on December 27, 1853, when loaded and ready for sea before she moved under her own canvas and bought from the underwriters by more conservative and practical ship people, the *Great Republic* underwent changes during her reconstruction that not only helped but also "saved her." Notwithstanding these changes, the vessel was too big to be built of wood; she drew too much water, and while an excellent sailing ship in many respects, she was handicapped by her size.

If the *Great Republic* had been operated as originally designed and built by McKay, she would have been in the realm of wood sail what the mammoth *Great Eastern* was in iron and steam a few years later. Donald McKay was naturally greatly upset by the loss by fire of his big ship, in which he had great faith, and he undoubtedly lost much money by the catastrophe, but probably very much less in the aggregate than if he had been required to continue to own and operate the ship. It was estimated that it would cost at least \$10,000 a month to keep her in commission, that there were but few ocean trade routes in which a vessel of her size could be operated, that it would be extremely difficult to find men enough to man her, and that she would be required to lighten her cargo at most—if not all—ports.

The *Great Republic* had a checkered career. She was a fast ship in heavy favorable winds and made some good passages. She served as a French transport, under French charter, during the Crimean War and shortly thereafter was severely damaged (with her deck stove in) and nearly lost (1857) off Cape Horn when carrying a load of guano eastward from Peru to London. At the outbreak of the Civil War, she was seized as "rebel property" and put into government service as a transport. After proving unsuitable for this purpose and unprofitable in the California trade, the big ship was laid up in New York in 1865, being later sold to the Canadians, who disposed of her to the British. As the *Denmark*, when on a passage from Rio de Janeiro to St. John, N. B., for repairs, she was abandoned at sea on March 5, 1872, and foundered off Bermuda.

After the construction of the *Great Republic* in 1853, McKay built a few big vessels on speculation, but his only important work was the building by contract of four large, fast clippers (2,100 to 2,600 tons each) for James Baines & Company, of Liverpool, England, and its British-Australian Black Ball packet line in 1854-1855. After 1853, McKay built no more big and fast fine clippers of the type that he so strongly advocated for American owners or for the American trade, and in early 1855 his last foreign contract was completed. McKay's career as a builder of outstanding ships terminated after an extremely brief period that, on the outside, did not exceed five years (i.e., 1850-1854 inclusive).

Donald McKay, who was a poor businessman, failed in business following the big clipper ship boom. In 1868-1869, he attempted a "come-back" and built two ships at a loss, one of which was poorly designed and "an extremely slow vessel"; yet, living in the past, he had named her *Sovereign of the Seas II*. A Massachusetts builder greater than McKay, as far as the steady production of successful money-making ships was concerned over a long period of time, was John Currier, Jr., of Newburyport. Currier was building conservative but profitable ships of a thousand tons when McKay was laying down sharp, heavily sparred vessels of from 1,500 to over 4,500 tons; but whereas McKay was all through as a builder of importance shortly following the mid-fifties, John Currier, Jr., built one or more sizable ships every year from 1831 to the end of the seventies (with the exception of 1870), and that period of time included the Civil War years, the post-clipper years of depression and business panic, and several periods when most other usually active yards were closed down. Currier generally built to conform with the shipping demands of the day; all his ships were of the soundly designed Down East type, and their size increased with the years. In the thirties, Currier built ships of from 330 to 635 tons; in the forties of from 402 to 993 tons; in the fifties of from 630 to 1,105 tons; in the sixties of from 974 to 1,337 tons; and in the seventies of from 1,287 to 1,686 tons, building in all about "a hundred vessels of some ninety thousand tons." (John J. Currier recorded in early 1877 a list of 94 sizable vessels [consisting of 89 full-rigged ships, 4 barks, and 1 schooner], with a total tonnage of 85,315 tons.) The firm of Currier & Townsend and many other partnerships of Curriers in Newburyport should not be confused with the shipbuilding record of John Currier, Jr. However, the old yard of Currier & Townsend built clippers that rivaled McKay's, including the *Dreadnought*, the most famous and successful of all transatlantic clipper packets, and continued, when operated by members of the Currier family, to build wood ships and barks until 1876.

George W. Jackman, Jr., of Newburyport (where McKay worked before going to East Boston in the latter part of the forties), was another contemporary of McKay, and he built many moderate-sized clippers in the fifties. He was not closed up by the depression following the shipbuilding boom or by the Civil War, but built ships, barks, and steamships rather steadily from 1850 to 1874 inclusive, launching 27 sizable vessels of up to 3,000 tons register during a period of twenty-five years. Jackman's largest full-rigged ship, the *Landseer* of 1,421 tons and of Down East type, was built in 1874, about twenty years after he had built several clippers of from 1,050 to 1,170 tons.

The state of Maine has a great record of numerous shipbuilding communities, many of which continued activities from the days of the young republic (or colonial times) to the 1870's or 1880's and some to the end of deep-sea square-rigged merchant sail. Most of these communities had their outstanding local builders, and some (such as Bath) could boast of several truly great ship designers and master builders. Many shipyards were operated by the managing owners of the ships built (such as the Sewalls, Houghtons, Pattens, Rogers, etc., of Bath), but when Chapman & Flint moved from Thomaston to Bath in 1867 and commenced building its ships there, John McDonald, the foreman shipwright, took control as master builder and designer. The vessels that he launched during the years 1868-1891 won for him recognition not only as the greatest of Down Easter builders but also as the creator of the best sailing ships, considering speed, cargo capacity, handiness, strength, reliability of service, and economy of operation (per ton, per mile, per year), that the world has ever known. John McDonald has been called "the Donald McKay of the seventies and eighties," but while this designation was intended to be complimentary, it tends to becloud McDonald's real genius. Whereas McKay built big, fast and spectacular ships, they did not make money. McDonald designed and built ships that were never conspicuously in the public eye, but that carried well, were fast, economical to operate (with a small crew and low repair bills, maintenance expenses, and depreciation charges), combated successfully much more severe competition than McKay ships had to contend with, obtained lower freight rates, paid high and discriminating insurance rates that favored British ships, and yet made money for their owners.

From 1868 to 1891 inclusive, John McDonald designed and built twenty-four vessels in this twenty-four-year period, but he was responsible for or materially influenced the design and construction of many other wood sailing vessels, and his big work with full-rigged ships covered seventeen years up to the end of 1884. In that year, he constructed his last, largest, and best three-masted full-rigged Down Easter, the *Henry B. Hyde* (2,583 tons) and *A. G. Ropes* (2,460 tons), which as economic marine deep-sea carriers were the finest specimens of merchant sail ever built. Whereas McDonald's first Bath-built wood ship, the *St. Lucie*, was of 1,318 tons (or only 51 per cent of the tonnage of the *Henry B. Hyde*, built sixteen years later), McDonald's ships usually were of around 1,800 tons until he built the *John McDonald* of 2,281 tons in 1883 and followed this the next year by ships of 2,460 and 2,583 tons. In the early eighties, McDonald urged the use of the bark rig for smaller square-riggers engaged in highly competitive deep-sea trade, and he built four beautiful fast barks during the period 1883-1891 that carried well and made good passages. The last square-rigger that McDonald designed and built was the bark *Pactolus* of 1,668 tons, launched at Bath in 1891, when he was sixty-six years old, following which he retired from active work. Bath, Maine, was the only builder of importance of square-rigged merchant sail in the United States after 1885, and after this time only two square-riggers were built in the country, other than at Bath, these being launched in 1890 and 1893, respectively. In 1894, Bath turned to steel construction and built nine substantial square-riggers up to the time that all such building ceased following the construction of the four-masted shipentine *Atlas* of 3,381 tons by the Sewall company in late 1902.

*Types of Deep-Sea Merchant Sail from Mid-nineteenth Century to
World War I and the End of Windjammers in
Real Competitive Trade*

Outside of small tea clippers, the building of which antedated the big California-Australia and long ocean route clippers, the illicit trade and blockade runners and privateers, and the later medium sharp-lined iron clippers built in Britain for the Australian wool trade, the call for merchant ships in the nineteenth century was for able vessels that would handle freight in quantities as available (and this factor determined the size of the ship) and carry cargo—and at times passengers—to the port of destination at good speed and economically, so that the owners could make a reasonable return on their capital investment after charging off amortization. The building of a railroad across the Isthmus of Panama and the development of the steam vessel cut very materially into the around-the-Horn trade, and the building of transcontinental railroads finally killed the business. The Suez Canal operated, with the development of the compound engine (and its economy of fuel), to drive the sailing ship from the trades to India, the Orient, Australia, etc. The Panama Canal was opened twelve years after square-riggers had ceased to be built in the United States.

The American Down Easter became famous after the Civil War (following the depression of the late fifties) had driven American clippers and most United States floating tonnage from the Seven Seas or, at least, from the American flag. The Down Easter was not materially, if at all, influenced in its development by the spectacular and much-publicized clipper of the fifties. It was merely the product of Maine shipyards and particularly of the Kennebec River and Bath, "The City of Ships," which since the closing part of the eighteenth century had been steadily building ships to sail the oceans of the world, carry cargoes wherever they were available to ports where the commodities were needed and would sell, and handle the business well and economically. Maine ships on the Seven Seas, being always engaged in competition, had to be good sailers, make good time, and be reliable rather than spectacular. They were built not to get newspaper headlines as record-makers in the realm of speed but to gain a reputation for uniform good performances, to carry relatively big cargoes (for their registered tonnage) at a good speed, without big crews and repair bills, to deliver the cargo at its destination in good salable condition, and to make money for the owners and the shippers. The Down Easters occasionally made very fast voyages, but they always made fair passages and carried big cargoes cheaply. Bath built very few clippers during the fifties, and these in only two of its many yards. The ships that were classified as clippers were only medium, or part, clippers, and they were fuller in model and less loftily sparred than the Massachusetts, New York, Connecticut, New Hampshire, and Baltimore speedy sailing craft.

The record of Maine (and particularly of Bath, Maine) wood shipbuilding for deep-sea ocean trade is a continuous development in size, model, and rig of one type of ship—sturdy, commodious, fast, and handy—built always and only to make money. The size of Maine-built ships, which were generally transients (or ocean sailing tramps) and sailed wherever profitable business was offered, naturally increased as the nineteenth century advanced and trade developed following the Napoleonic Wars and the War of 1812. The Civil War caused a pronounced setback, and Maine ships lost the New Orleans cotton trade, which they were never able to recover. However, other markets were available, and long after the great Webb, in New York, and McKay, in Boston, had retired—discouraged at the future of wood shipbuilding and defeated in their efforts to continue the building of wood sail—Maine persisted in creating and operating wood ships and by evolution and a steady and gradual development throughout a century of time, with its capitalized experience, produced and built

in quantity the later-day or "perfected" Yankee Down Easter. Even foreign authorities have been forced to admit that the Down Easter was "a grand type of vessel" and "America's most soundly designed and successful sailing ship." The real Down Easter, a truly admirable vessel, reached its zenith, as far as quality is concerned, when John McDonald, of Bath, Maine, designed and built the *Henry B. Hyde* in 1884. This full-rigged ship, as well as a large fleet built in the seventies and eighties that closely resembled her, illustrates a type that was neither clipper nor packet in any respect and was similar to no other class of vessel built in any other part of the world. The Down Easter stands on the pages of history as America's supreme effort in the realm of wood sail.

Howard I. Chapelle, as do other competent authorities, lauds the Down Easter as a type of successful American merchant sail and selects the Bath-built *Henry B. Hyde*, constructed by John McDonald for Flint & Company, New York, as the finest example of the Down Easter, perfected by evolution. This ship, launched November 5, 1884, measured 267.8 ft. long (290 ft. over-all), 45 ft. beam, 28.8 ft. deep; 2,583 tons gross and 2,463 tons net. Chapelle says of her:

The *Hyde*, though fuller-ended than the extreme clippers, was a very fast ship, because of her fine run and easy lines. Her sail-plan was well-proportioned and handsome; the *Hyde* did not lack sail. This fine ship was justly considered the finest wooden vessel of the rig ever built in the United States. She was not only fast, but was an all-around sailer, as well as a carrier. The Down Easters were designed for general trade, so had to carry all kinds of cargo, in all climes. The *Hyde* and some of her sisters, illustrate the fine quality of ship turned out to compete in general trade. The failure of the Down Easters to survive was due to the operating cost of the ship-rig, a handicap that led

to the almost total disappearance of the brig and barque [officers and sailors could not be found competently to command and man square-riggers]. This, with the competition of the steamer, doomed the full-rigged ship [together with the high insurance rates set by the British on all vessels built of wood]. Though ships continued to be built after 1890, they were full-ended carriers on the English iron and steel ship model, with no pretense to speed, sea-going barges to compete with steamers of equally ugly models in the bulk-cargo trades. It can be said, therefore, that the American ship ceased development about 1890, and shortly afterwards disappeared.

As the Down Easter was designed and built in full cognizance of fundamental economic law and as it was soundly conceived in a business sense and built and operated economically without, however, sacrificing any paying quality affecting either the design or construction, that type of vessel is entitled to far greater honor than the more spectacular and highly publicized clipper, which held the spotlight in most trades for only a very few years and then was pushed from the arena and branded as a failure from a business standpoint. It is not true that "the death of the clipper was the birth of the Down Easter"; for in a sound, economic sense the birth and death of every extreme clipper were in such a vessel at her launching, and the real birth of the Down Easter was in Maine during the closing years of the eighteenth century. The Down Easter merely grew with the years and developed as a type and in size, so that when the clipper failed as a money-making trader the Down Easter was available to take its place, "carry on," and make good money for its owners.

The last effort of the Sewalls, of Bath, Maine, in wood sail did not result in the continued building of Down Easters. The Sewalls' "Big Wood Four" (built 1889-1892), particularly the mammoth four-masted *Roanoke* (3,539 tons), the last of the quartet, were big, full-bodied vessels carrying a tremendous sail spread. The last of the wood square-rigged deep-sea ships constructed in the United States, which was the *Aryan* (built at Phippsburg on the Kennebec River just below Bath), was a rather full-modeled ship, but essentially a Down Easter, so the type persisted until 1893. This was forty years after the boom clipper building year of 1853 and a quarter of a century after all other old and well-established wood shipbuilding centers of the United States had closed their yards and retired from the field defeated. About the time that Webb, of New York, built his last real clipper, the *Young America* of 1,961 tons, in 1853, he predicted, in a general way, that the ship of the future would be of the fuller-modeled and more moderately canvased (and manned) Down Easter

type, "which alone will be able to sail the seas and make money in the long years that will follow this period of great demand for such large numbers of essentially uneconomic sharp and heavily rigged fast ships."

A ship is, in fact, a three-masted vessel (fore, main, and mizzen), with yards on each mast; i.e., square-rigged throughout, but with a spanker (fore-and-aft) sail on the mizzen. The lower yards are the foreyard, main yard, and cross-jack on the three masts, respectively; the other yards above the lowest and longest yards have varied in number during the greater part of the nineteenth century and to the end of the era of merchant sail. In the early decades, a ship might have two or three yards, with their square sails above the mainsail (or main course); these would be known as the topsail and topgallant sail (if only two), and if an additional and higher sail was carried, it would be known as the royal. If still another yard was carried aloft (making five yards on the mast), it would carry a square sail known as a skysail. Prior to what may be termed the days of the clipper, a full-rigged ship might carry from three to five yards on a mast, depending on the size and type of the vessel. Fore-and-aft (or longitudinal instead of transverse) canvases known as staysails were worked between the fore and main and between the main and mizzenmasts; while forestaysail and jibs—inner, outer, and flying—were forward of the foremast and out to the bowsprit and jib boom. In the later ships, a spike bowsprit of iron took the place of the stumpy wood bowsprit and long, slender jib boom (with, at times, a "flying jib boom"). Whereas the royal yard and its sail supplied the loftiest canvas carried on the average sailing ship, in clipper ships a skysail yard was often crossed above the royal, and, at times, sails crammed above the skysail on a sliding extension mast went by such names as skyscrapers, moonrakers, etc. Studding sails and sliding extension poles, working on the yards, were also rigged on either side of the square sails and so made them wider in order that the ship could benefit by more sail area in light winds.

An innovation in the rig of ships was inaugurated when Capt. Robert Bennet Forbes, of Boston, fitted out the topsail schooner *Midas* in 1841 and later put what had become known as the Forbes rig, with a double (or divided) topsail, on the auxiliary steam square-riggers *Edith*, *Massachusetts*, and *Meteor* and the ships *R. B. Forbes*, *Lintin*, *Flying Childers*, *Aurora*, *Cornelius Grinnell*, etc. Of this rig, we are told:

The topmast was fidded abaft the lowermast head, and the lower topsail yard hoisted on the lowermast head from the eyes of the lower rigging to the cap. The lower topsail had two reefs with reef-tackles, buntlines, and clewlines as in the

single topsail rig. The upper topsail hoisted on the topmast and had the same gear as the lower topsail. Sometimes the topmast was fidded before the lowermast head, and then the lower topsail yard hoisted on the doubling of the topmast.

This rig, with the double topsail yards, was a great improvement, particularly on sizable ships and proved to be as efficient in use as it was economical and permitted the shipping of a smaller crew to man a vessel that was equipped with it. Capt. William Frederick Howes, of Brewster, Mass., in the early fifties, claimed to have invented an improvement to the Forbes rig, fitted it on the clipper *Climax* of 1,051 tons, built in 1852-1853 by Hayden & Cudworth at Medford, Mass. (a ship which he commanded), and obtained a patent for his double topsail rig in 1854. In this rig, the lower topsail yard is slung by a truss at the lower mast cap, and the Howes rig is the double topsail rig used from the late 1850's to the end of sail. The *Great Republic*, America's largest clipper, originally carrying the biggest yards and sail spread ever put on a vessel, was fitted with the Howes rig. Captain Howes ran the *Climax* with a crew of only fourteen men and two boys, which was about half the complement required at that time for a square-rigger of similar size fitted with the old-fashioned single topsails. After one successful voyage on the *Climax*, Captain "Frederick" left the sea and devoted his time thereafter to popularizing and installing his double topsail rig on square-rigged vessels.

After the topsail of a square-rigger had been divided into two parts, an upper and a lower, the topgallant sails of large ships became relatively so big and laborious to operate

that they attracted attention of economy-minded sea captains in labor-saving days (as the shortage of competent able seamen increased). At times, the topgallant sail was generally treated like the topsail and divided into two parts, an upper and a lower; therefore, ships so rigged carried five yards below the royal (including a double topgallant sail above a double topsail) and, carrying both a royal and skysail, crossed seven yards on a mast. Some ships with six yards carried a single topgallant sail, a royal, and a skysail; others a lower and an upper topgallant sail and a royal (but no skysail).

A bark was in many respects a more economic vessel to handle than a full-rigged ship. She was three-masted, square-rigged on the fore and main and fore-and-aft-rigged, with spanker (and topsail), on the mizzen. A brig was in reality a two-masted ship, and a brigantine was two-masted, square-rigged on the fore and schooner-rigged (i.e., fore-and-aft) on the main. A barkentine had three masts, square-rigged on the fore and schooner-rigged on the main and mizzen. A topsail schooner had two or more masts, with some yards on the upper foremast.

As sailing ships became larger, four masts instead of three were fitted—fore, main, mizzen, and spanker (or jigger). The first big sailing vessel built with four masts was the *Great Republic*, constructed by Donald McKay in 1853 and rebuilt in 1854-1855 before she ever moved under her own canvas. This vessel was fore-and-aft-rigged on the spanker mast, and according to British designation, she was a four-masted "barque." More modern American nomenclature terms her a four-masted shipentine, i.e., a full-rigged ship, with a schooner-rigged mast added. A five-masted shipentine is a vessel with the first four masts square-rigged and the aftermast fore-and-aft-rigged (or schooner-rigged). An American four-masted bark (such as the *Olympic* of 1,402 net tons, built at Bath, Maine, in 1892) has—like a standard bark—the two forward masts square-rigged, with the two aftermasts (instead of one) schooner-rigged. The rig has been popularly described as "a two-masted schooner chasing a brig," but sailors jocularly referred to it as "a jack-ass bark." A four-masted, five-masted, or six-masted barkentine has the forward mast square-rigged and all the others schooner-, or fore-and-aft-, rigged. The first vessel of Arthur Sewall & Company's "Big Wood Four," built at Bath, Maine, in 1889, was the *Rappahannock* (3,185 tons), the world's largest three-masted ship. The yards were too long and the sails too big for the ship's crew to handle. She was quickly branded as a backbreaker, so the other three vessels of the big wood fleet, the *Shenandoah* (3,406 tons), *Susquehanna* (2,744 tons), and *Roanoke* (3,539 tons), were given four instead of three masts, and instead of being sparred and rigged as four-masted ships (i.e., yards on each of the masts), they were built like McKay's big *Great Republic*, with yards on the fore, main, and mizzen and fore-and-aft rig on the spanker (i.e., shipentine-rigged). Whereas some few large four-masted and one five-masted (the *Preussen*) ships were built in Europe, with yards (i.e., square-rigged) on all of the masts, practically all of the large sailing vessels built in the very late eighties, nineties, and thereafter were four-masted vessels, with the aftermast fore-and-aft-rigged. They were, therefore, what the British call four-masted barques, and what the Americans call four-masted shipentines.

The first American-built square-rigged sailing vessel to be fitted with four masts after the *Great Republic* in 1853 was the *Ocean King* of 2,516 tons, built by Capt. N. L. Thompson at Kennebunk, Maine, and launched in October 1874. The next American-built vessel similarly rigged—the third in the country—was the *Frederick Billings* of 2,497 tons, launched from the yard of Carleton, Norwood & Company, Rockport, Maine, in August 1885. These two vessels were shipentines and not four-masted ships. The experience of Arthur Sewall & Company, of Bath, Maine, in the eighties and nineties suggested that square-riggers of over 2,700 tons should be rigged as four-masted shipentines, and for economic reasons in the nineties many owners advocated that moderate-sized deep-sea square-riggers with three masts be rigged as barks.

When sail was fighting for survival and economy of operation was the watchword, several three-masted ships were changed over into barks, with the yards taken off the mizzenmast.

Several vessels so changed showed up well in speed, with fewer men and a pronounced economy in operation. Even in the clipper ship days, three-masted clipper barks made some splendid runs that compare favorably with the passages of clipper full-rigged ships, and the little rather full-modeled medium American clipper bark *Maury* greatly surprised the marine fraternity when she beat the *Lord of the Isles*, one of Britain's most-heralded, crack full-rigged tea clippers, in a China-Britain tea trade race, with the two vessels, representing very different types, sailing in company.

There have been one or two queerly rigged freak vessels, such as a five-master that could properly be described as "a barkentine chasing a brigantine"; i.e., square-rigged on the first and third masts and fore-and-aft-rigged on second, fourth, and fifth masts.

During the late fifties, sixties, and seventies, the spars and sail plan of sailing ships built under the influence of the speed demand of the early fifties had to be cut down, for the repair bills and cost of operation and maintenance of "ghosting canvas" were tremendous. The number of the crew, for economic reasons, had to be reduced; moreover, the quality of sailors and even of the officers of sail was deteriorating and the quantity available rapidly becoming fewer. At the close of the seventies, economy was king, just as at the commencement of the fifties the cry had been for speed and more speed—and speed without regard to cost. Toward the end of sail, ships carrying two or three times as much cargo as the earlier fast extreme clippers were being handled with about a third to a half of the number of fore-castle hands. In an effort to simplify the operation of big sailing vessels and economize, with a reduced number of necessary crew, four-masted "barques" (shipentines) commenced to be built in Britain in 1887 with no royals or skysails and with nothing above the topgallant sails. This rig was technically known for some years as the Jubilee rig, as it was introduced during the year of Queen Victoria's Jubilee (1887), she having been crowned in 1837. The sailors called it "bald-headed," and this name, originating in a fore-castle, has survived. A bald-headed rigged sailing vessel had long upper yards, relatively short masts, and a wide, squatty sail plan. The name "bald-headed" was later applied to all sailing ships with stumpy masts and low but wide sails, including fore-and-aft-rigged vessels fitted with pole masts and no topsails.

Small coasting vessels built in America, as in foreign countries, in the early nineteenth century were generally similar in rig to small vessels sailing in deep-sea trade; i.e., brigs and brigantines. The schooner soon found favor in America and the topsail schooner in Europe. In the early days of the American coastwise schooner, one or more yards might be placed on the foremast, but gradually these were eliminated, and two-masted schooners, with a straight fore-and-aft rig, came into favor because of their handiness in restricted coastal waters and economy of operation, with a very small crew and small maintenance expenses. It is surprising, however, that for sailing packets in the United States coastwise trade, all the established and successful lines—whether on relatively short runs such as between New York and Charleston or long passages such as between New York and New Orleans—would operate only full-rigged ships and not even barks. Even though the vessels in the early days were sometimes as small as 200 or 300 tons, three-masted full-rigged ships were demanded, and not even brigs met with favor, not to mention brigantines or schooners, which carried the popular rig for cargo carriers and general freighting.

As the century advanced, three-masted schooners were built for coastwise trading, and in the eighties the first four-masted schooner appeared, to be followed in the nineties by five-masters and, later, by mammoth six-masted (and even one seven-masted) coasting vessels of schooner rig. All but three of these big fore-and-aft sailing coasters were built of wood, the exceptions being (1) the big full-bodied seven-masted steel schooner *Thomas W. Lawson*, a decidedly freaky craft of 5,218 gross tons (4,914 tons net), built in 1902; (2) the six-masted steel schooner *William L. Douglas* (3,708 tons net), a vessel similar to the "*Lawson*" but smaller, built in 1903; (3) the much more moderate and practical five-masted steel schooner *Kineo* of 2,128 gross tons (1,868 tons net), built in 1903. The "*Lawson*" and

"*Douglas*" were constructed by the Fore River Shipbuilding Company at Quincy, Mass., and the *Kineo* by the Sewall company at Bath, Maine. The two large steel schooners proved to be costly mistakes and impractical for the purpose intended. The *Thomas W. Lawson* was particularly unwieldy, cumbersome, and slow; she was too big for the coastwise trade and unsuited for deep-sea service, and her career ended disastrously and tragically, with loss of life, off the Scilly Islands when she attempted to operate in the transatlantic trade.

The names of the masts of multiple-masted merchant sailing vessels have always been controversial when four or more masts were used. There seems to have been general agreement as to the names of the masts on any two- or three-masted vessel, but the fourth mast is sometimes called the "jigger" and sometimes the "spanker." The following nomenclature covering the masts of from four- to seven-masted vessels, numbered from the bow going aft, has been used and considered reasonable by competent marine authorities:

No. of Masts	Masts of Vessels			
	Four	Five	Six	Seven
1	Foremast	Foremast	Foremast	Foremast
2	Mainmast	Mainmast	Forward mainmast	Forward mainmast
3	Mizzenmast	Mizzenmast	Mainmast	Mainmast
4	Spanker mast	Jigger mast	Mizzenmast	After mainmast
5	—	Spanker mast	Jigger mast	Mizzenmast
6	—	—	Spanker mast	Jigger mast
7	—	—	—	Spanker mast

Practical operating men on both the German "5-posters" and the seven-masted American *Thomas W. Lawson*, feeling the need of simplicity in the designation of the masts, with a prompt and correct understanding on the part of the crew, decided to number the masts from bow to stern, and as every deck hand, no matter how ignorant, could count, the system worked well and prevented misunderstandings. It is said that in the early days of the "*Lawson*," members of the crew named the masts of the schooner for the seven days of the week, but this improvised system had its faults, and later the use of numbers made the designation of the masts "supremely simple and extremely efficient," even if it ignored the tradition and lore of the sea.

Because of prevailing winds and other affecting conditions, the schooner rig on well-shaped but full-bodied wood hulls, sturdily built, proved quite satisfactory and economical for coastwise sail on the Atlantic seaboard for many long years, and it was the last big trade in which sail successfully defied the competition of iron (steel) and steam. To maintain supremacy over steamships, however, after the nineties, these schooners were built very large until finally they became too big and their crews too small. Six-masted wood schooners of over 3,000 tons register, carrying 5,000 tons of cargo, were built to be operated by only ten or eleven men as compared with thirty men on an economically operated modern square-rigger (i.e., a four-masted shipentine). The *Wyoming*, built in 1909 at Bath, Maine, was of 3,731 tons and had the largest wood hull ever built in the world—bigger than the square-rigged deep-sea *Roanoke* of 3,539 tons, built in 1892, and the *Shenandoah* of 3,406 tons, built in 1890, both by the Sewalls, of Bath, and the *Great Republic* of 3,357 tons, built by Donald McKay in East Boston and reconstructed before sailing at Long Island, N. Y., in 1853-1855. The six-masted schooner *Wyoming* was diagonally strapped with metal under her 6-inch hard pine planking; she spread "12,000 yards of canvas" and carried a crew of only eleven men.

The first large schooner (of over 2,000 tons) built at Bath was the *Frank A. Palmer* of 2,015 tons, constructed by N. T. Palmer in 1897, and about this time Kelley, Spear & Company, of Bath, was building full-modeled bald-headed schooner-rigged towing barges of about 1,500 tons. The well-built wood towing barges, of which Bath constructed 58 (of

a size up to 1,688 tons) during the years 1898-1900, made severe competition for sailing schooners in the coastwise trade. Bigger schooners of five and six masts were built to fight the strong well-built fleets of towing barges, which grew to be as large as 2,324 tons, until the construction of such vessels was discontinued in 1920. Big schooners waged a bitter fight with tow barges during the first decade of the twentieth century. Many three-masted deep-sea American ships had their masts cut down and ended their days engaged in coastwise trade as one of a string of barges behind a tugboat. Some historic ships met this fate, such as the *David Crockett* (built in 1853) and the much more recent big square-rigger *Shenandoah* (built in 1890). Even a few relatively modern sailing schooners that could not be made to pay under their own canvas were converted into tow barges. However, prior to the first World War, the death knell was sounded for all wood sail and all wood coastwise shipping, and although the artificial conditions brought about by the war, with its great demand for tonnage, stimulated wood shipbuilding—both sail and steam—such tonnage was discarded after the war. The last schooner for American coastwise trade was built in 1921, twenty-eight years after the last deep-sea wood square-rigger and eighteen years after the last square-rigged steel shipentine built for service on the Seven Seas. During the days of building wood schooners and wood towing barges, Bath, Maine, was supreme, and following the sixties, Bath, for some sixty years, was the leading wood shipbuilding center of the United States and the only part of the country where steel sailing ships (square-riggers) were built.

It is surprising that in the early days of the nineteenth century the small square-rigged wood vessels built performed so creditably in service on the Seven Seas. When the pioneer transatlantic Black Ball packet line commenced its service in 1818 between New York and Liverpool, its four vessels, operated in a regular service with scheduled sailings, averaged only 392 tons each (maximum, 424 tons; minimum, 381 tons), and even smaller ships were used with a fair degree of success by competitive lines, one packet (of the Havre Second Line), built in 1823, measuring only 260 tons. These little sailing packets were hard-driven in the most severe ocean trade in the world; they stood it well and made good time on the average. Occasionally, a long westbound winter voyage would be experienced, due to persistent western gales and heavy seas and once in a long while due to lack of wind, but such long voyages have been known from early days over every sailing trade route of the world. Big 3,200-ton steel ships have made the voyage around the Horn in 120 days, followed by a heartbreaking passage of nearly 300 days. One 2,293-ton British-built four-masted steel shipentine (a part clipper; 300 ft. long), which had been launched into the Clyde in 1887 and had gained a good reputation for speed, was on one occasion 423 days (or a year and two months) making San Francisco from New York; whereas three voyages have been made between these ports by fast American wood clipper ships (1851-1860) in 89-90 days.

The packet and general trader type of American sailing ship was a fair sailer, as far as speed was concerned, under favorable conditions of wind and sea, but was an excellent sailer in bad weather. The latest American-built packets of the fifties and the Maine-built Down Easters of the seventies and eighties were probably the best sailing ships ever built in the world as far as performance under adverse sailing conditions was concerned. None of the much-vaunted clippers, notwithstanding their advantage of size, could ever sail with the best of the transatlantic packets on the westbound passage, unless by a freak of nature a crossing could be made with a favoring east wind and in relatively smooth seas. Even on the eastbound transatlantic passage, the best of the packets practically equalled in time of voyage the record crossings reported by the owners and command of the big crack clippers. The packets were dry vessels, with powerful and buoyant above-water ends and good freeboard. They carried a fair amount of sail, but were not oversparred and overcanvased. The clippers were too fine-lined, both below and above water, and their spars were built for "ghosting" in the tropics rather than for fighting winter gales on the North Atlantic. The early iron ships built in Britain, whereas narrow, were otherwise modeled and the vessels sparred by copying after American-built half clippers or fast sailing ships, and their perform-

ance at sea, outside of the iron ships' relative lack of stability and power, was generally similar; but the British usually made their iron ships sharper-lined than American coppered wood ships in an attempt to overcome the evil and detrimental effect on speed of the fouling of the bottom of the vessels. However, when we come to the sea qualities of the big steel square-riggers of the period from 1889 to 1921, there is another story to tell. These ships, or shipentines, with their four and five masts (to say nothing of the freak vessels with six and seven), were usually badly proportioned and sometimes wretchedly designed sailing scows or brutally rigged and canvased tramp-modeled vessels, designed to obtain internal volume and displacement cheaply and to be driven through the water by sheer power of wind operating on a tremendous sail spread. The beam of a ship is its most expensive dimension; hence in the last days of the competitive economic struggle of sail versus steam, steel sailing vessels were built with narrow beam and a wall-sidedness that, in conjunction with the length and relatively low freeboard, made such vessels, generally of foreign build, inevitably wet ships, with their decks receiving the pounding of green seas rather than spray. This narrow beam caused unhandiness as well as a lack of stability in the huge four- and five-masters (and over), and this unhandiness was a general complaint on the part of the masters of such vessels. It caused the loss of several of them, although the most frequent cause of disaster with these large ships can be attributed to a deficiency of stability, which, in other words, means oversparring and a lack of beam.

XV.

AMERICAN CLIPPER SHIPS AND SQUARE-RIGGED UNITED STATES
MERCHANT SAIL OF THE POST-CLIPPER PERIOD

*A Record of American Clipper Ships Built during the Sixth Decade
of the Nineteenth Century or Prior Thereto, Giving the End
of Their Careers or of Their United States Ownership*

THE following is a list of 373 United States-built clippers and reputed clippers, 353 of which were built in the clipper shipbuilding decade (1850-1859 inclusive) and 20—most of which were real but not extreme clippers and all of decided clipperish model and rig—constructed prior to 1850, 17 of them during the years 1846-1849 inclusive. The *Ann McKim* has been added to the list not so much because it can be argued that she belongs there but because she is historically important as a "Baltimore clipper" and was on the Pacific Coast (owned in Chile) during the early days of the Gold Rush and made several voyages between Chile and San Francisco. She was probably the first American-built reputed clipper to reach California following the discovery of gold, and she arrived at San Francisco January 20, 1849, after a good run of 51 days from Valparaiso via Guayaquil.

Name	Year Built	Builder	Tonnage	Remarks Giving End of Career or of American Ownership
ADELAIDE	1854	A. C. Bell, New York	1,831	Sold to British, 1863. Lost 1875.
ALARM	1856	E. & H. O. Briggs, South Boston	1,184	Wrecked Nov. 1863, three days out of Akyab, en route for Singapore.
ALBONI	1852	Mason C. Hill, Mystic, Conn.	917	Sold to Germany, 1863. Disappeared from lists in 1874.
ALERT	1850	Metcalf & Norris, Damariscotta, Maine	764	Lost Formosa, Oct. 1858.
ALEXANDER	1852	Hayden & Cudworth, Medford, Mass.	596	Sold to British, 1861. Wrecked 1864.
AMPHITRITE	1853	Samuel Hall, East Boston	1,687	Sold to British, 1853; renamed RESULT.
ANDREW JACKSON	1855	Irons & Grinnell, Mystic, Conn.	1,679	Sold to British, 1863. Wrecked in Gaspar Straits, Dec. 1868.
ANGLO-SAXON	1853	F. W. Rhodes, Rockland, Maine	869	Burned by FLORIDA, Confederate Navy, Aug. 1863.
ANN McKIM	1833	Kennard & Williamson, Baltimore	494	Dismantled at Valparaiso, 1852.
ANTELOPE (of Boston)	1851	J. O. Curtis, Medford, Mass.	587	Wrecked China Seas, Aug. 1858.
ANTELOPE (of New York)	1852	Perrine, Patterson & Stack, New York	1,186	Sold to British in 1863.
ARAMINGO	1851	Aaron Westervelt, New York	716	Sold to Germans in 1863; renamed MATADOR.
ARCHER	1852	James M. Hood, Somerset, Mass.	1,096	Foundered Feb. 12, 1880, on voyage from New York to Havre.

Name	Year Built	Builder	Tonnage	Remarks Giving End of Career or of American Ownership
ARCHITECT	1848	L. B. Culley, Baltimore	520	Sold to British at Hong Kong in 1854.
AREY	1856	Williams & Arey, Frankfort, Maine	1,123	Renamed CAROLINE. Was British ship NAUTILUS in 1873.
ARGONAUT	1849	Samuel Lapham, Medford, Mass.	575	Sold to Norwegians in 1864.
ASA ELDRIDGE	1856	E. & H. O. Briggs, South Boston	1,324	Sold to British in 1873; renamed NORFOLK.
ASPASIA	1856	Maxon, Fish & Co., Mystic, Conn.	632	Sold to British, 1863.
ASTERION	1854	Abner Stetson, Chelsea, Mass.	1,135	Wrecked Baker's Island, Sept. 1863.
ATALANTA	1852	Gardner & Palmer, Baltimore	1,289	Sold to Spain, Dec. 1856. Renamed MARGUERITA.
ATMOSPHERE	1856	George Greenman, Mystic, Conn.	1,485	Sold to British in 1863. Sunk in collision off Pernambuco, 1882.
AURORA	1853	John Taylor, Chelsea, Mass.	1,396	Sold to British in 1863. Burned Indian Ocean, 1870.
AUSTRALIA	1852	William H. Webb, New York	1,447	Wrecked near Akyab, May 1864.
BALD EAGLE	1852	Donald McKay, East Boston	1,704	"Went missing" late 1861 on voyage from Hong Kong to San Francisco.
BELLE OF THE SEA	1857	Ewall & Dutton, Marblehead, Mass.	1,255	Sold to British in early 1864 and renamed STRATHPEPPER.
BELLE OF THE WEST	1853	Shiverick Bros., East Dennis, Mass.	936	Sold at Calcutta, India, in 1864. Foundered in June 1868.
BELLE WOOD	1854	George Greenman & Co., Mystic, Conn.	1,399	Sold to British during Civil War.
BEVERLY	1852	Paul Curtis, Medford, Mass.	676	Given foreign register in 1864. Sold to Nova Scotia in 1872.
B. F. HOXIE	1854	Maxon, Fish & Co., Mystic, Conn.	1,387	Burned by FLORIDA, Confederate Navy, June 1862.
BLACK HAWK (I)	1853	Hall & Teague, Fairfield, Conn.	1,579	Foundered in 1854.
BLACK HAWK (II)	1857	William H. Webb, New York	1,109	Sold to Germans in 1880.
BLACK PRINCE	1856	George W. Jackman, Newburyport, Mass.	1,061	Lost North Atlantic, Feb. 1865.
BLACK SEA	1855	Lupton, Greenpoint, N. Y.	791	Sold to British in 1863. Renamed JUPITER.
BLACK WARRIOR	1853	Austin & Co., Damariscotta, Maine	1,828	Sold to British in 1862. Renamed CITY OF MELBOURNE.
BLUE JACKET	1854	Robert E. Jackson, East Boston	1,790	Sold to British, 1854. Burned off Falklands, 1869.
BONITA	1853	E. & H. O. Briggs, South Boston	1,127	Condemned Algoa Bay, 1857.
BOSTON LIGHT	1854	E. & H. O. Briggs, South Boston	1,154	Sold at Calcutta, India, Jan. 1863; renamed TULGA.
BREWSTER	1855	Currier & Townsend, Newburyport, Mass.	984	In 1886, was the Norwegian ship FAMA.
CANVASBACK	1854	Abraham & Ashcroft, Baltimore	731	Sold to British in 1863.
CARRIER DOVE	1855	James Abraham, Baltimore	1,694	Wrecked near Tybee, Mar. 1876.
CARRIER PIGEON	1852	Hall, Snow & Co., Bath, Maine	844	On first voyage, wrecked on California coast south of San Francisco.
CELESTIAL	1850	William H. Webb, New York	860	Sold to Spanish in 1858.
CELESTIAL EMPIRE	1852	Jotham Stetson, South Boston	1,395	Abandoned Feb. 1878 in North Atlantic.
CHALLENGE	1851	William H. Webb, New York	2,006	Sold at Bombay, India, in 1861; renamed GOLDEN CITY. Said to have been lost off the French coast in 1876.
CHALLENGER	1853	Robert E. Jackson, East Boston	1,334	Sold to Peru in 1863 and renamed CAMILLE CAVOUR.

Name	Year Built	Builder	Tonnage	Remarks Giving End of Career or of American Ownership
CHAMPION OF THE SEAS	1854	Donald McKay, East Boston	2,447	Built for British. Foundered off Cape Horn in Jan. 1876.
CHARGER	1856	E. G. Pearce, Portsmouth, N. H.	1,136	Wrecked near Cebu in Dec. 1873.
CHARIOT OF FAME	1853	Donald McKay, East Boston	2,050	Sold in 1862 to British.
CHARLES MALLORY	1852	Charles Mallory, Mystic, Conn.	698	Wrecked in 1853 on Brazilian coast.
CHARMER	1854	George W. Jackman, Jr., Newburyport, Mass.	1,055	Sold to British in 1863.
CHERUBIM	1855	James Abraham, Baltimore	1,796	Sold to British in 1863.
CLEOPATRA	1853	Paul Curtis, East Boston	1,562	Struck wreck and foundered in Sept. 1855.
CLIMAX	1853	Hayden & Cudworth, Medford, Mass.	1,051	Sunk at Callao, Apr. 1855, and sold.
COEUR de LION	1854	George Raynes, Portsmouth, N. H.	1,098	Sold to Germans in 1857. Wrecked by collision in Baltic in Aug. 1915.
COMET	1851	William H. Webb, New York	1,836	Sold to British in 1863; renamed FIERY STAR and burned at sea in Apr. 1865. Eighty passengers and crew lost; eighteen saved.
COMPETITOR	1853	James O. Curtis, Medford, Mass.	871	Sold to Germans in 1863 and renamed LORELY. Named EDWARD and owned in Finland, 1901.
CONTEST	1852	J. A. Westervelt, New York	1,099	Burned by ALABAMA, Confederate Navy, 1863, near Strait of Sunda.
CORINGA	1851	Jotham Stetson, Medford, Mass.	777	Declared "perfectly sound" when surveyed at Boston in 1874.
COURSER	1851	Paul Curtis, Medford, Mass.	1,024	Lost Pratas Shoal, Apr. 1858.
CREST OF THE WAVE	1854	Joshua Patterson, Thomaston, Maine	942	Wrecked on Wreck Island, fifteen miles north of Cape Charles. All hands lost. Apr. 1870.
CRITERION	1855	William Hitchcock & Co., Damariscotta, Maine	1,387	Sold to Moravia, 1882.
CYCLONE	1853	E. & H. O. Briggs, South Boston	1,109	Sold British, 1863; renamed AVON.
DARING	1855	George W. Jackman, Jr., Newburyport, Mass.	1,094	Condemned Valparaiso. Sold British, 1865.
DASHAWAY	1854	J. Rideout, Hallowell, Maine	1,012	Sold to British, 1863. Renamed MAURITIUS MERCHANT.
DASHING WAVE	1853	Fernald & Pettigrew, Portsmouth, N. H.	1,180	Lost as a tow barge by stranding, 1920.
DAUNTLESS	1852	Benjamin F. Delano, Medford, Mass.	791	"Went missing" winter of 1853.
DAVID BROWN	1853	Roosevelt & Joyce, New York	1,715	Abandoned at sea, Jan. 1861, North Atlantic.
DAVID CROCKETT	1853	George Greenman & Co., Mystic, Conn.	1,679	Converted into barge, 1890.
DAWN (bark)	1857	Thomas Collyer, New York	387	Sold to U. S. Government, 1863.
DEFENDER	1855	Donald McKay, East Boston	1,413	Wrecked Feb. 1859 on Elizabeth Reef, South Pacific.
DEFIANCE	1852	George Thomas, Rockland, Maine	1,691	Condemned Canary Islands, 1856. Sold to Spaniards; renamed TEIDE.
DERBY	1855	John Taylor, Chelsea, Mass.	1,062	Sold to Germans. (Was at New York in 1881.)
DICTATOR	1855	James W. Cox, Robbinston, Maine	1,293	Burned by GEORGIA, Confederate Navy, Apr. 1863.
DIRECTOR	1853	Hayden & Cudworth, Medford, Mass.	850	According to records, probably renamed FLEET-WING (listed next page).
DON QUIXOTE	1853	Samuel Lapham, Medford, Mass.	1,429	Sold to French in 1864 and renamed ST. AUBIN.
DONALD MCKAY	1855	Donald McKay, East Boston	2,598	Built for British. Sold to Germans and ended her days as a coal hulk.
DREADNOUGHT	1853	Currier & Townsend, Newburyport, Mass.	1,413	Wrecked on July 4, 1869, South American coast near Cape Horn.

Name	Year Built	Builder	Tonnage	Remarks Giving End of Career or of American Ownership
EAGLE	1851	Perrine, Patterson & Stack, New York	1,296	Sold to Indian owners at Calcutta, 1863.
EAGLE WING	1853	James O. Curtis, Medford, Mass.	1,174	"Went missing" in 1865 on voyage from Boston to Bombay.
EAST INDIAN	1856	Currier & Townsend, Newburyport, Mass.	897	Sold at Calcutta, Apr. 1864.
ECLIPSE	1850	Jabez Williams, New York	1,223	Lost Ypala, Oct. 1853.
EDWIN FORREST	1853	Daniel D. Kelly, East Boston	1,141	"Went missing" late 1860.
ELECTRIC	1853	Irons & Grinnell, Mystic, Conn.	1,274	Sold to Germans, 1860.
ELECTRIC SPARK	1855	Hayden & Cudworth, Medford, Mass.	1,216	Wrecked coast of Ireland, Sept. 1869.
ELIZABETH F. WILLETS	1854	Charles Mallory, Mystic, Conn.	825	Sold at Shanghai, 1864.
ELIZABETH KIMBALL	1853	Edward Dutton, Marblehead, Mass.	998	Beached on Easter Island, 1873.
ELIZA F. MASON	1851	Baltimore	582	Sold to Chile, 1863; renamed EMANUELA.
ELIZA MALLORY	1851	Charles Mallory, Mystic, Conn.	649	Lost on coast of Florida.
ELLEN FOSTER	1852	Joshua T. Foster, Medford, Mass.	996	Wrecked Neah Bay, Wash., Dec. 1867.
EMILY FARNUM	1854	George Raynes, Portsmouth, N. H.	1,119	Wrecked near Cape Flattery, Nov. 1875.
EMPRESS	1856	Paul Curtis, East Boston	1,294	Sold to British in 1863. In 1886 was German ship ELIZABETH.
EMPRESS OF THE SEAS	1853	Donald McKay, East Boston	2,197	Burned Port Phillip, Australia, Dec. 1861.
ENDEAVOR	1856	Robert E. Jackson, Boston	1,137	Burned Japan, 1875.
EUREKA	1851	J. A. Westervelt, New York	1,041	Sold to the British in 1863.
EUTERPE	1854	Horace Merriam, Rockland, Maine	1,985	Abandoned off Brazil, June 1871.
EXPOUNDER	1856	Joshua Magoun, Charlestown, Mass.	1,176	Changed to barge, 1881.
FAIR WIND	1855	E. & H. O. Briggs, South Boston	1,299	Sold to British in 1866.
FANNY McHENRY	1854	A. & G. T. Sampson, East Boston	1,237	Sold to British in 1862. Renamed SANSPAREIL, having first been renamed PHILADELPHIA.
FEARLESS	1853	A. & G. T. Sampson, East Boston	1,184	Sold to Norwegians, 1878; renamed JOHANNE.
FLEETWING	1854	Hayden & Cudworth, Medford, Mass.	896	Condemned Melbourne, 1885.
FLEETWOOD	1852	George Raynes, Portsmouth, N. H.	663	Lost in ice off Cape Horn, May 1859. Only five saved.
FLORA TEMPLE	1853	James Abraham, Baltimore	1,916	Wrecked China Sea, Oct. 1859; 868 lives lost (850 coolies).
FLORENCE	1856	Samuel Hall, East Boston	1,045	Sold British, 1862. Renamed HYPATIA.
FLYAWAY	1853	William H. Webb, New York	1,274	Sold to Spanish, Mar. 1859; renamed CONCEPCION.
FLYING ARROW	1852	Isaac Dunham, Frankfort, Maine	1,092	Sold to British at Melbourne, Australia, Jan. 1856; renamed WINGS OF THE WIND.
FLYING CHILDERS	1852	Samuel Hall, East Boston	1,125	Sold to British, Jan. 1863; renamed GOLDEN SOUTH.
FLYING CLOUD	1851	Donald McKay, East Boston	1,782	Sold to British in 1862. Wrecked Canadian coast, 1874.
FLYING DRAGON	1853	Trufant & Drummond, Bath, Maine	1,127	Wrecked entering San Francisco Harbor in Jan. 1862.
FLYING DUTCHMAN	1852	William H. Webb, New York	1,257	Wrecked Brigantine Beach, New Jersey, Feb. 1858.

Name	Year Built	Builder	Tonnage	Remarks Giving End of Career or of American Ownership
FLYING EAGLE	1852	William Hitchcock, Newcastle, Maine	1,004	Condemned at Mauritius, 1879.
FLYING FISH	1851	Donald McKay, East Boston	1,505	Wrecked River Min, China, Nov. 1858. Abandoned to underwriters; floated, rebuilt, and renamed EL BUENO SUCESO.
FLYING MIST	1856	James O. Curtis, Medford, Mass.	1,183	Wrecked Bluff Harbor, New Zealand, Aug. 1862.
FLYING SCUD	1853	Metcalf & Norris, Damariscotta, Maine	1,713	Sold to British, Apr. 1863. Renamed CESTRIAN.
FRIGATE BIRD	1853	J. A. Robb, Baltimore	567	Sold to British in 1861.
GALATEA	1854	Joseph Magoun, Charlestown, Mass.	1,041	Sold to Norwegians, July 1882.
GAME COCK	1850	Samuel Hall, East Boston	1,392	Condemned Cape of Good Hope, Feb. 1880.
GANGES	1855	Hugh R. McKay, East Boston	1,254	Sold to British in May 1863.
GAUNTLET	1853	Thomas J. Southard, Richmond, Maine	1,854	Sold to British in 1862. Renamed SUNDA.
GAZELLE	1851	William H. Webb, New York	1,244	Dismasted and condemned, Dec. 1854. Rebuilt and sold to Peruvians and later to British.
GEM OF THE OCEAN	1852	Hayden & Cudworth, Medford, Mass.	702	Wrecked on Vancouver Island, Aug. 1879.
GEORGE PEABODY	1853	James O. Curtis, Medford, Mass.	1,397	Condemned at Valparaiso, May 1881.
GODDESS	1855	Hayden & Cudworth, Medford, Mass.	1,126	Sold to British, Sept. 1864. Later became Norwegian ship NORDENS-DRONNING.
GOLDEN CITY	1852	J. A. Westervelt, New York	810	Sold to British in 1863. Was later Australian bark TOKATEA.
GOLDEN EAGLE	1852	Hayden & Cudworth, Medford, Mass.	1,121	Burned by ALABAMA, Confederate Navy, Feb. 21, 1863.
GOLDEN FLEECE (I)	1852	Paul Curtis, Boston	968	Wrecked San Francisco, Apr. 1854.
GOLDEN FLEECE (II)	1855	Paul Curtis, East Boston	1,535	Condemned at Montevideo after grounding, Nov. 1877.
GOLDEN GATE	1851	J. A. Westervelt, New York	1,341	Burned at Pernambuco, May 1856.
GOLDEN HORN	1854	Clark & Wood, Wiscasset, Maine	1,193	Sold to British in 1863. Later became Norwegian bark.
GOLDEN LIGHT	1853	E. & H. O. Briggs, Boston	1,140	Struck by lightning and destroyed by fire on Feb. 22, 1853, on her first passage from Boston to San Francisco.
GOLDEN RACER	1852	J. C. C. Morton, Thomaston, Maine	837	Wrecked in River Min, China, 1856.
GOLDEN ROCKET	1858	Brewer, Maine	608	Burned by SUMTER, Confederate Navy, July 13, 1861.
GOLDEN RULE	1854	William Hitchcock, Damariscotta, Maine	1,194	Was in service in 1900.
GOLDEN STATE	1853	J. A. Westervelt, New York	1,363	Wrecked Cape Elizabeth (Portland), Maine, Dec. 1886.
GOLDEN WEST	1852	Paul Curtis, East Boston	1,441	Sold to British in 1863.
GOOD HOPE	1855	J. O. Curtis, Medford, Mass.	1,295	Condemned at Bahia, June 1873. Sold, repaired, and continued as Swedish ship SOLIDE.
GOVERNOR MORTON	1851	James M. Hood, Somerset, Mass.	1,430	Burned June 1877, Mississippi River, S.W. Pass, New Orleans.
GRACE DARLING	1854	E. & H. O. Briggs, Boston	1,197	"Went missing" in 1878.
GRANITE STATE	1853	Samuel Badger, Portsmouth, N. H.	1,108	Wrecked 1868.
GREAT REPUBLIC	1853	Donald McKay, East Boston	3,357	As originally built, before burning, 4,555 tons. Sold to Canadians in 1866. Foundered off Bermuda in 1872 as British ship DENMARK of Liverpool.
GREY EAGLE	1848	Abraham & Cooper, Baltimore	479	Philadelphia owned. Claimed a run to San Francisco of 113 days net in early 1849 and a record run of 23 days in 1852, Rio to the Delaware.

Name	Year Built	Builder	Tonnage	Remarks Giving End of Career or of American Ownership
GREY FEATHER	1850	C. S. Husten, Eastport, Maine	587	Sold to Germans in 1862; renamed IDA.
GREY HOUND	1848	H. Meads & T. Horney, Baltimore	537	Sold to Chileans in 1856.
GUIDING STAR	1853	J. Currier, Newburyport, Mass.	900	Condemned Hong Kong, 1870.
HAIDEE	1854	Allen & Simpson, Providence, R. I.	396	Scuttled off Montauk, Sept. 1858, while in the slave trade.
HARRIET HOXIE	1851	Irons & Grinnell, Mystic, Conn.	678	Sold Antwerp, 1859.
HARRY BLUFF	1855	Jotham Stetson, Chelsea, Mass.	1,244	Wrecked Nantucket Shoals, Feb. 1869.
HARRY OF THE WEST	1855	Robert E. Jackson, East Boston	1,050	Burned mouth of Mississippi, Nov. 1865.
HARVEY BIRCH	1854	Irons & Grinnell, Mystic, Conn.	1,482	Burned by NASHVILLE, Confederate Navy, Nov. 19, 1862.
HERALD OF THE MORNING	1853	Hayden & Cudworth, Medford, Mass.	1,294	Sold at Hamburg in 1879, but continued under American flag until 1883, when went under Norwegian flag. In 1890 was under British registry.
HESPERUS	1856	J. T. Foster, Medford, Mass.	1,020	Burned at Woosung, Jan. 1861.
HIGHFLYER	1853	Currier & Townsend, Newburyport, Mass.	1,195	"Went missing" in late 1855.
HIPPOGRIFFE	1852	Shiverick Bros., East Dennis, Mass.	671	Sold to British at Calcutta, Dec. 1863.
HOOGLY	1851	Samuel Hall, East Boston	1,304	Wrecked in river below Shanghai, Aug. 1852.
HORNET	1851	Westervelt & Mackey, New York	1,426	Burned at sea, May 1866.
HOTSPUR	1857	Roosevelt & Joyce, New York	862	Wrecked on Paracels Reef, China Sea, Feb. 1863.
HOUQUA	1844	Brown & Bell, New York	583	"Went missing," China Sea, 1864.
HURRICANE	1851	Isaac C. Smith, Hoboken, N. J.	1,608	Sold to British at Singapore in 1860.
HUSSAR	1852	G. W. Jackman, Newburyport, Mass.	721	Sold to British at Singapore, Nov. 1864.
INDIAMAN	1854	Hugh R. McKay, East Boston	1,165	Sold to British in 1862; renamed INDIAN MERCHANT.
INO	1851	Perrine, Patterson & Stack, New York	895	Bought by U. S. Government in 1861; sold 1867 to Boston parties and later sold foreign. In 1886 was Russian bark ELLEN.
INTREPID	1856	William H. Webb, New York	1,173	Wrecked on Belvidere Reef, Mar. 31, 1860.
INVINCIBLE	1851	William H. Webb, New York	1,769	Burned at New York, Sept. 1867.
ISABELITA HYNE (bark)	1846	Philadelphia, Pa.	350	Fast Cape Horner for her size. Lost near San Francisco, Jan. 8, 1856.
JACOB BELL	1852	A. C. Bell, New York	1,381	Burned by the FLORIDA, Confederate Navy, Feb. 13, 1863.
JAMES BAINES	1854	Donald McKay, East Boston	2,515	Built for British. Burned at Liverpool in Apr. 1858. Hulk used for a long time as a landing stage.
JOHN BERTRAM	1850	Elwell & Jackson, East Boston	1,080	Sold to Germans in 1855.
JOHN ELLIOT THAYER	1854	Paul Curtis, East Boston	1,918	Burned when loading at Patos, Gulf of California, Sept. 1858.
JOHN GILPIN	1852	Samuel Hall, East Boston	1,089	Foundered by striking iceberg off Cape Horn, Jan. 1858.
JOHN LAND	1853	E. & H. O. Briggs, South Boston	1,054	Abandoned at sea (North Atlantic), Mar. 25, 1864.
JOHN MILTON	1855	Fairhaven, Mass.	1,445	Lost Feb. 20, 1858, with all hands (26), near Montauk.

Name	Year Built	Builder	Tonnage	Remarks Giving End of Career or of American Ownership
JOHN STUART	1851	Perrine, Patterson & Stack, New York	1,654	Sold to British at Bombay, June 1863.
JOHN WADE	1851	Hayden & Cudworth, Medford, Mass.	639	Wrecked in Gulf of Siam, Mar. 1859.
JOSEPHINE	1852	Samuel Hanscomb, Jr., Eliot, Maine	947	Burned in St. Louis Harbor, Mauritius, June 1859.
JOSEPH PEABODY	1856	E. & H. O. Briggs, South Boston	1,198	Sold British in 1863 and renamed DAGMAR.
JUNIPER	1853	Robbinston, Maine	514	Lost on reef below Pernambuco, Nov. 1857.
KATE HOOPER	1853	Hunt & Wagner, Baltimore	1,489	Burned and scuttled at Hobson's Bay, Melbourne, Dec. 1862. Salvaged, repaired, and registered as British bark SALAMANDER.
KATHAY	1853	J. A. Westervelt, New York	1,438	Sold to British in 1863.
KINGFISHER	1853	Hayden & Cudworth, Medford, Mass.	1,286	Condemned Montevideo, 1871. Sold, repaired, and went under Uruguayan flag as JAIME CIBILS.
KING LEAR	1854	Robert E. Jackson, East Boston	1,936	Sold to British.
KIT CARSON	1855	Shiverick Bros., East Dennis, Mass.	997	Sunk off Rio de Janeiro during Brazilian war.
LADY FRANKLIN	1852	Jarvis Pratt, East Boston	464	Abandoned in North Atlantic in Oct. 1856.
LANTAO	1849	Samuel Hall, East Boston	593	"Went missing" late 1856.
LEAH	1855	George Greenman & Co., Mystic, Conn.	1,438	Lost with all hands on maiden voyage.
LEVANTER	1852	Metcalf & Norris, Newcastle, Maine	868	Sold to British in 1865.
LIGHTFOOT	1853	Jackson & Ewell, East Boston	1,996	Wrecked near Saugor, June 1855.
LIGHTNING	1854	Donald McKay, East Boston	2,084	Built for British owners. Burned at Melbourne, Australia, Oct. 31, 1869.
LIVE YANKEE	1853	Horace Merriam, Rockland, Maine	1,637	Wrecked on coast of Galicia, 1861.
LIVING AGE	1848	Jotham Stetson, Medford, Mass.	727	Wrecked on Pratas Shoal, Dec. 31, 1854.
LOOKOUT	1853	Chase & Davis, Warren, R. I.	1,291	Wrecked in Japan Sea, 1878.
LOTUS	1852	John Taylor, Chelsea, Mass.	660	Sold to French in 1863.
MALAY	1852	John Taylor, Chelsea, Mass.	868	Condemned at Tahiti, Oct. 1891.
MAMELUKE	1855	E. & H. O. Briggs, South Boston	1,303	Sold to British, 1863. Renamed MILTON.
MANDARIN	1850	Smith & Dimon, New York	776	Lost on uncharted reef, China Sea, Aug. 9, 1864.
MANITOU	1855	William Cramp, Petty's Island, N. J. (Delaware)	1,401	"Went missing" in 1859.
MARY	1854	Benjamin Dutton, Marblehead, Mass.	1,148	Condemned Callao, 1867. Repaired and sold to British.
MARY BANGS	1856	Paul Curtis, East Boston	958	Wrecked near Altata, Mexico, Nov. 1874.
MARY L. SUTTON	1856	Charles Mallory, Mystic, Conn.	1,448	Lost when loading at Baker's Island, Nov. 1864.
MARY OGDEN	1854	Chase & Davis, Warren, R. I.	969	Owned by G. Bulkley, New York; end unknown.
MARY ROBINSON	1854	Trufant & Drummond, Bath, Maine	1,371	Lost when loading at Howland's Island, June 1864.
MARY WHITRIDGE	1855	Hunt & Wagner, Baltimore	978	Cut down to barge in 1885.
MASTIFF	1856	Donald McKay, East Boston	1,031	Burned five days out of San Francisco, Sept. 10, 1859.

Name	Year Built	Builder	Tonnage	Remarks Giving End of Career or of American Ownership
MATCHLESS	1853	Isaac Taylor, Chelsea, Mass.	1,033	Lost in Oct. 1857 on voyage between Anjer and Manila.
MEMNON	1847	Smith & Dimon, New York	1,068	The first clipper to round the Horn in the Gold Rush.
MESSENGER	1852	Jacob Bell, New York	1,350	Condemned and sold to Australians at Mauritius in 1879.
METEOR	1852	E. & H. O. Briggs, South Boston	1,068	Sold to British in 1862.
MIDNIGHT	1854	Fernald & Pettigrew, Portsmouth, N. H.	962	Condemned Jan. 1878 at Amboyna.
MINNEHAHA	1856	Donald McKay, East Boston	1,698	Wrecked at Baker's Island, Dec. 1867.
MISCHIEF	1853	James M. Hood, Somerset, Mass.	561	Sold to Germans in 1855. Later became bark SLEIPNER of Denmark.
MONARCH OF THE SEAS	1854	Roosevelt & Joyce, New York	1,971	Sold to British in 1865.
MONSOON	1851	Trufant & Drummond, Bath, Maine	773	Sold to Norwegians about 1870.
MORNING GLORY	1854	Portsmouth, N. H.	1,114	Sold to British in 1864; renamed BRITISH CROWN.
MORNING LIGHT (I)	1853	Tobey & Littlefield, Portsmouth, N. H.	1,713	Sold Apr. 1863 to British and renamed QUEEN OF THE SOUTH.
MORNING LIGHT (II)	1853	William Cramp, Philadelphia, Pa.	938	Captured and burned in 1863, during Civil War, by Confederates off coast of Texas.
MORNING STAR	1853	Joshua T. Foster, Medford, Mass.	1,105	Sold to British, 1863. Renamed LANDSBOROUGH.
MOUNTAIN WAVE	1852	Joshua Magoun, Charlestown, Mass.	633	Sold to Portuguese in 1865; renamed MARIA DEL GLORIA.
MYSTERY	1853	Samuel Hall, East Boston	1,155	Sold to British in 1854.
NABOB	1854	John Taylor, Chelsea, Mass.	1,246	Wrecked on Luzon, Nov. 1862.
NAPIER	1854	William & George Gardner, Fell's Point, Baltimore	1,811	Sold to British, Nov. 1863.
NATIONAL EAGLE	1852	Joshua T. Foster, Medford, Mass.	1,095	Wrecked in the Adriatic, 1884.
N. B. PALMER	1851	Westervelt & Mackey, New York	1,399	Sold abroad 1873 and went under Norwegian flag.
NEPTUNE'S CAR	1853	Page & Allen, Portsmouth, Va.	1,616	Sold to British in late 1862.
NEPTUNE'S FAVORITE	1854	Jotham Stetson, Chelsea, Mass.	1,347	Sold to British in 1863. Renamed MATAURA.
NIGHTINGALE	1851	Samuel Hanscomb, Jr., Portsmouth, N. H.	1,066	Became a slaver owned by Brazilians. Captured 1860 by U. S. Navy. Sold to Norwegians in 1876.
NONPAREIL	1853	Dunham & Co., Frankfort, Maine	1,431	In 1863 sold to British.
NOONDAY	1855	Fernald & Pettigrew, Portsmouth, N. H.	1,189	Lost on uncharted rock near San Francisco, Jan. 1, 1863.
NORSEMAN	1856	Robert E. Jackson, East Boston	812	Sold in Siam in 1863.
NORTHERN LIGHT	1851	E. & H. O. Briggs, Boston	1,021	Abandoned at sea, Jan. 2, 1862, after collision when crossing Atlantic.
NORTH WIND	1853	A. C. Bell, New York	1,041	Sold to British, July 1861.
NOR'WESTER	1854	Samuel Lapham, Medford, Mass.	1,267	Burned at Key West, Feb. 1873.
OCEAN CHIEF	1854	J. & C. Morton, Thomaston, Maine	1,228	Sold after launching to British in 1854.
OCEAN EXPRESS	1854	James O. Curtis, Medford, Mass.	1,697	Sold to Peru in 1872.
OCEAN HERALD	1853	Cyrus Cotter, Damariscotta, Maine	1,658	Sold to French in 1856 and renamed MALABAR.

Name	Year Built	Builder	Tonnage	Remarks Giving End of Career or of American Ownership
OCEAN PEARL	1853	Joshua Magoun, Charlestown, Mass.	847	Wrecked Tarragona, 1864.
OCEAN ROVER	1854	Tobey & Littlefield, Portsmouth, N. H.	777	Wrecked Brazilian coast, July 1870.
OCEAN SPRAY	1852	George Dunham et al., Frankfort, Maine	1,089	Abandoned at sea, 1857.
OCEAN TELEGRAPH	1854	James O. Curtis, Medford, Mass.	1,495	Sold in 1863 to British. Renamed LIGHT BRIGADE. Made a coal hulk at Gibraltar, 1883.
ONWARD	1852	James O. Curtis, Medford, Mass.	874	A United States cruiser in 1861. Sold at Callao, Nov. 1884.
ORACLE	1853	Chapman & Flint, Thomaston, Maine	1,196	Sold to British in Nov. 1862; renamed YOUNG ENGLAND.
ORIENTAL	1849	Jacob Bell, New York	1,003	Wrecked in River Min, China, Feb. 1854.
ORPHEUS	1856	Rice & Mitchell, Chelsea, Mass.	1,272	Wrecked in Nov. 1875 near Puget Sound after collision with S.S. PACIFIC.
OSBORNE HOWES	1854	Hayden & Cudworth, Medford, Mass.	1,100	Sold to British at Calcutta in June 1864.
PAMPERO	1853	Charles Mallory, Mystic, Conn.	1,375	Sold to U. S. Government in 1861. Resold Oct. 1867.
PANAMA	1853	Thomas Collyer, New York	1,139	Condemned and sold in Bahia, Aug. 1867. Went under Argentine flag.
PANTHER	1854	Paul Curtis, Medford, Mass.	1,278	Wrecked Vancouver Island when in tow, Jan. 1874.
PHANTOM	1852	Samuel Lapham, Medford, Mass.	1,174	Lost near Pratas Shoals, China Sea, July 1862.
PHOENIX	1853	Thomas E. Knight, Cape Elizabeth (Port- land), Maine	1,458	Burned at Melbourne, Feb. 28, 1860.
POLYNESIA	1852	Samuel Hall, East Boston	1,084	Burned at San Francisco, Mar. 1862.
PRIDE OF AMERICA	1853	Patten & Sturdevant, Richmond, Maine	1,826	Sold to British in Mar. 1854; renamed PRIDE OF THE OCEAN.
PRIDE OF THE OCEAN	1853	Daniel Foster, Warren, R. I.	1,525	Sold to British in Apr. 1854. Renamed BELGRAVIA.
PRIDE OF THE SEA	1854	Foster & Booz, Baltimore	1,600	Stranded off British coast and burned in 1854 on voyage from New Orleans to Liverpool loaded with cotton.
PRIMA DONNA	1858	George Greenman & Co., Mystic, Conn.	1,529	Sold to Austrians in 1883.
QUEEN OF CLIPPERS	1853	Robert E. Jackson, East Boston	2,361	Sold to the French in 1856; renamed REINA DES CLIPPERS.
QUEEN OF THE EAST	1852	Metcalf & Norris, Damariscotta, Maine	1,275	Wrecked in South Pacific in Apr. 1872.
QUEEN OF THE PACIFIC	1852	Isaac Ewell, Pembroke, Maine	1,356	Condemned St. Thomas in 1857. Repaired; wrecked 180 miles north of Pernambuco, Sept. 1859.
QUEEN OF THE SEAS	1852	Paul Curtis, Medford, Mass.	1,356	"Went missing" Formosa Channel, Sept. 1860.
QUICKSTEP	1853	Enos Soule, Freeport, Maine	823	Sold to British in 1863.
RACER	1851	Currier & Townsend, Newburyport, Mass.	1,669	Wrecked on coast of Ireland, May 1856.
RADIANT	1853	Paul Curtis, East Boston	1,318	Sold at Calcutta in 1863.
RADUGA	1848	Currier & Townsend, Newburyport, Mass.	587	Sold to Hawaiians in 1863 and renamed IOLANI.
RAINBOW	1845	Smith & Dimon, New York	752	"Went missing" in 1848.
RAMBLER	1854	Hayden & Cudworth, Medford, Mass.	1,119	Sold to Germany in 1863. Renamed FANNY.
RAPID	1853	Roosevelt & Joyce, New York	1,115	Sold to Denmark in 1859.

MERCHANT SAIL

Name	Year Built	Builder	Tonnage	Remarks Giving End of Career or of American Ownership
RATTLE (I)	1852	Baltimore	539	Reported lost near Norfolk in 1853.
RATTLE (II)	1852	George Thomas, Rockland, Maine	1,121	Went under Nicaraguan flag in 1874; renamed TERCINA FERREIRA. Was later Costa Rican ship MARTHA and British bark MARTHA.
RATTLE (III)	1854	Baltimore	794	Sold to Italians in 1862.
RAVEN	1851	James M. Hood, Somerset, Mass.	712	Condemned at Rio de Janeiro, 1863. Sold and repaired as Brazilian bark BESSIE. Later put under Portuguese registry.
R. B. FORBES	1851	Samuel Hall, East Boston	757	Sold in 1862 at Hong Kong.
RED GAUNTLET	1853	James W. Cox, Robbinston, Maine	1,038	Burned by FLORIDA, Confederate Navy, in June 1863.
RED JACKET	1853	George Thomas, Rockland, Maine	2,305	Sold to British in 1855.
RED ROVER	1852	Fernald & Pettigrew, Portsmouth, N. H.	1,021	Sold in 1861 to British; renamed YOUNG AUSTRALIA.
REINDEER	1849	Donald McKay, East Boston	800	Wrecked in South Seas, Feb. 12, 1859.
REPORTER	1853	Paul Curtis, Boston	1,474	Foundered off Cape Horn, Aug. 17, 1862.
RESOLUTE	1853	Westervelt & Sons, New York	787	Sold to British in 1862.
REYNARD	1856	George W. Jackman, Newburyport, Mass.	1,051	Sold to Canadians and went under British flag about 1878.
RINGLEADER	1853	Hayden & Cudworth, Medford, Mass.	1,156	Wrecked on Formosa Banks, 1863.
RIVAL	1855	Hayden & Cudworth, Medford, Mass.	983	"Went missing" in 1872 on voyage from Rangoon to Falmouth.
ROBIN HOOD	1854	Hayden & Cudworth, Medford, Mass.	1,181	Burned Aug. 1869 while loading at Baker's Island.
ROEBUCK	1851	Bourne & Kingsbury, Kennebunk, Maine	815	Wrecked off Cohasset, Jan. 1859.
ROMANCE OF THE SEAS	1853	Donald McKay, East Boston	1,782	"Went missing" on voyage from Hong Kong to San Francisco in early 1863.
ROVER'S BRIDE	1853	Foster & Booz, Canton, Baltimore	376	Sold to Australians in 1854.
SAMUEL APPLETON	1849	Paul Curtis, Medford, Mass.	781	Built as a China clipper packet.
SAMUEL RUSSELL	1847	Brown & Bell, New York	957	Wrecked Gaspar Straits, 1870.
SANCHO PANZA	1855	Samuel Lapham, Medford, Mass.	876	Sold to British in 1863.
SAN FRANCISCO	1853	A. C. Bell, New York	1,307	Wrecked entering San Francisco Bay on Feb. 8, 1854, on her maiden voyage.
SANTA CLAUS	1854	Donald McKay, East Boston	1,256	Abandoned at sea on Aug. 9, 1863.
SARACEN	1854	E. & H. O. Briggs, East Boston	1,266	Sold in Dec. 1865 to Italians. Renamed TERESA.
SEAMAN	1850	R. & E. Bell, Baltimore	546	Burned at sea on Feb. 6, 1855.
SEAMAN'S BRIDE	1851	R. & E. Bell, Baltimore	668	Sold at Hamburg in 1855; renamed CARL STAEGOMAN.
SEA NYMPH (of Baltimore)	1850	Adams Gray, Baltimore	526	Sold to Germans in late fifties and operated as bark in Pacific.
SEA NYMPH (of New Bedford)	1853	Fairhaven, Mass.	1,215	Wrecked May 4, 1861, Point Reyes, Calif.
SEA SERPENT	1850	George Raynes, Portsmouth, N. H.	1,402	Sold to Norwegians in May 1874; renamed PROGRESS.
SEA WITCH	1846	Smith & Dimon, New York	908	Wrecked on Cuban coast, Mar. 28, 1856.
SHOOTING STAR (I)	1851	James O. Curtis, Medford, Mass.	903	Sold and went under Siamese flag in 1857.
SHOOTING STAR (II)	1859	George Raynes, Portsmouth, N. H.	947	Burned by CHICKAMAUGA, Confederate privateer, Oct. 31, 1863.

Name	Year Built	Builder	Tonnage	Remarks Giving End of Career or of American Ownership
SIERRA NEVADA	1854	Tobey & Littlefield, Portsmouth, N. H.	1,942	Sold to British in Mar. 1863; renamed ROYAL DANE.
SILVER STAR	1856	James O. Curtis, Medford, Mass.	1,195	Wrecked while loading at Jarvis Island, Nov. 1860.
SIMOON	1852	Jabez Williams, New York	1,436	Sold to British, Oct. 1863. From 1874 to 1912, was registered as Norwegian bark HOVDING.
SIRIUS	1858	Cooper & Butler, Baltimore	851	Sold to Germans.
SIROCCO	1852	William & George Gardner, Baltimore	1,130	Sold to British in 1861.
SKYLARK	1853	James M. Hood, Somerset, Mass.	1,209	Sold to Germans during Civil War.
SNOW SQUALL	1851	Alfred Butler, Cape Elizabeth, Maine	742	Condemned at Port Stanley in July 1864.
SOUTHERN CROSS	1851	E. & H. O. Briggs, Boston	938	Burned by the FLORIDA, Confederate Navy, June 6, 1863.
SOVEREIGN OF THE SEAS	1852	Donald McKay, East Boston	2,421	Sold to Germans in 1854.
SPARKLING WAVE	1853	Mason Barney, Swansea, Mass.	665	Sold to British in 1864.
SPIRIT OF THE TIMES	1853	Cooper & Slicer, Baltimore	1,206	Sold to Germans in 1861. Later was under British, Chilean, and Portuguese flags.
SPITFIRE	1853	James Arey & Co., Frankfort, Maine	1,520	Sold to British in Apr. 1863.
STAFFORDSHIRE	1851	Donald McKay, East Boston	1,817	Lost off Cape Sable, Dec. 25, 1853.
STAG HOUND	1850	Donald McKay, East Boston	1,534	Burned off Pernambuco, Oct. 1861.
STARLIGHT	1854	E. & H. O. Briggs, Boston	1,153	Sold 1864 to Peru. Renamed R. PROTOLONGO.
STAR OF EMPIRE	1853	Donald McKay, East Boston	2,050	Put into Algoa Bay in distress June 28, 1856, and condemned.
STAR OF HOPE	1855	Portsmouth, N. H.	1,198	Abandoned at sea June 13, 1861, when bound from Liverpool to Calcutta.
STAR OF PEACE	1858	N. Currier, Jr., Newburyport, Mass.	941	Burned by FLORIDA, Confederate Navy, Mar. 6, 1863.
STAR OF THE UNION	1852	James O. Curtis, Medford, Mass.	1,057	Condemned and sold late 1866 at Rio de Janeiro after collision off Cape Horn.
STARR KING	1854	George W. Jackman, Jr., Newburyport, Mass.	1,171	Wrecked in June 1862 on voyage between Hong Kong and Singapore.
STILWELL S. BISHOP	1851	William Cramp, Philadelphia, Pa.	595	Sold in 1856 and renamed GREY EAGLE (II); was a bark 1878-1888.
STING RAY	1854	Eckford Webb, Greenpoint, Long Island, N.Y.	985	Wrecked on Fire Island, New York, Jan. 9, 1856, on voyage from Canton to New York.
STORM KING	1853	John Taylor, Chelsea, Mass.	1,399	Sold to British at Hong Kong in Apr. 1863.
SUNNY SOUTH	1854	George Steers, Williamsburg, N. Y.	702	In 1859 sold at Havana for slaver and renamed EMANUELA. Captured Aug. 1860 by British, with 800 slaves aboard, and converted as British cruiser.
SURPRISE	1850	Samuel Hall, East Boston	1,261	Struck on sunken rock (Plymouth Rocks) off Yokohama Bay and became total loss, Feb. 4, 1876.
SWALLOW	1854	Robert E. Jackson, East Boston	1,435	Abandoned at sea, 1885.
SWEEPSTAKES	1853	D. & A. Westervelt, New York	1,735	Ashore at Straits of Sunda and condemned at Batavia, May 1862.
SWORDFISH	1851	William H. Webb, New York	1,036	Wrecked in Yang Tsze, July 1862.
SYREN	1851	John Taylor, Medford, Mass.	1,064	Condemned at Rio de Janeiro, 1888. Sold, repaired, and registered as bark MARGARIDA of Buenos Aires. Was listed in Lloyd's in 1920 when sixty-nine years old.

Name	Year Built	Builder	Tonnage	Remarks Giving End of Career or of American Ownership
TALISMAN	1854	Metcalf & Norris, Damariscotta, Maine	1,238	Burned June 5, 1863, by ALABAMA, Confederate Navy.
TAM O'SHANTER	1849	Enos Soule, Freeport, Maine	777	Abandoned off Cape Cod, Dec. 1853.
TELEGRAPH	1851	James O. Curtis, Medford, Mass.	1,069	Burned, repaired, 1857. Renamed HENRY BRIGHAM. Sold Peru, 1865; renamed COMPANIA MARITIMA DEL PERU NO. 2; later became Italian ship GALILEO.
THATCHER MAGOUN	1856	Hayden & Cudworth, Medford, Mass.	1,248	Sold to Norwegians in 1874. Renamed HERCULES.
THOMAS WATTSON	1848	Caleb Goodwin & Co., Baltimore	349	Philadelphia owned. A Cape Horner, 1850-1855, and very fast for her size. End unknown.
TINQUA	1852	George Raynes, Portsmouth, N. H.	668	Wrecked on Hatteras, Jan. 1855.
TITAN	1855	Roosevelt & Joyce, New York	1,985	Abandoned at sea, Feb. 18, 1858.
TORNADO	1852	Jabez Williams, Williamsburg, N. Y.	1,802	Sold to British in 1863. Burned at New Orleans in 1875.
TRADE WIND	1851	Jacob Bell, New York	2,045	Foundered following collision, June 26, 1854.
TWILIGHT	1857	Charles Mallory, Mystic, Conn.	1,482	Sold in 1864 to Peru. Renamed COMPANIA MARITIMA DEL PERU NO. 1.
TYPHOON	1851	Fernald & Pettigrew, Portsmouth, N. H.	1,611	Sold to British at Singapore in 1863; listed in 1869 as British ship INDOMITABLE of Dublin.
UNCOWAH	1856	William H. Webb, New York	988	Sold to Peru in 1865.
UNDAUNTED	1853	Hall, Snow & Co., Bath, Maine	1,371	Condemned at Rio de Janeiro, Sept. 1863. Sold to British and renamed CAPRICE; later was Norwegian ship HALDEN.
UNION	1851	Baltimore	1,012	Sold to French in 1863.
VICTORY	1851	Benjamin Dutton, Newburyport, Mass.	669	Lost near Cape Henry, Feb. 9, 1861.
VIKING	1853	Trufant & Drummond, Bath, Maine	1,349	Wrecked Princess Island, off Simoda, June 4, 1863.
VITULA	1855	E. & H. O. Briggs, East Boston	1,188	Condemned Rio de Janeiro, June 1867. Sold to British. Renamed BESSIE & ANNIE. Later named JAMES ROWEN.
WAR HAWK	1855	George W. Jackman, Newburyport, Mass.	1,067	Burned Apr. 1883.
WATER WITCH	1853	Fernald & Pettigrew, Portsmouth, N. H.	1,204	Lost when loading at Ypala, June 1, 1855.
WAVERLEY	1853	Joshua Magoun, Charlestown, Mass.	749	"Went missing" on voyage to Calcutta, late 1862.
WEBFOOT	1856	Shiverick Bros., East Dennis, Mass.	1,091	Stranded at Dunkirk, Apr. 8, 1864. Sold in July to British at London.
WESTWARD HO	1852	Donald McKay, East Boston	1,650	Sold to Peru in 1857.
WEST WIND	1853	Joshua T. Foster, Medford, Mass.	1,071	Sold to British in 1863 and renamed LORD CLYDE of Calcutta.
WHIRLWIND	1852	James O. Curtis, Medford, Mass.	960	Sold abroad in 1862 or 1863.
WHISTLER	1853	George W. Jackman, Jr., Newburyport, Mass.	820	Lost on King's Island, Bass Straits, May 23, 1855, on voyage from Port Phillip, Australia, to Singapore.
WHITE FALCON	1853	Pittston, Maine	1,372	Sold to Peru in 1864; renamed NAPOLEON CANAVERO.
WHITE SQUALL	1850	Jacob Bell, New York	1,119	Sold to French at Montevideo, Sept. 1856; renamed SPLENDIDE of Marseilles.
WHITE SWALLOW	1853	Hayden & Cudworth, Medford, Mass.	1,192	Abandoned near Fayal, June 1871.
WIDE AWAKE	1853	Perrine, Patterson & Stack, New York	758	Sold at Bangkok in June 1857 and put under Siamese flag.

Name	Year Built	Builder	Tonnage	Remarks Giving End of Career or of American Ownership
WILD DUCK	1853	George Raynes, Portsmouth, N. H.	860	Lost River Min, China, Oct. 1856.
WILD HUNTER	1855	Shiverick Bros., East Dennis, Mass.	1,081	In 1873 re-rigged as a bark. Disappeared from register in 1884.
WILD PIGEON	1851	George Raynes, Portsmouth, N. H.	996	Sold to British in 1863. In 1868 was Spanish ship BELLA JUANA and later VOLADORA.
WILD RANGER	1853	James O. Curtis, Medford, Mass.	1,044	Sold British after collision, Jan. 1862; renamed OCEAN CHIEF.
WILD ROVER	1853	Austin & Hall, Damariscotta, Maine	1,100	Wrecked on Long Island, 1871.
WILD WAVE	1853	G. H. Ferrin, Richmond, Maine	1,547	Wrecked on coral reef 80 miles from Pitcairn Island, Mar. 5, 1858.
WINDWARD	1854	Trufant & Drummond, Bath, Maine	818	Wrecked in Puget Sound, Dec. 1875.
WINGED ARROW	1852	E. & H. O. Briggs, South Boston	1,052	Sold to Russo-American Fur Company in 1868.
WINGED RACER	1852	Robert E. Jackson, East Boston	1,767	Destroyed by ALABAMA, Confederate Navy, in Straits of Sunda, Nov. 10, 1863.
WINGS OF THE MORNING	1852	Edwin Achorn, Waldoboro, Maine	915	Sold to French in 1856; renamed SURAT.
WISCONSIN	1847	New York	925	A fast "clipperish" ship. Owned in South America, 1869.
WITCHCRAFT	1850	Paul Curtis, Chelsea, Mass.	1,310	Wrecked Hatteras, Apr. 8, 1861.
WITCH OF THE WAVE	1851	George Raynes, Portsmouth, N. H.	1,498	Sold 1857 to Amsterdam owners; renamed ELECTRA.
WIZARD	1853	Samuel Hall, East Boston	1,601	Sold to British in Nov. 1862. Renamed QUEEN OF THE COLONIES.
WIZARD KING	1854	T. J. Southard, Richmond, Maine	1,398	Sold to British in 1863; renamed MUNSOORY.
WOODCOCK	1853	Achorn & Gleason, Waldoboro, Maine	1,091	Wrecked Dungeness.
YANKEE RANGER	1854	Rockland, Maine	708	Sold to Germans; renamed FRANKLIN.
YOUNG AMERICA	1853	William H. Webb, New York	1,961	Sold to Austria, 1883; renamed MIROSLAV.
YOUNG AUSTRALIA	1852	Fernald & Pettigrew, Portsmouth, N. H.	766	Sold to the British.
YOUNG BRANDER	1853	Jotham Stetson, Chelsea, Mass.	1,467	Sold to British in 1855; renamed TIMOUR and was later named GOLDEN DREAM.
YOUNG MECHANIC	1855	T. W. Rhoades, Rockland, Maine	1,375	Burned at sea in 1866.

*Summary of the Construction of Clippers and Reputed Clippers
in the United States during the Period 1844-1859*

The following table shows for each of the years 1844-1859 inclusive (a sixteen-year period) the number and tonnage of extreme clippers, average (or ordinary) clippers, medium clippers, and many reputed clippers (including, in the earlier years, the outstanding, fast square-rigged sailing ships) that were built in the United States. The name and tonnage of the largest and of the smallest vessel of this class built each year are set forth; also the total number and tonnage (and average tonnage per vessel) built during certain stated periods of time.

Year	Number of Clippers			Tonnage		Largest Clipper		Smallest Clipper	
	Total	Ship-rigged	Bark-rigged	Total	Average per Vessel	Name	Tonnage	Name	Tonnage
1844	8	8	—	4,369	546	JOHN Q. ADAMS	622	COURIER	392
1845	4	3	1	2,024	506	RAINBOW	752	CORSAIR	301
1846	4	3	1	2,363	591	SEA WITCH	908	ISABELITA HYNE (bark)	350
1847	15	12	3	10,224	681	JAMESTOWN	1,151	JENNETTE (bark)	248
1848	11	9	2	5,836	531	ANDALUSIA	772	MIMOSA (bark)	241
1849	12	8	4	7,032	586	ORIENTAL	1,003	ASA FISH (bark)	320
1850	24	18	6	20,086	837	STAG HOUND	1,534	DRAGON (bark)	290
1851	54	51	3	58,963	1,092	TRADE WIND	2,045	WARNER	500
1852	75	68	7	73,970	986	SOVEREIGN OF THE SEAS	2,421	GAZELLE (bark)	253
1853	120	115	5	149,504	1,246	GREAT REPUBLIC	3,357	WILDFIRE (bark)	338
1854	71	68	3	85,852	1,209	JAMES BAINES	2,515	BOUNDING BILLOW (bark)	354
1855	42	39	3	52,045	1,239	DONALD McKAY	2,595	HELEN MAR (bark)	511
1856	40	38	2*	41,428	1,036	MINNEHAHA	1,698	ROEBUCK (bark)	456
1857	10	7	3	9,055	906	TWILIGHT	1,482	DAWN (bark)	387
1858	6	6	—	6,162	1,027	PRIMA DONNA	1,529	MEMNON	789
1859	3	3	—	2,470	823	SHOOTING STAR II	947	MAID OF THE SEA	661

* One was barkentine-rigged.

Years 1844-1859 inclusive:	Total number of vessels built, 499 (of which 456 were full-rigged ships); total tonnage (16 years), 531,383 tons; average tonnage per vessel, 1,065 tons.
Years 1850-1859 inclusive:	Total number of vessels built, 445 (of which 413 were full-rigged ships); total tonnage (10 years), 499,535 tons; average tonnage per vessel, 1,123 tons.
Years 1850-1856 inclusive:	Total number of vessels built, 426 (of which 394 were full-rigged ships); total tonnage (7 years), 481,848 tons; average tonnage per vessel, 1,131 tons.
Years 1852-1854 inclusive:	Total number of vessels built, 266 (of which 251 were full-rigged ships); total tonnage (3 years), 309,326 tons; average tonnage per vessel, 1,163 tons.

A Record of the Sizable and Large Clipper Ships Built in the United States during the Years 1850-1859 Inclusive

Outside of a few vessels for foreign accounts built by Donald McKay, East Boston, Mass., by far the most important of which were the four large extreme clippers built for James Baines, Liverpool, England, and his British Black Ball Line running to Australia (i.e., *Lightning* of 2,083 tons, *Champion of the Seas* of 2,447 tons, and *James Baines* of 2,515 tons, built in 1854; and the *Donald McKay* of 2,594 tons, built in 1855), practically all the big clippers built in the United States in 1850 and thereafter were intended for the California trade. A large number of these clippers ultimately found foreign registry, but this was because of over-construction in 1852-1854, the severe financial depression of 1857, and the Civil War (1861-1865). At one time, eighteen large and two medium-sized American-built wood clippers were sailing under the flags of two British-Australian lines alone—the Black Ball and the White Star.

Of the clippers and reputed clippers built in the United States during the ten-year period 1850-1859 inclusive, 63 per cent was of over 1,000 tons register, about 16 per cent had a tonnage in excess of 1,500 tons, some 8½ per cent (thirty-eight ships) was of over 1,750 tons,

thirteen ships exceeded 2,000 tons register, seven clippers were of over 2,250 tons, and three vessels had a tonnage in excess of 2,500 tons.

The following table shows the number of large and sizable clippers and reputed clippers exceeding 1,000 tons register that were built in the United States during each of the years 1850-1859 inclusive, divided into seven tonnage groups.

Year	1,000 to 1,250 Tons	1,251 to 1,500 Tons	1,501 to 1,750 Tons	1,751 to 2,000 Tons	2,001 to 2,250 Tons	2,251 to 2,500 Tons	Over 2,500 Tons	Number of Ships
1850	3	5	1	—	—	—	—	9
1851	10	9	5	4	2	—	—	30
1852	18	12	3	2	—	1	—	36
1853	33	26	16	7	3	2	1	88
1854	24	14	3	9	1	1	1	53
1855	11	13	3	3	—	—	1	31
1856	19	6	2	—	—	—	—	27
1857	—	4	—	—	—	—	—	4
1858	1	—	1	—	—	—	—	2
1859	—	—	—	—	—	—	—	—
Total number of ships	119	89	34	25	6	4	3	280

The following is a list of the largest clippers and reputed clippers built in the United States during the 1850's, which can be called the real American clipper shipbuilding decade:

Name of Ship	Tonnage	Registered Dimensions in Feet			Ratio Length to Beam	Name of Builder and Location of Shipyard	Year Built
		Length	Beam	Depth			
GREAT REPUBLIC (as rebuilt)	3,357	302	48.4	29.2	6.2 to 1	Donald McKay, East Boston, Mass.	1853
DONALD MCKAY	2,594	266	46.3	29.4	5.7 to 1	Donald McKay, East Boston, Mass.	1855
JAMES BAINES	2,515	266	44.8	29	5.9 to 1	Donald McKay, East Boston, Mass.	1854
CHAMPION OF THE SEAS	2,447	252	45.5	29.2	5.5 to 1	Donald McKay, East Boston, Mass.	1854
SOVEREIGN OF THE SEAS	2,421	258.2	44.7	23.5	5.8 to 1	Donald McKay, East Boston, Mass.	1852
QUEEN OF CLIPPERS	2,361	248.5	45	28	5.5 to 1	Robert E. Jackson, East Boston, Mass.	1853
RED JACKET	2,305	251.2	44	31	5.7 to 1	George Thomas, Rockland, Maine	1853
EMPRESS OF THE SEAS	2,197	230	43	27	5.3 to 1	Donald McKay, East Boston, Mass.	1853
LIGHTNING	2,083	243	42.8	23	5.7 to 1	Donald McKay, East Boston, Mass.	1854
CHARIOT OF FAME	2,050	220	43	27.5	5.1 to 1	Donald McKay, East Boston, Mass.	1853
STAR OF EMPIRE	2,050	220	43	27.5	5.1 to 1	Donald McKay, East Boston, Mass.	1853
TRADE WIND	2,045	245.6	42	30.2	5.8 to 1	Jacob Bell, New York, N. Y.	1851
CHALLENGE	2,007	230.5	43.2	26	5.3 to 1	William H. Webb, New York, N. Y.	1851
LIGHTFOOT	1,996	233	42.8	23	5.4 to 1	Jackson & Ewell, East Boston, Mass.	1853
EUTERPE	1,985	224	43.7	24.5	5.1 to 1	Horace Merriam, Rockland, Maine	1854
TITAN	1,985	222	42.5	25.5	5.2 to 1	Roosevelt & Joyce, New York, N. Y.	1855
COMMODORE PERRY	1,964	212	45	29	4.7 to 1	Donald McKay, East Boston, Mass.	1854
JAPAN	1,964	212	45	29	4.7 to 1	Donald McKay, East Boston, Mass.	1854

MERCHANT SAIL

Name of Ship	Tonnage	Registered Dimensions in Feet			Ratio Length to Beam	Name of Builder and Location of Shipyard	Year Built
		Length	Beam	Depth			
YOUNG AMERICA	1,961	243	43.2	26.8	5.6 to 1	William H. Webb, New York, N. Y.	1853
SIERRA NEVADA	1,942	222.2	44.4	26.4	5.0 to 1	Tobey & Littlefield, Portsmouth, N. H.	1854
KING LEAR	1,936	231.7	42.2	29.3	5.5 to 1	Robert E. Jackson, East Boston, Mass.	1854
FLORA TEMPLE	1,916	233.8	41.8	25.5	5.6 to 1	J. Abraham, Baltimore, Md.	1853
GAUNTLET	1,854	230	42	23	5.5 to 1	Thomas J. Southard Richmond, Maine	1853
COMET	1,836	228	40.3	22	5.6 to 1	William H. Webb, New York, N. Y.	1851
ADELAIDE	1,831	214	43	28.2	5.0 to 1	A. C. Bell, New York, N. Y.	1854
BLACK WARRIOR	1,828	234	42	23.8	5.6 to 1	Austin & Co., Damariscotta, Maine	1853
PRIDE OF AMERICA	1,826	213	38	22	5.6 to 1	Patten & Sturdevant Richmond, Maine	1853
STAFFORDSHIRE	1,817	230	41	29	5.6 to 1	Donald McKay, East Boston, Mass.	1851
NAPIER	1,811	216	42.5	28	5.1 to 1	Wm. & Geo. Gardner, Baltimore, Md.	1854
TORNADO	1,802	222.2	41.7	28	5.3 to 1	Jabez Williams, Williamsburg, N. Y.	1852
WHISTLING WIND	1,800	216	42	26	5.1 to 1	Wm. & Geo. Gardner, Baltimore, Md.	1855
CHERUBIM	1,796	217	43	24	5.1 to 1	J. Abraham, Baltimore, Md.	1855
BLUE JACKET	1,790	235	41.2	24	5.7 to 1	Robert E. Jackson, East Boston, Mass.	1854
BLANCHE MOORE	1,787	235	40	20	5.9 to 1	Donald McKay, East Boston, Mass.	1854
FLYING CLOUD	1,782	229	40.7	21.5	5.6 to 1	Donald McKay, East Boston, Mass.	1851
ROMANCE OF THE SEAS	1,782	240.8	39.5	20	6.1 to 1	Donald McKay, East Boston, Mass.	1853
INVINCIBLE	1,769	238	42.7	25.5	5.6 to 1	William H. Webb, New York, N. Y.	1851
WINGED RACER	1,767	210	42.5	23	5.0 to 1	Robert E. Jackson, East Boston, Mass.	1852

The *Defiance*, designed by Samuel H. Pook and built by George Thomas at Rockland, Maine, in 1852, has been reported as of 1,900 tons (with a length of 240 ft., beam 43½ ft., and depth 29 ft.), but it would seem that her actual measurements were length 204 ft., beam 42.5 ft., depth 29 ft., with a registered tonnage of 1,690.87 tons.

It is evident that Donald McKay built most of the largest clippers, including all of the first five, and during the years 1853-1855 he specialized in the production of unusually large and powerful, fast, sharp-modeled and heavily canvased clippers and built the biggest ships of this class (either wood or iron) that the world has ever known.

Of the thirteen clippers of over 2,000 tons, McKay launched nine, but of these, five (the *Donald McKay*, *James Baines*, *Champion of the Seas*, *Lightning*, and *Star of Empire*) did not make Cape Horn passages to California; neither did the *Red Jacket*, built at Rockland, Maine, which was sold soon after building for the British-Australian packet service. In addition to the quartet of big ships of from 2,083 to 2,594 tons built by McKay for Baines and his Liverpool-Australia packet line, McKay sold to him in 1854, when on the stocks, two medium clippers of 1,964 tons (the *Commodore Perry* and *Japan*), which McKay was building "on spec."

He also built by contract that year the clipper ship *Blanche Moore* of 1,787 tons for Moore, of Liverpool. Five of McKay's clippers of 2,000 tons or over were either built for foreign owners or quickly sold abroad. American owners did not think favorably of operating McKay's sharp-lined, heavily canvased clipper ships of some 2,000 tons or more in any competitive trade, whether in the foreign or the California service, and history proves the correctness of their views.

The *Great Republic*, constructed by McKay for builder's account, was a huge vessel and a "white elephant" that would have been impractical to operate as built in any trade route of the world, although McKay thought that she "would do splendidly in the British-Australian trade if he could not sell her for the Cape Horn California service." The burning of the *Great Republic* at a New York pier before she commenced her maiden voyage almost ruined McKay, as the ship was deplorably underinsured; but this calamity, in the end, probably saved McKay a lot of money, as the running expenses of the ship were terrific, with her tremendous crew, sail spread, and draft of water (requiring lightening of much of her cargo). As freight rates were lowering and were soon to decline to a seriously low level, McKay, who could not have sold the ship, would have been subjected to increasingly heavy losses as long as he owned her and attempted to operate her. The *Sovereign of the Seas*, McKay's second largest clipper built "on spec," proved herself to be fast in the one run made in the Cape Horn California trade and the voyage that she made under charter in the British-Australian trade; but no American or British shipowner would buy such a big, sharp-lined, heavily sparred clipper. To get rid of her, McKay had to sell her at a sacrifice price to the Germans, who lost money quite heavily in their attempts to operate her until they were relieved of a liability when she was wrecked in 1859.

McKay was fortunate in being able to sell the *Empress of the Seas* of 2,197 tons (also built "on spec") in December 1852—while freight rates held high and there was a great demand for tonnage—to a rather inexperienced Baltimore operator, whose idea was to charter her for use in the Cape Horn California trade. After one New York-San Francisco voyage, which was rather disappointing, as the ship was beaten eleven days by the *Witchcraft* on the run out, she was sent to England and chartered for an Indian voyage. Returning to the California trade, the "*Empress*" made two runs to San Francisco, on the first of which (her best sailing performance) she was beaten five days by the medium clipper *Don Quixote* of 1,429 tons. After her next voyage in 1857, which consisted of a run of 124 days from New York to San Francisco and a return with guano to Baltimore, where she arrived August 8, 1858, her career as an American ship engaged in American trade ended. For a while, she was chartered in the British-Australian service and was destroyed by fire at Port Phillip in December 1861.

Of the before-mentioned thirty-eight big clippers or reputed clippers of over 1,750 tons register built during the years 1851-1855 inclusive, fifteen (or about 40 per cent) were constructed by Donald McKay at East Boston, who built thirty-five vessels, all told, in the clipper shipbuilding decade of 1850-1859. Of these, nine were of over 2,000 tons and eleven between 1,500 and 2,000 tons. McKay outshone all the shipbuilders of the world in the creation of large, fast sailing ships; but this does not necessarily mean, as many American marine writers either specifically state or imply, that McKay built the fastest or the best clippers that were constructed in the United States. His ships generally had the advantage of size over their rivals, and they were powerful, fast vessels and generally well advertised, as many of them were built "on spec," and McKay lost no opportunity to boost his product to facilitate selling his new big ships. However, the McKay ships were not beautiful products of a naval architect's art, as were those designed by Samuel H. Pook, of Boston (such as the big *Red Jacket*, which was proclaimed by several marine authorities on both sides of the Atlantic as the best clipper ship in the world), or by the talented technical naval architect and practical builder William H. Webb, of New York. The McKay star shone brightly during the years 1850-1855, but McKay practically passed out of the picture after the build-

ing of the *Donald McKay* (2,594 tons) for the British-Australian trade, and this after only about one decade of actual work as a successful shipbuilder at East Boston, Mass. His passion—developed in 1851-1854—for building very big, sharp-lined, heavily sparred ships that were impossible to operate profitably during competitive days of low (or even normal) freight rates, proved his undoing, as the great practical builder of wood ships could not modify his inflexible views to meet changed economic conditions and build ships to suit the trade routes, waters, and harbors in which they were required to operate.

Of the before-listed thirty-eight largest American-built clippers, another East Boston shipbuilder, Robert E. Jackson, constructed four ranging from 1,767 to 2,361 tons, and the partnership of Jackson & Ewell built the clipper *Lightfoot* of 1,996 tons in 1853, making a total of twenty of the big clippers exceeding 1,750 tons—or about 53 per cent of the stated total of thirty-eight ships—built at East Boston. William H. Webb, of New York, a brilliant and versatile naval architect and practical builder as well as a keen businessman, constructed four of these big clippers, and they were outstanding in both appearance and performance. A trio of quality—the *Comet*, *Invincible*, and *Challenge*—was built in 1851, and in 1853 the *Young America*, "the champion of all Cape Horners" (in that service for thirty years) and acclaimed by many as "Webb's masterpiece," was launched. William H. Webb continued as a successful and eminently prosperous builder of wood vessels—steam as well as sail, naval as well as mercantile—long after Donald McKay had ceased to be a factor in the business.

*States and Communities Where Clipper Ships Were Built in the U. S. A.
during the Years 1850-1859 Inclusive, with the Names,
Locations, and Output of the Principal Builders*

A record of the number of American clippers built, where, and by whom during the clipper shipbuilding decade of 1850-1859 inclusive can be used properly and effectively as a relative index of shipbuilding activities in the United States during the fifties or, rather, during the active first part of the sixth decade of the nineteenth century. The volume of clipper ship construction is a good and reliable yardstick of shipbuilding activity covering all parts of the United States with the exception of the state of Maine, for there master shipwrights and merchants operating ships did not take kindly to the thought then sweeping the country of building for speed without regard to either deadweight capacity or stowage volume.

Three statements are herein presented showing for the ten-year period 1850-1859 inclusive (1) the number of clipper ships (extreme or medium) built in each state of the Union during each of the years, with certain percentage figures set forth for the different states and each of the years; (2) the number and total registered tonnage of clipper ships built in the various cities and towns of each state; and (3) the names of the forty principal American builders of clipper ships, with the location of their yards, the number and total registered tonnage of clippers built, and the average tonnage of each ship launched.

Number of Clipper Ships Built in Each State during Each Year of the Clipper Shipbuilding Decade 1850-1859 Inclusive

State	Year Built										Total 10-Year Period	Total of Each State—Percentage of 10 Years' Grand Total
	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859		
Massachusetts	10	22	32	53	42	25	24	7	5	—	220	48.14
Maine	3	7	18	31	13	4	5	—	1	1	83	18.17
New York	6	15	12	14	6	3	6	2	—	—	64	14.00
New Hampshire	2	4	4	5	7	2	2	—	—	1	27	5.91
Maryland	3	3	5	6	3	5	—	—	1	—	26	5.69
Connecticut	—	2	3	5	4	2	3	1	1	1	22	4.81
Rhode Island	—	—	1	3	2	—	—	—	—	—	6	1.31
New Jersey	—	1	—	1	1	1	—	—	—	—	4	0.87
Pennsylvania	—	1	—	1	1	—	—	—	—	—	3	0.66
Virginia	—	—	—	1	—	—	—	—	—	—	1	0.22
Florida	—	—	—	—	—	—	1	—	—	—	1	0.22
Total	24	55	75	120	79	42	41	10	8	3	457	100.00

Number of clippers built each year—percentage of 10 years' total	5.25	12.03	16.41	26.26	17.29	9.18	8.99	2.18	1.75	0.66	100.00
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The States—and Cities or Towns—Where Clipper Ships Were Built in the United States during the Clipper Shipbuilding Decade 1850-1859 Inclusive

	Number of Clipper Ships Built	Total Registered Tonnage		Number of Clipper Ships Built	Total Registered Tonnage
<i>Maine</i>			<i>Massachusetts</i>		
Rockland	10	13,179	Boston, East Boston, and South Boston; Medford, Chelsea, and Charlestown	173	213,175
Damariscotta	9	11,831	Newburyport (and the Merrimac River)	25	24,214
Bath (city only)	9	10,051	Somerset	8	6,975
Richmond	6	7,972	East Dennis	5	4,776
Frankfort	5	6,255	Quincy	3	3,689
Thomaston	5	5,475	Marblehead	3	3,401
Cape Elizabeth (Portland)	5	4,099	Fairhaven	2	2,660
Newcastle	3	3,596	Swansea	1	665
Pembroke	3	3,165	Total Massachusetts	220	259,555
Robbinston	4	3,068	<i>New York</i>		
Waldoboro	3	2,902	New York City	63	73,633
Trescott	2	1,673	Kingston (Hudson River)	1	419
Belfast	2	1,385	Total New York State	64	74,052
Pittston	1	1,372	<i>New Hampshire</i>		
Brunswick	1	1,310	Portsmouth	27	30,111
Eastport	2	1,240	<i>Connecticut</i>		
Alna	1	1,194	Mystic	20	23,624
Wiscasset	1	1,193	Fairfield (Bridgeport)	1	1,579
Hallowell	1	1,012	New Haven	1	253
Eliot	1	947	Total Connecticut	22	25,456
Warren	1	936			
Bristol	1	893			
Freeport	1	823			
Kennebunk	1	815			
Orland	1	750			
Farmingdale	1	727			
Brewer	1	608			
Cumberland	1	345			
Kingston	1	293			
Total Maine	83	89,109			

MERCHANT SAIL

	Number of Clipper Ships Built	Total Registered Tonnage		Number of Clipper Ships Built	Total Registered Tonnage
<i>Maryland</i>			<i>Rhode Island</i>		
Baltimore and environs	26	26,957	Warren	4	4,157
<i>New Jersey</i>			Westerly	1	700
Hoboken (New York Harbor)	3	2,896	Providence	1	396
Petty's Island (Delaware River)	1	1,402	Total Rhode Island	6	5,253
Total New Jersey	4	4,298	<i>Virginia</i>		
<i>Pennsylvania</i>			Portsmouth	1	1,616
Kensington (Philadelphia)	3	2,376	<i>Florida</i>		
			Key West	1	959

RECAPITULATION

State	Number of Ships	Total Registered Tonnage
Massachusetts	220	259,555
Maine	83	89,109
New York	64	74,052
New Hampshire	27	30,111
Maryland	26	26,957
Connecticut	22	25,456
Rhode Island	6	5,253
New Jersey	4	4,298
Pennsylvania	3	2,376
Virginia	1	1,616
Florida	1	959
Total all states	457	519,742

Average tonnage per ship of the 457 clippers built during the decade 1850-1859 inclusive—1,135 tons.

*Leading Builders of Clipper Ships—Extreme, Medium, or Reputed Clippers—in
the United States during the Decade 1850-1859 Inclusive*

Name of Builders	Location of Shipyard	Number	Sailing Ships of Clipper Type Built during the Period	
			Total Tonnage	Average Tonnage per Ship
Donald McKay	East Boston, Mass.	30	53,938	1,798
E. & H. O. Briggs	East Boston, Mass.	20	22,145	1,107
W. H. Webb (including one ship built by Eckford and W. H. Webb)	New York	16	20,928	1,308
Paul Curtis	Medford, Chelsea, and East Boston, Mass.	17	20,597	1,212
Hayden & Cudworth	Medford, Mass.	19	18,783	988
J. O. Curtis	Medford, Mass.	17	18,318	1,077
Robert E. Jackson (including two ships built in partnership)	East Boston, Mass.	12	17,320	1,443
Samuel Hall (including one ship built by William Hall)	East Boston, Mass.	15	16,267	1,084
Currier & Townsend (including one ship by each of J. Currier and N. Currier, Jr.)	Newburyport, Mass.	15	15,166	1,011
Westervelt (Jacob A., Aaron, Daniel, and with William Mackey)	New York	12	14,552	1,212
George Raynes	Portsmouth, N. H.	11	11,046	1,004

(Continued on next page)

Name of Builders	Location of Shipyard	Sailing Ships of Clipper Type Built during the Period		
		Number	Total Tonnage	Average Tonnage per Ship
Jacob Bell and A. C. Bell	New York	7	10,074	1,439
Roosevelt & Joyce	New York	7	9,175	1,311
Jotham Stetson (including one ship built by Abner Stetson)	Chelsea, Mass.	8	9,095	1,137
Fernald & Pettigrew	Portsmouth, N. H.	8	9,006	1,126
Charles Mallory	Mystic, Conn.	9	8,970	997
John Taylor (including one ship built by Isaac Taylor)	Chelsea, Mass.	8	8,730	1,091
George Greenman & Co. (including one ship built by Silas Greenman & Son, Westerly, R. I.)	Mystic, Conn.	6	8,222	1,370
George W. Jackman, Jr. (succeeded his brother Stephen)	Newburyport, Mass.	8	8,040	1,005
Gardner—William, George, and J. (including one ship built with Palmer)	Baltimore, Md.	6	7,901	1,317
Perrine, Patterson & Stack (including one ship built by Wm. Perrine)	New York	7	7,562	1,080
Trufant & Drummond	Bath, Maine	6	7,175	1,196
James M. Hood	Somerset, Mass.	8	6,975	872
Joshua T. Foster	Medford, Mass.	6	6,233	1,039
J. Abraham (including one ship built with Ashcroft)	Baltimore, Md.	4	6,137	1,534
Metcalf & Norris	Damariscotta, Maine	5	5,858	1,172
Irons & Grinnell	Mystic, Conn.	4	5,113	1,278
Shiverick Bros.	East Dennis, Mass.	5	4,776	955
Samuel Lapham	Medford, Mass.	4	4,746	1,186
Jabez Williams	New York	3	4,461	1,487
Joshua Magoun (including one ship built by Joseph Magoun)	Charlestown, Mass.	5	4,446	889
Tobey & Littlefield	Portsmouth, N. H.	3	4,432	1,477
Horace Merriam	Rockland, Maine	3	4,330	1,443
Dutton (Benjamin and Edward and in partnership with Ewell)	Marblehead and Newburyport, Mass.	4	4,071	1,018
William Cramp	Kensington (Philadelphia), Pa., and one at Petty's Island, N. J.	4	3,778	944
Dunham (George, Isaac, and as a company)	Frankfort, Maine	3	3,612	1,204
William Hitchcock	Newcastle and Damariscotta, Maine	3	3,585	1,195
A. & G. T. Sampson	East Boston, Mass.	3	3,521	1,174
F. W. Rhodes (or Rhoades)	Rockland, Maine	3	3,363	1,121
Thomas J. Southard	Richmond, Maine	2	3,252	1,626

*American Square-rigged Deep-Sea Merchant Sailing Vessels,
Successors to the Mid-nineteenth Century Clipper Ships,
Built after 1855 to the End of Merchant Sail*

No clear line of distinction can be drawn between packets, clippers, and general trading merchant ships (of full or medium full model, carrying a moderate sail spread) that survived as an economic type the severe competitive conditions during and following the clipper ship decade (1850-1859 inclusive) and during the balance of the nineteenth century developed into a type that became generally and favorably known as Down Easters. Many ships built

for transatlantic service in regular packet lines or as regular traders operating without regard to a schedule in pseudo-lines in the North Atlantic were, in fact, general trading merchant ships of a type that more nearly resembled and, by evolution, led to the Down Easter than did the "out-and-out" sharp-modeled, loftily sparred, and overcanvased clippers, or "speed merchants," of the early fifties. Most of the transatlantic packets built in the fifties were of a compromise type, being influenced in their design and construction by the clipper ships, the call for size and speed, and the requirements of general carriers on the Seven Seas.

The last packet built for the transatlantic Black Ball Line during what can be called the sailing packet era (1818-1858) was the *Neptune* of 1,406 tons, constructed by W. H. Webb, New York, in 1855. This ship had a good lifetime average of 31 days on her westbound Atlantic passages, with 26 days as her shortest and 36 days as her longest run. By the mid-sixties, many sailing packets had been forced from the Atlantic run by the competition of steamers, and in 1868 the *Neptune* was placed in the triangular Cape Horn service, operating between New York, San Francisco, Liverpool, and back to New York. She continued in this trade until her loss during a westbound Atlantic crossing in April 1876, when she was wrecked in a fog on Sable Island. The *Neptune* was not as good a Cape Horner or general merchant trader as she was a transatlantic packet, and but few ships built specifically for the North Atlantic trade did as well on the California run as they did in the Atlantic "ferry." Even the *Dreadnought*, with a wonderful reputation for speed as an Atlantic packet, proved a great disappointment when placed on the Cape Horn run, and she was more of a medium clipper than an orthodox Western Ocean packet. However, other ships of a type somewhat similar to the *Dreadnought* and rated as medium clipper packets, such as the *David Crockett*, *Staffordshire*, *Invincible*, *Andrew Jackson*, etc., were excellent Cape Horners. The *David Crockett*, built for the Atlantic trade, did her best sailing in the California run, and the *Andrew Jackson* is unique, for she holds the all-time record for westward passages both on the Atlantic and around the Horn to California.

The *Aurora* of 1,639 tons, built by W. H. Webb, New York, in 1854 for the Blue Swallowtail (transatlantic) Line, was bought in 1859 from Grinnell, Minturn & Company by Howland & Frothingham, who, after operating her in the New York-Liverpool service for a time, placed her in general carrying trade. The *Aurora* was a full-modeled Atlantic packet; in Western Ocean service she made no pretensions for speed, and as a long-voyage carrier she was slow, but she was active and profitable during the last several years of her life, until destroyed by fire at Calcutta in 1884 when loaded with case oil. The *Jeremiah Thompson* of 1,904 tons, built by Perrine, Patterson & Stack at Greenpoint, Long Island, in 1854, although named for one of the founders of the pioneer Black Ball Line of transatlantic packets, was not owned by that line and was not a regular packet operating on a schedule in any line. She was built for Samuel Thompson's Nephews, who operated general traders in the transatlantic trade, carrying both passengers and freight. In 1868 the *Jeremiah Thompson*, having been driven by steam out of the New York-Liverpool trade, was put in the Cape Horn run, in which she performed most creditably for a ship of her fullness. She has to her credit runs of 109 days from Liverpool to San Francisco, 113 days from New York to San Francisco, and 104 days from San Francisco to New York. This ship also traded with the Orient and in her late years was in the Pacific coal and lumber trade. In May 1892, when thirty-eight years old, she was broken up at San Francisco, having outlived her usefulness.

The *Ocean Monarch* of 2,155 tons, built by W. H. Webb, New York, in 1856, was constructed for "general freighting business," and her builder described her as "a very good, full-rigged ship of North Atlantic sailing packet type" and "much the largest ship of this character heretofore built." This vessel should not be confused with a packet ship of the same name built by Donald McKay, East Boston, in 1847 for Enoch Train's Boston-Liverpool White Diamond Line, which vessel, of 1,301 tons register, was destroyed by fire on August 24, 1848, soon after leaving Liverpool and while within sight of the English coast, with the loss of four hundred lives.

The *Resolute* of 1,645 tons, built by W. H. Webb, New York, in 1857 for the Black Star "Line" of Liverpool packets (Williams & Guion, manager), was designed as a general trader especially adapted for the North Atlantic service. In the middle sixties, this ship was operating in the general carrying deep-sea trade, transporting coal to Pacific and South American ports, barrel oil and cotton from the United States to Europe and case oil to the Far East, guano from Peru to North Atlantic ports, etc. In 1871, the *Resolute* was purchased by Jonathan C. Nickels, of Searsport, Maine. She did a general carrier business on the Seven Seas for many years, and after transporting lumber from Quebec to Australia and going thence to Hong Kong and New York, she was sold to go under the flag of Holland. This *Resolute* should not be confused with two smaller United States ships bearing the same name. One was a clipper of 787 tons built by the Westervelts, New York, for A. A. Low & Bro. in 1853, which was sold to the British in 1862; the other was a full-bodied ship of about 750 tons built by Briggs, Cushing & Means at Freeport, Maine, in 1856 and sold some years later to Halifax, Nova Scotia, owners, who renamed her *Scottswood*.

The *Enoch Train* of 1,787 tons, built by Paul Curtis at East Boston in 1854 for Isaac Rich & Company and resold to W. F. Weld & Company, Boston, was named after the founder, principal owner, and manager of Boston's best transatlantic packet line—Train's White Diamond (Boston-Liverpool) Line. Whereas the ship did much North Atlantic trading, she was evidently never either a real packet or a pseudo-packet. In 1863 she was in the Cape Horn run, for she put into Rio de Janeiro for repairs when bound from Liverpool for San Francisco, and in 1867 she put into Norfolk, Va., in distress when bound from Philadelphia to the Pacific Coast. In 1873, following some disastrous voyages in which the underwriters suffered heavily, the "*Train*" was sold to Henderson Brothers, of Liverpool, for \$10,000. She was later resold to Glasgow owners, but the ship ended her sea life by operating for many years in the North Atlantic trade, engaging principally in carrying barrel oil.

The *Marianne Nottebohm*, built in 1857 by Thomas Stack, New York, was constructed for Laytin & Hurlbut, New York, and the transatlantic trade and was later managed by Howland & Frothingham and subsequently by Thomas Dunham's Nephew & Company. For some ten years, she carried passengers and cargo between New York and Liverpool as a pseudo-packet, or general trader, and thereafter went on long-distance deep-sea voyages, making many Cape Horn passages. In 1871 she was damaged by fire at San Francisco and in 1875 put into Honolulu leaking badly. The "*Nottebohm*" ended her days as the coal barge *Carbon* and foundered off the Atlantic Coast in 1902, when over forty-four years old.

W. H. Webb, New York, built the *Alexander Marshall* of 1,232 tons (1,507 tons new measurement) in 1860 and the *Charles H. Marshall* of 1,683 tons (new measurement) in 1869 for the Marshall-controlled old Black Ball New York-Liverpool sailing packet line (founded 1817; first sailings in January 1818). The *Charles H. Marshall*, launched May 26, 1869, was the last ship constructed by W. H. Webb and the last square-rigged vessel built in New York City or State. Webb described her as "a three-decker, a large carrier and good sea boat that had a deep draft of 24 feet," designed for "both the European and East Indian trade," and an approved and typical "North Atlantic sailing packet model." In addition to building in 1869 the last full-rigged ship and the last square-rigger constructed in New York (the *Charles H. Marshall*), W. H. Webb during the same year built the *James A. Borland*, a bark of 750 tons, which he said was designed "for the general freighting business, was the last bark-rigged vessel built in the port of New York, a fair carrier, good sailer and gave great satisfaction." This bark, we are informed, whereas intended for general trade, had a model which "showed the tradition of the Atlantic sailing packets and was a good sea boat. She was full with a good flare above water forward but had an excellent run and was relatively narrow on the deck aft."

The *William F. Storer* and *Hamilton Fish*, each of 1,628 tons (new measurement), built at Waldoboro, Maine, in 1856 and put in the Marshall Black Ball (New York-Liverpool) Line in the early sixties, were Down Easter general traders and not regular packet ships.

Other vessels generally similar as to type, but designated as "late transatlantic packets," were the *E. W. Stetson* of 1,164 tons (new measurement), built at Newcastle, Maine, in 1862, and the *Ne Plus Ultra* of 1,396 tons (1,534 tons new measurement), launched at Thomaston, Maine, in 1863; both of these vessels operated in the New York-London Red Swallowtail Line. A ship of general trader type that saw service as a transatlantic packet was the *Hudson* II of 1,801 tons (new measurement), built by Westervelt, New York, in 1863 and promptly placed in the New York-London Black X Line.

Whereas it was difficult in the fifties and sixties to differentiate between the Atlantic packet and the general trading type of vessel as used on the Seven Seas, it was absolutely impossible to draw a line between the clipper and what has been termed "the ordinary American merchant ship." The difference was in sharpness of model and in the spar and sail plan, and no one could authoritatively say at what point or degree of fineness or of fullness a vessel was no longer sharp and became full or when the spars and canvas changed from ordinary to excessive dimensions. A clipper was basically a sharp-modeled sailing vessel, with lofty spars, long yards, and a large sail spread, both the model and extent of canvas being proportioned with the object of obtaining speed through low resistance of model and big driving power from the sails. The degree of model sharpness, the length of spars, and the area of sails determined whether a ship was a clipper or an ordinary sailing ship and if a clipper, whether she was an extreme, or "out-and-out," clipper or a medium, or moderate, clipper. Some ships that were deemed too full in model and too conservatively sparred and canvased to be designated clippers, or "greyhounds of the sea," were known as half clippers; yet they were built to show a good measure of speed, with the intentional reduction in displacement and stowage volume and a rather large sail spread in order to obtain a speed above the ordinary and yet not be as extreme as even an average clipper. Many relatively full-modeled ships were given clipper sail spreads, so it was difficult in the fifties and sixties to differentiate between an ordinary merchant ship and a clipper by their appearance when loaded and particularly when at sea with canvas set. Around the mid-fifties, investors in ships did not think highly of clippers because of their relatively low earning power as carriers in competitive trades when freight rates were near or below normal. A clipper carried less paying cargo than an ordinary ship, and with this lessened revenue from freight there was a heavy increase in operating expenses because of the need of a much larger crew, an increase in maintenance and repair expenses, insurance, depreciation, etc.; moreover, the time actually saved on a round voyage, including port detentions, was not great and at times was non-existent.

Capitalists were the first to frown upon the clipper type of merchant ship, for when the booms following the gold rushes to California and Australia were past and available floating tonnage became greatly in excess of the demand for ocean carriers—notwithstanding trade expansion—and competition forced freight rates down low, three facts became evident: (1) Too many ships had been built during the emotional boom years when "speed was king," and in the mid-fifties there were more ocean carriers frantically bidding for business than freight to fill them; therefore, freight rates sank to subnormal levels, most ships that obtained cargoes either made but little money or operated at a loss, many had to make passages in ballast, and some were laid up. (2) In these highly competitive days, even the most despised cargoes such as guano and coolies were fought for by the aristocratic yacht-like and once proud clippers. (3) The clipper could not compete with the fuller-modeled and more conservatively canvased ordinary sailing ship, which benefited greatly in the interest of her owners by her much smaller crew and operating charges and her higher freight revenue from the greater volume of cargo carried. After 1854, managing owners with fractions, or shares, of ships to sell to the American investing public frequently emphasized the point that the ship of which they were offering shares for sale was not a clipper, but a modern, fast, and good-carrying ship that was not sharp and did not need a big crew. Some "out-and-out" clippers were designated and sold as medium clippers, for an investor had cause to be skept-

tical of the return on the money he used to buy a share in an extreme, or "out-and-out," clipper.

Managing owners who called their ship a medium clipper or merely a modern economic American sailing ship when offering shares in her to investors designated the vessel as a clipper and at times even as an extreme clipper when bidding for freights; for shippers were usually much interested in speed, as it affected the time of delivery of freight at destination. Merchants liked the idea of shipping their goods on fast ships, so clippers were in good repute with the trade when capitalists who had invested their money in clipper ship shares had sickened of such vessels. Builders, who did not have to stand the reduced earnings or the operating losses of the sharp, heavily canvased ships that they had constructed, boasted of and highly advertised the speed of their clippers. During the era when speed was in demand, many a builder designated as clippers ships that were merely relatively fast, ordinary sailing vessels, some of them being too full in model to rate as medium clippers, even when given a wealth of canvas. In the fifties, builders and owners often disagreed as to whether a certain ship was a clipper, an extreme clipper, a medium clipper, or merely a well-modeled fast sailing ship. It is, therefore, no wonder that authorities have differed as to whether or not a certain ship was a clipper. Some historians imagine that practically every deep-sea sailing vessel built in the United States during the clipper shipbuilding decade (1850-1859 inclusive) was a clipper; while others feel that ships built during the years 1850-1854 inclusive were clippers and also that those built in the next five years were medium or more moderate clippers. The clipper as a type became gradually more conservative as the decade passed, until 1859, in which year not a single sizable clipper ship was built, and "no clippers were built after the fifties." As a matter of fact, ships having a model fullness and moderate economic rig were built in every year of the clipper shipbuilding decade, and most of the Down East shipyards paid but little attention to "the temporary whims of New Yorkers and Bostonians" who, when "speed was king," wanted ships built of a type that most Maine shipbuilders, shipowners, and deep-sea merchants, from the first, branded as uneconomic and not sound investments.

It is probable that in any list of American sailing ships built prior to the Civil War, ships designated as clippers were, in fact, neither extreme, average, nor even moderate clippers. Good, fast sailing ships built in the sixties and seventies and even in the eighties that may be designated as half clippers or merely as superior Down Easters were fully as much clippers as some vessels built in the fifties that have been generally classed as such. The *Celestial Empire* of 1,630 tons, built by Jotham Stetson at South Boston in 1852, has been rated not only as a medium clipper but also as an Atlantic general trader of packet type and as an American deep-sea merchant ship, which operated as a Cape Horner. The *Celestial Empire*, owned for many years by Chas. H. Parsons & Company, New York, and later by Snow & Burgess, was a deep, narrow, well-canvased ship, more of British than of American proportions. When built, she was popularly described as a clipper and as a "clipper packet." She sailed much better in the Atlantic trade than she did on the California run. When new, the *Celestial Empire*, under the command of Capt. Sumner Pierce, made a Cape Horn westward passage leaving New York April 28, 1853, and reaching San Francisco September 21, a run of 146 days. This was not clipper speed, and the *Hornet* and *Flying Cloud*, sailing from New York the same day, each made a 106-day passage, arriving at San Francisco August 12, or forty days before the *Celestial Empire*. A fourth ship, the *Corinne*, a reputed clipper, sailed from New York for California on April 28 also, but the "*Empire*" beat this ship to port by twenty-two days. It is said that the *Celestial Empire* made five voyages in the California trade during her lifetime (she was abandoned in the North Atlantic February 20, 1878) and that "all were slow, the average westward passage being 164 days and 144 days the shortest." The performance of the *Celestial Empire* in the Cape Horn run would strongly suggest that the ship was no real clipper; neither was the *Corinne*, which went out to San

Francisco in 168 days in 1853 (actually 238 days from first sailing to destination) and followed this with a 155-day passage from New York to San Francisco in 1855-1856.

The *Templar* of 910 tons (946 tons new measurement), built by J. T. Foster, Medford, Mass., in 1858 for T. B. Wales & Company, Boston, was generally described as "a fine ship of medium clipper model." She is rated as a clipper by Carl C. Cutler and as an American merchant ship by Frederick C. Matthews, although referred to by him as a "medium clipper." The *Templar* was too small for a Cape Horner, but her 320-day passage from New York (September 14, 1878) to San Francisco (July 31, 1879) does not reflect the little ship's sailing ability, as this passage, with its heavy weather, the necessity of putting into Rio de Janeiro for repairs and the unloading and reloading of the cargo, the yellow fever epidemic aboard, with fatalities, etc., has been termed "one of the most unfortunate recorded in connection with California trade." The *Templar* was operated as a bark in the Pacific coal and lumber business, was later sold to Peruvians and renamed *Los Tres Amigos*, and was wrecked when she drifted ashore from her anchorage in a gale in April 1895, when about thirty-seven years old.

The *King Philip* of 1,194 tons, built by D. Weymouth, Alna, Maine, in 1856 and acquired by Glidden & Williams, of Boston, as managing owner, is rated by Cutler as a clipper, was described by her builder and agents as a clipper, and is classified by Matthews not as a clipper but as an American merchant ship of too full a model and too conservative a sail plan to be designated as a clipper; yet Matthews says: "The *King Philip* was a well-built ship and made fair passages without particular incident while employed in the general carrying trade." (Another *King Philip*, generally rated as a clipper of 1,486 tons, was built by George Thomas, Quincy, Mass., in 1854 for Patrick Grant, William B. Reynolds, et al., Boston, and was sold to the British in 1856.)

The *Grey Feather* of 587 tons, built by C. S. Husten, Eastport, Maine, in 1850, is another ship that has been rated by some authorities as a clipper and by others as a sailing ship of ordinary full model. Matthews classes her as a "merchant ship" and not as a clipper and says: "While the *Grey Feather* is described in old shipping registers as being a full-bodied vessel, she really had lines approaching those of the out-and-out clippers that were making their appearance about this time, and her sailing record is very good for a ship of her size." There is no doubt but that the *Grey Feather* was a clipper, and if she had been built in New York, Boston, or Baltimore, she would have been described and advertised as such, but Eastport, Maine, was believedly on the rim of the world and too far away ever to have heard of clipper ships, not to mention build one. The *Grey Feather* is credited with three westward Cape Horn passages to California in the fifties, averaging about 130 days (longest, 138 days; shortest, 126 days). In December 1860, she ran from New York to Melbourne, covering the distance of some 14,000 miles in only 84 days, a record fast run over this course for a ship of such small size. At the completion of this voyage, because of the Civil War, the *Grey Feather* was sold at New York to the Germans and was renamed *Ida* (hailing port, Bremen).

The *Good Hope* of 1,295 tons, built by J. O. Curtis, Medford, Mass., in 1855 and rated by her builder and early New York owners as "a medium clipper" and by historians as both a clipper and "a full-bodied Massachusetts sailing ship," was evidently a good carrier but a rather dull sailer on the Cape Horn run for a vessel whose designer stated that she would have "a good turn of speed." Her average time on three westbound passages to San Francisco was 141 days (shortest, 136 days). On her one passage eastbound via the Horn, she required 143 days to reach Liverpool, but in the British-Indian trade, the ship performed better. In 1873 the *Good Hope* put into Bahia for repairs, and the ship was sold to go under the Brazilian flag. Later, she became the Swedish ship *Solide* and was used in the north transatlantic trade until November 1881, when she was wrecked in the St. Lawrence, going ashore near Quebec.

The following is a list of 332 American merchant ships, both wood and metal (iron and steel), that were built during the real post-clipper shipbuilding era to the end of United

States square-rigged shipbuilding; i.e., from 1856 to 1902 inclusive, a period of forty-seven years. The vessels herein mentioned include 6 relatively full-modeled and moderately canvased square-rigged ships built during the years 1856-1859 inclusive, America's 3 iron ships, built in 1883-1884 (the only such vessels built), and the entire 9 steel square-rigged deep-sea sailing vessels (8 four-masted shipentines and 1 three-masted bark) constructed in the United States, which were built at Bath, Maine, during the period 1894-1902 inclusive. The wooden ships listed were selected not to represent a cross section of all American post-clipper deep-sea merchant sail but to include generally the best-known ships (and barks) concerning which data are available and a few relatively small and moderate-sized as well as large vessels. AMERICAN MERCHANT SHIPS (1850-1900) by Frederick C. Matthews (Marine Research Society, Salem, Mass.) has been drawn upon largely for data pertaining to American post-clipper wooden square-riggers. Many Maine-built vessels of merit, including numbers of Down Easters of undoubted quality, have had to be left out of this record because of the limited space that can be devoted to the statement and the lack of authoritative records of the sea life and end of such American deep-sea merchant sail. No wood square-riggers were built in the United States after 1893, and no deep-sea square-rigged merchant ships were constructed during the years 1895, 1896, and 1897. One four-masted steel shipentine was built (at Bath, Maine) during each of the years 1894, 1898, 1900, and 1902, and two during each of the years 1899 and 1901; in addition, America's only steel three-masted bark (the *Kaiulani*; 1,570 gross tons) was built at Bath in 1899 for San Francisco-Honolulu owners.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
ABNER COBURN	1882 (Oct.)	William Rogers, Bath, Maine	Wood	1,878	Managed by builder; later by Pendleton, Carver & Nichols. Sold in 1900 to California Shipping Co., San Francisco, and in 1912 to Libby, McNeill & Libby, salmon canners. Burned about 1929 for her metal.
ABNER I. BENYON	1874 (Sept.)	Samuel Watts, Thomaston, Maine	Wood	1,955	Renamed ALFRED WATTS. Managed by builder. Sold in 1884 to Snow & Burgess, New York. Wrecked during hurricane in Oct. 1887; only two survivors.
ACME (4-masted shipentine)	1901 (May)	Arthur Sewall & Co., Bath, Maine	Steel	2,987 net; 3,288 gross	Built for Standard Oil Co. Sold to Alaska Packers Assn. and renamed STAR OF POLAND. Wrecked on Katsura Island, Japan Sea, in 1918, when doing U. S. Government work.
ADAM M. SIMPSON	1875 (Aug.)	Goss & Sawyer, Bath, Maine	Wood	1,525	Owned by builder and friends. In Dec. 1883, when leaving Iloilo, with cargo of sugar, for New York, struck a reef in Palawan Passage and became a total loss.
ADAM W. SPIES (bark)	1884	Newburyport, Mass.	Wood	1,232	Owned by J. Cautillion. Sold in 1901 to W. R. Hutching, New York. In winter of 1888-1889, ran from Newcastle, N.S.W., to Hong Kong in 31 days. Disappeared from register in 1906.
ADMIRAL	1875 (June)	Blanchard Bros., Yarmouth, Maine	Wood	2,212	Wrecked on the Patagonia coast in Feb. 1877, when on passage from New York to San Francisco.
AGENOR	1870 (Apr.)	Curtis, Smith & Co., East Boston, Mass.	Wood	1,414	Built for E. Williams & Co., Boston. In 1881, ran from Japanese coast to San Francisco in 22 days. In Oct. 1872, obtained a freight rate of £5-12-0 per ton, the highest rate ever paid a wood ship of the grain fleet. Wrecked on Japanese coast in 1906.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
A. G. ROPES	1884 (Nov.)	John McDonald (I. F. Chapman Co.), Bath, Maine	Wood	2,342	An outstanding Down Easter built for I. F. Chapman Co., of New York. Sold in May 1906 to be converted into a tow barge. Next to the HENRY B. HYDE, the finest Down Easter ever built.
A. J. FULLER	1881 (May)	John McDonald (Flint & Co.), Bath, Maine	Wood	1,782	Built for Flint & Co., New York. Sold in Oct. 1899 to California Shipping Co., San Francisco. Later acquired by Northwestern Fisheries Co., of Seattle. When at anchor in Puget Sound on Oct. 30, 1918, run down and sunk by Japanese S.S. MEXICO MARU.
AKBAR	1863 (late fall)	Paul Curtis, East Boston, Mass.	Wood	906	William Perkins & Co., Boston, owner. Abandoned at sea in 1877-1878 when homeward bound from Batavia with sugar.
ALAMEDA	1876	Goss & Sawyer, Bath, Maine	Wood	1,474	Built for Charles Davenport & Co., Bath, Maine. Run down at Sydney on Oct. 20, 1895, by British S.S. IN-DRANI. Wreck sold and converted into a store hulk.
ALASKA	1867 (Dec.)	N. L. Thompson, Kennebunk, Maine	Wood	1,316	Thayer & Lincoln, Boston, first owner. Abandoned at sea in Apr. 1893.
ALEX GIBSON	1877 (Oct.)	Edward O'Brien, Thomaston, Maine	Wood	2,121	Built for builder's account. Sold in 1911 at New York for conversion into tow barge.
ALEX McCALLUM	1870 (May)	Edward O'Brien, Thomaston, Maine	Wood	1,951	Built for builder's account. Sunk in North Atlantic in May 1893 by S.S. SERVIA.
ALEX McNEIL	1869 (Sept.)	A. R. Reed, Waldoboro, Maine	Wood	1,088	Hailed from New Orleans. Managed by Yates & Porterfield, New York. Sold to Spreckles Brothers, San Francisco, in 1888. Re-rigged as bark. Wrecked on Pratas Reef, Pacific, in Dec. 1902.
ALFRED D. SNOW	1877 (May)	Samuel Watts, Thomaston, Maine	Wood	1,987	Managed by builder. Wrecked on Aug. 31, 1887, at Waterford, Ireland; all the twenty-nine aboard were drowned.
ALICE BUCK	1870	Henry McGilvery, Belfast, Maine	Wood	1,425	Owned by builder and friends. Wrecked on California coast in Sept. 1881, when carrying railroad iron from New York to Portland, Ore.
AMERICA	1874 (Nov.)	George Thomas, Quincy, Mass.	Wood	2,054	Built for Thayer & Lincoln, Boston. Stranded at San Pedro, Calif., Feb. 1877, and sold at auction in San Francisco. Became a salmon packer. Wrecked in Aug. 1914.
AMY TURNER (bark)	1877	Smith & Townsend, East Boston, Mass.	Wood	900	In 1895 made a passage of 87 days from Hong Kong to Baltimore. Sunk in Pacific in 1923, when forty-six years old.
ANDREW JACKSON II	1864 (May)	D. D. Kelly, East Boston, Mass.	Wood	1,095	Owned by builder and friends. Sold in 1888 and converted into a tow barge.
ANDREW JOHNSON	1866	Edward O'Brien, Thomaston, Maine	Wood	2,005	Built for builder's account. On Oct. 20, 1884, rammed and sunk in South Atlantic by British iron ship THIRLMERE.
ANNIE H. SMITH	1876 (Dec.)	Nickerson & Rideout, Calais, Maine	Wood	1,503	Owned by F. H. Smith & Co., New York. Sold in 1893 for conversion into tow barge and operated as such for twenty-four years, after seventeen years under canvas.
ANNIE M. SMULL	1868 (Sept.)	Charles Mallory, Mystic, Conn.	Wood	1,010	Built for builder's account. Rated as a "half clipper." Sold in 1895 to Norwegians. Ran from San Francisco to Hong Kong in 34 days.
ANTELOPE	1873	Belfast, Maine	Wood	1,306	Commanded for a time by Capt. Thomas Peabody, a part owner, who left her to take TAM O'SHANTER II, built in 1875 at Freeport, Maine.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
ARABIA	1882 (Dec.)	Houghton Bros., Bath, Maine	Wood	2,024	Owned by builders. Carried 3,010 tons of sugar from San Francisco to New York and made the passage in 96 days. Went ashore and was wrecked near Cape Horn in May 1895.
ARMENIA	1877 (Oct.)	Houghton Bros., Bath, Maine	Wood	1,643	Owned by builders. A Cape Horner. Burned when loading wheat at Port Costa, Calif., Aug. 1889, and was a total loss.
ARTHUR SEWALL (4-masted shipentine)	1899 (Feb.)	Arthur Sewall & Co., Bath, Maine	Steel	2,919 net; 3,209 gross	Built for builder's account. Went missing while bound from Philadelphia to Seattle in 1908.
ARYAN	1893 (July)	C. V. Minott, Phippsburg, Maine	Wood	1,939 net; 2,124 gross	The last full-rigged wooden ship built in the U. S. A. Built for J. W. Ellwell & Co., New York. In 1901, sold to Eugene P. Carver, who sold her at San Francisco in 1917. Burned at sea in Dec. 1918.
A. S. DAVIS	1875 (June)	Columbus Carter, Belfast, Maine	Wood	1,400	Managed by her commander, Capt. James W. Ford, of Searsport, Maine, a part owner. Wrecked when approaching Hampton Roads, Oct. 22, 1878; only one survivor.
ASTRAL (4-masted shipentine)	1900 (Dec.)	Arthur Sewall & Co., Bath, Maine	Steel	2,987 net; 3,293 gross	Built for Standard Oil Co. Sold to Alaska Packers Assn. in 1910. Sold to Japanese in Nov. 1934, when thirty-four years old, for "breaking up," but Japanese put the vessel in service.
ATLAS (4-masted shipentine)	1902 (Jan.)	Arthur Sewall & Co., Bath, Maine	Steel	3,006 net; 3,381 gross	Built for Standard Oil Co. Sold to Alaska Packers Assn. Sold to Japanese in Nov. 1934 for "breaking up," but the vessel was placed in Australian grain and wool trade.
AUGUSTA	1868 (Jan.)	John Currier, Jr., Newburyport, Mass.	Wood	1,326	A Down Easter used generally in Indian trade. Later sold to foreigners.
AUSTRIA	1869 (Dec.)	Houghton Bros., Bath, Maine	Wood	1,300	Owned by builders. Sold to A. M. Simpson & Bro., San Francisco, in 1886 and re-rigged as a bark. Wrecked when bound from San Francisco to Tacoma near the end of Jan. 1887.
AUTOCRAT	1859	Chelsea, Mass.	Wood	1,130	Owned by Thomas Howe et al., Boston. Wrecked in San Francisco Bay in Apr. 1868, when in charge of pilot.
BARING BROTHERS	1877 (June)	Edward O'Brien, Thomaston, Maine	Wood	2,090	Built for builder's account. Ran from Norfolk to Liverpool, with cotton, in 15 days. Burned by mutinous crew and destroyed in Japan in Aug. 1898.
BELLE O'BRIEN	1875	Edward O'Brien, Thomaston, Maine	Wood	1,903	Built for builder's account and for handling bulk cargoes. Lost at sea during heavy gales off Irish coast in Nov. 1895.
BELLE OF BATH	1877 (May)	Goss & Sawyer, Bath, Maine	Wood	1,418	Built for Parker M. Whitmore et al. Sold to Searsport parties in 1883 for \$47,500. In June 1897, when bound from New York to Hong Kong with case oil, the ship was destroyed by fire.
BELLE OF OREGON	1876	Goss & Sawyer, Bath, Maine	Wood	1,110	Built for Capt. William H. Besse, of New Bedford, Mass., et al. In 1882, ran from Astoria to Queenstown in 97 days and followed with run of 87 days from Boston to Melbourne. Spent last years as a tow barge.
BELVEDERE	1857 (Jan.)	Paul Curtis, East Boston, Mass.	Wood	1,320	Built for William F. Weld & Co., Boston, which sold her in 1875 for \$40,000. Wrecked on Pacific Coast in Nov. 1886.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
BENJAMIN F. PACKARD	1883 (Nov.)	Goss, Sawyer & Packard, Bath, Maine	Wood	2,076	First managing owner, Capt. John R. Kelley. Owned for about twenty years by Arthur Sewall & Co., Bath, Maine. In 1892, ran from San Francisco to New York in 94 days. Still afloat in the 1930's.
BENJAMIN SEWALL	1874 (Oct.)	C. S. Pennell & Co., Brunswick, Maine	Wood	1,362	Managing owner, Sewall, Day & Co., Boston. Wrecked on Pescadores Reef in Oct. 1903, when bound from Shanghai to Singapore.
BERLIN	1882 (Oct.)	C. V. Minott, Phippsburg, Maine	Wood	1,553	Built for builder's account. Sold at San Francisco in 1890. Later became a salmon packer and was wrecked at Alaska in Feb. 1922, when forty years old.
BIG BONANZA	1875 (July)	J. Currier, Jr., Newburyport, Mass.	Wood	1,399	Built for builder's account. Sold at San Francisco in 1891. Converted into a tow barge in 1909. Laid up in 1920, after forty-five years of service.
BLUE JACKET II	1865 (Jan.)	Pine & Davis, Greenpoint, Long Island, N. Y.	Wood	1,339	Built as a Cape Horner for Charles R. Green, New York. In 1874, sold in Pacific. Laid up in 1892 and broken up in 1895-1896, when over thirty years old.
BOHEMIA	1875 (Sept.)	Houghton Bros., Bath, Maine	Wood	1,663	Built for builder's account. Sold in 1897 to Alaska Packers Assn., of San Francisco, which disposed of her in 1925, when she was fifty years of age, to shipbreakers, but she was later used in moving pictures.
BONANZA	1875 (May)	William Rogers, Bath, Maine	Wood	1,356	Sold by builder to Pope & Talbot, San Francisco, for \$90,000 uncoppered. In 1877, re-rigged as a bark. Wrecked in Dec. 1894 on South African coast.
BROWN BROTHERS	1875 (Nov.)	Atkinson & Fillmore, Newburyport, Mass.	Wood	1,420	Built for Capt. Daniel S. Goodell et al., of Searsport, Maine. Cost \$110,000. Sold to Germans in 1886 and renamed COLUMBUS.
CALIFORNIA	1864	Samuel Hall, East Boston, Mass.	Wood	1,413	Built for W. F. Weld & Co., Boston. In 1875, sold at Antwerp for £6,150 and renamed WESTERSCHELDE. Later became the German ship HERMANN.
CARONDELET	1872 (Dec.)	Edwin Flye & Co., Newcastle, Maine	Wood	1,376	Built for Abner Stetson, Damariscotta, Maine. Sold in San Francisco in 1877. Resold and converted to a tow barge in 1909, when thirty-seven years old.
CARRIE CLARK	1874 (Nov.)	Clark & Sons, Waldoboro, Maine	Wood	1,327	Built for builder's account. Hailed from Boston. Sold to Germans in 1883 and renamed ANNA. In 1902, became an American tow barge, and operated as such until end of 1921. Foundered when forty-seven years old.
CARRIE REED	1870 (Apr.)	David Clark, Kennebunkport, Maine	Wood	1,352	Built for J. S. Winslow & Co., Portland, Maine. Sold to Germans in 1876 and renamed GUSTAV & OSCAR. Later became Chilean ship ADELA and was afloat when forty years old.
CARROLLTON	1872 (Nov.)	E. & A. Sewall, Bath, Maine	Wood	1,450	Built for builder's account. Sold at San Francisco in 1873 for \$96,000; i.e., \$15,000 over cost. In 1888, re-rigged as bark. Wrecked on reefs, Midway Island, Pacific, on Dec. 26, 1906.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
CASSANDRA ADAMS	1876 (Nov.)	Hiram Doncaster, Seabeck, Wash.	Wood	1,083	Owned by W. J. Adams, lumber dealer, San Francisco. One of the few large square-riggers built on the Pacific Coast. In 1883, ran from San Francisco to New York in 94 days and from New York to San Francisco in 107 days. Wrecked off Cape Flattery in Aug. 1888.
C. C. CHAPMAN	1877 (Feb.)	William Rogers, Bath, Maine	Wood	1,587	Owned by J. S. Winslow & Co., Portland, Maine. In 1895, was sold and converted into a tow barge.
C. D. BRYANT (bark)	1878	Pendletons, Searsport, Maine	Wood	929	Reported "built by Josiah C. Dutch and commanded by Jasper N. Nichols." Was owned in San Francisco and in service in 1914.
CENTENNIAL	1875 (July)	Smith & Townsend, East Boston, Mass.	Wood	1,223	Built for builder's account. In 1896, sold at San Francisco to Alaska Packers Assn. After a fire in Dec. 1904, was rebuilt and rigged as a 4-masted barkentine. Was in moving pictures in 1928, when fifty-three years old.
C. F. SARGENT	1874	Blanchard Bros., Yarmouth, Maine	Wood	1,704	Frame cut in Canada. Built for builder's account. Sold at San Francisco in 1877. In 1906, sold at New York for conversion into tow barge. Sold to U. S. Government in 1917, when forty-three years old.
CHALLENGER	1877 (June)	E. & A. Sewall, Bath, Maine	Wood	1,399	Built for builder's account. Sold to San Francisco owners in 1900. Re-rigged as bark. Scuttled at Japan in attempt to extinguish fire, but ship was destroyed during a gale which blew up.
CHAMPLAIN	1874	Campbell & Brooks, East Boston, Mass.	Wood	1,473	Built for W. H. Kinsman & Co., Boston. Wrecked on the Farallon Islands off San Francisco on June 17, 1875, and was a total loss.
CHARGER (II)	1874 (Apr.)	Smith & Townsend, East Boston, Mass.	Wood	1,379	Built for Henry Hastings & Co., Boston. Sold to Germans in 1894 and renamed LOUISE. As a barge, foundered off Alaskan coast in Oct. 1909, when thirty-five years old.
CHARLES DENNIS	1875 (May)	T. J. Southard & Son, Richmond, Maine	Wood	1,652	Built for builder's account. Abandoned at sea on Sept. 5, 1891, when on passage from New York to San Francisco laden with 2,250 tons of coal.
CHARLES E. MOODY	1882 (Nov.)	Goss & Sawyer, Bath, Maine	Wood	1,915	Built for Bath and Boston owners. Sold to San Francisco parties in 1899 for \$40,000. Later became a salmon packer and was destroyed by fire on June 28, 1920, when in this trade and thirty-eight years old.
CHARMER	1881 (Sept.)	William Rogers, Bath, Maine	Wood	1,881	Built as a Cape Horner for Nickerson & Co., Boston. In 1887, sold to San Francisco parties. Resold in 1899 and re-rigged as bark. Sold at New York in late 1910 for conversion into a tow barge.
CHESEBROUGH	1878 (July)	E. & A. Sewall, Bath, Maine	Wood	1,461	Built for builder's account. Wrecked on Japanese coast on Oct. 30, 1889, when loaded with 2,230 tons of sulphur and bound from Hakodate for New York.
CITY OF PHILADELPHIA	1875	Goss & Sawyer, Bath, Maine	Wood	1,457	Built for Philadelphia owners. Wrecked while trying to put into the Falklands for repairs after severe experience off Cape Horn.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
CLARISSA B. CARVER	1876	George A. Carver, Searsport, Maine	Wood	1,144	Owned by the builder's family and friends. Claimed a run of 67 days from New York to Anjer. Sunk when rammed on June 7, 1885, by British S.S. GLAMORGANSHIRE near entrance to Hiogo Harbor.
CLARENCE S. BEMENT	1884	American Shipbuilding Co., Philadelphia, Pa.	Iron	1,999	The third and last full-rigged iron ship built in the U. S. A. and the third of the W. H. Starbuck American iron sailing ships. Was very slow. Burned at sea in 1904 on passage from Newport News, Va., to San Francisco.
CLEOPATRA	1867 (June)	Thomas Stack, Williamsburg, N. Y.	Wood	1,233	Owned by Thomas S. Hathaway & Co., New Bedford, Mass. Sold to Germans in late 1876 for £7,000 and operated as the German ship CLEOPATRA of Bremen; owned by H. Addicks.
COLDSTREAM	1866 (Aug.)	George Greenman & Co., Mystic, Conn.	Wood	806	Built for John A. McGaw, New York. Later managed by Pray & Dickens. Burned in Nov. 1878 at Kobe, Japan. Sold at auction and renamed KOTONO MARU.
COLUMBIA	1871	Houghton Bros., Bath, Maine	Wood	1,471	Built for builder's account. Commanded by Capt. Red Rogers, the reputed champion profanity artist of the Cape Horn fleet.
COLUMBUS	1870 (July)	N. L. Thompson, Kennebunk, Maine	Wood	1,854	Owned by Thayer & Lincoln, Boston. Sold in 1883 to Germans, who used her for about ten years in Atlantic oil trade and then sold her to the Norwegians.
COMET	1869 (Aug.)	Pierce & McMichael, Chelsea, Mass.	Wood	1,083	In Dec. 1878, sold for £6,000 to C. Bolken & Co., Bremen, and put under German flag without change of name. Was in transatlantic trade as late as 1896.
COMMODORE (I)	1856 (Feb.)	Berry, Richardson & Co., Bath, Maine	Wood	1,130	Managing owner, Page, Richardson & Co., Boston. Wrecked in Jan. 1877 when going from San Francisco to Seattle in ballast; became a total loss.
COMMODORE (II)	1879 (June)	Blanchard Bros., Yarmouth, Maine	Wood	1,781	Built for builder's account. Sold at San Francisco in 1885 and resold in 1890 for \$50,000. Wrecked in Pacific in 1897 during passage from Honolulu to New York.
COMMODORE T. H. ALLEN	1884 (May)	T. J. Southard, Richmond, Maine	Wood	2,271	Built as Cape Horner for triangular trade (New York-San Francisco-Liverpool) and owned by builder and associates. Burned outside Sandy Hook in July 1901 and condemned. Sold and rebuilt as a tow barge.
CONQUEROR	1874 (June)	Curtis, Smith & Co., East Boston, Mass.	Wood	1,540	Built for E. Williams & Co., Boston, for China and India trade. Wrecked in Dec. 1897 in Sunda Strait while bound from Singapore to Boston.
CONTINENTAL	1875 (Jan.)	E. & A. Sewall, Bath, Maine	Wood	1,668	Built for builder's account and sold to DeGroot & Peck, New York, for \$112,000. Wrecked on the Palmyra Reef in May 1888 while on passage from New York to Calcutta.
CORA	1869	Belfast, Maine	Wood	1,491	Stated owner, William H. Burrill. Sold in 1885. With the exception of the NANCY PENDLETON, was the last full-rigged ship registered at Belfast.
CREMORNE	1862	Maxon, Fish & Co., Mystic, Conn.	Wood	1,091	First managing owner, Lawrence Giles & Co.; later owner, Pray & Dickens. Left San Francisco on June 1, 1870, bound for Liverpool with wheat, and "went missing."

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
CYRUS WAKEFIELD	1882 (Sept.)	Samuel Watts, Thomaston, Maine	Wood	2,013	Built for builder's account. Ran from Liverpool to San Francisco in 1887-1888 in 101 days and made a run from San Francisco to New York in 91 days. Sold to U. S. Government in 1900 for \$75,000.
DAKOTA II	1881 (Feb.)	William Rogers, Bath, Maine	Wood	1,203	Built for builder's account. Cost \$60,000 and carried fifty per cent more than her registered tonnage. Opened up export grain trade from Puget Sound in fall of 1881. Sold to Germans in 1883 for Atlantic barrel oil trade; no change of name.
DANIEL BARNES	1877 (Aug.)	William Rogers, Bath, Maine	Wood	1,435	Managing owner, R. P. Buck & Co., New York. Burned in Strait of Malacca in 1898, when carrying case oil from New York to Hong Kong.
DAUNTLESS	1869 (Dec.)	Maxon, Fish & Co., Mystic, Conn.	Wood	995	Built for California trade, but also engaged in Australian and East Indian trade. Wrecked on African coast in fall of 1883, being driven ashore from anchorage.
DETROIT II	1864 (Sept.)	Blanchard Bros., Yarmouth, Maine	Wood	1,321	Built for builder's account. Sold in 1879 to San Francisco owners. Later rigged as a bark. Sold in 1895 to Pacific Mail S.S. Co. for use at Aca pulco as a coal barge.
DEXTER	1867 (Oct.)	George Thomas, Quincy, Mass.	Wood	1,257	Built for Isaac Taylor, Boston. An unlucky, slow ship. Sold during winter of 1876-1877 to Germans for £9,000. Was renamed SOPHIE and operated in Atlantic oil and lumber trade for fourteen years.
DIRIGO (4-masted shipentine)	1894 (Feb.)	Arthur Sewall & Co., Bath, Maine	Steel	2,855 net; 3,004 gross	Built for builder's account. Destroyed by German submarine off Eddystone Light, in English Channel, May 31, 1917, during World War I.
DON QUIXOTE	1868 (Oct.)	John T. Foster, Medford, Mass.	Wood	1,174	Built for William Hammond et al., Boston. Principally used in East Indian and China trades. In 1879, sold at New York to Germans, and in 1889 resold to Norwegians. Was operating as a bark in 1896.
E. B. SUTTON	1881 (Aug.)	Samuel P. Hitchcock; I. F. Chapman, Bath, Maine	Wood	1,758	Built for Isaac F. Chapman, New York. Sold in 1908 for conversion into a barge, but during World War I was rigged as a bark and later, when fifty years old, was being used as a tow barge.
ECLIPSE	1878 (July)	Goss & Sawyer, Bath, Maine	Wood	1,536	Built for J. H. Kimball et al., Bath, Maine. Sold at San Francisco in 1891. Abandoned at sea in Pacific in Jan. 1908, when thirty years old.
EDDYSTONE	1856 (Nov.)	Currier & Townsend, Newburyport, Mass.	Wood	949	Built for J. C. Stubbs et al., Newburyport, Mass. In 1869, was owned and managed in Bucksport, Maine. Sold in 1874, when eighteen years old, to British. Later, until forty-five years old, was a bark under Costa Rican, Bolivian, and Nicaraguan flags.
EDWARD O'BRIEN II	1863 (Nov.)	Edward O'Brien, Thomaston, Maine	Wood	1,803	Built for builder's account. In 1894, when thirty-one years old, was sold and converted into a barge.
EDWARD O'BRIEN III	1882 (Nov.)	Edward O'Brien, Thomaston, Maine	Wood	2,157	Built for builder's account. The last ship built in the O'Brien yard. Wrecked on Feb. 28, 1899, when cables parted off Honolulu and vessel went on reef.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
EDWARD SEWALL (4-masted shipentine)	1899 (Oct.)	Arthur Sewall & Co., Bath, Maine	Steel	2,916 net; 3,206 gross	Built for builder's account. Sold to Alaska Packers Assn. in 1922 and re-named STAR OF SHETLAND. Sold to Japanese in Nov. 1934 for breaking up, but ship placed in Australian trade.
E. F. SAWYER	1883 (May)	Goss & Sawyer, Bath, Maine	Wood	1,897	Built for Bath owners. On Nov. 22, 1887, was rammed and sunk off Folkstone, England, by British S.S. PAL-INURUS.
ELCANO	1864	John Currier, Jr., Newburyport, Mass.	Wood	1,228	Built for John N. and William Cushing, Newburyport, Mass., for East Indian trade. Rammed by British troop ship EUPHRATES in July 1879, but kept afloat. Sold to Germans in 1882.
EL CAPITAN	1873 (Oct.)	E. & A. Sewall, Bath, Maine	Wood	1,418	Built for builder's account. In 1885, was owned by DeGroot & Peck, New York. Met disaster off Cape Horn in 1897, but succeeded in returning to Montevideo, where ship was condemned and sold.
EL DORADO (of Kennebunk)	1865	N. L. Thompson, Kennebunk, Maine	Wood	1,147	Built for builder's account. Sold in 1867 to George Plummer, San Francisco. Wrecked in July 1880 when carrying coal from Seattle to San Francisco.
EL DORADO (of Yarmouth)	1864	Lyman Walker, Yarmouth, Maine	Wood	1,056	Built for C. F. Sargent et al. Sold on Pacific Coast in 1882 and operated as a bark in coastal coal trade. Foundered in Apr. 1887 when carrying 1,900 tons of coal from Seattle to San Francisco.
ELIZA McNEIL	1871 (June)	Samuel Watts, Thomaston, Maine	Wood	1,582	Built for builder's account. In 1882, sold at Antwerp to Germans for £9,000. Was renamed the AUGUST of Bremen and used in Atlantic barrel oil trade.
ELIZABETH	1882 (Oct.)	Haggett & Co., Newcastle, Maine	Wood	1,773	Owned in Searsport, Maine. Named after the wife of Capt. Phineas Pendleton, 3rd, the vessel's first master. Wrecked entering San Francisco Harbor in tow on Feb. 21, 1891; eighteen lives lost.
ELWELL	1875	Damariscotta, Maine	Wood	1,461	Reported owned by D. W. Chapman. In 1896, made record for round voyage between San Francisco and Nanaimo, taking 7 days out, 3 days in port, and 5 days return—a total of 15 days.
EMILY F. WHITNEY	1880 (Oct.)	Abiel Gove, East Boston, Mass.	Wood	1,207	Managed by J. H. Flitner & Co., Boston. Wrecked at Shanghai in 1898. Sold and repaired and became a British ship of same name.
EMILY REED	1880 (Nov.)	A. R. Reed, Waldoboro, Maine	Wood	1,565	Yates & Porterfield, New York, managing owner. Sold at San Francisco. In Feb. 1908, when twenty-eight years old, was wrecked on Oregon coast while carrying coal from Australia to Portland.
ENOS SOULE	1869 (Nov.)	Enos C. Soule, Freeport, Maine	Wood	1,443	Built for builder's account. In Mar. 1889, at New York, was re-rigged as a bark. Rammed and sunk by German S.S. ALLER in 1894; raised and converted into a tow barge.
ERIC THE RED	1871 (summer)	E. & A. Sewall, Bath, Maine	Wood	1,580	Built for builder's account. Wrecked off Cape Otway, Australia, Sept. 4, 1880, on passage from New York to Melbourne.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
ERSKINE M. PHELPS (4-masted shipentine)	1898 (July)	Arthur Sewall & Co., Bath, Maine	Steel	2,715 net; 2,998 gross	Built for builder's account. Sold and converted into an oil barge in 1920 and still operating as such out of San Francisco in late 1930's.
EUREKA	1876 (June)	T. J. Southard & Son, Richmond, Maine	Wood	1,996	Built for builder's account. Sold in Mar. 1899, when twenty-three years old, to F. W. Munn, Philadelphia, who converted her into a tow barge.
EXPORTER	1874 (Jan.)	G. W. Jackman, Newburyport, Mass.	Wood	1,312	Sumner, Swasey & Currier, Newburyport, Mass., owner. Sold in 1895 at London to Norwegians. In 1908 (when thirty-four years old), was Italian bark FANTASIE of Genoa.
FANNIE TUCKER	1875 (Nov.)	Hodgkins & Brown, Wiscasset, Maine	Wood	1,527	Built for local owners. Sold in Apr. 1889 to A. F. Stafford, New York, acting for New Brunswick shipowners. An unlucky ship. Was destroyed by fire at Bahia in Aug. 1891.
FARRAGUT	1876 (Sept.)	John Currier, Jr., Newburyport, Mass.	Wood	1,549	When launched, in Sept. 1876, was ninety-second vessel built by Currier. Owned by Thayer & Lincoln, Boston. Left Calcutta Jan. 20, 1888, and "went missing."
FAVORITA	1862	George Greenman & Co., Mystic, Conn.	Wood	1,194	Built for John A. McGaw, New York. Later managed by Capt. J. S. Pray, of Portsmouth, N. H. Sold in 1876 to Germans for use in transatlantic trade, and in 1891 was acquired by German East African Government.
FLEETFORD	1864 (Aug.)	Paul Curtis, East Boston, Mass.	Wood	1,104	Owned in Portsmouth, N. H. Sold in 1878 to Norwegians; renamed AARVAK. Norwegians used her in transatlantic trade for well over twenty years.
FLORENCE	1877 (Oct.)	Goss & Sawyer, Bath, Maine	Wood	1,604	Built for Cape Horn trade and owned by Charles Davenport & Co. Was a fine sea boat and a fast sailer. Sold on Pacific Coast in Sept. 1898. "Went missing" in 1902 while carrying coal from Tacoma to Honolulu.
FOREST BELLE II	1877 (June)	Goss & Sawyer, Bath, Maine	Wood	1,300	Owned by builder and Portland, Ore., parties. Was wrecked near Formosa and became a total loss before completing round maiden voyage.
FRANCIS	1885 (Oct.)	Goss, Sawyer & Packard, Bath, Maine	Wood	1,974	Built for New Bedford, Mass., owners. Destroyed by fire and beached on New Jersey shore in May 1897 during passage from San Francisco to New York.
FRANCONIA	1874 (Sept.)	W. V. Moses & Son, Bath, Maine	Wood	1,313	Built for builder's account. Wrecked on Farallon Islands in June 1881 when making her first passage to San Francisco.
FRANK F. CURLING	1878 (Oct.)	Edward O'Brien, Thomaston, Maine	Wood	2,200	Built for builder's account. Foundered in June 1879 (before completion of maiden voyage) during passage, coal laden, from Liverpool to San Francisco.
FRANK JONES	1874	Daniel Marcy, Portsmouth, N. H.	Wood	1,453	Built for local owners. Wrecked during third voyage (Mar. 1877) when being towed to sea from San Francisco.
FRANK N. THAYER II	1878 (Oct.)	John Currier, Jr., Newburyport, Mass.	Wood	1,648	Built for Thayer & Lincoln, Boston. After murderous mutiny by Manilan seamen, ship destroyed by fire in Nov. 1885 on passage from Manila to New York.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
FRANK PENDLETON	1874 (Oct.)	Henry McGilvery, Belfast, Maine	Wood	1,351	Owned in Searsport, Maine, by the Pendletons and friends. Sold New York in Mar. 1893 and converted into tow barge, operating as such for twenty-four years, with a sea life of forty-three years.
FREDERICK BILLINGS (4-masted shipentine)	1885 (Aug.)	Pascal & Son; Carleton, Norwood & Co., Rockport, Maine	Wood	2,497	Carleton, Norwood & Co., Rockport, Maine, owner. Destroyed by fire and explosions when completing loading nitrate at Pisagua on July 29, 1893.
FREEMAN CLARK	1865 (Apr.)	E. & A. Sewall, Bath, Maine	Wood	1,336	Built for builder's account. Sold in June 1875 to Capt. J. S. Dwight, of Springfield, Mass. In July 1883, destroyed by fire off Cape of Good Hope; wreck broke up ashore.
FRIEDLANDER	1872 (Sept.)	N. L. Thompson, Kennebunk, Maine	Wood	1,638	Built for Thayer & Lincoln, Boston. Sold in 1877 to Germans for \$48,000 and used in transatlantic oil trade. In 1896, was the Dutch ship FRIEDE.
FROLIC	1869	George Greenman & Co., Mystic, Conn.	Wood	1,348	Built for John A. McGaw, New York. Later managing owner was Pray & Dickens. In 1879, sold to Germans and renamed ELISE. Later became Italian ship of same name. Had a sea life of thirty-nine years.
GARIBALDI	1860	Maxon, Fish & Co., Mystic, Conn.	Wood	1,336	Originally owned by Calvin Adams, New York. Later sold to Howes & Crowell, Boston. In 1880, sold to Germans, renamed ANNI, and operated for some ten years in transatlantic trade.
GARNET	1858 (Mar.)	John Taylor, Chelsea, Mass.	Wood	1,119	Built for Bramhall & Hall, Boston. Abandoned off Cape Horn in 1876; crew taken to Callao by British ship LATONA of Liverpool.
GATHERER	1874 (Aug.)	Albert Hathorn, Bath, Maine	Wood	1,509	Owned locally; Parker M. Whitmore, managing owner. Sold San Francisco, Apr. 1888. Resold in 1905 to New York for conversion into tow barge. Became known as the "Bloody GATHERER."
GENERAL KNOX	1881 (Dec.)	Edward O'Brien, Thomaston, Maine	Wood	2,141	Built for builder's account as a Cape Horn. Burned at loading dock, New York, Aug. 18, 1894; scuttled, condemned, and sold for \$7,750 for conversion into a tow barge. Purchased by U. S. Government in 1917, when vessel was thirty-six years old.
GENERAL McCLELLAN	1862 (July)	Samuel Watts, Thomaston, Maine	Wood	1,518	Built for builder's account. Sold early to Lawrence Giles & Co., New York. Sold again in 1881 to San Francisco parties for \$35,000 and in 1884 was purchased by New Brunswick owners. Later was bought by J. W. Elwell & Co. and finally, at Philadelphia, converted into a tow barge.
GEORGE F. MANSON	1875 (Oct.)	Albert Hathorn, Bath, Maine	Wood	1,418	Built for Edwin Reed et al. Sold San Francisco in 1886. Left Sydney in May 1898 with coal for San Francisco and "went missing."
GEORGE R. SKOLFIELD	1885 (June)	Skolfield Bros., Brunswick, Maine	Wood	1,645	Built for builder's account. Sold in 1899 to Seaboard Transportation Co., New York, and converted into a barge. Wrecked in Feb. 1920, when thirty-five years old.
GEORGE SKOLFIELD	1870 (Sept.)	Skolfield Bros., Brunswick, Maine	Wood	1,276	Built for builder's account. Sold to Alaska Packers Assn., of San Francisco, in Sept. 1893. Wrecked at Japan in 1900; was floated and converted into a barge.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
GEORGE STETSON	1880 (July)	Albert Hathorn, Bath, Maine	Wood	1,780	Built for Parker M. Whitmore as a Cape Homer. Found on fire Aug. 27, 1899, in North Pacific and abandoned sixty miles north of Formosa.
GERARD C. TOBEY	1878 (July)	Goss, Sawyer & Packard, Bath, Maine	Wood	1,390	Built for builder's account. Managed by Capt. William H. Besse, New Bedford, Mass. Sold in 1900 to Welch & Co., San Francisco, for Hawaiian sugar trade. Resold in 1910 for conversion into a tow barge.
GLENDON	1880 (Jan.)	N. L. Thompson, Kennebunk, Maine	Wood	1,897	Built for builder's account. Purchased by Howes & Crowell, Boston, for \$85,000. Sold in 1884 to Edward Lawrence, Jr., et al. Wrecked in Mar. 1890 on Japanese coast near Yokohama.
GLORY OF THE SEAS	1869 (Oct.)	Donald McKay, East Boston, Mass.	Wood	2,009	Built for builder's account. Made last voyage as a sailing vessel in 1907-1908, when thirty-nine years old, and then was laid up. In May 1923, was burned near Seattle, Wash., for her metal.
GOLD HUNTER	1867 (Dec.)	J. Clark & Sons, Waldoboro, Maine	Wood	1,256	Built for J. Henry Sears & Co., Boston, Mass. Wrecked in 1880 on coral reef in South China Sea when carrying coal from Cardiff to Hong Kong.
GOV. GOODWIN	1877 (July)	Campbell & Brooks, East Boston, Mass.	Wood	1,413	Built for M. F. Pickering & Co., Boston. Wrecked in the Strait of Sunda in 1896 when bound from New York to Chefoo with case oil.
GOV. ROBIE	1883 (Mar.)	William Rogers, Bath, Maine	Wood	1,627	Built for Searsport owners. In May 1900, sold to San Francisco, and in 1910 resold to New York and converted into a tow barge, operating as such until Nov. 1921 and having a sea life of thirty-eight years.
GRANDEE	1873 (Aug.)	Portsmouth, N. H.	Wood	1,255	Managing owner, C. H. Mendum. Sold in 1893 and converted into a coal barge for Sydney-Cape Breton owners, who operated her nineteen years and until she was thirty-nine years old.
GRANGER	1873	E. & A. Sewall, Bath, Maine	Wood	1,527	Built for builder's account. Wrecked Oct. 26, 1877, on reef in Malay Archipelago, coal laden, on passage from Liverpool to Manila.
GRANITE STATE II	1877	J. Neal, Kittery, Maine	Wood	1,684	Reported owner, W. Ross. Wrecked on Cornwall coast in Nov. 1895. (GRANITE STATE I, built at Portsmouth, N. H., was wrecked in 1868.)
GREAT ADMIRAL	1869 (Apr.)	Robert E. Jackson, East Boston, Mass.	Wood	1,497	Built for William F. Weld & Co., Boston. An outstanding, well-built "half clipper." Sold in 1897 to Capt. E. R. Sterling for \$12,500. Foundered in Dec. 1906 in North Pacific, when thirty-seven years old.
GRECIAN	1876 (June)	Titcomb & Thompson, Kennebunkport, Maine	Wood	1,677	Built for J. Henry Sears & Co., Boston. Wrecked in the Philippines in Mar. 1885 while bound from Iloilo to New York.
GUY C. GOSS (bark)	1879 (Nov.)	Goss & Sawyer, Bath, Maine	Wood	1,524	Built for builder's account. Capt. William H. Besse, manager. Sold to San Francisco in 1900 for Alaska salmon canneries. Sold at Auckland, N. Z., in 1926, after forty-seven years of sea service.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
HARRY MORSE	1871 (July)	J. Parker Morse, Bath, Maine	Wood	1,313	Built for builder's account. Later sold to Houghton Bros., Bath, Maine, and in 1887 purchased by San Francisco for \$25,000. Sold East in 1906 and converted into barge, operating as such for ten years, when she was sunk in collision.
HARVESTER	1875	E. & A. Sewall, Bath, Maine	Wood	1,494	Built for builder's account. Second of Sewall quartet built and named for California grain trade—GRANGER, HARVESTER, REAPER, and THRASHER. Sold in 1887 to San Francisco. Re-rigged as a bark. Wrecked June 8, 1900, near Australia, when bound for Newcastle, N.S.W., and near her destination.
HARVEY MILLS	1876 (Sept.)	Mills & Creighton, Thomaston, Maine	Wood	2,077	Built for local owners. Cost \$125,000. Burned and abandoned to underwriters at New Orleans when loaded with cotton on maiden voyage. Was unlucky. After collision, sold at auction at Queenstown in 1882 and bought in by owners. Foundered in Dec. 1886 on passage from Seattle to San Francisco.
HECLA	1877 (Sept.)	Goss & Sawyer, Bath, Maine	Wood	1,476	Built for John W. Marr, Bath, Maine, who sold her in Dec. 1897 to San Francisco parties. Was re-rigged as a bark. Owned by salmon packers 1916-1925, and in 1928, when fifty-one years old, sold to shipbreakers.
HELICON	1868 (Dec.)	Maxon, Fish & Co., Mystic, Conn.	Wood	1,274	Built for Calvin Adams, New York. Later owned by Howes & Crowell, Boston, and a half interest sold to San Francisco in 1885. In 1886, sold in New York for conversion to a barge. Was operated in tow for twelve years.
HENRIETTA	1875 (Apr.)	E. Dunbar, of Sears- port, Maine, at Bucksville, S. C.	Wood	1,203	Built for Capt. Jonathan C. Nickels et al., Searsport, Maine. The only Down Easter built in the South, and it proved costly. In 1894, when nineteen years old, wrecked in Japanese waters while in charge of pilot.
HENRY B. HYDE	1884 (Nov.)	John McDonald; Flint & Co., Bath, Maine	Wood	2,462 net; 2,580 gross	The queen of all Down Easters. Built for Flint & Co., New York. Cost \$125,000 and was as fine a sailing ship as was ever built. Ran from San Francisco to New York in 88 days. Grounded and wrecked in Feb. 1904 when being towed to Baltimore to load for San Francisco.
HENRY FAILING	1882 (May)	Goss & Sawyer, Bath, Maine	Wood	1,976	Built to be managed by Capt. William H. Besse, New Bedford, Mass. Sold San Francisco in 1898 and resold to New York in 1909, when twenty-seven years old, for conversion into a barge.
HENRY S. SANFORD	1869 (Oct.)	John Harward & Son, Bowdoinham, Maine	Wood	1,159	Built for builder's account. Later sold to Nesmith & Sons, New York, and resold to Capt. Nathan P. Carver, of Searsport, Maine. A kettle-bottom ship and a dull sailer. Damaged by a typhoon and collision while loading at Cebu. Towed to Manila and condemned.
HENRY VILLARD	1882 (May)	Arthur Sewall & Co., Bath, Maine	Wood	1,475	William H. Starbuck, New York, manager. Sold to San Francisco in 1901. Became a tow barge on Pacific Coast. Laid up in 1929, when forty-seven years old. Later burned for her metal.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
HIGHLANDER	1868 (Dec.)	Samuel Hall, East Boston, Mass.	Wood	1,352	Built for Sturgis, Clearman & Co., Boston, and soon sold for \$100,000 to B. W. Stone & Bro., Salem, who sold her to Amsterdam parties in Dec. 1893. In 1900, became an American tow barge.
HIGHLAND LIGHT	1874	William Rogers, Bath, Maine	Wood	1,315	Built for Nickerson & Co., Boston. Sold in 1887 to San Francisco and re-rigged as a bark. Foundered Nov. 16, 1901, when bound from Tacoma to Honolulu.
HOLLISWOOD (bark)	1893	J. M. Brooks, East Boston, Mass.	Wood	1,141	Built for E. M. Knight, New York, who commanded her for twelve years. Last Massachusetts-built square-rigger. An unfortunate vessel. Later rigged as a barkentine and a three-masted schooner.
HOTSPUR	1885 (Aug.)	New England Ship-building Co., Bath, Maine	Wood	1,210	Built for Bath and Boston owners. A good sailer, but wrecked on a coral reef in Pacific on the homeward-bound passage of her second voyage.
H. S. GREGORY	1875 (Oct.)	Samuel Watts, Thomaston, Maine	Wood	2,020	Built for owner's account. On Feb. 16, 1883, when bound from Tacoma to Queenstown with 2,782 tons of wheat, abandoned in North Atlantic.
ICEBERG	1877 (Apr.)	Justin Taylor, East Boston, Mass.	Wood	1,135	Built for Tudor Ice Co., Boston. Later sold to William E. Barnes, New York, and during her last days was managed by R. P. Buck & Co., New York. Destroyed by fire in Nov. 1895 when loading nitrate at Iquique.
I. F. CHAPMAN (II)	1882 (Oct.)	I. F. Chapman, Bath, Maine	Wood	2,038	Built for builder's account. Sold at New York in 1908, when twenty-six years old, for conversion into a barge. During World War I, operated as a bark, but in the 1920's was a tow barge again.
IMPORTER	1870 (May)	John Currier, Jr., Newburyport, Mass.	Wood	1,216	Owned by Sumner, Swasey & Currier, Newburyport, Mass. Sold in 1874 to Howes & Crowell, Boston. Resold to New York owners in 1883 and re-rigged as a bark. Went under German flag in 1889 and was renamed F. E. HAGENMEYER.
INDIANA	1876 (Oct.)	E. & A. Sewall, Bath, Maine	Wood	1,488	Built for builder's account. Sold to Alaska Packers Assn., San Francisco, in 1898. In 1925, when forty-nine years old, sold to moving picture interests, Hollywood, Calif.
INTREPID	1864 (Feb.)	E. & A. Sewall, Bath, Maine	Wood	1,126	Built for builder's account. A slow sailer. In Dec. 1877, sold to Germans and renamed HEDWIG, with Bremen as hailing port.
INVINCIBLE	1873 (Sept.)	M. V. Moses & Son, Bath, Maine	Wood	1,394	Built for builder's account. Sold Puget Sound owners in Oct. 1887. Re-rigged as four-masted schooner in 1904 and converted into barge in 1914. In 1927, when fifty-four years old, burned for her metal.
IROQUOIS	1881 (Nov.)	Arthur Sewall & Co., Bath, Maine	Wood	2,121	Built for builder's account. Wrecked Mar. 20, 1902, in Strait of Sapi, passing from Indian Ocean to Java Sea, and became a total loss; was twenty-one years old.
ISAAC REED	1875 (Sept.)	A. R. Reed & Co., Waldoboro, Maine	Wood	1,489	Built for builder's account. Sold San Francisco in 1900. Later converted into a barge and operated until July 1924, when she foundered; was forty-nine years old.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
IVANHOE	1866 (Sept.)	Columbus Carter, Belfast, Maine	Wood	1,563	Built for Paul R. Hazeltine et al., Belfast, Maine. Sold in 1884 to San Francisco. "Went missing" end of Sept. 1894 when carrying coal from Seattle to San Francisco.
JABEZ HOWES	1877 (Oct.)	John Currier, Jr., Newburyport, Mass.	Wood	1,581	Built on speculation and sold to Howes Bros. (George Howes & Co.), New York, after launching. Good carrier and sailer. Ran from San Francisco to New York in 95 days. Sold to John Rosenfeld, San Francisco, in 1880. Became a salmon packer in 1908. Was wrecked Apr. 17, 1911, when thirty-four years old.
JAMES BAILEY	1878 (Mar.)	William Rogers, Bath, Maine	Wood	1,530 (gross)	Built for J. S. Winslow & Co., Portland, Maine. Leaving Hong Kong Oct. 14, 1880, in ballast, bound for San Francisco, wrecked in a typhoon Oct. 17 on Hainan Island.
JAMES DRUMMOND	1881	C. V. Minott, Phippsburg, Maine	Wood	1,556 (gross)	Built for builder's account. Later bought by California Shipping Co. Sold and converted into a barge in 1908. In 1888, ran from New York to Astoria in 105 days.
J. B. BROWN	1874 (Oct.)	Titcomb & Thompson, Kennebunkport, Maine	Wood	1,551	Built for J. S. Winslow & Co., Portland, Maine. Sold to William E. Mighell, San Francisco, in 1887. In 1903, sold at auction in San Francisco. Was dismantled and later broken up.
J. B. WALKER	1879 (Sept.)	Edward O'Brien, Thomaston, Maine	Wood	2,106	Built for builder's account. In Jan. 1900, sold New York and re-rigged as a bark. In 1903, bought by Lewis Luckenbach for conversion into a tow barge, and operated as such for fourteen years.
JOHN A. BRIGGS	1878 (Aug.)	Briggs & Cushing, Freeport, Maine	Wood	2,033	Built for builder's account. Sold San Francisco in Jan. 1887. In 1906, was converted into a tow barge at New York and was owned by Seaboard Transportation Co. Foundered Dec. 26, 1909, when thirty-one years old.
JOHN BRYCE	1869 (Oct.)	Edward O'Brien, Thomaston, Maine	Wood	1,968	Built for builder's account. A slow sailer. In Dec. 1888, when carrying lumber from Puget Sound to Melbourne, foundered in a hurricane.
JOHN C. POTTER	1869 (Apr.)	Marlboro Packard, Searsport, Maine	Wood	1,182	Built for William McGilvery, Searsport, Maine. In June 1888, sold at San Francisco. For thirty-five years this ship made deep-sea voyages under canvas and when over sixty years old was handling coal and ore for a British Columbia company.
JOHN CURRIER	1882 (Oct.)	John Currier, Jr., Newburyport, Mass.	Wood	1,848	Built for Thayer & Lincoln, Boston. Sold in May 1900 to California Shipping Co., San Francisco. Wrecked Aug. 9, 1907, at Alaska, when in the fish cannery business.
JOHN DE COSTA	1876 (Aug.)	Briggs & Cushing, Freeport, Maine	Wood	1,753	Built for builder's account. Wrecked July 18, 1885, on passage from Melbourne to Calcutta; was carrying cargo of horses.
JOHN McDONALD	1882 (Dec.)	John McDonald (Benjamin Flint), Bath, Maine	Wood	2,172	Flint & Co., New York, owner. Sold in Oct. 1899 to San Francisco. In Jan. 1901, when coal laden and bound for San Francisco, reported on fire in North Pacific and then "went missing."
JOHN R. KELLEY	1883 (Oct.)	Goss & Sawyer, Bath, Maine	Wood	2,254	Built for Capt. John R. Kelley (managing owner) and friends. In 1899, the ship left New York for San Francisco and was wrecked on the Falkland Islands on May 25.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
JOHN ROSENFELD	1884 (June)	Arthur Sewall & Co., Bath, Maine	Wood	2,268 net; 2,374 gross	Built for builder's account. When launched, was largest wood sailing ship afloat. While in tow, leaving Nanaimo with coal, ran on a reef, Feb. 19, 1886, and was lost; was only twenty months old.
JOHN T. BERRY	1876 (Aug.)	Joseph Hilt (J. A. Creighton yard), Thomaston, Maine	Wood	1,420	Built for local owners and their friends. Left Philadelphia Oct. 2, 1887, with kerosene oil, for Hiogo. Fire discovered Jan. 8, 1888, when in South Pacific and vessel destroyed.
JOHN W. MARR	1875 (Nov.)	D. O. Blaisdell, Bath, Maine	Wood	1,296	Built for John W. Marr. Sold at London in early 1895 to Norwegians and renamed ATLAS.
JONATHAN BOURNE (bark)	1877 (Nov.)	Goss & Sawyer, Bath, Maine	Wood	1,472	Built for New Bedford owners. Managed by Capt. William H. Besse. Wrecked in 1884 while carrying coal from Australia to Manila.
JOSEPH B. THOMAS	1881 (Oct.)	Samuel Watts, Thomaston, Maine	Wood	1,851	Built for builder's account. In 1899, sold at San Francisco for Pacific coal and lumber trade. In 1909, when twenty-eight years old, sold New York for conversion into a tow barge.
JOSEPH FISH	1866 (Dec.)	Samuel Watts, Thomaston, Maine	Wood	1,262	Built for Thomaston and Waldoboro, Maine, parties. Sold to Germans in 1877 for \$42,000 and renamed ATLANTIC.
JOSEPH S. SPINNEY	1874 (Oct.)	Harvey Mills and Capt. James A. Creighton, Thomaston, Maine	Wood	1,895	Built for builder's account. On Oct. 25, 1892, during passage from New York to San Francisco, abandoned at sea sixty miles north of Golden Gate; vessel drifted ashore and was wrecked.
JOSEPHUS	1876 (Oct.)	E. Haggett, Newcastle, Maine	Wood	1,470	Built for A. Austin et al., Damariscotta, Maine. Sold in 1893 to Pendleton, Carver & Nichols, New York. In 1900, sold for conversion to a barge. Later acquired by U. S. Navy. Burned in 1924, when forty-eight years old.
KAIULANI (bark)	1899 (Dec.)	Arthur Sewall & Co., Bath, Maine	Steel	1,430 net; 1,570 gross	Built for Williams, Dimond & Co., San Francisco and Honolulu. Sold to Alaska Packers Assn. in 1922 and renamed STAR OF FINLAND. Used for moving pictures in 1935. Still engaged in deep-sea work under canvas in 1944.
KENDRICK FISH	1867 (Oct.)	Samuel Watts, Thomaston, Maine	Wood	1,326	Built for builder's account. Sold to the Germans (J. D. Bischoff, of Bremen) in Aug. 1880, when thirteen years old.
KENNEBEC	1883 (Oct.)	William Rogers, Bath, Maine	Wood	2,025	Built for builder's account. Stranded and sunk in Feb. 1887 at San Pedro, Calif., but raised, sold for \$15,000, and rebuilt. Sold at New York in July 1904 for conversion into a tow barge.
L. B. GILLCHREST	1866 (Nov.)	Samuel Watts, Thomaston, Maine	Wood	1,158	Built for builder's account. Sold in 1885 to J. W. Parker & Co., New York, for \$9,500 and resold at Boston in 1888, when twenty-two years old, for conversion into a tow barge.
LEADING WIND	1874 (Oct.)	Goss & Sawyer, Bath, Maine	Wood	1,159	Owned by Rust and Smith, of Boston, and Bath interests, with Bath the hailing port. Burned and scuttled at Auckland, N. Z., in Jan. 1891. Sold to British. Later became Norwegian bark FJORD and when thirty-six years old was in Atlantic trade.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
LEVI C. WADE	1878 (Sept.)	William Rogers, Bath, Maine	Wood	1,525	Built for Edwin Reed et al. Left Manila July 3, 1884, sugar laden, for San Francisco and "went missing."
LEVI G. BURGESS	1877 (Oct.)	Samuel Watts, Thomaston, Maine	Wood	1,536	Built for builder's account. Sold San Francisco in 1887 for \$30,000. Re-rigged as bark in 1897. Sold for a salmon packer in 1910. Laid up in 1922; burned for metal in 1928, when fifty-one years old.
LIGHTNING II	1872	Robert E. Jackson, of East Boston, Mass. Erected and launched at St. John, N. B.	Wood	1,576	Built for W. F. Weld & Co., Boston. Being launched in Canada, was put under British flag. In Nov. 1888, rammed and sunk in English Channel.
LLEWELLYN J. MORSE	1877 (Aug.)	Joseph Oakes & Son, Brewer, Maine	Wood	1,325	Built for Bangor, Maine, owners. In 1888, sold to John Rosenfeld, San Francisco. In 1895, became a salmon packer. In 1925, sold to moving picture interests. Later became a fishing barge.
LORETTO FISH	1869 (Oct.)	Samuel Watts, Thomaston, Maine	Wood	1,945	Built for builder's account. Sold about 1885 to Germans for \$24,000 and became the THEODOR FISHER of Bremen.
LOUIS WALSH	1861	White & Connor, Searsport, Maine	Wood	1,497	Built for Pendleton family, Searsport, Maine. Sold San Francisco in 1889 for \$19,000. Resold in 1898, during Klondike rush, to Seattle. Wrecked about 1904, when forty-three years old.
L. SCHEPP	1878 (Sept.)	Titcomb & Thompson, Kennebunk- port, Maine	Wood	1,776	Built for local owners. Purchased by I. F. Chapman & Co., New York. Later sold to Flint & Co., New York. Wrecked on Long Island, N. Y., Feb. 17, 1902, when twenty-four years old. Repaired and converted into a tow barge.
LUCY A. NICKELS II	1875	Oakes & Doane, Bangor, Maine	Wood	1,395	Built for Searsport, Maine, owners. Ran from New York to Melbourne in 86 days and from Hong Kong to New York in 91 days. Sold in 1898 to Lewis Luckenbach, New York, for conversion into a barge.
MAGELLAN II	1873 (Nov.)	Smith & Townsend, East Boston, Mass.	Wood	1,073	Augustus Hemenway & Co., Boston, owner. Built for West Coast South American trade. Sunk Aug. 6, 1890, off Cape Horn after collision with ship ST. MARY when bound for Valparaiso.
MAJESTIC	1866 (Nov.)	G. W. Lawrence, Portland, Maine	Wood	1,117	Thayer & Lincoln, Boston, managing owner. Sold San Francisco in 1878 for \$31,000. In 1884, acquired by A. P. Lorentzen. "Went missing" in Dec. 1892 on run from Seattle to San Francisco.
MANUEL LLAGUNA	1879 (Oct.)	Chapman & Flint, Bath, Maine	Wood	1,650	Built for builder's account. Reported sold in Sept. 1905 to Lewis Luckenbach, New York, for \$20,000 and converted into a barge. Renamed WASHINGTON. In World War I, purchased by U. S. Government.
MARY L. CUSHING	1883 (Apr.)	George E. Currier, Newburyport, Mass.	Wood	1,575	Built for John M. Cushing, Newburyport, Mass. Sold in Dec. 1893 to Pendleton, Carver & Nichols, New York, and resold in May 1900 to San Francisco. Wrecked at Mazatlan Aug. 20, 1906. The last full-rigged ship built in Massachusetts.
MARY L. STONE	1874 (Dec.)	Goss & Sawyer, Bath, Maine	Wood	1,420	Built for Albert Stone & Co., Boston. Wrecked in 1894 on coast of Formosa on passage from New York to China.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
MATCHLESS	1870	Curtis, Smith & Cushman, East Boston, Mass.	Wood	1,198	Built for Capt. James H. Dawes et al. Wrecked June 15, 1883, in Strait of Sunda during voyage from Iloilo to Boston.
McLAURIN	1878 (Dec.)	Atkinson & Fillmore, Newburyport, Mass.	Wood	1,312	Built for Capt. McLaurin F. Pickering, of Boston. Sold at San Francisco in Feb. 1904 to salmon packing interests. Laid up in 1922. Sold in 1927, when forty-nine years old, and burned for metal.
McNEAR	1872 (Dec.)	Belfast, Maine	Wood	1,245	Built for Capt. Baker McNear, Boston. Sold New York in 1887 and resold San Francisco in 1888. Wrecked on the Pacific May 14, 1900, when twenty-eight years old.
MEROM	1870 (Mar.)	C. V. Minott, Phippsburg, Maine	Wood	1,158	Built for builder's account. In 1890, sold at San Francisco for a salmon packer. When at anchor at Alaska Oct. 10, 1900, blown ashore in gale and wrecked.
MINDORO	1864 (Nov.)	John and Justin Taylor, East Boston, Mass.	Wood	971	Built for Silsbee, Pickman & Allen, Salem, Mass., and used in Philippine trade. Sold New York about 1896 for conversion into barge.
MOGUL II	1869 (Sept.)	N. L. Thompson, Kennebunk, Maine	Wood	1,365	Built for J. Henry Sears & Co., Boston. Burned at sea and abandoned Aug. 7, 1874, when carrying coal from Liverpool to San Francisco.
M. P. GRACE	1875 (July)	Chapman & Flint, Bath, Maine	Wood	1,863	Built for builder's account. Later owned by Flint & Co., New York. Sold in Mar. 1898 to George W. Hume & Co., San Francisco, for a salmon packer. Sold at New York in 1906 for conversion into barge.
NANCY PENDLETON	1871 (Aug.)	George A. Carver (Henry McGilvery), Belfast, Maine	Wood	1,385	Managing owner, Capt. James G. Pendleton, Searsport, Maine. Sold at New York in Apr. 1893 for conversion into a coal barge.
NEW ERA	1870	John W. Griffiths, Long Island, N. Y.	Wood	1,140	Glidden & Williams, of Boston, managing owner. Built with bent timbers. Wrecked on northwest coast of Luzon during passage from Hong Kong to San Francisco.
NIMBUS	1869 (Oct.)	John Patten & Sons, Bath, Maine	Wood	1,302	Built for builder's account. Foundered Dec. 29, 1877, after striking bar when leaving Astoria loaded with grain for Queenstown. Was in charge of pilot when she went aground.
NORTH AMERICAN	1873 (Jan.)	Curtis & Smith, East Boston, Mass.	Wood	1,584	Built for Henry Hastings & Co., Boston. Claimed to be a half clipper and "the finest American ship afloat" in her day. Wrecked in Kei Channel, Japan, July 1892, when bound for New York.
NORTHERN LIGHT	1872 (Dec.)	George Thomas, Quincy, Mass.	Wood	1,795	Built on speculation and sold to W. F. Weld & Co., Boston. In 1875, sold to W. H. Kinsman & Co., Boston, for \$95,000. In 1885, purchased by Norwegians and renamed MA-THILDA; used by them in Atlantic trade for some twenty years.
OCCIDENTAL	1874 (June)	E. & A. Sewall, Bath, Maine	Wood	1,534	Built for builder's account. Sold San Francisco in 1890. In 1906, sent to New York and sold for conversion into a barge.
OCEAN KING (4-masted shipentine)	1874 (Oct.)	N. L. Thompson, Kennebunk, Maine	Wood	2,516	J. Henry Sears, Boston, managing owner. The second four-masted square-rigger built in America. Sold to William P. Ellison in 1884. Abandoned May 8, 1887, in North Pacific.

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Name	Built (launched)	Builder	Built of	Tonnage	Remarks
OLYMPIC (4-masted bark)	1892	New England Ship- building Co., Bath, Maine	Wood	1,353 net; 1,469 gross	Managing owner, Capt. William H. Besse, New Bedford, Mass. Sold in 1899 to San Francisco and Honolulu parties. Became a salmon packer in 1910 and in 1916 re-entered general trade. Was in moving pictures in 1925 and later became a fishing barge in Southern California.
ONEIDA	1866 (July)	Marlboro Packard (Wm. McGilvery), Searsport, Maine	Wood	1,074	Built for account of builder and Searsport associates. Sold in 1888 to San Francisco for a salmon packer. Wrecked at Alaska in Apr. 1890.
ORACLE II	1876 (Oct.)	Hitchcock & Blair, Bath, Maine	Wood	1,550	Built to be commanded by Capt. J. J. Humphrey, of Yarmouth, Maine, a part owner. Wrecked near Cape Horn in Mar. 1883 when bound from San Francisco for Liverpool.
OREGON	1875 (Nov.)	William Rogers, Bath, Maine	Wood	1,364	Built for builder's account. Sold in Aug. 1887 to San Francisco for \$28,000. Later re-rigged as a bark. Sold in 1903 and converted into a barge for British Columbia mining interests.
ORIENTAL	1874 (Oct.)	E. & A. Sewall, Bath, Maine	Wood	1,625	Built for builder's account. Sold San Francisco in 1881. In 1906, sold to salmon packers. Laid up in 1925, when fifty-one years old.
PACIFIC	1869 (May)	Blanchard Bros., Yarmouth, Maine	Wood	1,812	Built for builder's account and for South American coal and guano trade. Wrecked on Welsh coast Nov. 1, 1874, when in charge of pilot; was bound from Antwerp to Cardiff in ballast.
PACTOLUS	1865 (Feb.)	Chapman & Flint, Thomaston, Maine	Wood	1,205	Built for builder's account. Later owned by Flint & Co. Condemned and sold at Key West, Fla., to Brown Bros., Baltimore, in late nineties. Converted into a tow barge. Foundered June 2, 1907, when forty-two years old.
PACTOLUS (bark)	1891	John McDonald (Flint & Co.), Bath, Maine	Wood	1,564 net; 1,585 gross	Built for Flint & Co., New York. Sold San Francisco in 1900. Became a salmon packer in 1911. Laid up in 1924 and sold to shipbreakers in Oct. 1927, when thirty-six years old.
PALESTINE	1877 (Jan.)	W. V. Moses & Son, Bath, Maine	Wood	1,397	Built for builder's account. Sold in Feb. 1888 to Samuel Blair, San Francisco, for \$31,000. Wrecked June 27, 1891, on bar off San Francisco when entering port deep laden with 2,500 tons of coal.
PALMYRA	1876 (Jan.)	Goss & Sawyer, Bath, Maine	Wood	1,360	Built for F. & E. Reed, Bath, Maine. Sold in May 1887 at San Francisco. Purchased at Seattle in 1908 for conversion to a barge. Later sold to Southern California and burned at Santa Catalina Island.
PARAMITA	1879 (July)	Enos C. Soule, Freeport, Maine	Wood	1,573	Built for builder's account. Sold in 1900 to San Francisco. In 1905, became salmon packer; wrecked May 14, 1914, when engaged in that trade and thirty-five years old.
PARKER M. WHITMORE	1883 (Nov.)	Albert Hathorn, Bath, Maine	Wood	2,104	Built for Capt. Parker M. Whitmore et al. Wrecked when in ballast and bound from Europe to Philadelphia to load for Columbia River.
PARTHIA	1891 (Jan.)	Houghton Bros., Bath, Maine	Wood	2,371 net; 2,495 gross	Built for builder's account. Houghtons' last ship. On her fifth voyage, was abandoned Oct. 1, 1895, off Chilean coast, as her coal cargo was burning and the fire out of control.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
PAUL JONES (II)	1877 (Aug.)	W. F. Fernald, Portsmouth, N. H.	Wood	1,258	Managing owner, C. H. Mendum, Portsmouth, N. H. Used in China and East Indies trade. Burned in 1885 soon after leaving Melbourne for China.
PAUL REVERE	1876 (May)	Smith & Townsend, East Boston, Mass.	Wood	1,657	Built on speculation and sold to W. H. Kinsman & Co., Boston. In 1885, bought by DeGroot & Peck, New York. Sold at Manila about 1905 for conversion into a barge.
PERU	1867 (June)	Blanchard Bros., Yarmouth, Maine	Wood	1,457	Built for builder's account. Sold to D. & J. Maguire, of Quebec. Re-rigged as a bark and renamed KATE C. MAGUIRE. Later bought by Portuguese. Wrecked about 1894, when twenty-seven years old.
P. G. BLANCHARD	1862 (June)	Blanchard Bros., Yarmouth, Maine	Wood	1,317	Built for builder's account and for South American coal and guano trade. Sold to Norwegians in Nov. 1883 and put in transatlantic trade.
PHILENA WINSLOW	1876 (summer)	N. L. Thompson, Kennebunk, Maine	Wood	2,170 (gross)	Built on speculation under name of MARY E. MANTON. Purchased by J. S. Winslow, of Portland, Maine. On her second voyage, carrying 2,861 tons of coal from Cardiff to Singapore, was wrecked Dec. 19, 1878, on one of the Tristan da Cunha islands in the South Atlantic.
PHINEAS PENDLETON II	1866	Dunning & Co., Brewer, Maine	Wood	1,253	Built for Capt. Phineas Pendleton, 2nd, and the Pendleton family of Searsport, Maine. While loading at Manila for New York in Aug. 1885, caught fire, was scuttled, but became a total loss.
PILGRIM	1873 (Dec.)	J. T. Foster, Medford, Mass.	Wood	918	Built for Henry Hastings & Co., Boston. Last ship built at Medford. In 1880, re-rigged as bark. Sold to New York in 1888. Wrecked at Turk's Island May 20, 1893, when nineteen and a half years old.
P. N. BLANCHARD	1876 (May)	Blanchard Bros., Yarmouth, Maine	Wood	1,589	Built for builder's account. Burned between Cape Horn and the Falklands, when coal laden, in 1900 and became a total loss.
PREMIER II	1875 (Aug.)	Marlboro Packard (Wm. McGilvery), Searsport, Maine	Wood	1,392	Built for builder's account. Wrecked in 1877 at Dunkirk when in charge of pilot; condemned, sold, repaired, and became German ship IDA AND EMMA. Was put in transatlantic trade. Later renamed ELSE.
P. R. HAZELTINE	1876	Columbus Carter and Capt. Horace Herriman, Belfast, Maine	Wood	1,663	Built for Paul R. Hazeltine, Capt. Horace Herriman, et al., Maine. Wrecked near Cape Horn Feb. 18, 1878, when only two years old, while seeking a haven for shelter during heavy gales.
RANIER	1883 (June)	E. & A. Sewall, Bath, Maine	Wood	1,877	Built for builder's account. Sailed from Philadelphia on her maiden voyage Aug. 9, 1883, bound for Hiogo with kerosene. Wrecked on reef in Pacific Jan. 1, 1884.
RAPHAEL	1875 (Oct.)	Carleton, Norwood & Co., Rockport, Maine	Wood	1,542	Built for builder's account. Sold San Francisco in Nov. 1893 for \$20,000. Dragged anchors in gale and was wrecked at Alaska July 7, 1895, when chartered as a salmon packer.
RAPPAHANNOCK II	1890 (Jan.)	Arthur Sewall & Co., Bath, Maine	Wood	2,870 net; 3,054 gross	Built for builder's account. Cost stated as \$160,000. Largest three-masted ship ever built. Sailed from Liverpool July 28, 1891, with coal for San Francisco; cargo took fire after heavy weather off Horn, and ship was abandoned and became a total loss.

MERCHANT SAIL

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
R. D. RICE	1883 (Oct.)	Samuel Watts, Thomaston, Maine	Wood	2,134	Built for builder's account. Last square-rigged vessel built in Thomaston, Maine. Sold in July 1894 to Flint & Co., New York. Sold San Francisco in 1899. On Apr. 28, 1901, burned and scuttled at Hiogo and became a total loss.
REAPER	1876 (Jan.)	E. & A. Sewall, Bath, Maine	Wood	1,469	Built for builder's account. Sold in 1898 to San Francisco for Pacific coal and lumber trade. Destroyed by fire at Port Ludlow, Wash., in July 1906, when thirty years old.
RED CLOUD	1877 (Nov.)	George Thomas, Quincy, Mass.	Wood	2,208	Built for Isaac Taylor, Boston. Sold at Liverpool in Mar. 1882 to Germans and renamed CARL FRIEDRICH.
RED CROSS	1877 (Sept.)	T. J. Southard & Son, Richmond, Maine	Wood	1,236	Built for builder's account. In Jan. 1889, on passage from Newcastle, N. S. W., to San Francisco, was dismasted. Put into Roratonga in distress. Was condemned and sold; on Mar. 16 was driven ashore and became a total wreck.
REPUBLIC	1869 (June)	Crawford & Perkins, Kennebunkport, Maine	Wood	1,203	Owned by George C. Lord & Co., Boston. In 1889, damaged by collision at sea; put into Valparaiso, condemned, and sold to Chileans. Later sold to Australians and in 1930 (then a barge) was broken up. Was sixty-one years old.
REUCE	1881 (Nov.)	N. L. Thompson, Kennebunk, Maine	Wood	1,829	Built for Capt. George H. Theobald, Bowdoinham, Maine. Sold in 1900 to San Francisco. Purchased by salmon packers in 1911 and was in this trade for twelve years. Wrecked at Japan in 1923, when forty-one years old.
RICHARD 3rd	1859	Portsmouth, N. H.	Wood	898	Built for Capt. Richard H. Tucker and named after a third Richard Tucker born the day the ship was launched. Sold San Francisco in Nov. 1882. Converted into a barge in 1897 and wrecked in Jan. 1907, when forty-seven and a half years old.
RICHARD P. BUCK	1882 (Apr.)	William Rogers, Bath, Maine	Wood	1,491	Built for R. P. Buck & Co., New York. Left Philadelphia Apr. 3, 1889; encountered a hurricane and put into Bermuda, where she was found on fire Apr. 13. Was scuttled, condemned, and sold. Later raised and rebuilt as barge MONARCH of Boston.
RINGLEADER	1868 (Oct.)	Pierce & McMichael, Chelsea, Mass.	Wood	1,145	Built for Howes & Crowell, Boston. Sold for \$35,000 in Dec. 1881, and in 1894 was resold for conversion into a coal barge. Lost in 1902, when thirty-four years old.
ROANOKE (4-masted shipentine)	1892 (Sept.)	Arthur Sewall & Co., Bath, Maine	Wood	3,347 net; 3,539 gross	Built for builder's account. The largest wood ship ever built. Cost stated at \$175,000. Destroyed by fire when loading chrome ore at Nehoue, New Caledonia, South Pacific, on Aug. 10, 1905.
ROBERT L. BELKNAP	1884 (June)	Carleton, Nor- wood & Co., Rockport, Maine	Wood	2,251	Built for builder's account. Sailed from Yokohama for New York in Jan. 1893 and went ashore on reef near Natunas Island, ship and cargo becoming a total loss.
R. R. THOMAS	1876 (Oct.)	E. Dunbar, Searsport, Maine	Wood	1,333	Built for Capt. Jonathan C. Nickels, Searsport, Maine. In 1899, sold to Lewis Luckenbach, New York, for conversion into a barge; was operated as such for fourteen years and until over thirty-eight years old.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
SACHEM	1875 (Apr.)	East Boston, Mass. (completed by owner)	Wood	1,312	Built for M. F. Pickering Co., Boston. In 1898, re-rigged as bark. In May 1903, was sold at New York and converted into a barge; renamed HOLTON.
ST. CHARLES (I)	1866 (Sept.)	Chapman & Flint, Thomaston, Maine	Wood	1,166	Built for builder's account. Burned at Japan in Mar. 1880 when loaded with case oil. Fire evidently started by crew, who murdered the second mate. Ship became a total loss.
ST. CHARLES (II)	1883 (Oct.)	C. V. Minott, Phippsburg, Maine	Wood	1,662	Built for builder's account. Lost on her seventh voyage (May 1892) three days after leaving Nanaimo, B. C., with cargo of coal. An explosion in hold ruined the ship, and she was destroyed by fire as a worthless derelict and a menace to navigation.
ST. DAVID	1877 (Oct.)	John McDonald (Flint & Co.), Bath, Maine	Wood	1,536	Built for Flint & Co., New York. Sold in Oct. 1899 to San Francisco for Pacific lumber and coal trade. In Dec. 1909, converted into a barge, and on Oct. 31, 1919, when forty-two years old, was wrecked at Alaska.
ST. FRANCES	1882 (May)	John McDonald (Flint & Co.), Bath, Maine	Wood	1,898	Built for Flint & Co., New York. Sold in Oct. 1899 to San Francisco. Resold to salmon packers in 1909 and wrecked in Alaska, while engaged in this trade, May 14, 1917, when thirty-five years old.
ST. JAMES (bark)	1883 (Sept.)	John McDonald (Flint & Co.), Bath, Maine	Wood	1,488	Built for Flint & Co., New York. Sold in Mar. 1900 to San Francisco for Pacific trade. In 1909, converted into barge, but in World War I rigged as a barkentine. Wrecked in South Pacific Dec. 16, 1918, when over thirty-three years old.
ST. JOHN	1870 (Oct.)	Chapman & Flint, Bath, Maine	Wood	1,820	Built for builder's account. Made three consecutive round voyages San Francisco-Australia in record time, averaging 4 months 19 days (best of three was 4 months 11 days). Left New York in Oct. 1899 with oil for Yokohama and was destroyed by fire in East Indies.
ST. JOHN SMITH	1874 (Apr.)	N. L. Thompson, Kennebunk- port, Maine	Wood	2,220	Owned by J. S. Winslow, Portland, Maine. In July 1882, left Liverpool with coal, bound for San Francisco, and "went missing."
ST. JOSEPH	1865 (Aug.)	S. P. & James Hitch- cock, Bath, Maine	Wood	1,138	Built for builder's account. Severely damaged by tidal wave in May 1877 when loading at Peru. Rammed by ferry while at anchor at San Francisco in Sept. 1881. Sold to British in 1884.
ST. KATHERINE (bark)	1890	John McDonald (Flint & Co.), Bath, Maine	Wood	1,192 net; 1,252 gross	Built for Flint & Co. Won a \$1,000 purse by beating the full-rigged ships W. F. BABCOCK and I. F. CHAPMAN in a match race from Hawaiian Islands to Delaware Breakwater. Bought by Captain Matson in 1908. Later became a salmon packer.
ST. LUCIE	1868	John McDonald (Chapman & Flint), Bath, Maine	Wood	1,264	Built for Chapman & Flint, New York. Sailed from Philadelphia in Aug. 1884 for San Francisco and "went missing."
ST. MARK	1877 (Sept.)	Hitchcock & Blair, Bath, Maine	Wood	1,896	Owned by Isaac F. Chapman, J. W. Elwell, et al. Sold to U. S. Government at Manila in 1900 and converted into a barge.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
ST. MARY	1890 (Mar.)	C. V. Minott, Phippsburg, Maine	Wood	1,942 net; 2,043 gross	Built for builder's account. Stated cost \$120,000. On her maiden voyage, bound from New York to San Francisco, when near Cape Horn on Aug. 6, had collision with ship MAGELAN of Boston and sank her. On Aug. 10, ST. MARY badly damaged; wrecked on Falklands.
ST. NICHOLAS	1869 (Oct.)	Chapman & Flint, Bath, Maine	Wood	1,723	Built for builder's account. Acquired by Flint & Co. in 1880. Sold San Francisco in Dec. 1896. Resold as salmon packer in 1905 and used in this trade for seventeen years. Burned for her metal in Sept. 1927, when fifty-eight years old.
ST. PAUL	1874 (Sept.)	Chapman & Flint, Bath, Maine	Wood	1,824	Built for builder's account. Acquired by Chapman & Co. in 1880. Sold Seattle in 1901 and was a salmon packer for twenty-three years. In the 1930's, was used as a nautical museum in Puget Sound.
ST. STEPHEN	1877 (Jan.)	Chapman & Flint, Bath, Maine	Wood	1,392	Built for builder's account. In 1880, taken over by Flint & Co. Left Seattle Mar. 21, 1887, with 2,169 tons of coal, for San Francisco and "went missing." Evidently foundered in severe gale.
SAMARIA	1876 (Sept.)	Houghton Bros., Bath, Maine	Wood	1,509	Built for builder's account. Sold San Francisco in May 1896 for Pacific coal trade. Left Seattle Mar. 21, 1897, and "went missing." Was twenty-one years old.
SAM SKOLFIELD II	1883 (Dec.)	Skolfield Bros., Brunswick, Maine	Wood	1,514	Built for builder's account. In June 1902, sold on Pacific Coast to N. W. Rice, of Boston, for \$35,000. Was re-rigged as a bark and renamed HARVARD. Converted into a barge in 1908, but during World War I was again rigged as a bark. Abandoned off Panama in Dec. 1921, when thirty-eight and a half years old.
SAMUEL WATTS	1870 (Oct.)	Samuel Watts, Thomaston, Maine	Wood	2,035	Built for builder's account. Sold at Antwerp in Dec. 1882 to Germans for £10,500 and renamed S. J. WEISENHORN; hailing port, Bremen. Later went under Norwegian flag and was finally a coal barge at Rio de Janeiro.
SANTA CLARA	1876 (Jan.)	Chapman & Flint, Bath, Maine	Wood	1,474	Built for builder's account. Acquired by Isaac F. Chapman in 1880. Sold to Alaska Packers Assn., San Francisco, in Aug. 1896. In June 1926, when fifty years old, sold to moving picture interests. Later became a California fishing barge.
S. C. BLANCHARD	1871	Blanchard Bros., Yarmouth, Maine	Wood	1,904	Built for builder's account. Foundered in June 1882 in an Atlantic hurricane on passage from San Francisco to Antwerp laden with 2,900 short tons of wheat.
SEA WITCH	1872 (July)	Robert E. Jackson, East Boston, Mass.	Wood	1,233	Built for W. F. Weld & Co., Boston. Acquired by estate of Richard Baker, Jr., in 1875. Sold to Edward Lawrence, Jr., et al., Boston, and resold in 1901 at San Francisco for a salmon packer. Lost at sea in Dec. 1906, when thirty-four and a half years old.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
SEMINOLE	1865 (July)	Maxon, Fish & Co., Mystic, Conn.	Wood	1,439	Built for Lawrence Giles & Co., New York. A fast sailing "half clipper." Stated cost, \$125,000. Sold in 1887 for Pacific trade for \$17,500 and re-rigged as a bark. Resold in 1898 and, later, was a storeship at Adelaide, Australia.
SERVIA	1883 (Dec.)	Houghton Bros., Bath, Maine	Wood	1,773	Built for builder's account. Sold to San Francisco at end of 1899. When under charter as a salmon packer, was driven ashore from anchorage at Alaska Nov. 6, 1907, and wrecked.
S. F. HERSEY	1865 (Oct.)	William McGilvery, Searsport, Maine	Wood	991	Built for builder's account. In 1886, bought by R. W. Cameron & Co., New York, for Australian trade and went under British flag. Finally converted to a storeship for use on north Australian coast.
SHENANDOAH (4-masted shipentine)	1890 (Nov.)	Arthur Sewall & Co., Bath, Maine	Wood	3,154 net; 3,406 gross	Built for builder's account. The second of the Sewall "Big Wood Four" and that firm's first four-master and the fourth built in the U. S. (square-rigged). Sold in 1910 to the Scullys for a tow barge, and on Oct. 29, 1915, was rammed and sunk near Fire Island, N. Y.
SNOW & BURGESS	1878	Samuel Watts, Thomaston, Maine	Wood	1,655	Named after firm of New York ship brokers. Ended days as a Pacific timber droghuer. Converted into a five-masted schooner before World War I. Sold at Seattle to shipbreakers in late 1921, when forty-three years old.
SOLITAIRE	1879 (Apr.)	Edward Sewall, Bath, Maine	Wood	1,462	Built for builder's account. Wrecked by hurricane in Sept. 1896 soon after sailing from the Delaware; towed by S.S. WEST INDIAN into New York. Sold to Lewis Luckenbach for conversion into a barge, and in Aug. 1928, when forty-nine years old, sold to shipbreakers.
SONNTAG	1870	A. P. Goodhue, Stockton, Maine	Wood	976	Built for William McGilvery et al., Searsport, Maine. Sold in 1875 to J. Baker & Co., Boston, and re-rigged as a bark. In 1890, when twenty years old, was converted into a barge.
SONORA (II)	1868 (Aug.)	Robert E. Jackson, East Boston, Mass.	Wood	1,535	Owned by W. F. Weld & Co., Boston, until 1875, when taken over by Richard Baker, Jr., estate. When in tow of a tug off Holyhead, Wales, Aug. 30, 1876, a Spanish steamer ran between tug and ship, with the result that both vessels were sunk, the SONORA ramming the steamer.
SOUTH AMERICAN	1876 (Sept.)	Smith & Townsend, East Boston, Mass.	Wood	1,694	Built for Henry Hastings, Boston. Stated cost, \$130,000. An outstandingly good ship. Sailed from Iloilo for Boston with 2,700 tons of sugar and was wrecked Sept. 15, 1889, near Cape Agulhas.
SOVEREIGN OF THE SEAS II	1868 (Nov.)	Donald McKay, East Boston, Mass.	Wood	1,443	Owned by Lawrence Giles & Co., New York. Sold in 1885 at Antwerp to Germans and renamed ELVIRA. Used in transatlantic trade until 1898, when she returned to U. S. registry and was converted into a barge.
SPARTAN	1874	Robert E. Jackson, East Boston, Mass.	Wood	1,449	Built for J. Henry Sears, of Boston, et al. Ran ashore on Long Island in Mar. 1878 and was sold. Was a coal droghuer in Pacific, and in 1905 was wrecked on one of the Hawaiian Islands.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
S. P. HITCHCOCK	1883 (Oct.)	Isaac F. Chapman (Samuel P. Hitchcock), Bath, Maine	Wood	2,178	Built for builder's account (I. F. Chapman & Co., New York). Lost at Hong Kong in Sept. 1906 during a typhoon, being dragged down on by ship I. F. CHAPMAN and wrecked on breakwater. Was twenty-three years old.
SPRINGFIELD	1868 (Nov.)	J. O. Curtis, Medford, Mass.	Wood	1,043	Built for Henry Hastings, Boston. In Dec. 1879, sold at Hamburg to go under German flag and became bark CHRISTINE of Bremen.
STAR	1861 (Aug.)	Blanchard Bros., Yarmouth, Maine	Wood	1,214	Built for builder's account. Engaged principally in South American trade. When loaded with guano for Europe, was abandoned off Chiloe Island May 3, 1876; only one man reached shore.
STERLING	1873 (May)	E. & A. Sewall, Bath, Maine	Wood	1,663	Built for builder's account. Sold to John Rosenfeld, San Francisco, in 1881. In 1896, sold to Alaska Packers Assn., but was wrecked May 19, 1898, striking uncharted submerged rock off Alaskan shore.
STORM KING	1874 (July)	Theobald & Harward, Richmond, Maine	Wood	1,206	Built for builder's account. In Aug. 1892, sold at Boston and converted into a barge; was operated as such for ten years, foundering when twenty-eight and a half years old.
SUNRISE	1860 (Dec.)	Robert E. Jackson, East Boston, Mass.	Wood	1,219	Built on speculation. In 1862, bought for \$68,000 by Howland & Frothingham, New York. Sold in 1876; Edward Lawrence, of Boston, became managing owner. Was lost in 1890, when thirty years old.
SUSAN GILMORE	1874	Atkinson & Fillmore, Newburyport, Mass.	Wood	1,204	Built for Gilmore, Kingsbury & Co., Boston. Later owned by Carver & Barnes, New York. Went ashore and was lost on July 3, 1884, when being towed from Sydney to Newcastle, N. S. W.
SUSQUEHANNA (4-masted shipentine)	1891 (Sept.)	Arthur Sewall & Co., Bath, Maine	Wood	2,590 net; 2,744 gross	Built for builder's account. On second leg of maiden voyage, ran from San Francisco to Liverpool in 93 days 21½ hours. In 1897, made a passage of 89 days from Honolulu to New York. Foundered with a broken back (heavily laden with chrome ore) in South Pacific in Aug. 1905.
TACOMA	1881 (July)	Goss & Sawyer, Bath, Maine	Wood	1,739	Built for Charles Davenport et al., Bath, Maine. In 1898, sold to Alaska Packers Assn. for \$40,000. Following Spanish-American War, had a wonderful record carrying horses to Manila without any loss. Lost in ice at Alaska in May 1918, when thirty-seven years old.
TAM O'SHANTER II	1875 (Sept.)	The Soule Shipyard, Freeport, Maine	Wood	1,522	Owned by the Soule family et al., Freeport, Maine. Lost in Gaspar Strait in 1899.
TENNYSON	1865 (May)	John Currier, Jr., Newburyport, Mass.	Wood	1,246	Owned by William Graves & Co., Newburyport, Mass. Generally employed in Far East and India trade. Returning from Calcutta, foundered in hurricane Feb. 22, 1873, south of Mauritius.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
T. F. OAKES	1883 (Sept.)	American Ship-building Co., Philadelphia, Pa.	Iron	1,997	Built for W. H. Starbuck et al. The second of a trio of iron square-rigged three-masted ships built in the U. S. A. Was very slow. None of the trio could compete with wood Down Easters. Reached New York in tow Mar. 21, 1897, 259 days out from China. Wrecked near San Francisco in 1901, when eighteen years old.
THOMAS M. REED (I)	1877 (Nov.)	E. & A. Sewall, Bath, Maine	Wood	1,475	Built for builder's account. On the second leg of her maiden voyage, was wrecked Jan. 13, 1879, on the coast of Wales on a passage from San Francisco to Liverpool.
THOMAS M. REED (II)	1880 (May)	Arthur Sewall & Co., Bath, Maine	Wood	1,988	Built for builder's account. Destroyed by fire at the dock in Liverpool in Feb. 1888 when loading coal for San Francisco.
THRASHER	1876 (July)	E. & A. Sewall, Bath, Maine	Wood	1,512	Built for builder's account. One of the Sewall quartet of appropriately named California grain ships, but actually was not operated in that trade. Wrecked when in tow in July 1880, coal laden, leaving Nanaimo, B. C., bound for San Francisco.
TILLIE E. STARBUCK	1883 (Apr.)	J. Roach & Sons, Chester, Pa.	Iron	2,033	Built for W. H. Starbuck. First of American trio of iron full-rigged ships and the best of the three, but could not compete with wood Down Easters. Lost off Cape Horn in Aug. 1907, when twenty-four years old, while on passage from Honolulu to New York.
TRIUMPHANT	1874 (Jan.)	George Thomas, Quincy, Mass.	Wood	2,046	Built for Thayer & Lincoln, Boston, as a Cape Horner. After being aground and badly damaged at Liverpool, was abandoned in Atlantic Aug. 3, 1887, when bound for New York.
TWILIGHT	1866 (Oct.)	Charles Mallory, Mystic, Conn.	Wood	1,303	Built for builder's account. Was a Cape Horner for twelve years, in Australian and Far Eastern trade about six years, and made two transatlantic cotton voyages. Sold to Austrians in 1885.
UNCLE TOBY (II)	1866 (Apr.)	Soule Bros., Freeport, Maine	Wood	1,306	Built for builder's account. Generally used in West Coast of South America trade (coal out and guano return). Badly damaged and in collision when at anchor and loading at Peru in May 1877 during earthquake and tidal wave. Sold at Callao and put under Costa Rican flag; renamed HERMANN.
UNDAUNTED	1869 (Nov.)	E. & A. Sewall, Bath, Maine	Wood	1,722	Built for builder's account. Sold San Francisco in 1894 for Pacific lumber trade. In 1903, was condemned at Hampton Roads, Va., and bought by Lewis Luckenbach for conversion into a coal barge. Foundered in Dec. 1913, when forty-four years old.
UNITED STATES	1866 (Dec.)	John Currier, Jr., Newburyport, Mass.	Wood	1,246	Sold at launching to Charles Lunt, of Newburyport, Mass., for \$100,000. Abandoned Sept. 18, 1876, off Cape Horn, with her cargo afire and ship in flames. Crew taken off by British ship YARMOUTH and landed at Callao.
VALLEY FORGE	1862	William Bradstreet, Pittston, Maine	Wood	1,226	Built for builder's account. Hailing port, Gardiner, Maine. In 1894, after three years' lay-up due to unprofitable trade, was sold at San Francisco to shipbreakers for only \$250. Was thirty-two years old.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
VALPARAISO	1863 (June)	John Currier, Jr., Newburyport, Mass.	Wood	1,158	Built for Fabri & Chauncey, New York. Sold in 1865 to George Howes & Co., and in 1880 was acquired by John Rosenfeld, San Francisco, who sold her in New York in 1883 to Germans. She was renamed CAROLINE (hailing port, Bremen) and operated in transatlantic trade.
VENTUS	1868 (Sept.)	Stetson, Gerry & Co., Thomaston, Maine	Wood	1,242	Built on builder's account. Snow & Burgess, New York, later became managing owner. Stranded and became a total loss in Strait of Sunda Oct. 15, 1881, on passage from Singapore to Liverpool.
VIGILANT	1877 (Oct.)	N. L. Thompson, Kennebunkport, Maine	Wood	1,723	Built for Thayer & Lincoln, Boston. In 1899, reached Manila with her cargo of coal afire. Was scuttled. Later refloated, sold, and converted into a storage barge.
VOLUNTEER	1863 (Sept.)	E. & H. O. Briggs, South Boston, Mass.	Wood	1,041	Built for W. F. Weld & Co., Boston. In 1874, sold at New York to Geyer & Wilkins for \$43,750. Went under German flag as the BALTIMORE of Bremen.
VOYAGER	1874 (Oct.)	Damariscotta, Maine	Wood	1,356	Managed by Carver & Barnes, New York. Sailed from New York for Bristol on Feb. 7, 1878, and "went missing" when three and a half years old.
WANDERING JEW	1877 (Sept.)	J. Pascal (Carleton, Norwood & Co.), Rockport, Maine	Wood	1,650	Built for Carleton, Norwood & Co., Rockport, Maine. Engaged principally in oriental trade. A good sailer. Burned at Hong Kong Oct. 30, 1895. Scuttled, raised, and later used as a freight landing barge.
W. F. BABCOCK	1882 (Nov.)	Arthur Sewall & Co., Bath, Maine	Wood	2,028	Built for builder's account. Rammied by steamer at Durban, Southeast Africa, in late 1913. Returned to New York and converted into a barge when thirty-two years old.
WHITTIER	1869 (Jan.)	John Currier, Jr., Newburyport, Mass.	Wood	1,295	Owned by John N. and William Cushing, of Newburyport, Mass. Wrecked on Saracen Reef, Borneo, July 14, 1880, on passage from Batavia to Cebu.
WILLARD MUDGETT	1874	Alvah Mudgett, Stockton, Maine	Wood	837	Built for builder's account. Later owned by the Blanchards, of Searsport, Maine. Sailed from Norfolk, Va., with coal, for Bangor, Maine, Sept. 10, 1904, and "went missing" when thirty years old.
WILLIAM A. CAMPBELL	1867 (Oct.)	Edward O'Brien, Thomaston, Maine	Wood	1,494	Built for builder's account. When carrying long heavy timbers from Puget Sound in 1892, broke in two in North Pacific and was abandoned in Aug. in 14° N., 120° W.
WILLIAM H. CONNOR	1877 (June)	Marlboro Packard, Searsport, Maine	Wood	1,496	Built for Capt. James G. Pendleton. The last full-rigged ship and the largest vessel ever built at Searsport, Maine. Sold in 1902, after twenty-five years of sea service, to Lewis Luckenbach for conversion into a tow barge. Lost by collision in 1909, when thirty-two years old.
WILLIAM H. STARBUCK	1882 (Mar.)	Goss, Sawyer & Packard, Bath, Maine	Wood	1,272	Built for William H. Starbuck et al., New York. In 1888, listed and managed at Portland, Ore. In 1889, bought by Troop & Son, St. John, N. B. In Oct. 1898, when bound from Puget Sound to Cape Town with lumber, caught fire and was abandoned in North Pacific.

Name	Built (launched)	Builder	Built of	Tonnage	Remarks
WILLIAM MCGILVERY	1870 (Sept.)	Marlboro Packard (Wm. McGilvery), Searsport, Maine	Wood	1,270	Built for Capt. William McGilvery et al., Searsport, Maine. On Aug. 7, 1889, abandoned in South Pacific off tip of South American continent. Crew rescued by British ship NOR-CROSS.
WILLIAM P. FRYE (4-masted shipentine)	1901 (July)	Arthur Sewall & Co., Bath, Maine	Steel	2,998 net; 3,374 gross	Built for builder's account. Destroyed by Germans Jan. 28, 1915, during World War I, in South Atlantic, when carrying wheat from San Francisco to England. First U.S. merchant vessel sunk by Germans during the war.
WILLIE REED	1877 (June)	A. R. Reed & Co., Waldoboro, Maine	Wood	1,450	Built for builder's account, but with Yates & Porterfield, New York, manager and part owner. Wrecked Feb. 12, 1894, on French coast.
WILLIE ROSENFELD	1885 (Sept.)	Arthur Sewall & Co., Bath, Maine	Wood	2,353 net; 2,455 gross	Built for builder's account. Reported cost, \$125,000. Left New York Apr. 23, 1896, for San Francisco and foundered in a gale some four hundred miles off Brazilian coast. Only one of three ship's boats was saved.
WINGED HUNTER	1864 (Jan.)	John Currier, Jr., Newburyport, Mass.	Wood	1,170	Built for Charles Hill & Son, Boston. After being badly damaged at sea, was sold New York in late 1879 for \$22,000. Went under German flag as MIMI and operated in transatlantic oil trade until she foundered in May 1886.
W. R. GRACE	1873	Chapman & Flint, Bath, Maine	Wood	1,893	Built for builder's account. In 1880, owned by Flint & Co., New York. Wrecked when at anchor near Lewes, Del., in Sept. 1889 during a hurricane; was one of thirty vessels lost off the Delaware during the storm.

Of the above-stated 332 vessels, 320 were built of wood, 3 of iron (1883-1884), and 9 of steel (1894-1902). There are 310 wood three-masted square-rigged vessels, 13 shipentines with four masts (8 built of steel and 5 of wood), 8 barks with three masts (7 built of wood and 1 of steel), and 1 four-masted bark (the *Olympic*, with yards on the fore and main and fore-and-aft-rigged, or schooner-rigged, on the mizzen and jigger, or spanker). Six of the vessels were built prior to 1860 (2 in each of 1856 and 1859 and 1 in each of 1857 and 1858), and after the end of wood square-rigged shipbuilding (climaxed by the *Aryan* in 1893), a steel shipentine (*Dirigo*) was built in 1894, another in 1898, and 6 more and also a three-masted bark during the years 1899-1902 inclusive. The four consecutive years 1874-1877 were the period of the greatest activity in wood foreign-trade United States shipbuilding activity following the clipper shipbuilding decade of the fifties and the Civil War, and a secondary boom of lesser magnitude occurred in 1882 and 1883. The building boom immediately following the close of the Civil War was only moderate in extent, reached its height in 1869, and then dropped to a low in 1871-1872. The low following the boom of the seventies occurred in 1879-1880, and after the accelerated building activity of 1882-1883, construction was small in 1884 and 1885 and ceased through the balance of the eighties. In 1889, William Rogers, of Bath, Maine, built the bark *Matanzas* of 1,028 gross tons, and in 1889 Arthur Sewall & Company, of Bath, Maine, commenced to build its last quartet of big wood square-riggers, the *Rappahannock* (launched in 1890), the *Shenandoah* (1890), the *Susquehanna* (1891), and the *Roanoke* (1892). The *S. D. Carleton*, a Down Easter and a full-rigged three-masted ship of 1,788 tons, was built by Carleton, Norwood & Company, Rockport, Maine, in 1890. Bath built 5 other square-riggers in 1890-1892 (1 three-masted

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ship and 3 three-masted and 1 four-masted barks). In 1893 the building of wood square-riggers ceased for all time in the United States with the construction of the little, unfortunate bark *Holliswood* of 1,141 tons at East Boston and the building of the fine and last Down Easter, the *Aryan* of 2,123 tons, by Minott at his Phippsburg yard, located a few miles below Bath, on the Kennebec River. Of the 326 square-riggers mentioned in the before-stated table built during the years 1860-1902 inclusive, the number of vessels constructed during each of the various years prior to 1898 is set forth herewith. In 1898, 1 steel vessel was built; in 1899, 3; in 1900, 1; in 1901, 2; and in January 1902 the *Atlas*, the last square-rigged sailing vessel built in the United States, was launched into the Kennebec River at Bath, Maine (the most famous wood shipbuilding city in the world), by Arthur Sewall & Company for the Standard Oil Company.

Year	Number of Ships	Year	Number of Ships	Year	Number of Ships	Year	Number of Ships	Year	Number of Ships
1860	2	1869	20	1878	12	1887	—	1896	—
1861	2	1870	14	1879	6	1888	—	1897	—
1862	5	1871	6	1880	5	1889	—	1898	—
1863	4	1872	7	1881	10	1890	4	and	—
1864	9	1873	10	1882	16	1891	3	1899	4
1865	8	1874	29	1883	16	1892	2	1900-	—
1866	12	1875	27	1884	7	1893	2	1902	—
1867	7	1876	25	1885	5	1894	1	incl.	4
1868	11	1877	31	1886	—	1895	—		

The following table shows the number of the 373 clippers and reputed clippers (pages 1659-1671) built in the United States during each of the years. The period of activity in the construction of clipper ships was 1850-1856 inclusive, with a large number (222) built in the three years 1852-1854 inclusive and 1853 the year of greatest activity with 101 ships. Not all the real clippers (as rated by later standards) were built in the fifties and in the so-called "clipper ship decade"; for the *Sea Witch*, one of the fastest ships ever launched and the holder of all-time sailing records, was built in 1846, the *Rainbow* in 1845, and the historic *Oriental*, the pioneer clipper in the China-Britain tea trade, in 1849.

Year	No. of Clippers Built	Year	No. of Clippers Built	Year	No. of Clippers Built	Year	No. of Clippers Built
Prior to 1845	—	1847	3	1852	61	1856	27
1845	2	1848	6	1853	101	1857	5
1845	1	1849	6	1854	60	1858	4
1846	2	1850	16	1855	34	1859	1
		1851	44				

Not all of the fast Cape Horn sailing was performed by the clippers built in the fifties. The *Seminole*, a "half clipper" launched in July 1865 at Mystic, Conn., on her maiden voyage ran from New York to San Francisco in only 98 days, and she made three westward Cape Horn passages in from 112 to 114 days and three eastward runs from San Francisco to New York in 94, 96, and 97 days, respectively. Several Boston-built square-riggers constructed in the late sixties and the seventies were fast sailers, carried well, and were known as "half clippers"; but the best of the Down Easters built in the later seventies and early eighties made as good passages as the Boston "half clippers," carried more cargo, and even challenged the average sailing performance of most of the clippers of the fifties in the Cape Horn trade. The *Seminole* averaged 126 days on her twenty direct westward Cape Horn passages (fastest, 98 days) and 109 days for her sixteen direct runs east to North Atlantic ports (best, 94 days to New York). The Down Easter *Jabez Howes*, built on the Merrimac in 1877, averaged

126½ days on her seventeen westward Cape Horn passages to San Francisco and 110 days on her runs east to New York or Europe (best, 95 days to New York). The Down Easter *A. G. Ropes*, built at Bath, Maine, in 1884, made westward Cape Horn runs to California in 104 and 107 days, and her slowest passage occupied 138 days; eastbound, she made a run from San Francisco to New York in 93 days. The queen of all Down Easters and of all post-clipper merchant sail was the *Henry B. Hyde*, built by John McDonald at Bath in 1884. This ship made a westward Cape Horn passage to California in 105 days and had three runs averaging 107 days and four averaging 108 days. The average length of all her fourteen passages westbound to San Francisco—some under most adverse conditions of wind and sea—was 124 days, which included her long run of 153 days against head winds most of the way and in severe gales off the Horn. Eastbound, the "*Hyde's*" average of all her eleven passages was 107 days, and excluding a run of 135 days made in very bad winds and seas, the average was 104 days, with passages to New York of 88 and 94 days. The fast clippers *Sea Serpent* and *Herald of the Morning* are each credited with making fourteen outward passages to San Francisco, but the average time of the runs of each of these fine clippers was about 125 days, or one day longer (for the same number of passages) than that of the much fuller Down Easter *Henry B. Hyde*, built in 1884, at the end of the construction era of real Down Easters.

Half Clippers — 1865-1876

Following the Civil War and during the period 1865-1876 inclusive, a type of vessel was built in and around Boston, Mass. (also at Mystic, Conn.), that could be described as a "postwar half clipper." Certain Boston shipowners and shipbuilders were so conscious of the glory of the American clipper ship era, during which Boston became the leading shipbuilding center of the United States, that they were reluctant to follow the lead of the state of Maine in the production and operation of rather full-bodied but well-modeled and canvased Down Easters, which were making money for their owners. The Boston shipbuilders, therefore, constructed a compromise type of full-rigged ship, in which they sought to retain many clipper characteristics and obtain a speed close to that of the medium clippers built during the last half of the clipper ship decade (1855-1859 inclusive) while obtaining a cargo-carrying capacity about midway between that of the late period clipper and the Down Easter, which Bath, Maine, shipbuilders and shipowners had been advocating, constructing, and operating with great success for many long years.

The Boston postwar half clippers were generally fast and good-looking square-riggers of fair carrying capacity. Under certain favorable conditions when handling cargoes in trades for which they were fairly well adapted, several of the best of the ships of this type made money for years, but gradually their speed proved to be unable to carry them in successful competition with the greater revenue-earning and fuller-hulled Down Easters, the model and speed of which steadily improved during the sixties, seventies, and early eighties and the cost of operation and maintenance of which was materially less. For many years, a few of the best of the Boston postwar half clippers were continued in operation through the pride of their owners, and there was a certain amount of competition between three Boston shipping firms in the trim appearance and speed performance (rather than in the profit-making) of their outstanding and impressive-looking "commercial yachts."

The following is a list of nine noteworthy postwar half clippers truly representative of the type built during the years 1865-1876 inclusive. Only the *Sovereign of the Seas II* of the

vessels stated was an admittedly slow sailer, and this vessel, ordered of Donald McKay to be "an improved *Seminole*," failed to measure up to the requirements of the class. While the *America* was considered "a splendid ship" of this type and "quite fast," a sister ship, the *Triumphant*, launched at the same yard ten months before her, and the *Red Cloud*, said by her builder to be "a third sister and constructed from the same lines" three years after the *America*, did not equal the *America* in the uniform quality of their sailing performances (although the *Triumphant* made some phenomenally fast short runs), nor were they kept in the same yacht-like condition reflecting the pride of ownership evidenced in the appearance and handling, for several years, of such ships as the *Great Admiral*, *North American*, *South American*, and *America*.

Name of Ship	Year Built (launched)	Builder	Owner	Net Tonnage	Length	Beam	Depth
					<i>Feet</i>	<i>Feet</i>	<i>Feet</i>
SEMINOLE	1865 (July)	Maxon, Fish & Co., Mystic, Conn.	Lawrence Giles & Co., New York	1,439	196	41.6	25
SONORA	1868 (Aug.)	Robert E. Jackson, East Boston, Mass.	William F. Weld & Co., Boston, Mass.	1,535	212	39	25
SOVEREIGN OF THE SEAS II	1868 (Nov.)	Donald McKay, East Boston, Mass.	Lawrence Giles & Co., New York	1,443	199.5	41	23.9
GREAT ADMIRAL	1869 (Apr.)	Robert E. Jackson, East Boston, Mass.	William F. Weld & Co., Boston, Mass.	1,497	215.6	40.2	25.6
GLORY OF THE SEAS	1869 (Oct.)	Donald McKay, East Boston, Mass.	J. Henry Sears & Co., Boston, Mass.	2,009	240.2	44.1	28.6
NORTH AMERICAN	1873 (Jan.)	Curtis & Smith, East Boston, Mass.	Henry Hastings & Co., Boston, Mass.	1,584	220	41	24
TRIUMPHANT	1874 (Jan.)	George Thomas, Quincy, Mass.	Thayer & Lincoln, Boston, Mass.	2,046	240	43	27.5
AMERICA	1874 (Nov.)	George Thomas, Quincy, Mass.	Thayer & Lincoln, Boston, Mass.	2,054	233	43	28
SOUTH AMERICAN	1876 (Sept.)	Smith & Townsend, East Boston, Mass.	Henry Hastings & Co., Boston, Mass.	1,694	227.5	41.6	25.2

Other ships built by George Thomas (the builder of the famous extreme clipper *Red Jacket* at Rockland, Maine, in 1853) at Quincy, Mass., in the seventies were classed by him as "half clippers." Among such vessels was the *Northern Light* of 1,795 tons, launched in December 1872 and purchased from the builder by W. F. Weld & Company, of Boston, which operated her for three years and sold her at a good price for trade with the Far East after she had failed to show speed under its flag in her four voyages as a Cape Horner, her average for four westward passages being 142 days (best, 128 days). Yet the famous Capt. Joshua Slocum, who sailed alone around the world in the 12-ton sloop *Spray* in 1895-1896 and was the skipper of the *Northern Light* for several years, wrote of her: "My best command was that of the magnificent ship *Northern Light* of which I was part owner. I had a right to be proud of her, for at that time—in the eighties—she was the finest American sailing vessel afloat."

Both Newburyport, Mass., and Mystic, Conn., built some fast ships in the late sixties or seventies that were referred to by either their builders or owners as "part clippers" or "half clippers." The *Jabez Howes* of 1,581 tons, laid down by John Currier, Jr., at Newburyport, Mass., in early 1876, but not launched until October 1877, was bought by George Howes & Company, of New York and San Francisco, soon after launching and described by this firm as "part clipper and of the same type of ship as the Boston-built *Great Admiral* [1869], *North American* [1873], and *South American* [1876]." However, Currier, the designer and builder of the *Jabez Howes*, referred to her as a well-built and slightly improved *Far-*

ragut (1,549 tons; launched September 1876; owned by Thayer & Lincoln, Boston) and as "a rather lean ship, which should carry good cargoes and make fast passages." Later, the *Jabez Howes* was referred to as "no half or part clipper, but a well-designed and built modern 'Down Easter,' much smaller, but comparable in design and quality with such Bath-built ships as the *Henry B. Hyde*, *A. G. Ropes*, *S. P. Hitchcock*, etc."

The following is a record of the sailing performances of the before-mentioned "postwar half clipper" ships.

(a) *Seminole*

The *Seminole* was built specially for the California trade, and until she was sold to Pacific Coast owners in 1887 when twenty-two years of age, all of her outward passages were from New York to San Francisco. She made twenty-one westbound runs all told around Cape Horn, but on one of these (in 1868) she was dismasted and was over three months at St. Thomas undergoing repairs. The average elapsed time of the twenty direct passages was 126 days, the fastest being her maiden run of 98 days and the slowest her final run of 155 days; three of these passages were made in from 112 to 114 days and nine in from 120 to 130 days. The *Seminole* was unusually fortunate in rounding Cape Horn, her average for this portion of the westward passage being only 17 days. The fastest time made on one voyage from the equator in the Atlantic to the equator in the Pacific was 54 days.

The following table shows the fastest and the slowest sailing times of the *Seminole* between certain points on the westbound run and the total of such times, all as compared with the actual time between similar points on her record complete run, which was her maiden voyage. The totals given for the fastest and for the slowest runs are for all of her voyages and not for any one passage.

	Fastest Runs	Slowest Runs	Maiden Voyage
From New York to the equator (Atlantic)	21 days	50 days	23 days
From the equator to 50° S. (Atlantic)	22 days	35 days	22 days
From 50° S. Atlantic to 50° S. Pacific (rounding Cape Horn)	8 days	25 days	14 days
From 50° S. Pacific to the equator	18 days	33 days	22 days
From the equator (Pacific) to San Francisco	(twice) 17 days	37 days	17 days
Total	86 days	180 days	98 days

The *Seminole* made seventeen passages from San Francisco to New York, during one of which (1870-1871) she was forced to put into Valparaiso for repairs. The average of the sixteen direct runs is 108 days. Three were made in 94, 96, and 97 days, respectively, and the two longest in 119 days each. She made one passage to Queenstown from San Francisco in 101 days and two to Liverpool in 116 days and 112 days, respectively.

In 1868-1869 the *Seminole* made the run from the Golden Gate to New York and return in company with many reputed fast sailers. On January 6, 1869, she reached New York, 106 days from the Golden Gate, arriving there at about the same time as the *Black Hawk* (a medium clipper), which had made the passage in 102 days; *Favorita*, in 103 days (her record run); *Robin Hood* (a clipper), in 118 days; *Sacramento*, in 121 days; and as the *Star of Hope*, in 122 days. On the return voyage to San Francisco, rounding the Horn westbound, the *Seminole* made the passage in 114 days from New York, beating the *Black Hawk* by seventeen days, the *Favorita* by twenty-one days, and the *Robin Hood* by fifteen days. The length of the eastward and westward Cape Horn passages and the total length of time at sea of the four fastest ships making the round voyage from San Francisco to New York and return in 1868-1869 were as follows:

Passage	Length of Passages in Days			
	SEMINOLE	BLACK HAWK	FAVORITA	ROBIN HOOD
Eastbound—San Francisco to New York	106	102	103	118
Westbound—New York to San Francisco	114	131	135	129
Total voyage—days at sea	220	233	238	247

In 1876 the Bath-built Down Easter *M. P. Grace* beat the *Seminole* by ten days on the westward Cape Horn run to California, but the following year the *Seminole* made the passage over the same course in seven days better time than the *M. P. Grace*. In 1874 the *Seminole* beat the McKay-built half clipper *Glory of the Seas* by six days in a European grain trade run from San Francisco eastward around the Horn, and two years later the "*Glory*" proved her "class" as a sailer in this trade by beating the *America* by twelve days and the *Triumphant* by fifteen days in runs over this same course.

For many years, the *Seminole* was owned by George Howes & Company, of New York and San Francisco, but this firm was liquidated in 1880, and John Rosenfeld, of San Francisco, took over the vessel. In 1887 she was sold to A. M. Simpson & Bro., of San Francisco. Her spars were cut down; she was made bark-rigged and operated in the coal trade between Puget Sound and San Francisco. Later, she took many cargoes of lumber to South America and Australia. In 1898 the *Seminole*, when thirty-three years old, was again sold (for \$2,500) to go to the Alaska fishing canneries, but her condition, following a survey, was considered "unsatisfactory for deep-sea work," and she was branded "unseaworthy." Nevertheless, she took a cargo of lumber out to Australia, where after arrival she became a storeship at Adelaide.

Captain Weedon, who commanded the *Seminole* on the Pacific Coast when she operated as a bark in the coal trade, claimed that in her old age she logged 52 miles in four hours, or 13 knots per hour. The story is told that, when she was loaded at Newcastle to be towed to Adelaide for her final resting place, "she set her sails and ran away from the power tug and reached Adelaide unaided several hours ahead of her would-be helper."

Capt. Arthur H. Clark has said that during the approximately half century between the close of the Civil War and the end of sail, "a large number of sailing ships were built for the California trade, and it is a notable fact that only two of all these vessels [and both were half clippers] made the passage from an Atlantic port to San Francisco in less than 100 days." And, further, "The *Seminole*, built by Maxon & Fish at Mystic, Connecticut, in 1865, arrived at San Francisco from New York March 10, 1866, in 96 days, and the *Glory of the Seas*, the last ship built by Donald McKay, made the same voyage arriving at San Francisco January 18, 1874, in 94 days." Captain Clark credits the *Seminole* with a run of 96 days and the *Glory of the Seas* with a passage of 94 days. Actually, it would seem that these runs were made in 98 days and 96 days, respectively, port to port, but still they are runs below the limit mentioned by him of 100 days.

(b) *Sonora*

When the *Sonora* of 1,535 tons was built in 1868, she was described by her builder, Robert E. Jackson, East Boston, as "a good carrying ship with medium clipper lines designed to make good passages and with low operating costs she should prove to be a very profitable investment." She was generally used by her owner, W. F. Weld & Company, Boston, in the California trade, but as a Cape Horn around-the-world trader sailing westward, and only once (on her last voyage) did she make an eastward rounding of the Horn.

The *Sonora* made six outward passages, all from New York to San Francisco, which averaged 125 days, the fastest run being made in 114 days. On the first five voyages, the ship continued by way of Manila (either direct or via China) and a rounding of the Cape of Good Hope homeward, sailing westward and circumnavigating the globe. On one occasion,

she ran from San Francisco to Manila direct in 44 days, and her best run from the California port to Hong Kong was made in 43 days or, deducting a day's stop at Honolulu en route, a scant 42 days net.

The *Sonora* was lost by collision at sea within sight of her destination as she was completing the last passage of her sixth voyage and her first eastward around-the-Horn run. She had left San Francisco May 6, 1876, and in the late evening of August 30, when 116 days out, she was off Holyhead approaching Liverpool in tow of a tug when a Spanish steamer, ignoring the lights, attempted to cross between the tug and her tow, parted the towing line, and was rammed by the *Sonora*. The steamer was hit amidships and sank, and the ship, with her bow "burst open," soon followed. The officers and crew of the *Sonora* showed as much courage and resourcefulness in the emergency as the captain and men on the Spanish steamer showed cowardice and incompetence, and it was only by the bravery on the part of the crew of the *Sonora* that the loss of life on the Spanish steamer was kept down to only one boy, all the remaining people on both vessels making shore safely in small boats.

(c) *Sovereign of the Seas II*

The American ship *Sovereign of the Seas II*, launched by Donald McKay at East Boston, Mass., in November 1868, was also known internationally as *Sovereign of the Seas IV*. In addition to the original American "*Sovereign*," a truly great vessel built by McKay in 1852 and lost in 1859, there was "an old Carolean" British ship and also a Canadian-built British-Australian "colonial clipper" of 1,226 tons (lost by fire at Sydney on September 1, 1861) that bore the same name. It is strange that the records of McKay, as a leading American wood ship designer and builder, generally omit mention of the *Sovereign of the Seas II*, and it is evident from her service performance and McKay's attitude that her designer-builder was not pleased with his product. McKay's second *Sovereign of the Seas* (of 1,502 tons gross and 1,443 tons net measurement) was McKay's first attempt at a grain carrier, and both McKay and the ship's owner, Lawrence Giles & Company, of New York, referred to the "*Sovereign*" when building as "an improved *Seminole*"—which she positively was not as far as sailing performance is concerned. The *Sovereign of the Seas* was a powerful and rather impressive-looking ship, but it takes more than an appearance of "power with fair lines" (with which the "*Sovereign*" was credited) to make speed. The fastest westward Cape Horn run ever made by the *Sovereign of the Seas* (138 days) in eleven passages to San Francisco was forty days longer than the 98-day maiden passage of the *Seminole* over the course.

All of the passages of the *Sovereign of the Seas II* when under American registry were between New York, San Francisco, and European North Atlantic ports. She completed eleven such voyages, of which the average of the westward Cape Horn runs (to San Francisco) was 156 days, the shortest being 138 and the longest 215 days. If we omit the 215-day "hard-luck" voyage, the average of the other ten runs is 150 days. Eastbound, she naturally made better time, but her average passage from San Francisco to North Atlantic ports was 127 days and her best run, 114 days. The 215-day passage around the Horn westbound commenced with the "*Sovereign's*" leaving New York on March 1, 1872. She encountered a heavy gale the second day out and suffered damage to the rudderhead as well as sails. She put back to New York and was ten days making port. With repairs completed, the voyage was resumed, but in Lat. 33° South Atlantic her mainmast was seriously damaged, and the vessel put about for Rio de Janeiro, where she stayed six weeks for repairs. Proceeding on her voyage around Cape Horn, she had more trouble, but she finally arrived at the Golden Gate 100 days out from Rio and 215 days from New York—dating from her second departure from that port.

The average all-time speed of the *Sovereign of the Seas II* in the New York-San Francisco, around-Cape Horn westbound service was only about 4¼ knots per hour. She was a disappointing ship to her designer and builder, to her owners, and to both Capt. N. C. John-

son, who was her master for seven years, and Capt. Aaron H. Wood, who continued in command until she was sold to the Germans. Her last voyage as an American ship, in 1883-1884, was a run from New York to Astoria in 160 days and thence to Queenstown "for orders" in 141 days. This is not a sailing performance that the marine fraternity had cause to expect of a McKay-designed and built ship. The "*Sovereign*" was sold in 1884 to J. D. Bischoff, of Bremen, for transatlantic trade and sailed under the German flag for about fourteen years as the *Elvira*, hailing from Vegesack. Worn out by sea work, she was sold when thirty years old to Lewis Luckenbach, of New York, who restored her old name when he converted her into a coal tow barge.

(d) *Glory of the Seas*

Donald McKay's last wood square-rigged sailing ship, the *Glory of the Seas*, was launched from his East Boston yard in October 1869 and followed the *Sovereign of the Seas II* by a year. Both of these vessels were built in an attempt by McKay to rehabilitate himself and resume wood shipbuilding activities "in the realm of fast sail" after he had been out of the field for twelve years. (His last wood square-riggers constructed prior to the "*Sovereign II*" were two transatlantic packets of about 1,350 tons built in 1856.)

The *Glory of the Seas* was built, as were the *Sovereign of the Seas*, *Great Republic*, etc., by McKay on his own account. The burning of the *Great Republic*—only partially insured—in New York prior to her maiden voyage was a major economic blow to McKay, and it is said that the *Glory of the Seas*, McKay's last Cape Horn square-rigger, "busted him." He sold the vessel to J. Henry Sears & Company, of Boston, and others after her first completed voyage, but the price received was reported as "much below her gross cost."

Whereas the *Sovereign of the Seas II* was a pronounced disappointment to both designer-builder and owner and a very definite failure as a sailer, McKay's last ship, the *Glory of the Seas*, made a good sea record during the sixteen-year period 1870-1885, even though she was laid up as "unprofitable to operate" at San Francisco from November 1882 to March 1885. During this time, her managing owners (Sears & Company, of Boston) failed (in 1884), and their shipping interests were sold. Following the "*Glory's*" twelfth and last westward Cape Horn passage in 1885 (a run from Liverpool to San Pedro, Calif.), she operated in the Pacific coastwise coal trade until 1902, when Capt. Joshua S. Freeman and associates, who had bought her from Sears & Company, of Boston, in 1885, sold her to the Seattle Shipping Company. Her last voyage under canvas was in 1907-1908 from Puget Sound to the West Coast of South America and return (Barneson & Hibbard, owners), following which, after a lay-up, she was sold to fishery interests as a tow barge and, later, was used as a cold storage hulk. The vessel, following further years of lay-up, was finally burned for her metal on the beach about five miles from Seattle, Wash., on May 13, 1923.

The *Glory of the Seas* was a medium clipper and measured 2,102 tons gross and 2,009 tons net registered tonnage. The ship carried a big spread of canvas and was loftily sparred, with a main yard 96 ft. long. She had a flat floor (only 8½ in. deadrise), a big midship section, full top sides, and a 7-ft. sheer. In her sailing days in the around-the-Horn trade, the *Glory of the Seas* had the reputation of being "a fair sailer and a good ship," but she was not considered as the "very fast ship and record-breaker" that modern writers, boosting McKay's product, would have one believe. It was well said by Frederick C. Matthews in 1931: "While she did make good passages, yet facts do not justify the extravagant praise bestowed. . . . On the fast passages of the *Glory*, she did not attain any high speed nor make any great day's runs, but her log books show that she generally met with favorable winds and weather, allowing her to keep close to her course, besides which practically no delays were had in the doldrums of 'the tropics.'" In other words, she was a lucky ship.

The following is a record of the voyages made and of the sailing performance of the *Glory of the Seas*:

Passages around the Horn between North Atlantic and California Ports

Westbound				Eastbound			
Years	Port of Departure	Port of Destination	Length of Passage in Days	Years	Port of Departure	Port of Destination	Length of Passage in Days
1870	New York	San Francisco	120	1870	San Francisco	Queenstown	112
1871-1872	Cardiff	San Francisco	120	1871-1872	San Francisco	Liverpool	112
1872-1873	Liverpool	San Francisco	120	1872-1873	San Francisco	Liverpool	128
1873-1874	New York	San Francisco	96	1873-1874	San Francisco	Liverpool	118
1874	Liverpool	San Francisco	131	1875-1876	San Francisco	Liverpool	133
1876-1877	Liverpool	San Francisco	114	1876-1877	San Francisco	Liverpool	103
1877-1878	Liverpool	San Francisco	144	1877-1878	San Francisco	Liverpool	107
1878-1879	Liverpool	San Francisco	153	1878-1879	San Francisco	Queenstown	111
1880	New York	San Francisco	118	1880	San Francisco	Queenstown	120
1881-1882	Cardiff	San Francisco	120	1881-1882	San Francisco	Havre	131*
1882	New York	San Francisco	120	1885	San Francisco	Liverpool	117
1885	Liverpool	San Pedro (Los Angeles)	121				
1870-1885	4 runs New York-San Francisco 5 runs Liverpool-San Francisco 2 runs Cardiff-San Francisco 1 run Liverpool-San Pedro			1870-1885	7 runs San Francisco-Liverpool 3 runs San Francisco-Queenstown 1 run San Francisco-Havre		
	12—total passages; average, 123½ days				11—total passages; average, 117½ days		

* The time stated in 1881-1882 on the passage from San Francisco to Havre of 131 days is net sailing time; the ship spent three months at Valparaiso undergoing necessary repairs, and on resuming the voyage she made the passage thence to Havre in 77 days.

It is surprising that the westward runs from British ports to California were so long in relation to the passages from New York. Eastbound, all of the runs were to Europe, but three of them were to the nearer Irish port of Queenstown "for orders." The range of length of direct passages was from 96 days to 153 days westbound (a difference of 57 days) and from 103 days to 133 days eastbound (a difference of 30 days).

In 1874-1875 the *Glory of the Seas* made a passage from San Francisco to Sydney in 35 days (light) and returned from Sydney to San Francisco in 53 days. The run outbound to Sydney was noteworthy, but conditions were extremely favorable; if the vessel had been less cranky, more sail could have been carried and still better speed made.

The following is an abstract of each of the Australian runs—outward and homeward:

San Francisco to Sydney

Sailed March 14, 1875; hove up anchor 6:30 A.M.; dropped pilot 9:30 A.M.

No. of Full Week of Sailing	Nautical Miles		
	Distance Sailed during Week	Best Day's Run	Average Day's Run
First	1,606	278	229¾
Second	1,436	236	205¼
Third	1,231	238	175¾
Fourth	1,801	284	257¾
Fifth	952	149	136

Arrived Sydney May 19, 1875, after passage of 35 days 5 hours, pilot to pilot; 35 days 11 hours, anchor to anchor.

Total distance sailed.....7,026 miles.

Distance made good.....6,884 miles.

Average rate of sailing.....8½ knots per hour.

MERCHANT SAIL

Sydney to San Francisco

Sailed April 4, 1875; left Sydney Head at 9:30 A.M.

No. of Full Week of Sailing	Nautical Miles		
	Distance Sailed during Week	Best Day's Run	Average Day's Run
First	766	184	109 $\frac{3}{4}$
Second	1,096	204	156 $\frac{1}{2}$
Third	1,630	263	232 $\frac{3}{4}$
Fourth	1,516	243	216 $\frac{1}{2}$
Fifth	1,113	192	159
Sixth	1,240	207	177 $\frac{1}{2}$
Seventh	876	192	125 $\frac{1}{2}$
Eighth (part)	660	256	

Arrived at San Francisco July 26, 1875, after passage of 53 days.
 Total distance sailed..... 8,897 miles.
 Distance made good..... 8,613 miles.
 Average rate of sailing..... 6 $\frac{3}{4}$ knots per hour.

The following details of the 96-day passage made by the "*Glory*" in the Cape Horn westbound service, which was by far her best sailing performance in that trade, are taken from the vessel's official log:

*New York to San Francisco*Sailed from New York October 13, 1873; left anchorage
10:00 A.M.; off Sandy Hook 12:00 noon.

No. of Full Week of Sailing	Nautical Miles		
	Distance Sailed during Week	Best Day's Run	Average Day's Run
First	1,208	252	172 $\frac{1}{2}$
Second	1,019	188	145 $\frac{1}{2}$
Third	1,160	231	165 $\frac{3}{4}$
Fourth	903	214	129
Fifth	1,129	210	161 $\frac{1}{2}$
Sixth	1,119	220	159 $\frac{3}{4}$
Seventh	1,233	261	176 $\frac{1}{2}$
Eighth	590	194	84 $\frac{1}{2}$
Ninth	1,531	228	218 $\frac{3}{4}$
Tenth	1,271	228	181 $\frac{1}{2}$
Eleventh	1,301	202	185 $\frac{3}{4}$
Twelfth	1,334	237	190 $\frac{1}{2}$
Thirteenth	974	181	139 $\frac{1}{2}$

On 93rd day out made 166 miles; on 94th day in very heavy favorable winds covered 300 miles (the best day's run of the voyage); then hove to; at noon of 95th day from New York was off San Francisco Bar; stood off all night and next morning and entered port after a passage of 96 days.

Total mileage as stated in log..... 15,344 nautical miles.

Average daily run (as reported)..... 161 $\frac{1}{2}$ nautical miles.

Average speed per hour..... 6.72 knots.

The log reports: "Crossed the line 27 days out. Crossed 50° S. in the Pacific 60 days out, having made the Cape Horn run in 11 days, sailing 1,380 miles at an average of 5 $\frac{3}{4}$ knots; crossed the line (Pacific) 78 days out, 18 days from Latitude 50°."

On this passage, the "*Glory*" was unusually benefited by favorable winds, and sailing conditions when rounding Cape Stiff were ideal for that part of the world. In the North Pacific, she ran from the line to port in 18 days. She carried the S.E. trades in the Pacific all the way up to Lat. 6° N., where she picked up the N.E. trades, which held to Lat. 24° N.;

then she had moderate to light winds from N.E. to N.N.E. On the 93rd day, the wind shifted to the S.E. and blew hard. The ship made her best speed of the passage as she approached the Golden Gate, where she arrived off the bar on the afternoon of the 95th day, obtaining a pilot and entering the harbor the next morning. Her best day's run was 300 miles, or a speed of 12½ knots per hour; best week's run averaged 218.7 miles per day, or a speed of 9.1 knots per hour; poorest week's run averaged 84.4 miles per day, or a speed of 3.5 knots per hour.

The following are some comparisons between the passages made by the *Glory of the Seas* in the California-Europe grain trade and those of other ships of her class leaving San Francisco about the same time:

1870: In the passage of 112 days, she reached Queenstown one day ahead of the *Black Hawk* and two days ahead of the *Charger*.

1872: In the run of 112 days to Liverpool, she beat the "smart little" British ship *La Escocesa* by ten days, but was in turn defeated by the *Young America*, which made the run to the Mersey in 104 days.

1873: The following comparison tells the story: *Glory of the Seas* left 'Frisco January 15; arrived Liverpool 128 days out.

John Duthie left 'Frisco January 18; arrived Liverpool 122 days out.

Montgomery Castle left 'Frisco January 21; arrived Liverpool 122 days out.

The *John Duthie* sailed three days after the "*Glory*" and arrived three days before her; the *Montgomery Castle* sailed six days behind the "*Glory*" and caught up with her in the Mersey.

1874: The records of the owners show that the "*Glory*," making a passage of 118 days, was beaten six days by the *Seminole* and fifteen days by the *Ericsson*. Lubbock says, however, that during the period from February 20 to March 12 four ships of a generally similar class left San Francisco with grain for Liverpool, their times being:

Ericsson sailed February 20; arrived June 3; passage 103 days.

Glory of the Seas sailed February 26; arrived June 24; passage 118 days.

Wasdale sailed February 27; arrived June 24; passage 117 days.

Young America sailed March 12; arrived June 23; passage 103 days.

The heroine of this race, *Young America*, was off Cape Clear on the 98th day out; then had a dead beat up the Irish Channel. She overhauled

both the *Glory of the Seas* and the *Wasdale* in this stretch, her report showing that she "passed twenty ships one day and nineteen the next, all close-hauled on the starboard tack."

1875-1876: Following a poor run of 133 days from San Francisco to Liverpool in 1875-1876, the *Glory of the Seas* made her best run of 103 days in the San Francisco-Europe grain trade. It was claimed that in making this fine passage "the '*Glory*' beat the '*America*' 12 days, the '*Triumphant*' 15 days, besides a number of other American ships by a greater extent, and the first-class British ship *City of Perth* 5 days and the *Brodick Castle*, *Seaforth*, *City of Nankin* and others by a month or more." However, if true, this tells only part of the story, for two other vessels in the grain trade which also sailed from San Francisco with the "*Glory*" in October 1876 bested her record. The British composite ship *Hawkesbury* made a run to Havre in 100 days, and "the unconquerable" *Young America* occupied only 99 days, or 4 days less than the *Glory of the Seas*, in her run to Liverpool.

1879: In this year the "*Glory*" was beaten by the *St. Stephen*, which reached Liverpool on July 28, the same day that the *Glory of the Seas* made Queenstown, the former ship being only 101 days out as against the "*Glory's*" 111 days for the shorter distance. The owners admitted that the "*Glory*" was beaten by the *St. Stephen* 11 days, but they claimed that she "beat a number of other ships, including the *Challenger* and *Josephus*, each by 15 days and the *Frank Pendleton* by 5 days."

1885: In this year the "*Glory*" was beaten in the grain run by the *Sutherlandshire*, 12 days; *Brodick Castle*, 8 days; *Troop*, 7 days; and *C. F. Sargent*, 6 days; "but she beat a number of other British and some American ships from 7 to 27 days."

A much publicized "race" was the encounter between the "*Glory*" and the British iron ship *Langdale*. Both vessels sailed from Liverpool August 13, 1874, bound for San Francisco. They met in the Straits of Le Maire on October 8 and two weeks later were close to each other for three days. Both ships made long passages, the *Glory of the Seas* arriving at San Francisco on December 22, after a run of 131 days and one day ahead of the *Langdale*. At the close of the voyage, Captain Jenkinson of the British ship took exception to the published memorandum of the "*Glory*," and Captain Knowles of the American ship replied with a

card to the newspapers, stating, "If it will satisfy the Captain of the *Langdale*, I will say that whenever I raised his ship, she was astern of the *Glory* but came up and passed her. When I got to San Francisco there was no *Langdale*, but as the passages of the ships were 131 and 132 days respectively, I think that is sufficiently long to prevent any discussion as to the great speed of either." The shipping fraternity agreed with Captain Knowles that "there was no glory for either the *Glory* or the *Langdale* in a passage that showed an average speed of only 5 knots per hour."

(e) *Great Admiral*

The *Great Admiral*, named after Admiral David Glasgow Farragut, was "an unusually good medium-lined clipper" that was launched by Robert E. Jackson on April 10, 1869, at East Boston, Mass. She measured 1,575 tons gross and 1,497 tons net, and it is said, "Her ends were quite long, and her deadweight cargo capacity was about one-third in excess of her net registered tonnage." The *Great Admiral* was unusually well and strongly built as well as impressive looking and "for many years was conceded to be the finest wooden merchant ship afloat." She set 7,889 yards of canvas and was known as "loftily sparred with a big sail spread." This fine full-rigged ship had sharp lines following "medium clipper" tradition of the late 1850's. The vessel's relatively low revenue-producing power was, however, partly due to the fact that she was very heavily built "in the strongest possible manner" under the supervision of Naval Constructor W. H. Varney, "who framed, planked, and braced her as if he was building a man-of-war" and then sparred her heavily as well as loftily. It was boasted, "In her frame were 343 tons of hardwood, and 105 tons of iron, 20 tons of copper, and 253 hogsheads of salt were used in her construction." The *Great Admiral* was owned and operated by William F. Weld & Company, of Boston, Mass., for about twenty-eight years, being sold in March 1897 to Capt. E. R. Sterling, who operated her in the Pacific coal and lumber trade for approaching ten years more. The vessel was lost at sea on December 7, 1906, after a sea life of about thirty-seven and a half years.

The sailing record of the *Great Admiral* while owned by Weld & Company during the twenty-eight-year period 1869-1896 inclusive is of great interest, as it shows the speed of a first-class "half clipper-modeled and sparred" wood full-rigged sailing ship in the seventies, eighties, and nineties. During this period, she covered a distance of 726,923 nautical miles in 5,364 sailing days, an average of 135.5 miles per day and an average speed at sea for the recorded voyages—as well as for short runs between ports under canvas—of twenty-seven years of 5.65 knots per hour. (No records are available for the vessel's sailing performances during the year 1877, but it is said that in that year she covered about 33,000 miles in some 240 sailing days. The total distance traveled at sea under canvas flying the Weld flag is said to have been 760,000 miles, an average of about 27,200 miles per year at sea during 200 sailing days, or 136 miles per day, at an average speed of $5\frac{2}{3}$ knots per hour.) The greatest distance sailed in any one day was 305 miles (12.7 knots per hour). In ten days she accomplished some good, uniform, fast sailing, the individual day's runs being 288, 295, 257, 240, 302, 304, 258, 259, 266, and 266 miles, respectively, a total of 2,735 miles and an average of 273.5 miles per day (11.4 knots per hour), with the best day's run 304 miles and the poorest 240.

The *Great Admiral* broke no records, but she proved to be a reliable vessel and did a lot of good sailing, some sections of her runs being covered "in remarkably short time." One authority has said, "Several of her passages were very close to the fastest time ever made." A study of the sailing performances for this first-class half clipper is of interest, as the records clearly show the speed actually attained in service on the Seven Seas during the years 1869-1896, under various captains and sailing conditions, and as the age of the vessel increased. The following is a record of the voyages made by the *Great Admiral*, which is believed to be complete up to and including 1896 except for the year 1877, for which no authentic data are available:

Service	Total Number of			Average		
	Passages	Days of Sailing	Nautical Miles Covered	Length per Passage in Days	Mileage per Day	Speed Knots per Hour
New York-San Francisco	7	853	113,003	121 $\frac{1}{7}$	132.3	5.5
Hong Kong-San Francisco	7	346	45,902	49 $\frac{3}{7}$	132.7	5.5
San Francisco-Hong Kong	5	245	37,597	49	153.5	6.3
San Francisco-Manila	4	176	29,448	44	167	6.9
New York-Melbourne	4	349	55,706	87 $\frac{1}{4}$	161.5	6.6
Manila-New York	3	329	40,112	109 $\frac{3}{8}$	124	5
San Francisco-Queenstown	3	337	45,997	112 $\frac{1}{8}$	136.5	5.7
San Francisco-Liverpool	2	227	32,389	113 $\frac{1}{2}$	143	6
Cardiff-Hong Kong	2	228	30,776	114	135	5.6
Hong Kong-New York	2	199	28,336	99 $\frac{1}{2}$	142	5.9
Newcastle-Hong Kong	2	88	10,868	44	123.5	5.6
Havre-New York	2	61	6,900	30 $\frac{1}{2}$	113	4.7
Hong Kong-Manila	2	15	1,335	7 $\frac{1}{2}$	89	3.7
Melbourne-Newcastle	2	14	1,200	7	86	3.6
Queenstown-Havre	2	12	903	6	75.5	3.2
Miscellaneous single voyages	22	1,839	242,008	83.6	131.5	5.5
Miscellaneous single short runs	9	46	4,443	5.1	97	4.0
Total and averages	80	5,364	726,923	67 $\frac{1}{2}$	135.5	5.65

The following is a record of the *Great Admiral* under her different commanders:

Name of Captain	Years in Command	Days at Sea	Distance Covered Under Canvas	Average Nautical Miles per Day
Isaac N. Jackson	1869-1871 and 1873	797	106,696	133.9
William Chatfield	1871-1872 1874-1883	283	37,835	133.7
Benjamin Thompson	and 1885-1886 1883-1884	2,289	310,093	135.5
James F. Rowell	and 1887-1896	1,995	272,299	136.5
Total and average	1869-1896	5,364	726,923	135.5

This record suggests that, as all the skippers of the *Great Admiral* were able commanders, the peculiar skill of any individual captain had but little, if anything, to do with the vessel's good record for reliable steady sailing. It also shows that, as long as Weld & Company owned the ship and kept her in good physical condition, the sailing properties of the vessel did not deteriorate with advancing age. This fact is further proven by the following table of performances for the various years, voyages being tabulated in the year that they were completed:

Year	Days at Sea	Distance Covered Nautical Miles	Average Miles per Day	Average Speed Knots per Hour	Year	Days at Sea	Distance Covered Nautical Miles	Average Miles per Day	Average Speed Knots per Hour
1869	158	23,022	145.8	6.07	1883	221	29,244	132.3	5.51
1870	93	13,288	142.7	5.94	1884	102	14,777	144.6	6.02
1871	406	52,620	129.6	5.04	1885	131	19,764	150.8	6.28
1872	162	22,006	135.8	5.65	1886	137	14,254	104.1	4.34
1873	261	33,595	128.7	5.36	1887	173	25,486	147.3	6.13
1874	238	33,007	138.7	5.78	1888	203	27,835	137.1	5.71
1875	274	37,111	135.4	5.64	1889	141	21,963	155.7	6.48
1876	346	48,549	140.3	5.84	1890	209	28,783	137.7	5.74
1877	No authentic record available				1891	174	20,088	115.4	4.81
1878	164	22,052	134.5	5.60	1892	141	18,364	130.2	5.42
1879	253	35,869	141.7	5.90	1893	149	20,161	135.2	5.63
1880	182	24,527	134.8	5.61	1894	115	17,341	150.8	6.28
1881	259	36,106	139.4	5.81	1895	303	37,714	124.5	5.19
1882	127	17,252	135.8	5.66	1896	242	32,145	132.9	5.54

The total distance covered for the twenty-seven years as stated above is 726,923 nautical miles in 5,364 days at sea, an average of 135.5 miles per day and an average speed of 5.65 knots per hour. The relatively high average of 1899 is due to the fact that in that year all the runs were Pacific Ocean passages.

Passages Westward and Eastward in the Cape Horn California Trade							
Westward				Eastward			
Year	Length of Passage in Days	Mileage	Average Miles per Day	Year	Length of Passage in Days	Mileage	Average Miles per Day
<i>New York to San Francisco</i>				<i>San Francisco to Queenstown "for orders"</i>			
1869	121	15,925	131.5	1873	114	14,160	124
1871	128	15,705	123	1879	111	16,182	146
1871	121	15,829	131	1881	112	15,655	140
1873	114	15,542	136	Average of 3 passages	112	15,332	136.5
1874	125	16,226	130	Average speed covering 45,997 miles was 5.7 knots per hour.			
1876	133	17,486	131.5	<i>San Francisco to Liverpool</i>			
1879	111	16,290	147	1874	113	16,781	148.5
Average of 7 passages	122	16,143	132.3	1876	114	15,608	137
Average speed covering 113,003 miles was 5.5 knots per hour.				Average of 2 passages	113.5	16,195	143
				Average speed covering 32,389 miles was 6 knots per hour.			
Year	No. of Days	Distance Covered	Average Miles per Day	Year	No. of Days	Distance Covered	Average Miles per Day
<i>New York to Melbourne</i>				<i>Newcastle, N.S.W., to Hong Kong</i>			
1885	87	14,178	163	1885	37	4,986	135
1887	73	13,745	188	1891	51	5,882	115
1890	98	13,916	142.5	Average of 2 voyages	44	5,434	123.5
1896	91	13,867	152.5	Average speed covering 10,868 miles was 5.6 knots per hour.			
Average of 4 voyages	87	13,926	161.5	<i>Havre to New York</i>			
Average speed covering 55,706 miles was 6.6 knots per hour.				1873	30	3,503	117
				1879	31	3,397	109.5
<i>Cardiff to Hong Kong</i>				Average of 2 voyages	30.5	3,450	113
1880	107	15,321	143	Average speed covering 6,900 miles was 4.7 knots per hour.			
1883	121	15,455	128	<i>Manila to New York</i>			
Average of 2 voyages	114	15,388	135	1870	89	12,656	145.5
Average speed covering 30,776 miles was 5.6 knots per hour.				1871	114	13,905	122
				1886	126	13,551	107.5
<i>San Francisco to Hong Kong</i>				Average of 3 voyages	110	13,371	124
1869	37	7,097	192	Average speed covering 40,112 miles was 5 knots per hour.			
1888	57	7,661	135	<i>Hong Kong to New York</i>			
1888	51	7,266	142.5	1884	95	14,069	148
1889	49	7,884	161	1890	104	14,267	137
1889	51	7,689	151	Average of 2 voyages	99.5	14,168	142
Average of 5 voyages	49	7,519	153.5	Average speed covering 28,336 miles was 5.9 knots per hour.			
Average speed covering 37,597 miles was 6.35 knots per hour.							
<i>San Francisco to Manila</i>							
1871	43	7,181	167				
1872	44	7,534	171				
1883	43	7,642	178				
1895	46	7,091	154				
Average of 4 voyages	44	7,362	167				
Average speed covering 29,448 miles was 6.9 knots per hour.							

Year	No. of Days	Distance Covered	Average Miles per Day	Year	No. of Days	Distance Covered	Average Miles per Day
<i>Hong Kong to San Francisco</i>				<i>Melbourne to Newcastle, N.S.W.</i>			
1878	38	5,969	157	1885	7	600	86
1880	63	8,193	130	1890	7	600	86
1883	57	6,147	108	Average of 2 voyages	7	600	86
1887	52	6,295	121	Average speed covering 1,200 miles was 3.6 knots per hour.			
1888	56	6,444	115	<i>Queenstown to Havre</i>			
1888	39	6,464	166	1873	3	390	130
1889	41	6,390	156	1880	9	513	57
Average of 7 voyages	49.4	6,557	132.7	Average of 2 voyages	6	452	75.5
Average speed covering 45,902 miles was 5.5 knots per hour.				Average speed covering 903 miles was 3.2 knots per hour.			
<i>Hong Kong to Manila</i>							
1870	4	632	158				
1886	11	703	64				
Average of 2 voyages	7.5	668	89				
Average speed covering 1,335 miles was 3.7 knots per hour							

The following is a list of the single passages made by the *Great Admiral* divided into two groups: (1) passages in excess of 3,000 miles (3,107 to 16,500 miles) occupying from 23 to 130 days; (2) runs of from 240 to 746 miles and requiring from 2 to 8 days to negotiate.

Year	From	To	Number of Days	Distance Covered	Average Miles per Day
1895	Manila	Boston	130	14,826	114
1895	Baltimore	San Francisco	127	15,797	124
1878	San Francisco	Havre	126	16,083	127.5
1882	San Francisco	Dublin	119	16,506	139
1875	Liverpool	San Francisco	115	15,868	138
1872	Iloilo	Boston	115	14,172	123
1881	Philadelphia	Tacoma	111	16,055	145
1875	Cebu	New York	111	14,119	127
1876	Liverpool	Hong Kong	99	15,455	156
1892	Melbourne	Boston	94	13,751	146
1894	Sydney	London	92	14,234	155.5
1893	New York	Sydney	90	14,255	158.5
1896	Hobart	Gibraltar	90	12,868	143
1891	Vancouver	Melbourne	72	8,006	111
1893	Trepani	Boston	59	5,906	100
1891	Hong Kong	Vancouver	51	6,200	121.5
1887	Melbourne	Hong Kong	48	5,446	113.5
1896	Marseilles	New York	48	4,211	83.5
1875	San Francisco	Iloilo	45	6,824	151.5
1892	Philadelphia	Genoa-Leghorn	40	4,163	104
1881	Dublin	Philadelphia	34	4,156	122
1894	London	New York	23	3,107	135
Total and average of 22 single voyages of over 3,000 miles . . .			1,839	242,008	131.5
1882	Tacoma	San Francisco	8	746	93
1896	Gibraltar	Marseilles	8	699	87
1884	Manila	Hong Kong	7	708	101
1892	Leghorn	Trepani	7	450	64
1896	Melbourne	Hobart	5	500	100
1872	Manila	Iloilo	3	300	100
1875	Iloilo	Cebu	3	300	100
1880	Havre	Cardiff	3	500	167
1881	Queenstown	Dublin	2	240	120
Total and average of 9 short runs			46	4,443	97

The number of passages and the average, shortest, and longest length of run made by the *Great Admiral* over the various deep-sea ocean trade routes of the world are set forth herewith:

Passages	Number of Voyages	Long Passage	Short Passage	Average Time
New York to San Francisco	7	133	111	121 $\frac{9}{7}$
All North Atlantic to North Pacific U.S.A. ports	10	133	111	120 $\frac{9}{10}$
San Francisco to North Atlantic European ports	7	126	111	115 $\frac{4}{7}$
San Francisco to Hong Kong	5	57	37	49
Hong Kong to San Francisco	7	63	38	49 $\frac{3}{7}$
San Francisco to Manila	4	46	43	44
San Francisco to Philippine Island ports	5	46	43	44 $\frac{1}{5}$
Manila to New York	3	126	89	109 $\frac{3}{8}$
Philippine Islands to U.S.A. North Atlantic ports	6	130	89	114 $\frac{1}{6}$
British ports to Hong Kong	2	121	99	110
Hong Kong to New York	2	104	95	99 $\frac{1}{2}$
European to North Atlantic U.S.A. ports (transatlantic; westbound) ..	4	34	23	29 $\frac{1}{2}$
Mediterranean to North Atlantic U.S.A. ports	2	59	48	53 $\frac{1}{2}$
New York to Melbourne	4	98	73	87 $\frac{1}{4}$
New York to S.E. Australian ports	5	98	73	84 $\frac{1}{5}$
Newcastle (Australia) to Hong Kong	2	51	37	44
S.E. Australian ports to Hong Kong	3	51	37	45 $\frac{1}{3}$
S.E. Australia to North Atlantic ports	3	94	90	92
Hong Kong to Vancouver, B. C.	1	—	—	51
Vancouver, B. C. to Melbourne	1	—	—	72
Philadelphia to Mediterranean ports	1	—	—	40

(f) *North American*

Between the building of the *Great Admiral* (which was a contemporary of Donald McKay's last square-rigged deep-sea merchant ship) in 1869 and the *South American* in 1876, there was constructed, also in East Boston, an important contribution to the American mercantile marine—the full-rigged, fast, staunchly built and fine-looking “half clipper” ship *North American*. She was launched January 3, 1873, from the yard of Curtis & Smith and had been built to the order of Henry Hastings & Company, Boston, which later built the *South American*. A comparison of the particulars of the four ships that have been called “the famous quartette of East Boston-built half clippers” is of interest:

Name of ship.....	GREAT ADMIRAL	GLORY OF THE SEAS	NORTH AMERICAN	SOUTH AMERICAN
Launched	Apr. 1869	Oct. 1869	Jan. 1873	Sept. 1876
Builder (East Boston)	Robert E. Jackson	Donald McKay	Curtis & Smith	Smith & Townsend
Owner	Weld, Boston	Sears, Boston	Hastings, Boston	Hastings, Boston
Reg. tonnage—net tons...	1,497	2,009	1,584	1,694
Stated deadweight capacity—tons*	2,100	3,000	2,550	2,700
Ratio of stated deadweight capacity to net reg. tonnage*	1.4	1.5	1.6	1.6
End of vessel.....	Dec. 1906; foundered Pacific	After long lay-up, burned for metal in May 1923	July 1892; stranded Japan	Sept. 1889; wrecked Pacific
Length of service.....	37 $\frac{1}{2}$ years	40 years Burned when 53 years old	19 $\frac{1}{2}$ years	13 years

* The stated deadweight capacity is not accepted as correct for any of these four ships, and there is confusion between claims and authenticated facts and between long (and marine) tons of 2,240 lbs. and American short (or land) tons of 2,000 lbs.; also between measurement tons based on space and deadweight based on weight.

Until the *South American* was built, the *North American* was considered by some marine authorities as “the best square-rigger under the Stars and Stripes.” For several years, each

of the above-mentioned four ships had her enthusiastic supporters in a mythical battle for supremacy, not from the all-important standpoint of money-making and net earnings (for in this the state of Maine fuller-modeled Down Easters were supreme) but in the realm of speed performance and clipper-like, impressive appearance.

The first voyage of the *North American*, commencing at New York on May 14, 1873, proved her capabilities as a good sailer, as follows:

Between Ports	Passage in Days	Mileage (Nautical Miles)	Average Distance Covered per Day	Average Speed Kts. per Hr.
New York-Melbourne	72	14,112	196	8.17
Melbourne-San Francisco	51	10,500	206	8.58
San Francisco-Liverpool	95	16,919	178	7.42
Total	218	41,531	190½	7.94

The passage from the Golden Gate to Liverpool was reported variously as a run of 94 days and even of 93 days, but Captain Tucker's official log clearly states, "Time from San Francisco Bay buoy to pilot off Point Lynas 95 days 1½ hrs." During the passage, there were no spectacular day's runs, the maximum mileage reported for twenty-four hours being 281 nautical miles; the next highest was 273 miles, which the *North American* made on each of three consecutive days. During the week of January 3-9, 1874, the ship did some good, uniform sailing in moderate, steady breezes, her best day's run for this period being 250 miles and her lowest, 218 miles.

The *North American*, during her career, made only five westward roundings of Cape Horn, but she made eleven passages from San Francisco to Liverpool, which averaged 119 days, and six of these runs were made in an average time of 110 days. Among her best sailing performances were a run around the Horn westbound from Philadelphia to San Francisco in 108 days, a run from Yokohama to the Golden Gate in 27 days (an average speed over logged distance of about 8 knots per hour), and a run from Shanghai to Port Townsend in 30 days. On a 34-day passage from Yokohama to San Francisco, the *North American* for twelve consecutive days—from 175° E. to 'Frisco—averaged 227 sea miles per day and a scant 9½ knots per hour. She made a very fast run from the equator in the Pacific to the Golden Gate in the claimed time of only 14 days—an amazing record (if true), being one day faster than the best time made by the extreme clipper *Flying Cloud* between these points. The *North American* is also credited on a different voyage with running from 50° S. Pacific to the line in only 16½ days and from 50° S. Pacific to the Golden Gate in 36½ days, which is nearer record time. In July 1892, when bound from Hiogo, Japan, to New York, the ship, soon after leaving port, was stranded during a severe typhoon in the Kei Channel (Japan) and became a total loss, although all hands were saved.

(g) *Triumphant*

As Arthur Sewall, of Bath, Maine, talked of the Sewall "Big Wood Four" of post-Down Easters in the 1890's so "Deacon" George Thomas, a Rockland, Maine, shipbuilder that had moved his yard to Quincy, Mass., to be nearer what he believed to be the center of deep-sea shipowners and operations, referred to his "big four part [or half] clippers," which he built during the years 1872-1877. When Thomas moved to Boston in 1854, that Massachusetts port was the Hub, if not of the universe, at least of New England shipping activities and was taking the leadership from New York in big, fast clipper ship construction, but the demand for big clippers was dying. Thomas left a part of the country that was rapidly climbing to world leadership in the building, ownership, and operation of a good money-making type of ship known as the Down Easter for the shipping metropolis of Massachusetts (and of the

whole of New England), which had seen its best days as a port, was declining in national importance, and was not a good natural setting for the economic building of ships. "Deacon" Thomas, a most competent and experienced builder of good wood ships who had learned much of design when constructing clippers from the plans of Naval Architect Samuel H. Pook (including the *Red Jacket*, described by many authorities as the world's most beautiful and fastest big wood clipper), never felt at home in Greater Boston and, as a builder of ships, was very much of "a small frog in a big pond." He reached Boston when the boom was over and then saw the Civil War follow the shipping and shipbuilding depression of the late fifties. In 1868 and 1869, he saw the great Donald McKay seek to re-establish himself as a builder in Boston of sizable, fast wood ships and fail; but in 1872 Thomas himself determined to compete with East Boston yards, which at intervals had turned out some first-class tonnage referred to as "part clipper." Therefore, he laid down at his Quincy yard a "3-decked, 1,800-ton staunch and fast half clipper" and built a good ship "on spec," as he could not get an order for such a vessel. As the building of Thomas' half clipper progressed, Boston shipowners showed an interest in the ship, and when she was ready for launching, Thomas sold the first of what he termed his big four half clippers to William F. Weld & Company, Boston, owner of the *Great Admiral*, which was one of the pioneers of the East Boston-built ships of this (half clipper) type.

The Thomas-built ship, launched at Quincy, Mass., in December 1872 and bought by the Welds, was named *Northern Light* after a famous Boston clipper designed by Pook that holds the all-time record for the fastest passage made between San Francisco and Boston eastbound around the Horn. The *Northern Light II*, whereas well built and a handsome three-skysail-yard ship of pleasing model that seemed to promise speed, was a disappointment as to sailing performance in the California trade, for which the Weld Company had bought her. After she made four voyages between New York, San Francisco, and Liverpool (1873-1877), on which her westward passages averaged 142 days (best, 128 days) and the eastward passages 112 days (best, 105 days), the Welds sold her for a good price (reported at \$95,000) to W. H. Kinsman & Company, of Boston, for trade with the Far East. The *Northern Light* was reputed to be a fast ship, but she made no fast passages and, in August 1885, was sold at Liverpool to the Norwegians, who renamed her *Mathilda* and used her with success for some twenty years in the transatlantic oil and lumber trade. The ships that evidently composed George Thomas' quartet of "big half clippers" were:

Name of Ship	Launched	Tonnage	Dimensions in Feet			Name of Ship	Launched	Tonnage	Dimensions in Feet		
			Length	Beam	Depth				Length	Beam	Depth
NORTHERN LIGHT	Dec. 1872	1,795	219.7	43	28	AMERICA	Nov. 1874	2,054	233	43	28
TRIUMPHANT	Jan. 1874	2,046	240	43	27.5	RED CLOUD	Nov. 1877	2,208	230.3	43.2	29

Thomas said that the last three of these ships were "sisters" or at least "built from the same model," which is surprising when the greater tonnage of the *Red Cloud* is noted. He also is authority for the statement that the *Triumphant* and *America*, each built for Thayer & Lincoln, were identical vessels and that any difference in their sailing performances was due to the quality of command and sailing chances. The owners, however, referred to the *America* as an improved and faster *Triumphant* and considered her a much superior ship. It was also said in Boston that the two 2,050-ton Thomas-built half clippers owned by Thayer & Lincoln were in reality built from the model of the *Northern Light*, with several additional frames added to the parallel middle body to increase the length and the tonnage. The last of the above-mentioned Thomas quartet of half clippers, the *Red Cloud*, was built for Isaac Taylor, of Boston. This ship, which crossed only one skysail yard (and that on the mainmast), was not an outstanding sailer, and it is believed that because of her tonnage and

sailing performance, she must have been fuller in model than the *Triumphant* and *America*. While at Liverpool in March 1882, the *Red Cloud*, when four and a third years old and after only three voyages as an American ship, was sold to the Germans for general deep-sea trade. She was renamed *Carl Friedrich* and was wrecked in the Java Sea in December 1893, when sixteen years old, while carrying case oil from New York to Hong Kong.

The *Triumphant* was a fast sailer, and it is said that she carried in deadweight 1.4 times her net registered tonnage and that, when loaded deep carrying wheat to Europe, she took on 3,200 short tons (or 2,857 long tons). In 1875-1876, the ship made her fastest eastward Cape Horn passage—a run of 108 days carrying wheat to Liverpool; on this passage, we are told, "she beat a dozen or so other ships, among which were the *Glory of the Seas* and the fast ship *Ericsson*, a converted wood steamer of clipper model." The *Triumphant* averaged 113 days on her seven wheat passages from San Francisco to Liverpool, but on her one run wheat laden to Havre, she required 136 days. The ship is credited with an average of 127 days on her westward passages from North Atlantic ports to San Francisco, but these were evidently sailing days and not the entire length of passage, port to port. Her fastest westward run was made from New York to San Francisco in 110 days. In 1877 the *Triumphant* sailed through the Golden Gate under a partial jury rig and with patched-up spars, having received a terrific battering off the Horn. At San Francisco the ship had to be supplied with a new bowsprit, jib boom, fore- and mainmast, with all spars thereon (the new main yard was 90 ft. long and 24 in. diameter), and the repairs and replacements are said to have cost \$33,000. The *Triumphant's* 1881 westward passage from Liverpool to San Francisco occupied 182 days, as the ship, partially dismasted off the Horn, had to put back to Port Stanley (Falkland Islands) for repairs.

The *Triumphant* is credited with some fast sailing in the Pacific. On December 21, 1877, she left San Francisco in ballast for Callao, Peru, to load guano and claimed an amazing run of 11½ days to the Pacific equator, equaling the clipper ship all-time record (best day's run, 297 miles). The ship also claimed runs of 22 days from the Golden Gate to Lat. 30° S. and, on another occasion, 23 days from San Francisco to Lat. 28° S.; but on this run the vessel was not off Cape Horn until the 43rd day (which, nevertheless, is good time) due to "15 days of calms and head winds." The *Triumphant* was not a lucky ship. In 1881, when "pretty well wrecked aloft and on her beam ends off Cape Horn," the crew demanded that the ship be abandoned, became mutinous, and was made to obey orders and get the ship to Port Stanley "only by force of arms." She was laid up at San Francisco from December 1882 to April 1885, as the ship could not obtain cargoes with freight rates high enough to permit of operating at a profit. After arriving at Liverpool on May 19, 1887, 118 days out from San Francisco, she was subjected to a tremendous gale, dragged her anchors, struck the Prince's Landing Stage, lost her rudder, and sustained damage to the stern. Following this, she took bottom and pounded heavily and was later damaged by contact with the dock wall while three tugs were trying to get her into safety. Following this experience, the *Triumphant* sailed to New York from Liverpool on August 3, 1887, but she was not in a seaworthy condition and needed a thorough overhauling and reconstruction. Encountering heavy seas on the westward transatlantic run, the vessel developed bad leaks, her cargo shifted, the pumps choked, and in Lat. 42° N., Long. 54° W., she was abandoned and foundered when about thirteen and a half years old; all aboard the unfortunate ship were picked up by a passing vessel.

(h) *America*

The *America*, built by George Thomas, Quincy, Mass., for Thayer & Lincoln, of Boston, was launched in November 1874. She was a three-decker and a handsome ship, which was always kept in splendid condition, and whereas she was said to be a sister of other Thomas-built reputed "half clippers," the sailing record of the *America* shows up more favorably

than do the records of the ships reported to have been constructed by the same builder from the same lines.

The maiden voyage of the *America* was from New York to San Francisco and was made in 110 days, the time from New York to the equator being 18 days. From San Francisco she went to Liverpool in 103 days. Her second voyage was over the same course, 143 days westbound and 115 days returning. The outward run was spoiled by unfavorable weather in the South Atlantic and South Pacific, where strong head winds and gales prevailed. The third voyage was made in 115 days outbound and 96 days returning to Liverpool. The equator was crossed in the Pacific "in only 13 days from San Francisco," Cape Horn was passed on the 37th day and the equator in the Atlantic on the 64th day; this is very fast sailing, and it appears that the *America* would have made a record run had it not been for the severe and adverse weather experienced during the latter part of this passage. The fourth voyage of the *America* was from New York to San Francisco in 128 days, with light winds throughout; the return to Liverpool was made in 115 days. The fifth voyage took 110 days from New York to San Francisco, thence 109 to Queenstown, and then this was followed by a run between Liverpool and San Francisco in 111 days outward and 108 days return.

The next westward passage from Liverpool to the Golden Gate was made in 124 days, with an eastbound run from there to Havre in 115 days. A cargo of coal was then loaded at Newport, Wales, and the passage to San Francisco made in 122 sailing days. Off Staten Island the steering gear and rudder braces were broken during a heavy gale, necessitating the vessel's putting into Port Stanley for repairs. The passage thence to San Francisco was made in 59 days, the arrival date being December 2, 1882. The *America* was then laid up for some twenty months, as no remunerative freights offered. On August 30, 1884, the ship sailed from San Francisco for Antwerp and, when 82 days out, was forced to put into Rio de Janeiro for repairs, after which the run from Rio to Flushing was made in 55 days. The next voyage was from Cardiff to Callao, thence to British Columbia and San Francisco, following which the *America* made a run of 111 days to Liverpool. A cargo of coal was then loaded for San Pedro, Calif., and the run out occupied 142 days. The ship was damaged off the Horn, put back to make repairs under the lee of Cape San Diego, and made a second passing of the Horn ten days after the first. Captain Herriman considered that the time the ship made on the passage to San Pedro was equivalent to a run on the course of 120 days from Liverpool.

In 1880 the voyage of the *America* from San Francisco to Queenstown "for orders," thence to Liverpool for discharge, and then back to San Francisco occupied only 8 months 19 days, including all detentions. On the westward passage, she made the fine Pacific runs of 19 days from Lat. 50° S. to the equator and also 19 days thence to San Francisco. Two years later, she was 20 days and 18 days, respectively, in going over the same two sections, each run being made in only 38 days from 50° S. Pacific to the Golden Gate.

The following is a recapitulation of the nine voyages of the *America* each way between North Atlantic ports and San Francisco (ignoring the westbound Cape Horn passage from Wales to British Columbia via Callao, Peru):

	Average Sailing Days	Average Days Port to Port	Sailing Days	
			Best Three Passages	Slowest Three Passages
Westbound	120.3	128	110, 110, 111	143, 128, 124
Eastbound	112	114.4	96, 103, 108	137, 115, 115

On March 22, 1889, the *America* (Captain Gibson) left San Francisco for Nanaimo, B. C., and was back in San Francisco on April 12 with a full cargo of coal, being 4½ days on the run down and 21 days 1 hour on the round voyage. This was a record fast passage at that time and, it is said, stands to this day. Captain Harding, who commanded the *America*

in the coastwise trade for over fourteen years, states that he made the run from Nanaimo to San Francisco in 5½ days and that at that time "the *America* made 15 knots an hour for four hours, drawing 26 ft. 2 in. of water, with 3,100 tons of coal aboard." The *America* competed in popular favor with the *Great Admiral*, the *North American*, and the *South American*.

When discharging coal at San Pedro, Calif., in February 1887 during a severe storm, the *America* parted her chains, lost four anchors, and was blown onto the bar, where she was badly pounded and strained. After being floated, the ship was towed to San Francisco and sold for \$10,400 to the Pacific Steam Whaling Company. After that, she changed hands several times, being in the coastwise coal trade and owned by the Alaska salmon canneries. In 1907, when thirty-three years old, her sailing days were over, and the ship was bought by Seattle parties and converted into a barge to carry copper ore from Alaskan mines to the Tacoma smelter. While engaged in this service, she was stranded when in tow in August 1914, when about forty years old, and became a total wreck.

(i) *South American*

The *South American*, like the *North American*, was relatively a better cargo carrier than the *America* and *Great Admiral*. She had moderately sharp ends and was unusually well built, no expense being spared to make her "the best wooden merchant vessel afloat." It is said that, in a firm desire to attain this objective, \$130,000 was spent on her construction, but she was not designed by a navy man, and money-earning power was consistently kept in mind. The *South American* "loaded 2,600 long tons of wheat" on one voyage, and 2,700 long tons of sugar were in her hold when she was wrecked September 15, 1889, by striking a reef near Cape Agulhas on a passage from Iloilo to Boston. On her maiden voyage, she sailed from New York on December 3, 1876, "with 3,500 tons of weight and measurement goods," but this report gives no idea of the actual paying deadweight carried, which was probably around twenty-five hundred to twenty-six hundred tons.

The number and the average, shortest, and longest length of the passages made by the *South American* over the various deep-sea ocean trade routes of the world are set forth herewith:

Passages	Number of Voyages	Long Passage	Short Passage	Average Time
New York to San Francisco	2	123	109	116
All North Atlantic to North Pacific U.S.A. ports	5	130	109	119-2/5
San Francisco to North Atlantic European ports	7	120	97	107-5/7
Hong Kong to San Francisco	3	61	42	48-2/3
San Francisco to Philippine Island ports	2	75	45	51
Philippine Islands to North Atlantic ports	1	—	—	110
British ports to Hong Kong	4	114	88	101-1/4
Hong Kong to New York	2	102	89	95-1/2
New York to Sydney	1	—	—	88
New York to Calcutta	1	—	—	106
New York to Colombo	1	—	—	104
Calcutta to New York	1	—	—	89
Philippine Islands to Cape of Good Hope	1	—	—	55
Sydney to San Diego, Calif.	1	—	—	53
(This passage said to establish a record; best day's run, 353 miles.)				

The *South American* has been credited with the fastest voyage ever made around the world under sail. On November 15, 1883, she sailed from San Francisco for Liverpool and arrived in the Mersey "on the hundredth day out." After discharging, she was sent around to Cardiff, where she loaded coal for Hong Kong. This passage was accomplished in the splendid time (as reported) of 88 days. From Hong Kong she crossed the Pacific to San

Francisco in 41 days, making a total of 229 sailing days for a voyage around the globe. Other records give the length of passages as 100, 89, and 42 days, respectively, a total of 231 days spent at sea. In making this around-the-world voyage, the *South American* was absent from San Francisco only 10 months 17 days (November 1883-October 1884), which, it is said, "constitutes another time record in the annals of the operation of sailing ships." Another fine bit of sailing was her passage (loaded with 54,984 centals of wheat valued at \$96,222) from San Francisco, which she cleared on July 5, 1878, to Queenstown, Ireland, where she arrived October 10 after a run of 97 days (also recorded as "99 days from San Francisco to Cork").

The record of the *South American* illustrates the variableness of performances under sail. On November 29, 1884, after establishing a reputation for speedy passages, she sailed from San Francisco for Dublin. Nine days later, the *Down Easter R. D. Rice* (the last square-rigger of Watts, of Thomaston, Maine, built in 1883, and a big and fast sailer of 2,247 net tons) cleared the Golden Gate for Liverpool. The vessels met each other just north of the line in the Atlantic, and Capt. N. B. Jordan of the *R. D. Rice* was greatly elated "at having caught up with the famous Boston ship," which had left port ten days ahead of him. He further wrote to friends that the *South American* "could not sail for sour apples" and that, when they met, he "had no trouble in getting away from her." However, the records show that following the meeting in mid-Atlantic the *South American* arrived at Dublin five full days before the *R. D. Rice* made Liverpool—ports of equal distance from the line. The passage of the *South American* in 1888 (when the vessel was twelve years old) from Sydney, Australia, to San Diego, Calif., was said to be the shortest run on record between the ports. During this passage, she covered 353 miles in one day, according to good observations, or 14.7 knots per hour, and at times "was logging 15½ knots." When eighteen days out, she met and passed the British ship *Slieve Bawn*, which had sailed ten days ahead of her. Another fast sailing performance of the *South American* was her run of 39 days from Hong Kong to the Farallones on her 42-day passage between Hong Kong and San Francisco.

When carrying sugar from the Hawaiian Islands to Boston, the *South American* was wrecked September 15, 1889, on a reef some two miles off the South African coast near Cape Agulhas. She went on her beam ends, all the small boats were stove in, but only two persons were lost. The others got safely ashore by means of improvised rafts and part of the poop deck, which detached itself from the ship and drifted before the wind to the land.

The sailing records of the *South American* and *Great Admiral* show great uniformity and similarity in performance, with the later and larger vessel consistently somewhat faster (and she usually carried about 25 per cent more paying cargo). The following is a comparative statement of sailing performances of the two vessels over the same ocean routes:

Passage	SOUTH AMERICAN				GREAT ADMIRAL			
	No. of Runs	Long Passage Days	Short Passage Days	Average Passage Days	No. of Runs	Long Passage Days	Short Passage Days	Average Passage Days
North Atlantic-North Pacific	5	130	109	119.4	10	133	111	120.6
San Francisco-Northern Europe	7	120	97	107.7	7	126	111	115.6
Hong Kong-San Francisco	3	61	42	48.7	7	63	38	49.4
San Francisco-Philippines	2	75	45	51	5	46	43	44.2
Philippines-North Atlantic	1	110	110	110	6	130	89	114.2
Britain-Hong Kong	4	114	88	101.3	2	121	99	109
Hong Kong-New York	2	102	89	95.5	2	104	95	99.5
New York-Southeast Australia	1	88	88	88	5	98	73	87.8

This record of the *South American* covers her lifetime of thirteen years (1876-1889); that of the *Great Admiral* is for the period of twenty-eight years (1869-1896) that she was

owned by Weld & Company, of Boston, Mass., following which she sailed for Capt. E. R. Sterling for nine years on the Pacific in the coal and lumber trade. The average sailing speed of the *Great Admiral* for twenty-eight years was 5.65 knots per hour; that of the *South American* for thirteen years was stated at "about 140 miles per day, or around 5¾ knots per hour."

Down Easters

The Down Easter is generally considered to be the type of square-rigged wood sailing ship built "Down East" in the United States following the sailing packet and clipper ship eras and the Civil War. The distinctive characteristics of the Down Easter are: (1) relatively large cargo-carrying capacity, (2) fairly good speed with moderate spar and sail plan, (3) stability (light and loaded), seaworthiness, strength, and longevity, (4) handiness in operation, (5) small crew, and (6) low cost of repairs and maintenance. The Down Easter was designed and built primarily to make money transporting cargo on the Seven Seas under competitive conditions. Prime attention was given to the carrying of a great deal of cargo at a reasonably good speed and with a minimum of expense represented by cost of crew and repairs, depreciation, and amortization of the investment. The "time factor" was deemed very important, but not to the ridiculous and narrow extent that it was during the clipper ship era; for the builders and owners of Down Easters considered—coupled with the length of passage—the amount of paying freight carried in unit time, with the cost of carrying it as expressed in pay roll of ship's crew and officers, food and supplies, repairs, replacements and depreciation (with consideration given to length of stay in port between runs and voyages for "conditioning"), insurance, amortization, etc. The rather disastrous economic experiences with clipper ship tonnage following the boom of 1849-1853 drove many shipowners to the use of a ship that carried more cargo and cost less to operate than did the clipper, with its long spars, large sail spread, and big crew. Income in the form of revenue from freight under normal transportation conditions had to be considered in relation to operating outgo and the probable life of the ship, and the cost of carrying a ton of cargo per mile per annum became the real yardstick to measure the quality of merchant sail.

However, there was nothing new about the type of vessel that shipowners demanded after the clipper ship decade and the Civil War. The sort of deep-sea square-rigger which they maintained that they must have to keep their house flags (and the Stars and Stripes) flying at sea was merely the type of ship that Maine shipbuilders and shipowners—paying little attention to the "unsound clipper ship flurry"—had been launching and operating for years. Under the leadership of "hardheaded and stubborn" Bath shipowner-builders, who insisted at all times in building "good, staunch ships to sail and carry well and make money," Maine continued to build in the nineteenth century progressively better and bigger wood merchant sailing ships for ocean trade. By evolution founded upon intelligently capitalized and extensive accumulated experience, they created and used with great success and profit the Down Easter of the seventies and eighties, which was not only the best wood square-rigger ever built but also the finest economic type of merchant sail that the world has ever seen. New York and Boston vied with each other in the construction and ownership of clipper ships after New York had won a virtual monopoly in the field of sailing packets. Maine shipbuilders, with few exceptions, while appreciating many of the good points of the Western Ocean New York-built sailing packets, freely and persistently condemned the clipper ship as an uneconomic "short-time craze," affirming that it would "take more than speed to make money." While the two great eastern cities waged their historic fight for supremacy in clip-

pers, Maine, under the leadership of Bath, continued to build and develop—as it did later and had for years before—ships that were Down Easters.

During the clipper ship era, which was very brief, and for several years in the forties, which preceded the clipper period, the Down Easters of the time were referred to contemptuously by certain New York and Boston shipowners because of the fullness of model and sturdy rig, with very moderate sail spread. They were "tubs" and "slow pokes." Yet these ships not only made money steadily but also made consistently fair passages, were more reliable than the clippers, were better sea boats, and delivered their cargoes in better physical condition. When the clippers were laid up because they could not be operated without heavy losses, the Down Easters continued at sea, making fair passages and good money, and when the clippers were again, in many instances, sent to sea, it was with masts, spars and sail spread reduced and crews cut down in an attempt to lessen operating expenses and cost of repairs at the deliberate sacrifice of speed. Whereas a clipper model with a Down Easter rig proved more economical than a clipper with her original rig, the sharp model could not compete with the fuller Down Easter in carrying paying freight. The extreme, or "out-and-out," clipper ceased to be built in 1853; in 1854, 1855, and 1856 (as well as in much of 1853), "medium," or more moderate, clippers were constructed, but there was very little clipper shipbuilding of any type during the last half of the fifties.

The only effect of the widely heralded clipper ship on the Down Easter was the capitalizing by Maine shipbuilders of the experience gained and paid for by others in sharp and varied models and excessive canvassing. Down Easters continued to be built, and each year saw some Maine master builder, in co-operation with able shipmasters and owners, make some little refinement in design or construction. The creation of the wood square-riggers was the work of specialists working in harmony for a common end—the production of the best and most profitable ship possible. Down Easters were never "half clippers," and they outlived and outfought, in an economic sense, the Boston vessels of this class as built from the end of the Civil War to the mid-seventies just as they (the Down Easters) had the medium clippers of the late fifties and the extreme clippers of the mid-century and the shipbuilding boom period of the early fifties.

The following is a list of representative Down Easters built during the last decade of construction, when they showed in an outstanding manner conspicuous development in excellency of design and construction and an increase in size—all brought about by rapidly increasing adverse factors in the realm of foreign competition of iron and steam on the Seven Seas. The eight ships mentioned include the two best and, incidentally, the last pure Down Easters of superior quality ever built. The wood (and steel) merchant square-riggers built in later years were generally modeled for capacity and sparred to drive a full hull through the water by sheer power. As far as quality from the standpoint of design is concerned, there is no similarity—and no comparison—between the *Henry B. Hyde* ("the Queen of all Down Easters") and the big wood square-riggers that followed her during the years 1889-1893 or the steel fleet built during the next decade. The Bath-built Sewall "Big Wood Four," the *Rappahannock*, *Shenandoah*, *Susquehanna*, and *Roanoke*, have been called "Down Easters," and the steel square-riggers (also built by the Sewalls, of Bath) have often been erroneously referred to as steel Down Easters; but aside from the fact that all of these ships were built "Down East," no claim could be made to use of the designation, as the type was different—particularly so in the case of the steel vessels. The three-masted full-rigged ships enumerated hereunder, built during the years 1874-1883, were vessels representative of the best type of the period, some of them outstanding. However, a large number of other Down Easters of this decade could be used to illustrate progression and the development, or evolution, of the type. It is significant that, of the eight ships selected as important Down Easters built during the years 1874-1884, seven were launched from Bath, Maine, shipyards into the Kennebec River. This suggests the importance of Bath, "The City of Ships," in the history of American wood merchant sail and the predominating position it held following the Civil

War to the end of the era of merchant sail. (Moreover, both the first and the last deep-sea sailing vessel built in North America were launched into the Kennebec River in the area of Greater Bath, Maine.)

Name of Ship	Year Built	Builder	Owner	Tonnage Net	Length	Beam	Depth	Cape Horn Passages Westbound
HENRY B. HYDE	1884	John McDonald, Bath, Maine	Pendleton, Carver & Nichols, Searsport, Maine	2,462	267.9	45	28.8	105, 108, 108, and 112 days; average of four consecutive passages, 108 days; average thirteen passages, 119 days (eastbound, 88, 94, and 96 days).
A. G. ROPES	1884	John McDonald, Bath, Maine	I. F. Chapman & Co., New York	2,341	258.2	44.7	28.5	104 and 107 days best; average, 120 days (eastbound, 93, 104, and two of 106 days).
S. P. HITCHCOCK	1883	Isaac F. Chapman, Bath, Maine	I. F. Chapman & Co., New York	2,178	247.4	44.3	28.6	Two of 101 days and five consecutive passages averaging 111 days.
CHARLES E. MOODY	1882	Goss & Sawyer, Bath, Maine	Davenport, Kelley, Patten, of Bath, and Chas. E. Moody, of Boston, Mass.	1,915	239.9	43.4	26.1	115 days; average eleven passages, 125 days (eastbound passage, 100 days).
JABEZ HOWES	1877	John Currier, Jr., Newburyport, Mass.	George Howes & Co., New York	1,581	218.8	40.1	26	106 and 109 days; average of seventeen passages, 127 days (eastward, 95, 97, 100; average of 110 days).
FLORENCE	1877	Goss & Sawyer, Bath, Maine	Charles Davenport & Co., Bath, Maine	1,604	223	41	26	One of 104 days; average of six consecutive passages, 127 days (eastward, 108 days; average five passages, 120 days).
M. P. GRACE	1875	Chapman & Flint, Bath, Maine	Chapman & Flint, New York	1,863	229.9	42.1	27.8	102, 102½, and 107, and seven consecutive passages averaging 115 days (eastward, 101; average seven passages, 112 days).
GATHERER	1874	Albert Hathorn, Bath, Maine	Hathorn, Thomson, Whitmore, et al., Bath, Maine, & New York	1,509	208	40	24	Average all eight passages, 129 days; sailed 375 miles in one day and 1,073 in three days in North Pacific (eastward, seven passages averaging 122 days).

Much has been written of "the amazing and uniform fast speed" of the American ships *Young America* and *David Crockett* in the severe Cape Horn service. These vessels, however, were clippers built primarily for speed and had only the carrying capacity, both in weight and bulk, that is naturally associated with the clipper or "fast medium clipper" model. Not so much has appeared in public print of the equally meritorious performances of two wood Bath-built Cape Horners, the *Henry B. Hyde* and *A. G. Ropes*, which were outstanding Down Easters and had no superiors, in a combination of sailing qualities (speed and handiness) and cargo carrying, among any vessels in the world built not only in the seventies and the eighties but also, as a matter of fact, in any era. These two three-masted full-rigged ships did not have the supreme speed of the extreme clippers under certain conditions of sailing, but were superior to all clippers in cargo carrying, uniformity of fast passages, reliability in operation, economic transporting of cargo per ton-mile, and as money-makers during the period of the most severe competition in sail.

The *Henry B. Hyde* and *A. G. Ropes* were built in 1884 "to sail, to carry, and to stand up in the severest service," which was, of course, the Cape Horn trade. Their claim to undying fame as fast sailers rests not on any one or two quick runs made under very favorable conditions but on an outstandingly fast average for all voyages made in the service and under conditions for which they were designed and built and on a record of total cost of cargo carried for distance in unit time. The sailing performances of these two grand Down Easterns in the eighties and nineties, when they were given some measure of opportunity to reveal their outstanding class, show a uniformity and a narrow spread between the best and the worst sailing performances that have not been equaled when trade conditions and cargo are considered.

Several extreme clippers, carrying but little cargo, driven hard and steadily, and with large crews aboard and big spreads of canvas, did some very fast sailing in the Cape Horn run during the clipper ship decade of 1850-1860. The following are the speed records of the best average times made by the clippers in this era:

Name of Clipper	Built (launched)	Tonnage	Westbound California Passages, 1850-1860			
			No.	Length in Days, Port to Port		
				Average	Shortest	Longest
ANDREW JACKSON (under final rig, 1856-1860)	1855 (Mar.)	1,679	4	99.5	89	105
FLYING CLOUD (under Captain Creesy, 1851-1855)	1851 (Apr. 15)	1,782½	5	101.8	89	115
WESTWARD HO	1852 (Sept. 24)	1,650	4	103.3	100	107
ANDREW JACKSON (including her first experimental passage; 1855-1860)	1855 (Mar.)	1,679	5	105.2	89	128
FLYING FISH	1851 (Sept.)	1,505	7	105.6	92	114
GREAT REPUBLIC	1853 (Oct. 4)	3,356	4	106.7	92	120
SWORDFISH	1851 (Sept. 20)	1,036	4	107.0	91	120
FLYING CLOUD (all her passages, 1851-1856)	1851 (Apr. 15)	1,782½	6	115.7	89	185

During this clipper ship decade, when "speed was king," the unusually well-modeled and canvased clipper *Young America* and the more moderate, or "medium," clipper *David Crockett* (which were to make history as the two most successful and longest-lived clipper ships ever placed in the Cape Horn run) each made four westbound passages between New York and San Francisco. The following is a record of these runs:

Name of Clipper	Length of Passages in Days								Average
	1853	1854	1855	1856	1857	1858	1859	1860	
YOUNG AMERICA	110	110	—	107	—	—	174*	—	125.2
DAVID CROCKETT	—	—	—	—	122	116	131	123	123

* Was dismantled and had to put into Rio de Janeiro for repairs, where she was detained two months; average length of the three other direct passages, 109½ days.

The relatively full-bodied Down Easter *Henry B. Hyde* established a great and impressive record in the Cape Horn service in 1889-1893. For four consecutive voyages, deep laden, between New York and San Francisco, this burdensome full-rigged ship averaged only 108¼

days per westward passage, and for six consecutive westward Cape Horn California passages the average was 112½ days. The *S. P. Hitchcock*, of generally similar type, averaged 111 days for five consecutive westward Cape Horn passages to San Francisco, and another Down Easter, the *M. P. Grace*, averaged 115 days for seven consecutive runs over the same course and between the same ports. These three fast good-carrying ships, ranging from 1,863 to 2,462 net registered tons each, were all built at Bath, Maine, during the period 1875-1884. The *Henry B. Hyde*, on her first twelve consecutive westward Cape Horn passages, averaged 119⅔ days from New York to San Francisco, port to port, and five of these passages were made under very unfavorable sailing conditions. The average of her seven passages made over the course in "fair, medium or average" sailing conditions was 111⅔ days (best, 105 days and two of 108 days; slowest, 123 days and two of 113 days).

When the *Young America* cut down her spars and sail spread following her dismasting of 1859 and continued to operate economically with a desire to make money, she resembled a medium clipper notwithstanding her relatively sharp-lined model, and the *David Crockett*, designed and built as a transatlantic packet, was a medium clipper at all times in both rig and model. These two clippers, for a period of about thirty years, continued in the Cape Horn service because of their reliability of operation in spite of the handicap of relatively low carrying power. None of the clippers that made spectacular passage records in the clipper ship decade (1850-1860) survived to be a factor in the California trade after the Civil War. Aside from the brilliant long-time service record of the *Young America* and the *David Crockett*, which together made about fifty westward Cape Horn passages, averaging about 120 days, the best sailing performances on the westward run of all the clippers employed in the California trade from the beginning to the end of their careers—with due consideration being given to length of service and number of voyages—were made by the following ships:

Name of Clipper	Ton-nage	Passages			Name of Clipper	Ton-nage	Passages		
		Total No.	Average Length in Days	Years in Service			Total No.	Average Length in Days	Years in Service
BLACK HAWK	1,109	20	124.5	1857-1880	SEA SERPENT	1,337	14	122.2	1851-1872
LOOKOUT	1,291	16	135.6 (128.2 s.d.)	1853-1870	FLEET-WING	896	14	133.5	1854-1873
HERALD OF THE MORNING	1,294	15	124.9	1854-1873	PRIMA DONNA	1,529	14	137.7	1858-1877
GOLDEN FLEECE II	1,535	15	130.6 (128.5 s.d.)	1855-1877	THATCHER MAGOUN	1,248	14	128.7	1856-1873

Length of passage given as elapsed time, port to port; "s.d." refers to sailing days between ports.

The *Sea Serpent* and *Herald of the Morning* were classified as extreme clippers, the *Lookout* as a clipper, and the other five ships mentioned above were rated as medium clippers. The *Herald of the Morning* was not in reality an extreme clipper but, like the *Young America*, an ordinary clipper. There was a host of half clippers and Down Easters built in the United States after the Civil War (or in post-clipper years) that hold a record in the Cape Horn trade for average length of passage, over a prolonged period of time, as good as that of the eight outstanding clippers mentioned above. An interesting comparison of the sailing performances around the Horn of (1) the two real clippers (*Young America* and *David Crockett*) that had class enough to survive the drive of the fifties and the competition of the sixties and seventies, (2) the best of the half clippers (1865-1876), and (3) several Down Easters, including the two outstanding ships of this type (*Henry B. Hyde* and *A. G. Ropes*) is presented herewith. The Down Easters not only made fast passages at times but also were good reliable sailers, seldom made long passages, and carried big paying cargoes.

Cape Horn Service between North Atlantic and West Coast U.S.A. Ports—Length of Passages in Days										
Name of Ship	Year Built	Tonnage	Westward				Eastward			
			No.	Average	Shortest	Longest	No.	Average	Shortest	Longest
(A) Clippers										
YOUNG AMERICA	1853	1,961	24 (S.F.)	120¼ (117.8 s.d.)	99	142 (Antwerp)	21	102	83	125 (Liverpool)
DAVID CROCKETT	1853	1,679	25	119	103	157	23	102½	88	120 (Queenstown)
(B) Half Clippers										
SOUTH AMERICAN	1876	1,694	5	119½	109	130 (Liverpool)	7	108	99 (Queenstown)	120 (Dublin)
GREAT ADMIRAL	1869	1,497	10	120½	111	133	7	115½	111	126
GLORY OF THE SEAS	1869	2,009	12	124	96	153	11	125¾ (117.5 s.d.)	103	133 (direct)
SEMINOLE	1865	1,439	20	126	98	155	19	108	94	119 (2)
AMERICA	1874	2,054	9	128 (120.3 s.d.)	110	143 (direct)	9	114½ (112 s.d.)	96	137 (direct)
(C) Down Easters										
HENRY B. HYDE	1884	2,462	First 12 15	119⅔ 124	105	153	9 11	103 106½	88	
A. G. ROPES	1884	2,342	First 10	120	104	138	11	114	93	
CHARLES E. MOODY	1882	1,915	11 (S.F.)	125	115	135	13	114	100	121
JABEZ HOWES	1877	1,581	17 16	126⅔ 124	106	169	18	110	95	
A. J. FULLER	1881	1,782	First 10	128	116	139			105	
ST. CHARLES	1866	1,166	10	128	116		8	118	101	
S. P. HITCHCOCK	1883	2,178	12	129⅔	101 (2)		10	116	107	

The above averages are not truly comparative, as the passages eastward to New York were invariably made in better time than those to Britain. For instance, the *A. G. Ropes* made nine passages from San Francisco to Britain averaging 117 days (shortest, 104 days), and the two to New York averaged only 100 days (shortest, 93 days). The fastest passage of the *Henry B. Hyde* from San Francisco to New York was 88 days, and her best passage to Liverpool was 96 days. Some ships sailed east, most generally to Europe, and had fewer New York runs than other vessels. Again, comparisons are affected by the fact that some of the Cape Horn eastward passages terminating in Europe had Cork or Queenstown (where the ships had called "for orders") as the end of the passage, although they were not the final ports of destination. A run to Queenstown was generally a couple of days (and sometimes more) shorter than a run to anchorage in the Mersey. Westbound, a British port of origination was usually several sailing days nearer Cape Horn than a United States port because of prevailing winds.

The best westbound passages of the *Henry B. Hyde* and the *A. G. Ropes* of 105 and 104 days, respectively, between New York and San Francisco do not equal the 99-day run of the *Young America* (made from Liverpool) or the 103-day passage of the *David Crockett*

and are, of course, not comparable, when speed alone is considered, with the 89-day record of the great clipper *Andrew Jackson* or with the two 89- to 90-day brilliant performances of the *Flying Cloud*. On the other hand, the *Henry B. Hyde* and *A. G. Ropes*, through their long years of battling the gales and seas rounding the Horn, did not make any extremely slow passages when in the legitimate trade for which they were built. Their slowest runs on the hard westward course when operated by the original owners were in 133 days (the "*Hyde*") and 138 days (the "*Ropes*"); whereas the extreme clipper *Flying Cloud* in 1856 required 185 days, port to port, and the fast clipper *Young America* in 1859 occupied 174 days—both ships being greatly delayed by putting into ports en route for repairs because of dismasting due to the fact that they were oversparred and hard driven.

The averages for length of westward Cape Horn passages of the *Henry B. Hyde* and *A. G. Ropes* are better than those of many of the extreme clippers that did not see the length of service of the two crack Down Easters. One of the fastest clipper ships, the *Comet*, possibly the holder of more speed records (including the record run from San Francisco to New York in only 76 days 6 hours) than any other one ship, made only eight westbound passages around the Horn and averaged 125 days as against 119 $\frac{2}{3}$ days for the first twelve voyages made by the "*Hyde*" and her 124-day all-time average, which includes the runs of her late years when "abused in trade" by carrying coal and manned by "riff-raff." The best four consecutive passages of the *Comet* from New York to San Francisco averaged 116 $\frac{1}{4}$ days as against an average of 108 $\frac{1}{4}$ days for corresponding runs made by the *Henry B. Hyde*. A comparison of these best four consecutive westbound Cape Horn passages for each ship is as follows:

Name of Ship	Length of Passage in Days						
	1	2	3	4	Average	Fastest	Slowest
HENRY B. HYDE	108	108	105	112	108 $\frac{1}{4}$	105	112
COMET	103	112	128	123	116 $\frac{1}{2}$	103	128

It is of interest to note that the "out-and-out" clipper *Comet*, with her limited cargo-carrying capacity, made her fastest run to San Francisco in 103 days, which was only one day faster than that of the *A. G. Ropes* and two days faster than that of the *Henry B. Hyde*.

The records of clippers built for speed show that there were many that, during the clipper ship decade, did not average runs as good as 150 days per passage westward. The *John Land*, a really fast clipper that in 1857 and 1858 made two consecutive westward Cape Horn passages in 105 and 108 days, respectively, averaged 184 days, port to port, for all the five passages that she made over the course from an East Coast U. S. A. port to San Francisco during the years 1853-1859. Ten clippers built to be fast carriers, in a total of all their forty-eight westward Cape Horn passages to California made during the years 1850-1860, averaged 144.8 days on the runs, with single passages as long as 311 and 270 days, port to port. Such well-known fast clippers as the *Golden Eagle*, *Raven*, *Game Cock*, *Eureka*, and *West Wind* (outside of the ten clippers reputed to be fast and previously referred to) made long passages of 215, 188, 185, 174, and 172 days, respectively, port to port, during the clipper ship decade.

It should be borne in mind that there have been many around-the-Horn westbound passages, made by "fair sailers," that have required over two hundred days from port of origin to port of destination. The big steel shipentine *Edward Sewall*, in her memorable voyage from Philadelphia, Pa. (sailed October 18, 1913), to Seattle, Wash. (arrived August 6, 1914), took 67 days to round the Horn (from 50° Lat. Atlantic to 50° Lat. Pacific)—a distance that the *Young America* once covered in 6 days—and required 293 days to complete the passage. During the voyage, the *Edward Sewall* actually traversed 23,407 nautical miles, a distance approximately equal to the circumference of the globe. This voyage has been

described as "the longest, roughest and toughest direct coast-to-coast voyage in history." The *Kenilworth*, a British-built "flyer" with a good reputation for speed, took 232 days in 1904-1905 to run from the Delaware Capes to Manila, and this "clipper of the Sewall fleet" left the Delaware on August 14, 1906, bound for San Francisco and did not pass through the Golden Gate until March 15, 1908 (with a bad list and in a severely battered condition), after a passage, port to port, of 579 days (1 year 7 months 1 day) via Montevideo and Rio de Janeiro—and after 423 days spent under canvas at sea. Under her first command, this four-masted metal shipentine, with a reputed "half clipper model" and said to be one of the very best ships ever built in the British Isles, "just couldn't round Cape Stiff," and she turned back twice after futile efforts. On the first occasion, she made for Montevideo for repairs; on the second, turning tail to the westerlies off Cape Horn, she attempted to reach her destination via the Cape of Good Hope, but experiencing bad weather, head gales, and heavy seas in the South Atlantic, she headed to the northwest and Rio de Janeiro to "lick her wounds." The command was changed at Rio, and a new, determined captain finally forced the *Kenilworth* around Cape Horn to complete her passage, but it was the last run that she ever made over the course and her last deep-sea voyage. Some vessels, most of them of the full-bodied "big ship" era (built of iron and steel), either have failed in attempting to round the Horn westbound and completed their voyage via the Cape of Good Hope or, when in the South Atlantic, have deliberately chosen the easier but longer route from a North Atlantic to a West Coast U. S. A. port by rounding South Africa in preference to attempting a passage around Cape Horn.

It is not correct to say that the Down Easter came into being "to carry California grain," although it is true that the U. S. A. California and Pacific Coast grain or cereal export trade contributed materially to the demand for square-riggers, particularly during the seventies and eighties, and the Down Easter, being well adapted for this Cape Horn trade, benefited by the business. The clipper bark *Greenfield* is credited with carrying the first consignment of grain from San Francisco to the East Coast in 1855, and this was followed by the clipper ship *Charmer*, which took a cargo of wheat from San Francisco to New York at a reported freight rate of \$28 per ton. In 1860, the records show, 1,088 tons of wheat and 58,926 barrels of flour were exported from San Francisco; in 1870 these export figures had increased to 243,199 tons of grain and 352,969 barrels of flour, and following the big harvest year of 1881 there was shipped in 1881-1882, on 559 vessels, as much as 1,128,031 tons of wheat and barley and 919,898 barrels of flour. We are told that in 1882 freight payments amounted to \$15,000,000 on this business, which had become "the principal field of operations of the American sailing marine," and that the growth of the California grain export trade "provided the chief source of demand for wooden sailing ships after the Civil War." Joseph Nimmo, in the U. S. Treasury Department report in 1885 on "The Commercial, Industrial and Transportation Interests of the Pacific Slope," says that the quantity of cereals produced in California increased from 12,000,000 bushels in 1859 to 68,000,000 bushels in 1884 and that on the entire Pacific Coast it rose from 14,000,000 bushels to 98,000,000 bushels. Exportation provided a market for a large percentage of the grain crop, and about three-quarters of the grain ships loaded in San Francisco Bay, the balance in Puget Sound, Columbia River, etc. The grain movement overseas was reported as increasing from 1,700,000 bushels in 1870 to 25,000,000 bushels in 1879, and the tonnage of shipping clearing Pacific Coast ports for Europe is given by Nimmo in 1860 at only 1,407 gross tons, increasing during the following years as follows:

Year	Tonnage of Shipping Gross Tons	Year	Tonnage of Shipping Gross Tons
1865	43,302	1875	359,307
1871	135,111	1880	488,089

About ninety per cent of the grain cargoes was discharged at British ports, with the balance unloaded chiefly in France, the Netherlands, and Germany. For long years, the California grain trade was handled almost entirely by sailing vessels; but as the bulk of this export trade went to the British market, it was not by any means a movement where American ships were benefited as would have been the case if the destination had been U. S. A. East Coast ports and the trade coastal and protected. W. W. Bates, in *AMERICAN MARINE*, says that the number of vessels leaving San Francisco with grain for Europe in the four-year period ending June 30, 1885, was 1,533, of which 1,521 were sailing ships and only 12 steamers. A government report of the Merchant Marine Commission (1905) says that as late as 1903 the grain fleet consisted of 215 sailing vessels and 15 steamers, and it is evident that the use of steamships on this route prior to the construction of the Panama Canal was rare. That the California grain trade was enjoyed more by foreign shipping than by United States ships and that foreigners obtained a larger percentage of this trade than American ships as the years rolled by are evidenced by the following figures taken from Bates's *AMERICAN MARINE* covering the twenty-year period from 1872-1873 to 1891-1892 inclusive. In 1872-1873, some forty per cent of the ships engaged in the San Francisco grain trade were American, but in 1891-1892 the percentage had decreased to fourteen.

San Francisco Grain Trade

Year	Number of Ships		Year	Number of Ships	
	American	Total		American	Total
1872-1873	136	339	1882-1883	169	371
1873-1874	91	247	1883-1884	81	291
1874-1875	62	265	1884-1885	116	371
1875-1876	82	174	1885-1886	88	249
1876-1877	94	307	1886-1887	55	282
1877-1878	50	109	1887-1888	33	198
1878-1879	83	269	1888-1889	60	289
1879-1880	113	273	1889-1890	55	284
1880-1881	132	356	1890-1891	52	265
1881-1882	154	559	1891-1892	39	273

The variableness in annual yield of crops is very apparent from the above table. The number of ships in the trade does not, however, give a comparison of the amount of cargoes handled per year because of the fact that throughout this period the ships of all nations, for economic reasons, steadily increased in size and capacity. Representative square-rigged ship-builders of Bath, Maine, were the Sewalls and the Houghtons, and the average and maximum sizes of their deep-sea wood ships of the Down Easter type for various periods have been stated as follows:

Calendar Years	Sewalls		Houghtons		Calendar Years	Sewalls		Houghtons	
	Average	Largest	Average	Largest		Average	Largest	Average	Largest
1860-1864	1,080	1,215	1,174	1,248	1875-1879	1,520	1,712	1,613	1,698
1865-1869	1,295	1,764	1,198	1,234	1880-1884	1,925	2,126	1,974	2,081
1870-1874	1,503	1,731	1,436	1,535	1885-1889	2,755	3,054	2,495	2,495
								last	

Bryant gives the average size of wood Down Easters built at Kennebunkport, Maine, as 992 tons for the period 1860-1864, 1,252 tons for 1865-1869, 1,680 tons for 1870-1874, and 1,799 tons for 1875-1879; the one ship built during the period 1880-1885 registered 1,925 tons.

Captain Bates prepared much interesting comparative data for the four years preceding 1886, when the California grain trade was booming, of which the following is a digest:

Nationality and Type of Vessel	No.	Average Tonnage	Average Cargo in Cents	Freight Rate British Shillings and Pence	Passage in Days			No. of Vessels Wrecked, Missing, and Abandoned
					Average	Shortest	Longest	
				s. d.				
American wood sail	418	1,634	52,400	47 - 5 $\frac{3}{8}$	125	105	179	2
American iron sail	5	1,201	40,799	58 - 3 $\frac{3}{8}$	124	108	140	—
British wood sail	198	1,272	42,394	51 - 9 $\frac{3}{8}$	131	96	150	4
British iron sail	761	1,356	44,618	51 - 5 $\frac{1}{16}$	130	91	181	6
British steamers	11	1,761	61,330	59 - 8 $\frac{3}{4}$	84	66	91	1
German wood sail	39	1,196	37,697	49 - 0 $\frac{7}{8}$	135	118	157	—
German iron sail	41	1,007	31,999	48 - 3 $\frac{1}{2}$	136	112	168	—
Norwegian wood sail	20	929	29,346	54 - 9 $\frac{3}{8}$	127	114	151	—
Norwegian iron sail	2	1,111	37,771	50	137	136	138	—
French wood sail	16	628	20,680	58 - 9 $\frac{3}{8}$	139	125	165	1
French iron sail	7	806	27,541	50 - 8 $\frac{1}{2}$	151	138	169	—
Italian wood sail	12	881	28,527	46 - 2	141	128	158	1

The discrimination by the British against American wood ships is as conspicuous as it was unjust, and the handicap to American wood ships in the trade is reflected by the figures of freight rates in sterling. Captain Bates rightly accounts for the driving of American ships from the California grain trade, for which Down Easters were ideal, because of the high insurance rates made by the British Lloyd's on American wood ships, which adverse differentials were thoroughly unwarranted by facts and were prejudiced and intentionally discriminatory. A British wood sailing ship received 4 $\frac{1}{3}$ shillings more freight revenue than an American wood ship, and the handicaps to which American ships were subjected in the trade were legion, the object being to create conditions that would compel the carrying of California grain to British ports in British ships. Captain Bates states that an average of 90 square-riggers per annum was built in the United States during the period 1865-1870. This tonnage construction of American wood ships dropped to 28 ships per annum during 1871-1873. During the four good years from July 1881 to July 1885, an average of 32 ships per year was built, but because of the attitude of the British Lloyd's and the increase of insurance rates on American wood ships, the number of ships (Down Easters) built per annum "dropped to 11 in 1886, 7 in 1887, 4 in 1888, and 1 in 1889, in which year there were 30 Down Easters employed in the San Francisco trade to the United Kingdom and Continent of Europe as against 167 British ships, 11 German, and perhaps a dozen of other nationalities." Captain Bates, in his *AMERICAN MARINE*, made a plea for the protection of American ships, but as Basil Lubbock, the British marine historian, says: "He never succeeded in effecting his object. Congress would not listen and in the end the 'Down Easter' was driven out of the foreign trade and compelled to rest content with the American inter-coastal trade around the Horn." Lubbock admits that the American Down Easter was "a magnificent type of a wooden full-rig ship, known the world over for her smart, spick and span appearance and fierce discipline." He adds, "It was to San Francisco and her grain that these fine ships mostly owed their dividends." Writing of Britain's rise as a mercantile marine power, Lubbock refers to the "great [American] financial depression of 1857, then the devastating North and South War, and, right on top of this, the advent of iron into shipbuilding, which gave Great Britain an immense advantage in the world trade, helped, as she undoubtedly was, by unwise American navigation and tariff laws."

(a) *Henry B. Hyde*

The best of the Down Easters and one of the very finest of all full-rigged ships sailing the Seven Seas at any time and under any flag was the *Henry B. Hyde*, designed and built by John McDonald, Bath, Maine, for Pendleton, Carver & Nichols, of Searsport, Maine, a partnership of three sea captains. The "*Hyde*" was launched from the Bath shipyard of Flint & Company on November 5, 1884, and twenty-six days later was at her loading berth in New York. At the time that she slid into the Kennebec River, she was the largest ship ever built in Maine. The registered dimensions of the vessel were: length 267.9 ft., beam 45 ft., depth 28.8 ft.; tonnage 2,583 tons gross and 2,462 tons net. (Her length of keel was stated as 260 ft. and "hull over-all," 290 ft.) The "*Hyde*" was well built; she had a heavy white oak frame and 5-in. southern hard pine planking with diagonal cross bracing by metal straps in 45-ft. lengths, each 5 in. wide and $\frac{5}{16}$ in. thick, and 210 tons of iron were used in her construction. The vessel's underwater body was sheathed with copper before the hull was launched. The lower yards on both foremast and mainmast were 90 ft. long (or twice the beam). She had wire rigging and was proclaimed by authorities as "undoubtedly one of the finest wooden ships ever built in this or any other country." The cost of the *Henry B. Hyde* was stated at \$127,000, which figures a little over \$49 per gross ton and seems to be a low cost for a ship of her quality, completely equipped.

Basil Lubbock, who classifies Down Easters as American deep-water sailing ships built from 1869 to the end of sail, says of the *Henry B. Hyde*, "This magnificent vessel has always been considered the finest and fastest three-masted sailing ship built under the Stars and Stripes since the clipper ship era," and, again, he says that the *Henry B. Hyde* was "generally considered to be the finest Down Easter ever built." Upon her arrival in New York on December 1, 1884, to load before sailing on her maiden voyage around the Horn, the publication SHIPPING LIST said of the vessel: "The *Henry B. Hyde* is as fine a specimen of marine architecture as ever entered this or any other port, and as speed has not been entirely overlooked in the make-up of her model, it is expected that she will make good time on her run out to the Golden Gate."

The "*Hyde*" sailed from New York on February 24, 1885, under the command of Capt. Phineas Pendleton 3rd (with a crew of twenty-four men and a total of "34 aboard—all told"). She experienced bad gales, with heavy seas, and lost her fore and main topgallant masts when 16 days out, but she reached San Francisco on June 27 after a run from dock to anchorage of 123 days. (She was 92 days from New York to the Pacific equator.) The "*Hyde*" then loaded 82,234 centals of wheat at 27 shillings a ton and sailed from San Francisco for Liverpool on October 29, 1885. She passed Cape Horn on the 47th day and the Atlantic equator when 75 days out and arrived on February 2, 1886, after a record run for a post-clipper ship of 96 days (95 days 6 hours to Point Lynas); the vessel then made a fast transatlantic passage from Liverpool to New York in only 22 days "against the westerlies." Upon her return to New York, the *Henry B. Hyde*, in completing her first round voyage, had logged 35,103 nautical miles under fair and adverse conditions of both wind and sea in 241 sailing days and had carried 8,800 long tons of paying cargo. Her average day's run was $145\frac{2}{3}$ miles, and the average speed covering her entire period of about eight months at sea was well over 6 knots per hour.

Of sixteen completed round voyages of the *Henry B. Hyde* in the around-the-Horn, North Atlantic-North Pacific trade, thirteen runs were from New York and two from Baltimore to San Francisco and one from Norfolk, Va., to Honolulu. Before she was put into the coal trade, her average time for twelve passages from New York to the Golden Gate was $119\frac{2}{3}$ days, and her average speed was about 5.6 knots per hour when she was engaged in this severe westward run. In 1889-1893, the "*Hyde*" made four consecutive runs between New York and San Francisco in 108, 108, 105, and 112 days, respectively. This was splendid and consistently fast sailing for a Down Easter that really carried "a big cargo for her inches

and tonnage." This average of 108¼ days for four consecutive westbound around-the-Horn passages is a record for "burdensome ships" of the Down Easter type or for any corresponding class of cargo carriers propelled by wind. The average speed for the entire 433 days at sea under canvas was about 6.2 knots per hour. The *Henry B. Hyde* suffered misfortune in her later years, as did other vessels, when she was put in the coal trade and fire interfered with her sailing performance. Notwithstanding misfortune and handicaps, the all-time average of the "*Hyde*" in her westward runs to the Golden Gate is stated as 124 days (longest passage 153 days, "with nothing but adverse winds throughout and very bad weather off Cape Horn").

On her return passage from the Pacific, the *Henry B. Hyde* made seven grain runs from San Francisco to Liverpool, four to New York direct from the Golden Gate, and four from Honolulu to New York. On the sixteenth of her passages eastbound around Cape Horn, she loaded nitrate at Caleta Buena. The average time of the "*Hyde's*" seven runs from San Francisco to Britain was 106.6 days; the best passage was a splendid run of 96 days, and the slowest was made in good time, viz., 114 days. The average time of the four runs eastward to New York was 106.7 days, with two fast runs of 88 and 94 days, respectively, and one passage of 135 days against extremely adverse conditions. The average of eleven passages from San Francisco to North Atlantic ports was 106.6 days, with three runs of 96 days or better and nine of 111 days or better. Her first nine eastward Cape Horn runs from San Francisco to North Atlantic ports averaged only 103.1 days, and seven of them were to Liverpool. The 88-day passage from San Francisco to New York (reported by owners as 87 days from the Golden Gate to Sandy Hook) was made, sugar laden, in 1888 with Capt. John G. Pendleton in command. The run was remarkable, as good sailing weather was not experienced in the Pacific (the ship was becalmed for ten days near the equator), and Cape Horn was rounded on the 50th day out. In the Atlantic, however, the "*Hyde*" did some great sailing, running to the equator in 19 days and from the equator to New York in another 19 days, thus making the entire Atlantic run from Cape Horn (not 50° S. Atlantic, the point of usual figuring) in the unprecedented time—for any post-clipper—of 38 days to port. In the four passages from Honolulu to New York, the fastest run was 100 days, another 104 days, a third 109 days, and the slowest 133 days, with an average of 104 days for three passages and of 111½ days for all four runs. (Lubbock, the British historian, says that she made a run in this trade of only 89 days homeward bound with sugar from Honolulu on her eleventh voyage.) The passage from Caleta Buena to New York, deep laden with Chilean nitrate, was made in 80 days despite some severe weather and the loss, when ten days out, of the jib boom, the fore and main topgallant masts, and several yards.

It is said that the average speed at sea on all the *Henry B. Hyde's* eastward around-the-Horn, North Pacific-North Atlantic voyages was 5.9 knots per hour, with her fastest passage showing an average of about 7 knots per hour. In 1889 the vessel ran from San Francisco to Honolulu in 9 days 4½ hours. This was "a fine bit of fast sailing, as she averaged for the distance as logged about 10½ knots per hour." On one occasion, she covered the distance between the equator and the Golden Gate in 15 days, equaling on this fine run the sailing performance of the yacht-like fast clippers of the fifties that had been built primarily for speed. On twenty-two consecutive and complete long ocean passages, the "*Hyde*" is said to have averaged, "under all conditions of sailing, 5½ knots per hour," and a historian has said that "this would seem to be an all-time record—considering cargoes and the total mileage covered—for speed under sail."

Capt. James G. Baker of the British-built "flyer" *Kenilworth* (known as "the clipper of the Sewall fleet"), on a run from New York to San Francisco, reported an encounter with the *Henry B. Hyde* on March 16, 1892, which is typical of the experience of many believedly fast sailers when they came up against the Bath-built wood Down Easter at sea. During the daylight hours of one day, the "*Hyde*" crept up on the fast-sailing *Kenilworth* from astern,

sailed close to and passed her, and was hull down ahead when what Captain Baker declared must be "the fastest ship afloat" disappeared from view and was not seen again. The *Kenilworth* had all possible canvas piled on her, and Baker resorted to every bit of strategy that he could think of, but the "*Hyde*" sailed nonchalantly by. The skipper of the *Down Easter* thought so little of the incident that he never made any particular report about it, merely recording: "Spoke and passed the *Kenilworth*." Sailing up on, and passing, other ships at sea was a habit with the "*Hyde*," and no sailing vessel throughout her career ever turned the tables on her. Captain Baker, writing of the bad beating given his ship by the "*Hyde*," said that the *Kenilworth* during all her passages on the Seven Seas had encountered only one other ship that had the footing to "get away from us." The race with the *Henry B. Hyde* took place soon after the steel four-masted shipentine *Kenilworth* came out of dry dock with her bottom, as reported by Captain Baker, "cleaned and painted in satisfactory manner"; so the usual excuse of an iron or steel ship when beaten by a wood ship (i.e., that "her bottom was foul") did not apply and, moreover, was not used. Captain Baker frankly declared upon reaching port: "The *Hyde* came up astern, passed and outsailed us giving my ship an awful licking. I have no excuses to offer. She is a much faster ship than the *Kenilworth*." The *Kenilworth* is credited with a westward Cape Horn passage of 103 days from New York to San Francisco, which is fast clipper ship time.

In 1886 the *Henry B. Hyde*, under tow in San Francisco Bay, was badly damaged by collision with the ship *Parker M. Whitmore*, and both ran afoul of the whaling bark *Northern Light*, all three square-riggers suffering injuries.

The proper operation of square-riggers was becoming almost impossible in the 1890's. Capt. D. A. Scribner, on the arrival of the *Henry B. Hyde* at San Francisco in December 1897, reported that "there was not a single sailor among the crew"; that the crew members were "toughs," rough characters, and all "thoroughly inexperienced and incompetent" and, furthermore, unwilling and belligerently mutinous during the entire passage. It was said, "Capt. Scribner and officers were at the mercy of the forecabin mob without having any recourse; they were allowed merely to navigate the ship while the crew did as they pleased."

In October 1899, the "*Hyde*" was sold with the rest of the large fleet of sailing ships owned by Flint & Company to the California Shipping Company, of San Francisco. With the change of owners, the *Henry B. Hyde* was put into a different class of trade and operated "cheaply." She was not "kept up" and was poorly manned "before the mast." When the ship was taking coal from Norfolk to Honolulu in 1899-1900, her cargo caught fire off the Horn, and she had to put into Valparaiso to discharge and salvage it. Seven weeks later, with 1,700 tons of reclaimed coal aboard, the "*Hyde*" ran from Valparaiso to Honolulu in 38 days. In 1902, when making a coal run from Baltimore to San Francisco, the cargo again became "badly heated" as the ship approached Cape Horn in the South Pacific. Captain McLeod, in command, refused to take a chance with "a ship on fire in bucking westerly gales and high seas," which he felt would be "inevitably encountered in making a westward rounding of the Horn," so he changed his course and ran for Table Bay, South Africa, where the "*Hyde*" arrived August 19, 93 days out from Baltimore. Six hundred tons of coal affected by the fire (due to spontaneous combustion) were discharged, and the remainder of the cargo being deemed "safe" upon examination, the "*Hyde*" again put to sea and reached San Francisco on December 25, 1902, 82 days out from Cape Town. After discharging and loading, the ship returned to New York in 110 days.

On February 19, 1904, on her way to Baltimore to load coal for San Francisco, the *Henry B. Hyde* broke adrift from her tug during a heavy gale and was driven ashore on the Damsbek Beach, Virginia, some ten miles south of Cape Henry. She became badly "sanded up," but was refloated on September 23 only to become hopelessly stranded and badly damaged during another severe storm. This time she could not be moved and floated, so was finally dynamited in 1905 and salvaged. Thus the career of a splendid vessel—"the Queen of all Down Easters"—was ended after twenty years of a strenuous and successful life. The

first fifteen years covered a period in which a good, fast wooden carrier propelled by wind had a chance on long voyages, such as the Cape Horn run (with the protection that bars foreigners from U. S. A. coastwise trade), to pay in competition with iron and steam.

(b) *A. G. Ropes*

Basil Lubbock, the marine historian, has written, "The only vessel which could in any way dispute the *Henry B. Hyde's* claim to be the finest full-rigger under the Stars and Stripes was I. F. Chapman's *A. G. Ropes*." This vessel was built in the Bath, Maine, shipyard of I. F. Chapman & Company, shipping merchants of New York, for its own account by John McDonald, designer and master builder, and she was launched into the Kennebec River in November 1884 a few days after "McDonald's other masterpiece, the *Henry B. Hyde*," had been put overboard. The *A. G. Ropes* was 258.2 ft. long, 44.7 ft. beam, 28.5 ft. deep (20.7 ft. to the main deck), and of 2,460 gross and 2,341 net tons. The "*Ropes*" was the last and largest of the Chapman "Famous Four Down Easters," the *E. B. Sutton*, *I. F. Chapman*, *S. P. Hitchcock*, and *A. G. Ropes*. The last three, named after members of the firm of I. F. Chapman & Company, were built in 1882-1884.

The *A. G. Ropes* was constructed for the California trade, and aside from a few voyages with case oil to the Orient, her career was spent on the run between New York, San Francisco, and Great Britain. She was an outstandingly fine vessel and "competed in glory" somewhat with the *Henry B. Hyde* as America's leading Down Easter built for and engaging in the around-the-Horn service. When she was completed, Mr. Chapman said of the *A. G. Ropes*, "This vessel is, in my opinion, the limit of size for wooden ships and the last one I will build, for the day of wooden ships will have passed before she is twenty-five years old, if she remains afloat that long. The days of sail will also have passed to steam by that time, if not before."

The "*Ropes*" never raced with the *Henry B. Hyde*, as their passages never seemed to coincide, but the shipping fraternity conceded the "*Hyde*" to be "the smarter ship" and to have "just a little the best of it as regards speed." The *A. G. Ropes* never equaled the 88-day passage of the "*Hyde*" from San Francisco to New York or the 96-day run to Britain. However, the "*Ropes*" made a passage of 93 days from the Golden Gate to New York and a 104-day run to Britain, her best eastbound passages being five and eight days longer, respectively, than the corresponding fastest runs of the *Henry B. Hyde*. Westbound, the *A. G. Ropes* made a Cape Horn run from New York to San Francisco in 104 days, which was a day shorter than the fastest (105-day) passage made between the same ports by the "*Hyde*."

The average of the "*Ropes's*" first ten westbound passages to San Francisco was 120 days, the two fastest being 104 and 107 days and the slowest 138 days, but on none of these passages did she experience unusual, heavy weather. Returning eastbound, the ship made nine passages from the Golden Gate to Britain, one in 104 days, two in 106 days, and the average in 117 days. Two eastward around-the-Horn passages were made to New York in 93 days and 107 days, respectively, and the average of eleven passages from San Francisco to North Atlantic ports was 114 days. The fast 93-day run to New York was made when she was "light," in ballast, and on this passage the "*Ropes*" was delayed somewhat by saving the crew of the abandoned British bark *Glenperis* off the Horn and landing these men at Pernambuco. (The Bath-built Down Easter *Benjamin F. Packard* of 2,076 tons, laden with general cargo, sailed from San Francisco in company with the "*Ropes*" and reached New York on July 18, 1892, one day after the "*Ropes*," having made a fast run, loaded, in 94 days.)

It is claimed for the *A. G. Ropes* that in 1885-1886 she made a round voyage of 227 deep-sea sailing days from San Francisco to Britain, thence to New York and back to San Francisco, and that during this round trip she did the best sailing of her career. This voyage consisted of the following passages between the various ports:

San Francisco to Cork (Ireland).....	104 days
Liverpool to New York.....	19 days
New York to San Francisco.....	104 days
	227 days
Total	227 days

The run eastbound to Cork was obviously shorter than a passage to Liverpool. The westward crossing of the Atlantic in 19 days was an unusually fast run made under surprisingly favorable conditions. The "*Ropes*" left Liverpool in company with another Kennebec-built Down Easter, the *Commodore T. H. Allen* of 2,271 tons, and the ships sailed together for a week, but reached New York in 19 days within an hour or two of each other.

One of the best speed efforts of the "*Ropes*" was a trans-North Pacific passage of 24 days in November 1887, when she carried a load of tea from Yokohama, Japan, to Tacoma, Wash. The distance logged was 4,580 nautical miles, which gives an average run of 191 miles per day and an average speed of a scant 8 knots per hour for three weeks and three days of steady sailing.

It has been said of the *A. G. Ropes*, "She not only maintained a wonderful average in her passages out and home around the Horn but also kept singularly free of trouble of every sort." However, she had two calamitous experiences in addition to the partial dismasting outside of New York in July 1888, when she put into Provincetown on Cape Cod, nine days after sailing, with nineteen spars carried away. On her last voyage from New York to San Francisco, in 1899-1900, Capt. D. H. Rivers reported severe gales and heavy weather off the Horn, the twisting of the ship's rudderhead, crashing through ice, dodging icebergs, and a narrow escape from going ashore. He finally turned around and headed east, reaching the Golden Gate via the Falkland Islands (for repairs) and the Cape of Good Hope after a passage of 204 days from New York and 104 days from the Falkland Islands.

In August 1905, the *A. G. Ropes*, bound to Baltimore from Hong Kong, was towed into Kobe dismasted and badly damaged by a vicious typhoon. As the cost of repairs was estimated at about forty thousand dollars, Captain Rivers rigged her up as best he could and made the passage home to New York under sail and partly "jury-rigged"—a most courageous undertaking and demonstration of ability. After arrival in New York, the vessel was sold to Lewis Luckenbach and converted into a towing barge; she was operated as such until the end of 1913, when she was twenty-nine years old.

(c) *S. P. Hitchcock*

The Bath-built Down Easter *S. P. Hitchcock* of 2,178 net tons was launched from the yard of Isaac F. Chapman in October 1883. She was named in honor of Samuel P. Hitchcock, Mr. Chapman's brother-in-law. Following the dissolution of the firm of Chapman & Flint, S. P. Hitchcock had been Mr. Chapman's master builder, although John McDonald continued to be employed in an advisory capacity in the design of the vessels built.

With Capt. Joshua B. Nichols in command, the *S. P. Hitchcock* left New York on December 22, 1883, on her maiden voyage. A new ship, the *John R. Kelley* of 2,254 net tons (also launched at Bath, Maine, in October 1883), had sailed from the same port on November 29, and before departure, her captain, Capt. Thomas P. Gibbons, had promised Captain Nichols to be on hand to assist in mooring the "*Hitchcock*" upon her arrival in San Francisco. The *S. P. Hitchcock*, however, arrived at San Francisco on April 4, 1884, after a good westbound Cape Horn passage of 104 days; whereas the *John R. Kelley* did not pass the Golden Gate until April 6, completing a run of 129 days from New York. The "*Hitchcock*" made a splendid run on the Pacific and covered the distance from the equator to San Francisco in the fast time of 19 days. While Captain Nichols was in the "*Hitchcock*," that vessel made five passages in the New York-to-San Francisco, around-the-Horn service, and the average of these runs was 111 days. Two of the passages were made in 101 days each, which was

phenomenally fast sailing for a Down Easter, and these two runs, as well as the average of her five runs, have never been beaten in point of time by any sailing vessel of the fullness and cargo-carrying type of the "*Hitchcock*." Although the Down Easter *Henry B. Hyde* holds the record for post-clipper ships for four consecutive westward passages around Cape Horn (108¼ days), her average for five successive passages was 112½ days. Of the *S. P. Hitchcock's* return eastbound passages around the Horn under Captain Nichols, one was in the Chilean nitrate trade, but the other four were runs from San Francisco to Liverpool and averaged 116 days. Lubbock says that the *S. P. Hitchcock*, under Captain Nichols, "arrived at Liverpool on June 16, 1886, only 91 days out from San Francisco."

Under Capt. Frank L. Carver, a nephew of Captain Nichols, the "*Hitchcock*" made a run from New York to San Francisco and returned to Liverpool, the latter leg of the voyage being negotiated in 107 days. Capt. E. V. Gates succeeded Captain Carver in 1891 and continued (except for one voyage made in 1901 by Capt. Orris H. Fales) until December 1905. The passages of the *S. P. Hitchcock* under Captain Gates did not show up so well in regard to speed, but these runs were invariably made in unfavorable seasons of the year. Under Captain Nichols, the "*Hitchcock's*" average time from New York to the equator was 24½ days, and the average time in rounding the Horn was 12½ days; under Captain Gates, the same vessel averaged 40 days from New York to the equator and 33 days in rounding the Horn from 50° S. Atlantic to 50° S. Pacific. Captain Gates had a fine reputation for getting along well with his crew, and it was said: "There was no scrimmaging on the main deck on his ship, no belaying-pin soup on dark nights, no booting off the yards, no lurid curses or savage blasphemies and the boarding house runners had to use the strongest dope to entice the men away from the 'good ship.'" Captain Gates undoubtedly "kept his ship shining," and it is said that he "drove her hard" and got good work out of the men with no "yelling, hazing or ill-treatment," and no "bucko" officer with brass knuckles, belaying pin or boot; but the fact remains that the *S. P. Hitchcock*, which made amazingly fast passages under Captain Nichols, was generally a mediocre sailer under Captain Gates.

The average of Captain Gates's seven passages on the "*Hitchcock*" from U. S. A. Atlantic Coast ports to San Francisco was 143 days, the shortest being a run of 130 days. Of the return passages around the Horn eastbound, three were to New York and were made in 129, 113, and 119 days, respectively; two were to Liverpool and took 119 and 110 days. One from Honolulu to New York in 1897 was negotiated in the fast time of 92 days, and one in 1899 from Hilo to the Delaware was made in 106 days. The voyage of the *S. P. Hitchcock* under Captain Fales in 1901 was from New York to Sydney and took 97 days. The run home from Sydney to San Francisco was made in the splendid time of 52 days.

It is a strange coincidence that the ship *S. P. Hitchcock*, built by Isaac F. Chapman at his yard in Bath, Maine, was sent to her destruction, during a typhoon at Hong Kong in September 1906, by the ship *I. F. Chapman* of 2,038 tons (named after her owner-builder), which had been launched in the same yard exactly one year previously. The "*Chapman*" dragged down upon the "*Hitchcock*" and caused that vessel to part her moorings and set against the Kowloon breakwater, where she was pounded to destruction; the anchors of the "*Chapman*" held, and she was brought up with but slight damage.

(d) *Jabez Howes*

The *Jabez Howes* of 1,581 tons was launched at Newburyport, Mass., in October 1877 from the yard of John Currier, Jr. She was a long time on the stocks, there being about sixteen months between the time that the keel was laid and the date of launching. The "*Howes*" was modeled after the Maine Down Easters. She showed good speed and carried large cargoes for a ship of her tonnage. When running from Atlantic ports to the West Coast around Cape Horn in the coal trade, she loaded about 2,250 tons, and it is said that when engaged in the Pacific coastwise trade she carried, deep laden, 2,600 tons; her wheat

cargoes from San Francisco to Europe were generally about 2,320 tons. For many years, the *Jabez Howes* was classed by some authorities with the Boston half clippers *Great Admiral*, *South American*, and *North American*, built before her (1869-1876), and later the owners of the "*Howes*" endeavored to place her in the same class as the *Henry B. Hyde* and *A. G. Ropes*—the outstanding Down Easters built at Bath, Maine, in 1884.

Prior to 1900, the "*Howes*" was steadily employed between North Atlantic ports and California. In this trade, she made seventeen passages to San Francisco and two to ports in Southern California. Her average of runs to San Francisco was 127 days (124 days for sixteen of them), the two fastest runs being 106 and 109 days and the slowest a passage of 169 days made under adverse sailing conditions. The average of her eighteen passages from San Francisco to North Atlantic ports was 110 days, the fastest runs to New York being in 95, 97, 100, and 101 days. When the "*Howes*" made her fastest passage of 106 days to the Golden Gate in 1893, she was sixteen years old and, when making this run, beat the big Sewall wood shipentines *Susquehanna* and *Roanoke* by sixteen days and nineteen days, respectively. In 1887 the "*Howes*" made her only Cape of Good Hope voyage, going out to Melbourne from New York in 80 days and then home from Manila.

The original owner, George Howes & Company, suspended operations in 1880, and John Rosenfeld, of San Francisco, took over the Howes fleet of sailing ships, among which—in addition to the *Jabez Howes*—were the celebrated clippers *Young America* and *David Crockett*. In 1899 the *Jabez Howes* made her last passage from an Atlantic port and, following her arrival in San Francisco, was acquired by the California Shipping Company, which owned a large fleet of old sailing ships. From 1900 until 1907, the "*Howes*" operated in the Pacific, generally carrying lumber cargoes from Puget Sound to Australia and returning to San Francisco or Honolulu with coal. In 1907 she made a voyage to South Africa with lumber and upon return to the Pacific Coast was purchased by the Columbia River Packers' Association, which operated her in conjunction with its salmon canneries in Alaska. On April 17, 1911, when thirty-four years old, she was driven ashore in a gale upon arrival at Chignik from Astoria and became a total loss.

The *Jabez Howes* is generally conceded to be the best vessel of the Down Easter type built outside of the state of Maine and the city of Bath in the seventies or eighties.

(e) *Charles E. Moody*

The ship *Charles E. Moody* was built at the yard of Goss & Sawyer (later, New England Shipbuilding Company) at Bath, Maine, and was launched November 9, 1882. She was of 2,003 tons gross and 1,915 tons net register. Charles E. Moody, merchant, of Boston, was one of the principal owners. Prior to 1899, the vessel operated primarily from Atlantic ports and San Francisco or Puget Sound on the Pacific, making thirteen westward Cape Horn passages. Four voyages westbound originated in Liverpool, seven in New York, and one each from Baltimore and Philadelphia. All these runs were made in good time, and the average of the eleven to San Francisco was 125 days. The ship did good and consistent sailing, for her shortest passage between these ports westbound was 115 days and the longest only 135 days. The average of the passages from San Francisco to Liverpool was 114 days, 102 days being the shortest and 121 days the longest run. The "*Moody*" made six runs from the Golden Gate to New York, one of which was made in the fast time of 100 days; the slowest occupied 121 days, and the average for the six was 114 days.

The *Charles E. Moody* was a very well-built Down Easter, and the record of her voyages shows that at no time when she engaged in the service for which she was built did she suffer any material damage to hull, spars or rigging. She was sold by the original owners in 1899 to Lewis, Anderson & Company, of San Francisco, at a good price and ten years later was resold to the Northwestern Fisheries Company. After operating on the Pacific as a "salmon

packer," she was destroyed by fire at Bristol Bay, Alaska, on June 20, 1920, when thirty-eight years of age.

(f) *Florence*

The *Florence*, a Down Easter of 1,604 tons built by Goss & Sawyer at Bath, Maine, was launched in October 1877. On her maiden voyage, she left Bath on November 19, 1877, and ran down to Hampton Roads in 68 hours, then crossed from Norfolk to Liverpool in 16 days, and from that port went to New York in 29 days. The *Florence* sailed from New York on April 20, 1878, on her first voyage to San Francisco and made a fast run, arriving there in 106 days. During this passage, she ran from 50° S. Pacific to the equator in 15 days, and thirteen days later she was only 670 miles from the Golden Gate. (This performance is believed to be a record run.) To cover the remaining 670 miles, however, required 15 days because of light variable winds and calms, with fog near the coast. From San Francisco, the *Florence* went to Liverpool in 104 days. Capt. John R. Kelley was her commander.

The next five voyages of the *Florence*, under Captain Leonard, averaged 132 days from Atlantic ports to San Francisco and 120 days on the return eastward passage. The shortest westbound run was made in 130 days and the eastbound in 108 days.

Captain Duncan took command of the ship in January 1885 and was master until she was sold on the Pacific in September 1898. During this period, the *Florence* made nine passages from Atlantic ports to San Francisco, the average of which was 132 days (fastest, 112 days; slowest, 153 days). The average of the runs eastbound was 123 days (one of which was from Tacoma). The shortest eastbound runs were one of 113 days to Liverpool and one of 116 days to New York. The longest passage was 132 days to Liverpool. On her voyage in 1887-1888, the *Florence* made the run to Liverpool in 125 days, discharged, caulked and coppered her bottom, loaded a full cargo of coal, and went back to San Francisco in 112 days, being only 8 months 18 days on the round voyage, port to port, including all detentions.

In 1880 the *Florence* took a cargo of wheat from San Francisco to Rio de Janeiro in 73 days and then sailed to Baltimore in 40 days. In 1888-1889 she went to Sydney from San Francisco in 45 days, took coal to San Diego, Calif., in 68 days, and from there sailed to Tacoma in 20 days.

In September 1895, the *Florence* made a passage to the East Indies, discharged cargo at two ports in Java, went to Manila, and returned to New York, being 97 days from Anjer home. The next voyage was from New York to Sydney in 104 days, then from Newcastle to Manila in 40 days (which passage was said to be a record run), and from Manila to Philadelphia, which she reached 91 days from Anjer. From Philadelphia she went to San Francisco on her last Cape Horn voyage and arrived there in August 1898, after a passage of 132 days. Lubbock credits the *Florence* with a run from Newcastle to Honolulu in 35 days.

In 1893 the *Florence* and eight other first-class ships left New York for San Francisco within a reasonable time of each other. The passage of the *Florence*, which took 130 days, was eleven days shorter than that of her nearest rival, the *Baring Brothers*, which had sailed in company with the *Florence*, and sixteen days shorter than that of her next nearest rival, the *Joseph B. Thomas*. The *Florence* beat the six other ships in times that varied from twenty-two to forty-nine days, and one of these vessels was the big Sewall four-masted shipentine *Shenandoah* under the command of Capt. "Jim" Murphy.

In late 1898, the *Florence* was sold to San Francisco parties and operated in the Pacific lumber and coal trades. In December 1902, she left Tacoma heavily laden with coal bound for Honolulu and, when over twenty-five years of age, "went missing." It was feared that the big ports that had been cut into the vessel's stern to facilitate the loading of lumber had worked loose during terrific gales (known to have prevailed in the North Pacific at the time of her passage) and caused the foundering of the vessel.

(g) *M. P. Grace*

The *M. P. Grace*, a typical cargo-carrying and well-rigged Down Easter and one of the most prominent square-riggers of her time, was built by Chapman & Flint at Bath, Maine, and launched July 20, 1875. She was constructed for the California trade and registered 1,928 tons gross and 1,863 tons net.

Prior to her sale by Flint & Company in March 1898 to salmon canneries people operating in Alaska, the *M. P. Grace* made twenty passages around the Horn westbound from New York to San Francisco and, returning, made eleven direct runs to New York, six to Liverpool, one to Antwerp, and one by way of Peru, where she loaded guano.

On her maiden voyage from New York to San Francisco, the *M. P. Grace* covered 16,250 miles and made the run in 102½ days, beating the half clipper *Seminole* by ten days. The daily average was stated by the official log as 159.3 miles and the average speed as 6⅔ knots per hour. The best day's run on the passage was 300 miles (12½ knots speed), the best week's run 1,454 miles (an average speed of 8⅔ knots), and the poorest week's run was 804 miles (an average speed for seven days of 4.8 knots per hour). On this passage, the vessel sailed from 50° S. Pacific to the equator in the fast time of 17 days—a fine performance that she repeated in 1881. On her third outward passage, the *M. P. Grace* made the run in the fast time of 102 days, and during this voyage she ran from the equator to 50° S. Atlantic in 23½ days. These two westbound passages of the vessel, averaging only 102¼ days, port to port, and showing periods of most excellent speed and alternate periods of "dull conditions for sailing," compare most favorably with the performances in the 1850's of the extreme clippers, which, with their speed, carried but very little deadweight of paying cargo. The only vessel since the "clipper decade" that is credited with two fast runs from New York to San Francisco equaling the sailing performance of the *M. P. Grace* is the bigger *S. P. Hitchcock* of 2,292 tons, another Bath-built Down Easter, constructed in 1883, which in 1887 and again in 1889 covered the course in the remarkable time of only 101 days. Between the two phenomenally fast westward Cape Horn passages of the *M. P. Grace*, on the first of which she beat the half clipper *Seminole* by ten days, there was an intermediate passage made in good time; but on this run (the second voyage for the *M. P. Grace*), the *Seminole* got her revenge and beat the fuller-modeled and more moderately canvased Bath-built Down Easter by seven days on the passage around the Horn to San Francisco.

Capt. Robert P. Wilbur commanded the *M. P. Grace* during her first eight years of service. He made seven westward runs to San Francisco in the vessel, and the average time for these passages was 115 days, the best runs taking 102, 102½, and 107 days and the longest 132 and 125 days. Returning eastward, his average was 112 days, the fastest being runs of 101 days to New York and 106 days to Liverpool. Capt. Thomas C. Williams, who succeeded Captain Wilbur in command of the *M. P. Grace*, made six round voyages in her and persistently reported encountering much adverse sailing weather—mostly prolonged calms. His average time for the westbound runs was 135 days and for the eastbound passages 116 days, the fastest being 106 days to New York, 110 days to Liverpool, and 111 days to Antwerp. Under Captain Williams, the *M. P. Grace* had one unfortunate long passage westbound, being forced to put into Rio de Janeiro for repairs and replacements of spars as a result of a violent squall, which also swept two men overboard. On another westward run, however, Captain Williams rounded Cape Horn from 50° S. Atlantic to 50° S. Pacific in the fast time of only 9 days. In 1890, Capt. M. B. Cook, as relief command, made a run westward in 134 days, experiencing all kinds of weather. Then Capt. J. de Winter was master of the vessel for five voyages, and he encountered consistently bad sailing conditions of wind and sea. On one passage, it took the *M. P. Grace* 40 days to round the Horn; yet the ship did some good sailing when she experienced favorable winds, for she ran from the equator in the Pacific to San Francisco in only 17 days. The average time of Captain de

Winter's westbound passages was 153 days; eastbound the average was better, being 115 days, with one run to New York in 101 days.

After being employed in the northwestern fisheries trade from 1898 to 1906, the *M. P. Grace* took a cargo of lumber from Puget Sound to the East Coast, where she was sold when thirty-one years old to be converted into a barge. She later foundered when in tow off Shenecock Light, New York.

(h) *Gatherer*

The ship *Gatherer* of 1,509 tons was built by Albert Hathorn, of Bath, Maine, and was launched in August 1874. Her first voyage was from Bath to New Orleans with hay. She then took cotton to Liverpool and crossed to Philadelphia to load coal for Honolulu. From Honolulu the *Gatherer* proceeded to the Columbia River and loaded wheat for Liverpool. She then made two voyages to Hong Kong with coal, following which she was put on the Cape Horn run between Atlantic and North Pacific Coast ports and continued therein until sold in April 1888 to Jacob Jensen at San Francisco for coastwise and offshore trade on the Pacific, for which service she was rigged as a bark. After owning her for seventeen years, Jensen sold the vessel to New York parties, and the *Gatherer* took a cargo of lumber from Puget Sound to New York in 1905-1906. When thirty-two years of age, the ship was converted into a coal barge, and on November 29, 1909, while in tow and laden with 2,400 tons of coal, she was lost off the coast of Virginia.

The *Gatherer* had a good reputation for delivering cargoes in excellent condition and for generally making good voyages. The average of her eight passages around the Horn to San Francisco or other North Pacific ports from North Atlantic ports was 129 days, and that of the seven returns, all being with wheat to Europe, was 122 days. She made a run from Honolulu to the Columbia River in 1875 in 14 days, on three of which days she is credited with covering 375, 350, and 348 miles, respectively, evidently in ballast. This is extremely fast sailing for a Down Easter, being at the rate of over 15½ knots per hour for the best day and an average of a scant 15 knots for the three days. In 1890 the *Gatherer* sailed from Nanaimo to San Francisco in 4 days 10 hours, beating the steamer *Empire* by thirty-six hours on the run down.

The *Gatherer*, under her first master, Captain Thomson, was a good ship with a good reputation among fore-castle hands as well as shippers, owners, agents, the press, etc.; but under Capt. John Sparks, with his "purple-dyed" bucko mate, Charlie (Black) Watts (later jailed for six years in Folsom Prison for cruelty on the high seas), the vessel quickly gained a most unsavory reputation as a "hell ship," where "belaying pins and knuckle-dusters kept a battered crew in order." She became known as the "Bloody" *Gatherer*. It has been written of her, "The ship's decks literally ran blood, and murder and suicide aboard were rife until the law of the land was forced to take notice." (There were two suicides, a seaman shot and killed, and one boy permanently blinded by the mate on one voyage around the Horn from Antwerp to Wilmington, Calif., in 1881.)

The *Gatherer* was one of the Bath-built quintet of Down Easters especially constructed during the years 1873-1876 for the Cape Horn service, with the California-Britain grain trade primarily in mind. The other vessels, all appropriately named for this business, were the *Granger* (1,526 tons), built in 1873; the *Harvester* (1,494 tons), built in 1875; and the *Reaper* (1,468 tons) and *Thrasher* (1,512 tons), built in 1876. All were constructed by the Sewalls except the *Gatherer*, which was built by Albert Hathorn.

Delaware-built Iron Down Easters, the TILLIE E. STARBUCK,
T. F. OAKES, *and* CLARENCE S. BEMENT, 1883-1884

All American-built ships of the type known as "Down Easters" were built of wood and were launched from New England yards. W. H. Starbuck, who owned and managed some good Bath-built wood Down Easters, conceived the idea of following the British tradition and of building a fleet of iron square-riggers, but of operating them under the Stars and Stripes in the protected California Cape Horn trade and on the Seven Seas. Starbuck was pleased with the speed, carrying capacity, rugged construction, and life of his wood Down Easters. However, he knew that he could get better insurance rates from the British (who controlled this business) if he had iron ships and that on the same outside dimensions an iron hull (being lighter in weight than a well-built vessel constructed of oak and hard pine) would carry more deadweight and (because of the difference of the thickness of wood and metal shells, framing, deck beams, etc.) would stow more cubic feet of freight in the holds and 'tween decks than a wooden ship. Starbuck did not want to build the British type of iron sailing ship, but he desired to copy a Bath, Maine, Down Easter and build it of iron instead of wood. The ship "of his dreams," he tells us, would have been built in Bath, but in the early 1880's there was no iron shipbuilding plant in Bath or in the state of Maine, and "money could be saved by building iron vessels near the mines and rolling mills." It was decided to build his "modern iron ships of Down Easter type" in Pennsylvania and launch them into the Delaware. The leading iron shipbuilder in the United States at this time was John Roach, whose yard was located at Chester, Pa., so Starbuck contracted with Roach to build for him and his associates a "3-masted full-rigged ship of about 2,000 tons that would duplicate a Bath-built wood Down Easter of the highest class but with an iron hull, and would copy the model lines below water and the spar and sail plans of a Bath ship but have the bowsprit and the three lower masts made of steel." Roach endeavored to copy in iron a Bath-built Down Easter, but evidently did not hesitate to improve on the Bath design where he thought that he could do so and "modernize the ship." However, the departures made by Roach from the Bath practice positively (and later admittedly) did not improve the ship. Neither Roach nor his staff knew much, if anything, of sailing ship design, construction, and operation. The result was an iron ship that in all the fundamentals of hull design, rigging, and equipment was much inferior to a first-class Bath-built wood Down Easter, in which every part was the product of specialized experts, all working in harmony to create a perfect whole under the supervision of a building and operating owner and his experienced sea captains.

America's pioneer iron ship, the *Tillie E. Starbuck*, was launched into the Delaware from Roach's yard on April 14, 1883 (which was a year and seven months prior to the time that John McDonald launched at Bath the queen of all Down Easters, the *Henry B. Hyde*, built of wood, as were all the real Down Easters). It was said that the *Tillie E. Starbuck* had been built primarily as "a Cape Horner and for the Puget Sound and Columbia River trade." The contemporary press said:

She is 270 ft. overall, 248 ft. on the load water line, 42 ft. beam, 23 ft. depth of hold and a dead-weight capacity of 3,750 tons, with a draft of 21 ft. 6 in. . . . She has been built under special survey of the Bureau Veritas and will receive their highest classification. . . . An elliptical stern terminates an overhang much longer than is usual, which, it is

thought, will render her easier when passing through the heavy rollers at the mouth of the Columbia River. . . . The ship will have double topsail and single topgallant yards and three standing skysail yards. Her lower yards are 90 ft. and her upper topsail yards on her fore and main are 72 ft. in length.

W. H. Starbuck was not entirely satisfied with the John Roach establishment as a designer and builder of iron sailing ships, and before the *Tillie E. Starbuck* was launched, he

contracted with Commander Gorringe of the U. S. Navy, who organized the American Shipbuilding Company, to build for him on the Delaware "two iron ships of about 2,000 registered tons to be at least equal in speed and earning power to the best of the wood Down Easters." It would seem that in changing his designers and builders, Starbuck went from bad to worse, for the two Gorringe ships, it has been well said, were "more notorious for the length of their passages than for the shortness of them." The first of the pair, the *T. F. Oakes*, was launched September 29, 1883; the second of the ships, the *Clarence S. Bement*, followed and was completed in 1884, and this was the third and last iron square-rigged deep-sea sailing ship built in the United States. The performance of the three iron vessels was such that a prominent Bath wood shipbuilder at the turn of the century said: "Don't call that trio of Delaware-built iron ships 'iron Down Easters,' for it is an insult to a worthy type of wood ship that the Starbuck iron vessels did not resemble in any way. There was nothing of the Down Easter about them. They may have had well-built iron hulls, but as far as merchant sailing ships are concerned they were the product of ignorant amateurs." The following is a comparison of the dimensions and certain particulars of the three U. S. A.-built deep-sea three-masted full-rigged iron ships:

Name of Ship	Year Built	Tonnage	Dimensions in Feet			Builder	Owner of Record
			Length	Beam	Depth		
TILLIE E. STARBUCK	1883	2,033	257	42.7	23	J. Roach & Son	W. H. Starbuck
T. F. OAKES	1883	1,997	255	40.6	23.5	American Shipbuilding Co.	W. H. Starbuck
CLARENCE S. BEMENT	1884	1,999	259.9	40.6	23.6	American Shipbuilding Co.	J. E. Ridgway

Whereas the *Tillie E. Starbuck* somewhat resembled a Down Easter in ratio of dimensions, she had a low depth of hold and was slightly on the narrow side; but the "*Oakes*" and the "*Bement*," while slightly deeper, were lacking in beam and were proportioned more like British than American ships. Gorringe had been influenced by the argument emanating from Britain that iron ships should be narrower than wood ships, and it is rather surprising that Starbuck accepted his recommendations. The *Tillie E. Starbuck* was a relatively very slow ship and could not sail with a Bath-built Down Easter; however, she carried well and could stand driving. The two Gorringe ships were not as good carriers, as fast, as stiff, nor as able as the Roach-built ship, but the builder said that the vessels "had a carrying power of 3,200 tons on a draft of 22 ft. of water," and this stated draft is within 18 in. of their registered depth of hold. Incidentally, the Bath-built wood Down Easter *Henry B. Hyde* of 2,583 tons, built in 1884, was 267.9 ft. long, 45 ft. beam, and 28.8 ft. deep; the *A. G. Ropes* of 2,461 tons, built the same year, was 258.2 ft. long (about the same as the Gorringe iron ships), 44.7 ft. beam, and 28.5 ft. deep.

The *Tillie E. Starbuck*, from the first, was a great disappointment to her owners. However, when the command of her was given to Captain Curtis, a notorious driver and sail carrier, and he obtained the famous Donald Nicholson as first mate, the ship made better passages. It was admitted that no matter how hard she was driven, the *Tillie E. Starbuck* "could not compare in speed with wooden ships of her size and was completely outclassed by the Bath-built Down Easters of the seventies and early eighties." Mate Nicholson of the *Tillie E. Starbuck* was said to be the best-known and toughest deep-water mate of his time and was described as a "big, rangy fellow, a typical bucko, hard of jaw and hard of fist, who feared neither God, man, nor devil." A noted sail carrier and driving skipper, backed by a cruel bucko mate, could not get more speed out of a ship than was in her, and the "*Tillie*" was naturally a poor sailer. The ship was lost off Cape Horn in 1907 when bound out to Honolulu from New York; she was twenty-four years old when she foundered.

The *T. F. Oakes* was generally known for her long passages, such as the 195-day run from New York to San Francisco in 1893-1894, but her worst sailing performance was a homeward run from China to New York in 1896-1897. Leaving Shanghai in June 1896 under Capt. E. W. Reed, she stopped at Hong Kong and, when six days out, ran into a couple of typhoons, which caused Captain Reed to elect to go home sailing eastward around Cape Horn with the wind, but the ship was 168 days out when she rounded the Horn. Her crew had begun to be ill with scurvy, and several deaths followed. Nine months after leaving Shanghai, the "*Oakes*," with no healthy persons aboard, flew distress signals that were picked up by the British oil tank steamer *Kasbeck*, which towed her to New York, where she arrived at the quarantine station on March 21, 1897. She was 259 days out from China and had been posted as missing. The *T. F. Oakes* stranded on the California coast near San Francisco in 1901, and her end came when she was about eighteen years old.

The *Clarence S. Bement* was an equally slow sailer. In 1901, on a passage of 222 days from Yokohama to New York, "55 guineas had been paid to reinsure her," and "hopes for the ship had just about been given up when she sauntered into port." In 1902 the ship was sold to G. W. Hume, of San Francisco, and in December 1903, while on a passage from Newport News to San Francisco with coal, a fire in the cargo got out of control when off the Horn. While attempting to make Port Stanley in distress, the ship was wrecked on the Falklands when somewhat over twenty years old.

The Last Down Easters, 1889-1893

In 1885 the big four-masted wood shipentine *Frederick Billings* (2,628 tons gross; 2,497 tons net) was launched at Rockport, Maine, in August. The *Willie Rosenfeld* (2,455 tons gross; 2,353 tons net), Arthur Sewall & Company's last and largest three-masted full-rigged ship of the Down Easter type, slid into the Kennebec River on September 22, the New England Shipbuilding Company, of Bath, Maine, launched the *Francis* (2,077 tons gross; 1,974 tons net) in October, and during that year the Skolfield Bros., of Brunswick, Maine, built its last ship, the *George R. Skolfield* (1,731 tons gross; 1,645 tons net). The ship *Hotspur* (1,273 tons gross) and little bark *Wallace B. Flint* were also built in 1885 at Bath. With the construction and floating of these six vessels in 1885, the era of building Down Easters was generally deemed terminated, and during the following years 1886, 1887, 1888, and most of 1889, no ocean-going square-rigger of any type was built in the United States. In 1889, however, Arthur Sewall & Company announced its plan of building a quartet of mammoth wood square-riggers, with full models and lofty spars (heavily canvased), which, it was felt, would make money because of the big cargoes carried and a contemplated plan of very economical operation. The revived building activities of the Sewalls seems to have stimulated the well-known shipbuilding and operating Bath firm of Houghton Bros., which had constructed no ship since the 1,866-ton *Servia* was built in 1883 (she followed the *Arabia*, launched in 1881). In 1890 this firm laid down in its yard (which adjoined the plant of the Bath Iron Works on the west bank of the Kennebec River) its last and biggest ship, which was intended to rival the *Henry B. Hyde* and be a typical big Down Easter. From 1889 to the end of the building of wood merchant sail, the following vessels were built of the Down Easter type in addition to the bigger and fuller Sewall wood quartet of an admittedly new, fuller, and brute-force type of big wood merchant sailing ship. Of these nine vessels, four were regular three-masted ship-rigged Down Easters, four were of Down Easter type rigged as three-masted barks, and one was of that model type rigged as a four-masted

bark. Of these later Down Easters, only one, the *Parthia*, was a large ship (2,495 tons), three were of moderate size (1,788 to 2,017 tons), and the others were smaller vessels varying from 976 to 1,564 tons; the largest of this latter class was the relatively big three-masted bark *Pactolas*, the last bark-rigged Down Easter ever built. The last wood Down Easter to be built and the last three-masted ship constructed in the United States was the *Aryan*, launched into the Kennebec River on July 14, 1893.

Name of Vessel	Launched	Rig	Built	Tonnage		Dimensions in Feet		
				Gross	Net	Length	Beam	Depth
MATANZAS	1889	Bark	William Rogers, Bath, Maine	1,028	976	196.3	37.4	17.5
ST. MARY	Mar. 1890	Ship	C. V. Minott, Phippsburg (Bath), Maine	2,043	1,942	240.6	42.4	18.2
ST. KATHERINE	1890	Bark	John McDonald, Bath, Maine	1,252	1,193	202.8	39.3	19.1
S. D. CARLETON	1890	Ship	Carleton, Norwood & Co., Rockport, Maine	1,882	1,671	240	44.4	25.4
PARTHIA	Jan. 1891	Ship	Houghton Bros., Bath, Maine	2,495	2,371	260.3	44.4	28
PACTOLUS	1891	Bark	John McDonald, Bath, Maine	1,585	1,564	223.7	41.2	24
OLYMPIC	1892	4-masted bark	New England S. B. Co., Bath, Maine	1,469	1,402	224.4	42.1	21.3
HOLLISWOOD	1893	Bark*	J. M. Brooks, East Boston, Mass.	1,141	1,084	176	38	19.5
ARYAN	July 1893	Ship	C. V. Minott, Phippsburg (Bath), Maine	2,123	2,017	248.6	42.3	26

* Later re-rigged as a barkentine and still later as a schooner.

(a) *Parthia*

The last and the largest ship built by Houghton Bros., Bath, Maine, famous the world over as builders and operators of Yankee wood deep-sea square-riggers, was the *Parthia* of 2,495 tons gross and 2,371 tons net register (260.3 ft. long, 44.4 ft. beam, and 28 ft. deep; 19.6 ft. to main deck). She was launched into the Kennebec River in January 1891, one year after the Sewalls had put overboard their last three-masted ship, the *Rappahannock* (the first of their big wood quartet), two months after they had launched the *Shenandoah*, eight months before the *Susquehanna* took to the water, and a year and eight months before the big *Roanoke* was launched. (The last three vessels of the Sewall "Big Wood Four" were four-masted shipentines.) The *Parthia* was launched two and a half years before the *Aryan*, the last three-masted ship ever built. The *Parthia* represented Houghtons' final views of what a wood ship should be to compete in trade on the Seven Seas just as the *Aryan* expressed the opinions of Minott and Elwell, and the *Rappahannock*, *Shenandoah*, *Susquehanna*, and *Roanoke* embodied the Sewalls' convictions.

The *Parthia* was a good carrier and loaded 3,500 tons deadweight on voyages around the Horn, which was equivalent to 1.48 times the net registered tonnage. (The big Sewall wood three-master *Rappahannock* of 3,053 tons net register carried 4,550 tons deadweight, or 1.49 times her net registered tonnage.) The *Parthia* was extremely unfortunate on her maiden voyage around the Horn to San Francisco. She sailed from New York March 19, 1891, lost her three topgallant masts in a very heavy two-day gale in the North Atlantic shortly after leaving port, and put into Hampton Roads for repairs. Resuming her passage, she made a good run of 22 days to the equator, but subsequently encountered "nothing but baffling and head winds." On the 94th day out from Virginia, the *Parthia* put into Val-

paraiso to obtain medical assistance for Captain Carter, who was seriously ill and incapacitated. (He died two months after the ship's arrival at San Francisco.) The *Parthia* made the run from Valparaiso to San Francisco in 59 days and completed the passage from Hampton Roads, Va., to the Golden Gate in the slow time of 153 sailing days. Returning east, the ship made a run of 129 days from San Francisco to Havre with a cargo of wheat.

Sailing performances of the *Parthia* on her other voyages can be briefly summarized as follows:

Voyage No. 2, westbound: Sailed from New York August 15, 1892, and reached the Golden Gate 131 days out.

Homeward: Returned in ballast to New York, making a quick passage from San Francisco of 96 days. (The ship *Servia*—same builders and owners—made a run also in ballast between the same ports at the same time in 97 days.)

Voyage No. 3, westbound: From New York to San Francisco in 125 days.

Eastward: From San Francisco to Avonmouth in 121 days.

Voyage No. 4, westbound: From Swansea (Wales) to San Francisco in 126 days.

Eastward: From San Francisco to Liverpool in 112 days.

Voyage No. 5, westbound: Sailed from Liverpool June 25, 1895, with a cargo of coal destined for San Francisco. On September 27, when in Lat. 41° S. in the Pacific and about 400 miles off the Chilean coast, the cargo was found to be on fire from spontaneous combustion. The ship was abandoned October 1, 1895, and was a total loss. All the officers and crew reached shore in the ship's boats (Valparaiso and the island of Juan Fernandez).

(b) *St. Mary*

The *St. Mary* was a fine ship of Down Easter type that was afloat less than six months and is chiefly known because of her tragic end and the mysterious death of her master, Capt. Jesse T. Carver. The maiden voyage of the *St. Mary* started well. She obtained a very favorable charter at New York and sailed from that port for San Francisco May 30, 1890. When in Lat. 46° S., the ship caught up with the *Alexander Gibson* and *James Drummond*, which had sailed eighteen and fifteen days, respectively, before her; but during the night of August 6, when off Cape Horn, she came in collision with the ship *Magellan* of Boston, then bound for Valparaiso, which quickly foundered, with the loss of all hands, without her identity at the time being known. The *St. Mary* was badly damaged aft, and because of the condition of the ship and the weather, Captain Carver considered it advisable to turn about and make for Port Stanley in the Falklands for repairs. Four days later, the *St. Mary* went ashore at night between Burnt and Elephant islands, and the officers and crew of the ship abandoned her and made for Port Stanley, where they arrived safely without Captain Carver and with no news of him. The reports made by the survivors in regard to their captain were conflicting. The Lloyd's agent at Port Stanley reported that when the officers and crew took to the boats, they left Captain Carver behind and abandoned him as well as the ship. Later, an investigating party from Port Stanley boarded the wreck and found the captain's dead body in his berth. The remains were sent to Montevideo and from there to Searsport, Maine, his home, for interment. The *St. Mary*, both ship and cargo, became a total loss.

(c) *Olympic*

The *Olympic* is historically important primarily because of her strange rig, for she was a four-masted bark with yards and square sails on the fore and main and schooner-rigged with fore-and-aft sails only on the mizzen and jigger (or spanker) masts. The vessel was originally intended to carry spars and timbers from Puget Sound to East Coast U. S. A. ports. The *Olympic* sailed well, making four westward Cape Horn passages to San Francisco in 114, 137, 126, and 112 days, respectively—an average of 122¼ days. On her maiden voyage (after sailing under her own canvas from Bath to New York without a scrap of ballast and with holds swept clean), she made an outward passage to Seattle in 140 days in "generally

light and unfavorable weather." Her first timber cargo was taken from Puget Sound to Boston in 114 days, which was good sailing, but she carried only two such timber or lumber cargoes from the West Coast to Atlantic ports, most of her passages handling forest products being to transpacific ports. The vessel also loaded Chilean nitrate at times and performed unusually well with heavy cargoes—well stowed. In July 1899, the "Bark Olympic Co." (whose capital stock was owned by Honolulu and San Francisco merchants) purchased the vessel to operate between San Francisco and the Hawaiian Islands carrying sugar to the mainland, but after being so employed for a few years, she re-entered the general Pacific lumber-carrying trade. The North Alaska Salmon Company acquired her as a fisheries packer in 1910, but in 1916 she was once more sold and put in the export timber products trade. The *Olympic* completed her last voyage as a sailing vessel when she reached San Francisco in September 1921 from Callao and was laid up when twenty-nine years old. During this voyage, she had sailed from Eureka, Calif., for Sydney; thence to Newcastle, where she loaded coal for Callao, and returned home in ballast. In 1925 the vessel was acquired by the moving picture interests of Los Angeles, and she was later used as a fishing barge in Southern California waters.

(d) *Aryan*

The last full-rigged ship constructed in the United States and the last deep-sea square-rigged wood vessel to be built in the world was the *Aryan*, which was launched July 14, 1893, into the Kennebec River from the yard of C. V. Minott, Phippsburg (Bath), Maine. The *Aryan* was the last of the famous wood-built Down Easters, which for a quarter of a century prior to the building of this handsome full-rigged wood ship had successfully defied the competition of metal and of steam following the time when such famous American wood shipbuilders as W. H. Webb, of New York, and Donald McKay, of Boston, had admitted defeat and retired from the field. The *Aryan* continued to operate as a Yankee mercantile square-rigger on the Seven Seas until December 24, 1918. At the age of twenty-five and a half years, while carrying a cargo of flax and tallow from Wellington, New Zealand, bound to San Francisco, she was destroyed by fire in heavy weather in the South Pacific. For many years before her tragic end, the *Aryan* was the only wood full-rigged American sailing ship in commission, and during the last year and a half of her life, while owned by L. A. Pedersen, of San Francisco, and operated in the Pacific deep-sea trade, she was re-rigged—for economy reasons—as a bark.

The *Aryan* was a medium-sized, good-carrying, and moderately fast typical Bath-built Down Easter. Her owners and builders did not follow Arthur Sewall & Company, which, in the promotion involved in the selling of shares in the Sewall "Big Wood Four" (the *Rappahannock*, *Shenandoah*, *Susquehanna*, and *Roanoke*), had advocated the construction and operation for profit of large full-bodied, big-carrying, and heavily canvased vessels of 3,000 to 3,500 registered tons. Minott's friends described the *Roanoke* (the last and biggest of the Sewall wood fleet, which was launched ten months before the *Aryan*) as a "British tramp model built of wood and given a great spread of canvas to drive it by brute force." The last of the Minott ships followed the splendid tradition of her predecessors as to type, model, rig, size, and appearance, and she was described as "a remarkably fine-looking vessel, especially when fully laden and under canvas." In October 1901, when Captain Pendleton sailed the vessel into San Francisco Bay to an anchorage off the city front without the assistance of any tug, the press commented with enthusiasm on "the unusual and beautiful spectacle presented to those fortunate enough to witness it."

The *Aryan* registered 2,123 tons gross and 2,017 tons net. She was owned by her builder and friends, Capt. Wylie R. Dickenson, her first master, a group of Searsport, Maine, investors, and J. W. Elwell & Company, New York, as managing owners; but Eugene P. Carver (son of Capt. Nathan P. Carver, of Searsport), a marine lawyer and an original small share-

holder, gradually acquired control. In 1901 he became sole owner for sentimental marine reasons and remained so until 1917, when the *Aryan* was sold on the Pacific. (She had continued to operate in the Cape Horn trade until the opening of the Panama Canal.) The *Aryan* was a good carrier as is proven by the fact that she carried deadweight cargoes of 3,025 tons around the Horn westbound, equivalent to about one and a half times her net registered tonnage.

The *Aryan* had a good sailing record. In 1901 she made a passage from Baltimore to San Francisco in 116 days, and in 1894 she made the run around the Horn eastbound from San Francisco to New York in 106 days. In 1897 the *Aryan* made a passage from Yokohama to Honolulu in 17½ days and, her command claimed, "covered 3,850 nautical miles in 414 actual sailing hours at an average speed of over 9¼ knots per hour." In 1914 she took a load of lumber from Vancouver to South Africa in 106 days and experienced "terrific weather off Cape Horn, which shifted the deck load and prevented the working of the pumps."

The Passing of the Down Easter and Cape Horner

The Cape Horn voyage for a sailing craft was, without question, the most wearing and hazardous undertaken by any fleet of vessels. This was fully realized by the builders and owners of the Down Easters. It has been well said, "There was no such thing as pound and pint aboard a Yankee Cape Horner, any more than there was a rotten gasket or a cut ratline." Spars, sails, and all rigging—standing and running—were the best, and it was deemed economy to replace any gear directly it showed any signs of wear. The Down Easter was in the world's toughest service, and the men responsible for the ships knew it and would not knowingly take chances with defective parts, equipment, or gear. The Yankee motto was, "The best is not good enough for this d—— service." The ships worked entirely by hand, however; donkeys, or winches, were unknown, but besides a good main-deck capstan and the windlass capstan on the forecastle head there were usually a couple of small handle wing capstans fitted on most of the Yankee Cape Horners.

A 2,000-ton Down Easter cost about \$25,000 a year to run; yet for some fifteen to twenty years, when the trade was at its best, these ships almost invariably paid good dividends—from 15 to 20 per cent per annum being by no means unusual in "the good old days." Toward the end, however, cheaply built and operated foreign (chiefly British) steel ships and then steel steam tramps, with benefits in insurance rates (ship and cargo) and freight and often with open or camouflaged subsidies as well as the benefit of rabid nationalism, drove the Down Easter from the trade. The Sewalls of Bath attempted during the years 1890-1902 to compete with British iron sail and steam by building mammoth wood four-masters and, later, large 3,000- to 3,400-ton steel shipentines, but the Congress of the United States was indifferent to the success or even the existence of a national merchant marine.

After the turn of the century, surviving Down Easters and most of the best surviving British iron and steel sailing ships (square-riggers) found a refuge in the following trades:

1. West Coast and Pacific Ocean lumber and coal trade; later supplanted by fore-and-afters.
 2. Hawaiian sugar trade
 3. Alaska salmon packers
- } Square-riggers until the end.

The end has been written, however, and no sailing ships were engaged in these trades in the 1930's.

The Sewall "Big Wood Four," 1889-1892

By the mid-eighties, it was apparent to Bath shipbuilders that the Down Easter was at last finding it extremely difficult to compete with British iron and steam in world commerce. With the opening of the Suez Canal, the general use of iron and steel replacing wood as a building material (metal ships being greatly favored by insurance covering both vessel and cargo), and the establishment throughout the world of coaling stations and dry-docking facilities, the day of the wood copper-sheathed sailing ship seemed to be rapidly passing. For four years, following the building of the four-masted shipentine *Frederick Billings* (2,628 tons) at Rockport, Maine, and the three-masters *Willie Rosenfeld* (2,455 tons), *Francis* (2,076 tons), and *Hotspur* (1,273 tons) at Bath, Maine, in 1885, no full-rigged sailing ship had been launched in the United States.

The Sewalls, of Bath, long-established wood shipbuilders and operators, were loath to admit defeat and retire from a field in which, with but little of their own money invested, they could not only make a nice profit in building but also earn a good income throughout the life of the ships that they built by acting as managers and operators. They saw full-bodied and "box-modeled with rounded ends" steam-propelled tramps maintaining speeds of 8 or 9 knots per hour on long ocean runs and British iron (and steel) sailing craft gradually getting bigger, fuller, and more heavily sparred and canvased. It seemed as if brute force would drive big cargo carriers through the water and that by sacrificing fineness of lines and excellency of sailing model—with naturally some loss of speed—full-bodied vessels, wind-propelled, could be made to pay if they were built large enough and were given plenty of canvas to drive the tramp-like hulls through the water by sheer force. The Sewalls knew that, notwithstanding the claims made for clipper ships of speeds of 18 to even 21 knots per hour, their average long-voyage speed was only 6 to 7 knots per hour and that the Down Easters had over a long term of years carried relatively some fifty per cent more cargo per registered ton than the clippers, with a loss in speed reflected in average length of long-distance ocean passage of only about ten to fifteen per cent. They decided, therefore, to build a fleet of extremely large full-bodied and heavily canvased ships that would admittedly be "somewhat slower" than the perfected Down Easter as exemplified by the *Henry B. Hyde* and *A. G. Ropes*. They would carry much more cargo, with larger freight revenues, and cost no more to operate; for they were to be sturdy craft, with no frills or unnecessary gadgets, and the Sewalls asserted that under the right kind of command (driving and bulldozing) the ships could be operated with a small crew—even fewer seamen than that of a much smaller Down Easter.

The building of the *Rappahannock* was heralded, based on publicity or propaganda emanating from the Sewalls, as the first step in the creation of a fleet of wood sailing vessels that was to restore American commerce to its old-time prestige and become as famous and successful as were the American-built clippers in the heyday of their career. Matthews, in *AMERICAN MERCHANT SHIPS*, has well said, "The sequel proved, however, that conditions had so vitally changed during the forty years intervening that the day of the wooden square-rigger had vanished, and following the building of the *Roanoke* [the last of a quartet of big full-bodied wood sailers—*Rappahannock*, *Shenandoah*, *Susquehanna*, and *Roanoke*—built in 1889-1892] the Messrs. Sewall turned their attention to the construction of steel ships."

(a) *Rappahannock, 1889-1900*

The *Rappahannock* was a full-rigged three-masted ship, the largest ever built. It was soon proved in service that she was too large for three masts and too heavily sparred and canvased to be handled by a small or even a moderately sized crew. She was a "hell ship"

and "back-breaker" for forecandle hands from the start, and throughout her brief existence of less than two years she had a most unenviable reputation and was shunned by experienced able seamen.

The registered dimensions of the *Rappahannock* were: length 287.2 ft., beam 48.9 ft., depth 28.8 ft.; gross tonnage 3,185 tons; net tonnage 3,053 tons. She was launched January 6, 1890, and originally painted white from trucks to water line, being known as "The Great White Bird." She was the first wood vessel to be fitted with a steel spike bowsprit, the weight of which was only five tons, or one-third of that of the usual wood bowsprit and jib boom. The ship carried double topgallants and three skysail yards. Her lower masts were 88, 89, and 82 ft. long, respectively, with the main topmast 58 ft. long and carrying an upper spar (topgallant, royal, and skysail mast) 71 ft. long. The yards on the mainmast (seven in number) were 95, 87, 77, 70, 64, 53, and 43 ft. long, respectively, and she carried 14,000 yards of canvas.

The career of the *Rappahannock* was "short and replete with mishaps." It took three tugs twenty-five days to tow the vessel (with 800 tons of paving stones aboard for ballast) from Bath, Maine, to the Delaware Breakwater. At Philadelphia she loaded 125,000 cases of kerosene oil (200,000 gallons) for Hiogo (Kobe), Japan, the largest cargo that had ever been laden on a sailing vessel up to that time, and the freight revenue was reported as \$34,000. Trouble developed as soon as the vessel sailed on February 6, 1890, and persisted throughout the voyage. The pilot grounded the ship on a mud flat in the Delaware, and the crew mutinied; it rightly claimed that "a ship of 5,000 tons burden with a foremast crew of only 20 men was undermanned." This was soon learned from experience when the crew started to work the big spars and sails of "the largest three-master afloat." Captain Dickinson locked up the crew in the fo'c's'le and incidentally caused some of the men to be badly beaten (one broken arm and one smashed head) by his bucko mate; they were kept on short rations for two weeks until the U. S. Government intervened. Captain Dickinson was taken by a U. S. marshal by tug to Wilmington, Del., and examined by the commissioner, who, however, squashed a fully justified complaint and dismissed the matter on the grounds of warranted and justifiable discipline. The *Rappahannock* finally proceeded to sea with twenty mutinous, half-starved, and discontented seamen in her fo'c's'le; only eighteen of these sailors reached Japan after a very long passage of nearly six months. One was washed off the bowsprit and drowned, while another was killed by a fall to the deck from the mizzen crosstrees (probably suicide). This voyage, with good freight, was bad in every other respect. The vessel was branded as a "blood ship"; the crew claimed cruel mistreatment with belaying pins and brass knuckles, intimidation and threats with firearms, and outrageous, inhuman overwork while the vessel proceeded at low speed toward her destination.

After discharging the case oil cargo, the *Rappahannock* crossed from Kobe to San Francisco in 44 days, logging about 125 miles per day and averaging but little over 5 knots per hour on this North Pacific passage. She then sailed for Liverpool with 5,100 short tons (4,550 long tons) of grain, making the passage in 130 days. The *Rappahannock* left Liverpool to commence her second and last voyage July 28, 1891, with a cargo of soft coal bound for the Golden Gate. She had, according to Captain Dickinson, "a mighty tough time of it" and was 40 days rounding Cape Horn from 50° S. Atlantic to 50° S. Pacific, which he had expected to do in "average time of 14 days." The ship was "pretty well stripped of her canvas" when the cargo of coal took fire from spontaneous combustion. The *Rappahannock* made Cumberland Bay, Juan Fernandez, where she was completely destroyed. The crew of three mates and twenty-six men, the captain, his wife, and two daughters (thirty-three persons) took refuge on Robinson Crusoe Island, all being ultimately rescued by a Chilean gunboat.

The experience with the *Rappahannock* in the first few months of operation had convinced the Sewalls that the vessel was too big for three masts. When she was destroyed, the *Shenandoah*, the second vessel of the "Big Wood Four," about 220 tons larger and 12½ ft.

longer than the *Rappahannock*, but fitted with four masts (shipentine-rigged), was in service, and the *Susquehanna*, a smaller vessel than the *Rappahannock* by 440 tons gross register, also with four masts and shipentine rig (the third vessel of the Sewall "Big Wood Four"), was well on the way to completion at Bath, Maine.

(b) *Shenandoah*, 1900

Shares in, or fractions of, the new and highly publicized second vessel of the Sewall "Big Wood Four"—the *Shenandoah*—had been sold by her promoters, builders, and operators before the *Rappahannock* had been sent to sea. It is safe to say that if the sailing and general performance of the *Rappahannock* had been known when shares in the second vessel of the big wood quartet had been offered investors by the Sewalls, the *Shenandoah* would never have been built. This would have been most regrettable as far as the splendid history of American wood sail is concerned, for the *Shenandoah* was as great a success during a relatively long career on the Seven Seas as the *Rappahannock*, during her brief existence, was a failure. The *Rappahannock*, if she had not been destroyed by fire a year after the *Shenandoah* was put into the water (she was launched from the Sewall yard in Bath, Maine, November 26, 1890), might have redeemed herself, although she would always have been handicapped by being too big for a three-master. It is extremely doubtful that the Sewalls would ever have admitted their original mistake by going to the owners of shares with a proposition to change the ship into a shipentine, change the position of the original square-rigged masts, and introduce a fourth mast with fore-and-aft rig.

That the *Shenandoah* was a good and relatively fast sailer is surprising (following the record of the *Rappahannock*), for the *Shenandoah* had the same model lines as the first vessel of the "Big Wood Four." If the *Rappahannock* was a poor and unsatisfactory sailer, the *Shenandoah* could have been expected to be worse, for she had 12½ ft. additional middle body, with the same ends. She was 223 net registered tons larger than her predecessor through having four more frames in her midship section, and "many old-timers stuck to the theory that so long a vessel would be unsteady and behave badly in heavy seas." The performance of the *Shenandoah* under Capt. James F. (Jim) Murphy shows, however, how incorrect these predictions were, for the vessel not only carried big cargoes but also showed a surprising rate of speed for a ship of her fullness and type. She was seaworthy in all respects and, it was claimed, "steered like a pilot boat and handled well in any weather." Captain Murphy asserted that the *Shenandoah* "manoeuvred like a knock-about sloop and sailed a full point nearer the wind than the best of her contemporary square-riggers." He maintained that on one occasion she beat up Chesapeake Bay in the teeth of a northerly gale in company with a number of large and medium size fore-and-aft-rigged schooners and that "the *Shenandoah* both out-footed and out-pointed every one of these vessels." She was the best of the Sewall "Big Wood Four," and her performance re-established the reputation of her builders and operators, which had been damaged by the performance of the *Rappahannock*, and permitted them to continue their "big wood fleet" program.

It is significant that the third vessel built of the quartet, the *Susquehanna* (whose shares were sold while the *Rappahannock* was performing rather badly at sea and which was launched September 17, 1891, a short time before that vessel was destroyed by fire after spending 40 days rounding the Horn), was made 630 tons less net registered tonnage than the *Shenandoah* and 407 tons less than the *Rappahannock*, but was given a four-masted shipentine rig like the *Shenandoah*. The *Shenandoah* measured 3,406 tons gross and 3,258 tons net register—the largest wood sailing ship that had been operated up to that time. Like the other members of the fleet, she had a hardwood frame and Georgia pine planking, ceiling, etc., and was copper-sheathed to the 25-ft. water line. The *Shenandoah* was the fourth four-masted shipentine built in the United States, having been preceded in 1853 by the world's largest clipper, the *Great Republic*, in 1874 by the *Ocean King*, and in 1885 by the *Frederick Billings*. A

comparison of the dimensions of these four-masted wood shipentines with those of the *Susquehanna* and the *Roanoke*, which followed in 1891 and 1892, and particulars of the big three-masted ship *Rappahannock*, added to complete the list, is of interest:

Name of Shipentine	Year Built	Builder	Tonnage		Registered Dimensions in Feet		
			Gross	Net	Length	Beam	Depth
GREAT REPUBLIC	1853-1855	D. McKay, East Boston, Mass.	3,356	2,751	302	48.4	29.2
OCEAN KING	1874	N. L. Thompson, Kennebunk, Maine	2,645	2,516	250.5	42.3	30.1
FREDERICK BILLINGS	1885	Carleton, Norwood & Co., Rockport, Maine	2,628	2,497	278	44.9	29
RAPPAHANNOCK (3-master)	1890	A. Sewall & Co., Bath, Maine	3,185	3,035	287.2	48.9	28.8
SHENANDOAH	1890	A. Sewall & Co., Bath, Maine	3,406	3,258	299.7	49.1	28.6
SUSQUEHANNA	1891	A. Sewall & Co., Bath, Maine	2,744	2,628	283.6	45.1	28.1
ROANOKE	1892	A. Sewall & Co., Bath, Maine	3,539	3,400	311.2	49.2	29.2

A comparison of the length of the spars—on the main—of these wood four-masted shipentines and of the big three-master *Rappahannock* is given herewith:

	GREAT REPUBLIC (as rebuilt)	OCEAN KING	FREDERICK BILLINGS	RAPPAHANNOCK	SHENANDOAH	SUSQUEHANNA	ROANOKE
	<i>Feet</i>	<i>Feet</i>	<i>Feet</i>	<i>Feet</i>	<i>Feet</i>	<i>Feet</i>	<i>Feet</i>
Main lower mast	95	80	90	89	89	85	92
" topmast	55	50	54	58	56	54	56
" topgallant mast (including royal and skysail)	71	56	60	71	69	65	70
" yard	90	86	90	95	92	88	95
" lower topsail yard	81	80	82	87	84	80	86
" upper topsail yard	72	70	72	77	76	73	77
" topgallant yard	54	58	60	70 and 64 (two)	66	60	66
" royal yard	43	46	50	53	56	50	55
" skysail yard	32	38	40	43	46	41	44

The leading British shipping magazine FAIRPLAY, in describing the *Shenandoah* on her first appearance at Liverpool, said: "What is in all probability the last of the beautiful American sailing ships built of wood is now at Liverpool. . . . The *Shenandoah* is a curious combination of old and new ideas. In her structure she is a fine example of the wood shipbuilder's art and is modeled on the well-known Yankee lines. She has the old fashioned square stern, built lower masts [38½ inches diameter], wooden anchor stocks and rope steering tackles, with the modern side-light towers, steam windlass, steam winch and rigging screws. These large wooden ships are, however, very costly and are being replaced by steel."

The *Shenandoah* left New York January 19, 1891, for San Francisco and completed her maiden passage in 124 days, of which the final 15 days were in calms and baffling light winds. Financially, it was a very successful initial deep-sea passage, for her charter was for \$40,800. She then loaded 5,030 long tons (5,628 short tons) of wheat—valued at \$175,000—for Havre, obtaining the very good price of 38 shillings per ton for freight, and made a good passage around the Horn eastbound in 109 days, an average of 143 miles per day. On this passage, she sailed in company with the American wood Down Easters *S. D. Carleton* (1,788 tons; built in 1890) and *M. P. Grace* (1,928 tons; built in 1875) and two British ships,

Strathearn (the Allan Line "clipper") and *Balkamah*. (The "*Grace*" was bound for New York, but all the others for Havre.) After averaging, it was claimed, "278 miles for 20 consecutive days" and sailing 5,560 nautical miles at an average speed of 11.6 knots per hour, the *Shenandoah* reached Havre on November 18, 1891; the new and fast *S. D. Carleton* (Capt. E. T. Amesbury) picked up a tug off Plymouth, England, and arrived at Havre in tow the night of November 21, saving two or three days' time by the use of steam tugs. Each of the American ships had unloaded her wheat cargoes, taken on cargoes of French pebbles (used in glass-making) and chalk, and sailed again before either of the British ships arrived at Havre. The *Shenandoah* crossed the Atlantic against winter westerlies in 37 days (reported as "a 36-day run") and completed a very satisfactory triangular maiden voyage in 269 days, "averaging by log 133 miles per day and 5½ knots per hour." On her Atlantic run, the *Shenandoah* beat decisively the fast and large four-masted British shipentine *Swanhilda*, but both vessels were severely handicapped by bad weather; they spent nine days "battling with furious head gales off the French Coast" and had "an awful time getting clear of the channel." At the completion of this maiden round (triangular) voyage of the *Shenandoah*, it was reported that her charter on the passage to San Francisco was "for \$40,800 and she got about £1-18-0 per ton on the grain cargo." Apparently, the French cargo paid but little, being taken on board for ballast rather than for revenue.

On her second voyage around the Horn westbound, the *Shenandoah* raced with the "fast and lucky" Down Easter *Tam O'Shanter* of 1,603 tons (built in 1875; Capt. T. Peabody) and once more with the *S. D. Carleton*. The three ships sailed from New York, Philadelphia, and Baltimore, respectively, all bound for the Golden Gate. Both the *Shenandoah* and *Tam O'Shanter* rounded Cape Horn (50° S. Atlantic to 50° S. Pacific) in 13 days, but at the Cape the "*Tam*" was ahead by two days. In the South Pacific the *Shenandoah* gained three days on the "*Tam*" and was leading by a day crossing the equator. The *Shenandoah* arrived first off the Golden Gate and was held up by fog. As it lifted, the *Tam O'Shanter* passed the *Shenandoah* in tow of a tug (waiting for visibility) and entered San Francisco Harbor first. The *Shenandoah* made the run from New York to the Golden Gate in 110 days and to San Francisco in 111 days (March 24 to July 13, 1892). The actual time of the *Tam O'Shanter*—assisted by a power tug and not held back by the fog that delayed the *Shenandoah* the greater part of a day—was three hours less from the time of origination to completion of the bigger vessel's voyage, but the "*Tam*" sailed from the Chesapeake and not from New York. The *S. D. Carleton* was unfortunate in the South Atlantic and proved a bad third, requiring 142 days to make the run from the Delaware to San Francisco. On the return to New York, the *S. D. Carleton* met more favorable conditions and retrieved herself, making the passage in 108 days as against 118 days for the *Tam O'Shanter* to the same port and 116 days for the *Shenandoah* on the much more difficult run to Liverpool.

The *Shenandoah*, like all of the Sewall "Big Wood Four" and later-built steel four-masted shipentines, required "a good deal of wind to move her and made speed in heavy favorable blows, but was slow in light airs." In this respect, however, the model of the *Shenandoah*, the proportions of hull dimensions, and the spar plan were superior to those of the Sewall steel ships; for the *Shenandoah*, even though full-modeled, was decidedly American, whereas the Sewall steel vessels were fundamentally British. Only the smaller *Susquehanna*, which was, in fact, more of a big Down Easter, was better modeled than the *Shenandoah* (even though slightly lacking in beam), but the *Susquehanna* did not have Capt. "Shotgun" Murphy to navigate and drive her, and, moreover, she was not as well built as her larger "sister."

It was on the second voyage of the *Shenandoah* outbound that she had her encounter with the "extremely fast" British ship *Old Kensington*; the latter vessel left London March 22, 1892, and the *Shenandoah* cleared New York two days later, each bound for the Golden Gate. On May 19, the ships met off Cape Horn, and it was reported: "The *Shenandoah* was overhauled by the Britisher, which came up from astern, and as she passed the fuller-bodied Yankee ship, her crew manned the rigging and derisively cheered." Three days later, how-

ever, a gale blew up from the southwest, later the usual "Cape Horn snorter" was experienced, and "while the Britisher was head-reaching under lower topsails and making very heavy weather of it," with bulwarks smashed, the powerful *Shenandoah* "went foaming by her close-hauled under a press of canvas clawing out to windward in magnificent fashion and behaving splendidly in the face of the Cape Stiff greybeards." The *Shenandoah* made a good rounding of Cape Horn under severe adverse conditions and reached San Francisco July 13, 1892, when 111 days out from New York. The normally faster *Old Kensington* was compelled to put back in distress to Port Stanley, Falkland Islands, to repair heavy damage to hull, spars, sails and rigging sustained by wind and sea, and she did not reach San Francisco until March 5, 1893, 348 days out from London.

The *Shenandoah*, on the return passage of her second voyage, loaded 4,800 long tons of grain in San Francisco for Liverpool and sailed August 22, 1892, arriving at her destination December 14 after a run of 114 days. This was fairly good time considering the sailing conditions encountered and represented an average speed, port to port, of about 6 knots per hour. The fast four-masted British shipentine *Wanderer* (2,903 tons) sailed through the Golden Gate August 21, 1892, and arrived off Queenstown Harbor December 6, 107 days out—pilot to pilot—not making the run up the Irish Channel under canvas against the light head winds prevailing. After many weeks' delay in Queenstown Harbor, the *Wanderer* was finally towed to Liverpool for discharge. This vessel, built in 1891, was the subject of John Masefield's famous poem, which says:

At night the verdict left my messmates' lips,
The *Wanderer* is the finest ship in dock.

And again:

The *Wanderer*, clipper, outward bound
The loveliest ship my eyes have ever seen—

Another antagonist of the *Shenandoah* on this her second rounding of the Horn east-bound was the four-masted British shipentine *Brackadale* (2,015 tons), built in 1887, which made Queenstown about the time the *Shenandoah* arrived at Liverpool.

The *Shenandoah's* third passage around the Horn westbound from New York to San Francisco was made in very slow time for her, viz., 152 days. Nine first-class ships cleared New York for San Francisco between March 22 and May 22, 1893. The fast Bath-built Down Easters *Florence* and *Baring Brothers* sailed in company and made runs of 130 and 141 days, respectively. Another Down Easter, the *Joseph B. Thomas*, made the passage in 146 days (with the *Shenandoah* taking 152 days), and the other five vessels required from 155 to 180 days for the run.

In 1895 the *Shenandoah* did some of her best competitive sailing on the run from San Francisco to Europe. The big and fast British four-master *California* of the White Star Line (one of the finest creations of Harland & Wolff, of Belfast) sailed from San Francisco ten days before the *Shenandoah* and was passed by the Bath-built Sewall craft in the North Atlantic west of the Irish coast. The wind was blowing fresh at the time, and the *California* had all three royals furled. The *Shenandoah*, however, ranged up on her beam, carrying not only her three royals but also her main skysail, and she made the complete passage, port to port, in sixteen days less time than the highly considered *California*, whose British captain, after making boastful remarks before the voyage started, was compelled to eat humble pie.

The log of the British clipper *Cutty Sark* (Captain Woodget), reputed by the British to be "the fastest sailing vessel ever built in the world," speaks of an encounter at sea with the *Shenandoah*. The British composite-built speedster was on a voyage from Australia to London. The entry reads: "January 25, 1895, Lat. 56:12 south, Long. 72:44 west; coming up to a large four-masted bark and to my surprise the signal was run up, 'What ship is that?'" Evidently, Captain Woodget was surprised that any shipmaster would not know the identity of the fast craft that was overhauling him, and Captain Murphy of the *Shenan-*

doab was amazed that anything afloat could gain so rapidly on him. But the race is not always won by the sprinter. Bad sailing conditions were experienced by both ships, and the *Cutty Sark* reached London sixty days later on the same day that the *Shenandoah* arrived at Liverpool.

There are some sailing ships that have been quite successful under one commander and merely average sailers or even slow vessels under other masters. The *Shenandoah* under Capt. "Jim" ("Shotgun") Murphy was a fast and eminently successful ship. He held command for the first seven years of her career and in later years made single voyages in her on three occasions, and he left retirement temporarily to take her from San Francisco to New York on her last ocean passage as a sailing ship. The *Shenandoah*, then nineteen years old, sailed from San Francisco Bay February 16, 1910 (after a lay-up since July 1907 due to the fact that no profitable cargoes were available), with a cargo of asphalt, lumber, and scrap iron salvaged from the great earthquake and fire of April 1906. Following Capt. James F. Murphy, five different skippers commanded the *Shenandoah*, each for one voyage, and Capt. Omar E. Chapman had her for four voyages between 1902 and 1907. Under these commands, the *Shenandoah* occasionally showed good speed, but on the whole her performance was mediocre compared with her rather brilliant work under Capt. "Jim" Murphy. When he was separated from the *Shenandoah*, however, his reputation as a master suffered considerably; for he was not successful in the operation and never felt at home and in his natural element when in command of the big Sewall steel ships *Arthur Sewall* and *William P. Frye*. The British marine historian, Basil Lubbock, has said, "Whilst she was commanded by Captain Murphy, the *Shenandoah* gained a great reputation for speed, but this, I think, was entirely due to her master's daring methods of sail carrying, for the *Shenandoah*, though capable of 15 knots under favorable conditions, was not a really fast ship and certainly no faster than others of Sewall's big four-masters which had not her reputation for speed."

The *Shenandoah* is credited with a fast passage from San Francisco to Liverpool of 100 days, sailing through the Golden Gate December 2, 1896, and reaching the Mersey on March 12, 1897. But this was evidently a passage of 102 days, port to port. It started with an amazingly fast run of 10 days to 7° N. Pacific, but subsequent calms prolonged her run to the equator to 18 days, "Gate to Line" (which was still a fast run). Cape Horn was passed on the 44th day out from San Francisco, and reports state that she was 58 days from the Cape to her final destination, which makes the total length of passage 102 days. This the fourth eastward Cape Horn passage of the *Shenandoah* in the California-Liverpool grain trade was an excellent run, and on this passage she was reported to have "raced with the famous British clipper ship *Miltiades*." It could not have been much of a "race," for although the big and reputedly fast British ship left San Francisco shortly after the *Shenandoah*, she took 147 days to Liverpool as against the run of 102 days by the American wood shipentine.

Frederick C. Matthews, in *AMERICAN MERCHANT SHIPS*, says of the *Shenandoah*: "In 1893 she crossed the line in 15 days from the Golden Gate and passed Cape Horn on the 42nd day out; was north of the River Plate when 50 days out, but then luck changed and she was 22 days to the line and 37 days thence to Tuskar Light." This passage, which was a brilliant sailing performance to a port off the Montevidéan coast in the South Atlantic, was drawn out to the mediocre length (for the *Shenandoah*) of 109 days from the Golden Gate to Tuskar Light in the Irish Channel, for on her six passages from San Francisco to Liverpool the big wood shipentine averaged only 112 days, port to port. The *Shenandoah* is also credited by Lubbock and others with a passage from San Francisco to New York in 1898 of 98 days, and it is said: "On this occasion she was 15 days from the Golden Gate to the line and 44½ days from San Francisco to the Horn."

On the run around the Horn westbound, the full-bodied cargo carrier *Shenandoah*, in her four runs from New York and two runs from Liverpool to San Francisco, showed a maximum speed in the Southern Hemisphere (from the equator in the Atlantic to the equator in the Pacific) equal to that of the sharp-lined extreme clippers of the early 1850's, which were designed and built primarily for speed. In the run on the North Atlantic southbound

and the North Pacific northbound, she was generally unfortunate in experiencing unfavorable sailing conditions. A comparison of the best sailing time covering each of the five prime divisions of the westward Cape Horn run (North Atlantic to North Pacific ports) as made during the entire sailing careers of four of the fastest clippers (with an average of the four), the fast medium-sized Bath-built Down Easter *Florence*, and the burdensome *Shenandoah* is presented. The record fast time of each ship between points covering all her voyages is stated, and the total of the time between points of any vessel does not give the time actually made on any one complete passage. The remarkable sailing record of the *Shenandoah* in the Southern Hemisphere—which includes the dreaded rounding of Cape Horn—is conspicuously portrayed by the following table, for the time made by the *Shenandoah* on her various passages from the equator in the Atlantic to the equator in the Pacific was actually less than the average of four of the world's fastest clippers. The excellent speed of the smaller Bath-built Down Easter *Florence* in the Southern Hemisphere is also noticeable.

Whereas the *Shenandoah* did some fast sailing in the North Pacific southbound, making at times runs from the Golden Gate to the equator in clipper ship time, her sailing records in the North Pacific and North Atlantic running up from the equator were never remarkable. She seldom showed great speed in the Northern Hemisphere, nor were her runs southbound in the North Pacific consistently good. Her passage around the Horn eastbound in 1897 was spoiled by unfavorable sailing weather in the North Pacific. On this voyage, instead of a run of 15 or 18 days from the Golden Gate to the equator as made on two previous passages, the big wood ship actually took 46 days in covering this distance.

Extreme Clippers—Built 1851-1853							
Course	FLYING CLOUD	FLYING FISH	SWEEP-STAKES	GREAT REPUBLIC	Average of Four Clippers	Down Easter FLORENCE	SHENANDOAH
	Days	Days	Days	Days	Days	Days	Days
New York to the equator (Atlantic)	17	19	18	16	17½	22	26
Equator to 50° S. Atlantic	24	22	23	25	23½	25	22
50° S. Atlantic to 50° S. Pacific—“rounding Cape Horn”.	7	7	10	9	8¼	13	9
50° S. to the equator (Pacific)	17	19	17	22	18¾	15	19
Equator (Pacific) to San Francisco	15	17	21	18	17¾	19	26
Total of the best time made of all voyages between points as stated above	80	84	89	90	85¾	94	102
Total of the best time made all voyages in the Southern Hemisphere from 50° S. Atlantic to 50° S. Pacific	48	48	50	56	50½	53	50
Fastest complete run between eastern U.S.A. Atlantic ports and San Francisco	89	92	93	92	91½	106	111

The passages made by the *Shenandoah* around the Horn westward from North Atlantic ports direct to San Francisco were as follows:

- From New York: 124, 111, 152, and 145 days; average 133¼ days.
- From Baltimore: 163, 131, and 150 days; average 148 days.
- From Liverpool: 118 and 116 days (113 days from Tuskar Light); average 117 days.
- (Also a passage from Baltimore of 273 days, port to port, being forced into Melbourne for repairs en route.)

These Baltimore runs were made under very unfavorable conditions and after Captain Murphy had relinquished command; the vessel was also past her prime, and the official log reports either light variable winds or head winds and bad weather prevailing.

The passages made around the Horn eastward from San Francisco to North Atlantic ports were as follows:

To Liverpool: 116, 111, 114, 102, 113, and 118 days; average 112 $\frac{1}{4}$ days.	128 days, with one voyage of 141 sailing days; average 125 days.
To Havre: 109 days (return passage of maiden voyage).	(On the last passage to New York, put into Valparaiso for repairs and was 166 days, port to port.)
To New York: 108, 123 (with jury rudder), and	

The average of all these nine passages westbound was 134 $\frac{1}{2}$ days, port to port, and of the eleven passages eastbound, 116 $\frac{1}{2}$ days (also reported as 114 $\frac{3}{4}$ days). In 1906 the *Shenandoah* took a load of timber to Port Blakely, Puget Sound, and made a run to New York in 131 days.

The above figures for length of passages and averages do not consider the claims of the passage made from San Francisco to anchorage in the Mersey (December 1896-March 1897) of 100 days or of a passage from San Francisco to New York in 1898 of 98 days—each previously mentioned. Neither do they include the 1907 passage of the *Shenandoah* from Baltimore deep laden with coal for the Mare Island Navy Yard, Calif., which was a run under Capt. Omar E. Chapman via the Cape of Good Hope and not on the usual much shorter course around Cape Horn. Leaving Baltimore March 29, 1907, the vessel, during three days of heavy and continuous gales when well east of South Africa, commenced to leak badly (she was about seventeen years old and had never been thoroughly overhauled and properly reconditioned). Captain Chapman made for Melbourne, where the *Shenandoah* arrived August 6, 1907, 130 days out and leaking ten inches per hour. After a port detention of 60 days while undergoing repairs, the vessel sailed October 5 and reached San Francisco December 27, 1907, 273 days out from Baltimore (with 213 sailing days between the ports) and 83 days from Melbourne. Entering port, the *Shenandoah* continued to be harassed by bad luck, for her towboat was not powerful enough to handle the big vessel in the wind when it freshened, and she was blown on the shoals off the North Head, striking and pounding on the bottom, and when additional big tugs towed her into deep water, the ship had six feet of water in her hold.

In 1899 the *Shenandoah* loaded lumber at Puget Sound for Australia and, after discharging, ran from Sydney to San Francisco with a cargo of coal in 61 days. Returning to Sydney in 50 days from the Golden Gate, she again brought a full load of coal from Sydney to San Francisco in 63 days. These coal runs were made in very good time considering the load carried, the ship's draft, and the sailing chances encountered. In 1901 the *Shenandoah* made a fast run of 139 days from New York to Japan—the fastest time made over that course by any sailing vessel in over ten years. On this passage, the big wood Down Easter beat the new four-masted steel shipentines *Acme* and *Brilliant* of the Standard Oil Company by sixty-seven and thirty-seven days, respectively. Upon the completion of this fast passage, the *Shenandoah* crossed the North Pacific from Yokohama to San Francisco in 34 days, covering 313 nautical miles in one day at an average speed of over 13 knots per hour and averaging about 6 $\frac{1}{2}$ knots per hour for the entire crossing.

During the Spanish-American War, Captain Murphy, on a passage from San Francisco, successfully ran through a blockade of Spanish torpedo boats, which, it was reported, were "on the lookout, off the British Isles, for the sailing ship *Shenandoah*." Arriving at Liverpool, Captain Murphy, it is said, received a cable from the Sewall firm instructing him to insure his ship against war risks for her passage across the Atlantic. He preferred, however, and found more economical the purchase and installation of two 4-inch R. F. guns to the payment of the insurance premiums demanded and when rounding the southwest coast of Ireland, four days out from Liverpool, had occasion to use them. The *Shenandoah* encountered a

Spanish gunboat, which fired a shot across her bow and ordered her to heave to. The American ship, in ballast and favored by strong winds, "was logging 15 knots per hour at the time under a tremendous press of canvas." Captain Murphy, ignoring the Spaniards' orders, held his course and opened fire on the hostile war craft with both his bow and stern guns. The Spanish gunboat returned the fire ineffectually and, after a fruitless chase, "was dropped below the horizon in a matter of four hours."

The *Shenandoah* ended her career as a sailing vessel in the autumn of 1910 when twenty years old. She was sold for \$36,000 to the Scullys and converted into a coal barge, being shorn of her tall masts and spars. On October 29, 1915, when in tow of a steam tug, she was rammed and sunk by the S.S. *Powhattan* near Fire Island, New York. On March 11, 1916, her submerged hull was blown up by mines placed by divers from the U. S. Coast Guard cutter *Mohawk*. The *Shenandoah* has been described as "the most famous American wood sailing ship," but this is untrue, as the Down Easter *Henry B. Hyde* is more justly entitled to that honor; yet there are reasons for referring to the *Shenandoah* as such. She represented America's last and supreme effort (made by Arthur Sewall & Company, of Bath, Maine) to win deep-sea ocean trade by wood ships, and she will go down in history as a successful, profitable, and colorful vessel—something that cannot be said of Donald McKay's *Great Republic*. The *Shenandoah* was by far the most successful vessel of the Sewall "Big Wood Four," and Basil Lubbock says of her: "The American people were so proud of this remarkable vessel that her picture was reproduced by the United States Government on the registers of all ships flying the American flag and on the licenses issued to all masters of American sailing ships."

(c) *Susquehanna*, 1891

The wood shipentine *Susquehanna*, launched from the Sewall yard in Bath, Maine, on September 17, 1891, was put into the water some ten months after the *Shenandoah*, a little over twenty months after the *Rappahannock* was launched, and shortly before that vessel was destroyed by fire in the South Pacific while on her second voyage. The *Susquehanna* was the third member of the highly publicized Sewall "Big Wood Four" designed and built to restore American foreign trade and wood deep-sea square-rigged sailing ships to the prominent position once enjoyed by them, but which during the seventies and eighties had been giving way rapidly to foreign—and particularly British—iron (or steel) and steam. The *Susquehanna* was of 2,744 tons gross and 2,628 tons net register. She was 26 ft. shorter than the *Shenandoah*, 14 ft. shorter than the *Rappahannock*, and 4 ft. narrower in beam, with 6 in. less depth, than the two big vessels of the fleet that had preceded her. The reduction in the size of the *Susquehanna* from the original intention is particularly noticeable in tonnage measurement, for her registered net tonnage was 407 tons less than the *Rappahannock* and 630 tons, or about 20 per cent, less than the *Shenandoah*. The size of the *Susquehanna* met with more general favor among wood shipbuilders, the shipping fraternity, and investors than the larger *Rappahannock* and *Shenandoah*, and the poor sailing performance and loss of the *Rappahannock* tended to strengthen and confirm the popular view among builders and operators that the first two vessels of the new Sewall fleet were too big for wood construction. Later, the splendid sailing performances, handiness, and money-making power of the *Shenandoah* under Capt. "Jim" Murphy were to change the opinion at least of promoters and investors Down East and lead to the building a year later of the mammoth *Roanoke*, 772 tons larger in net registered tonnage and 27½ ft. longer than the *Susquehanna* and 142 tons larger in tonnage measurement, 11½ ft. longer, and 6 in. deeper than the big *Shenandoah*.

Whereas the *Rappahannock* (built 1889-1890), the *Shenandoah* (built 1890), and the *Roanoke* (built 1892) were constructed from the same model, or lines—the only variations being in the length of the parallel middle body and a change of a few inches in depth—the *Susquehanna* was built from an entirely different model of 4 ft. less beam, and she was some-

what finer in both her entrance and run. At the time that she was designed, the Sewalls were fearful that they had gone too far in both size and fullness of model when laying down the *Rappahannock* (and even more so with respect to the *Shenandoah*). In the *Susquehanna*, they attempted a compromise of fullness, carrying power, and speed between the big and slow *Rappahannock* and the highly successful, relatively fast and smaller Down Easters, of which the best were the *Henry B. Hyde* and the *A. G. Ropes*. Both were Bath ships, neither of which they had built. Another factor that apparently influenced the size of the third ship of the Sewalls' "Big Wood Four" was the difficulty that the builders experienced in raising money among investors because of the "black eye" temporarily given to big wood sailing ship construction by the poor and troublesome performance of the *Rappahannock*; for the Sewalls built with other people's money, not their own, and evidently built a ship to cost no more than the money that they had on hand or were assured of obtaining from investors, subcontractors, agents, captains, etc. When the model of the *Susquehanna* was displayed and the keel laid, it was felt that the third vessel of the Sewall "Big Wood Four," although smaller, would be a faster sailer than her two predecessors and, furthermore, relatively stronger in her wood hull, safer, handier, and in the ultimate a much better investment for share (or fraction) holders. It was freely said in the nineties both in America and Britain, "The *Susquehanna* has the best lines of any of the Sewall wood ships."

The sailing record of the *Susquehanna* seems to back up the views expressed during her building: that she would "prove to be the fastest of the Sewall wood fleet." If the *Shenandoah* had not had Capt. "Jim" Murphy in command, with the ship and the master suiting each other so perfectly, there is no doubt that the *Susquehanna* would have been conceded sailing honors that were gained, held, and generally associated with the popular and highly advertised *Shenandoah*. After a maiden voyage from New York to San Francisco in average time under decidedly unfavorable conditions, the *Susquehanna* attracted much attention at Liverpool, England, when she reached there on the second half of her maiden voyage after negotiating the distance in 93 days and 21 hours on this run from San Francisco. Her running time from the Golden Gate to the equator was 19½ days; to Cape Horn, 47 days; to the equator on the Atlantic side, 66½ days; to Cape Clear, 91¾ days. The best day's run on the passage was only 280 nautical miles, or 11.7 knots per hour, but she did some good uniform sailing. Her average speed for the entire run was about 7 knots per hour—said to be a record for a sailing vessel of her time covering a period of three consecutive months at sea.

From North Atlantic ports around the Horn westbound, the *Susquehanna* made seven passages to San Francisco at an average of 129 days each, one voyage being of 117 and another 122 days' duration, three of 125 days each, one of 140, and another of 146 days. Three of her passages from San Francisco around the Horn eastward were to Britain and averaged 118 days, one—her maiden voyage before mentioned—being in 94 days and the others in 128 and 132 days, respectively. Two passages were from San Francisco to New York and were negotiated in 126 days and 109 days, respectively, and the average of her five eastward Cape Horn passages from San Francisco to North Atlantic ports was 117.8 days. The *Susquehanna* made three runs from the Hawaiian Islands around Cape Horn to New York or to the Delaware Breakwater, which averaged 113 days; one was in 89 days, and her other voyages were made in 117 and 133 days each. The passage of 89 days from Honolulu to New York in 1897 was generally considered as "the fastest time made by any sailing vessel since the days of the out-and-out clippers." She averaged on her course, throughout the entire distance of 14,250 miles, 160 nautical miles per day and "about 6⅔ knots per hour." For a scant four thousand miles of the passage, she averaged 210 miles per day for nineteen consecutive days—an average of 8¾ knots per hour. As the best day's run was only 270 miles and the best logged speed only about 12 knots per hour, this indicates no heavy favoring winds but an excellent sustained speed under moderate conditions. From Honolulu to Cape Horn, the *Susquehanna* made an ordinary run of 49 days, but in the South Atlantic she ran with the trades from Lat. 50° S. to the equator in only 19 days, averaging 210 nautical miles per day and over

8¾ knots per hour on her course daily, with 270 miles logged—noon to noon—as her best day's run (over 11¼ knots per hour).

The *Susquehanna* has to her credit an excellent passage of 102 days from Hong Kong to New York made in 1895 with a crew of Japanese. According to her master, Capt. Joseph E. Sewall (a native of Bath, Maine, and a son of Gen. Frederick D. Sewall, who served in the Civil War), the Japanese not only were incompetent but also suffered greatly in the cold weather and "had to be thawed out by rations of whisky liberally supplied." The ship's officers on this voyage were "frequently compelled to assist in working the ship."

As against her fine voyages, the *Susquehanna*, like all other sailing vessels dependent upon fickle winds for propelling power, made some slow runs. On two passages from Norfolk, Va., to Manila, she required 148 days and 204 days, respectively; in the latter instance, grave fears were felt and expressed for the vessel's safety, and she was about to be placed on the missing list when news of her safe arrival in the Philippines was received.

The *Susquehanna* sailed from the fateful port of Noumea, New Caledonia, on August 23, 1905, bound for the Delaware. It was at Noumea that the *Roanoke*, the big sister of the *Susquehanna*, had been destroyed by fire on August 10, 1905 (thirteen days before the latter ship sailed), and the mate of the *Susquehanna* had been overcome and rendered helpless for some time thereafter because of his bravery in fighting the fire on the *Roanoke*. When the *Susquehanna* was only three days out, the heavy cargo of 3,558 tons of chrome ore proved, as stowed, to be more than her wood hull would stand in the high seas being encountered, and after being strained considerably in very heavy weather, "her back," it was reported, "was practically broken in three places, and her seams opened up wide." By the time the pumps were working, there was five feet of water in the hold. To cap the climax, the pump shaft broke, and later, when there was no hope of saving the ship, all hands (thirty men) took to three boats, leaving the ship with well over seven feet of water in the well and twelve feet in the forepeak. Before the boats were many lengths distant from the ship, the *Susquehanna* took a dive and went down, bow first. Two of the Sewall "Big Wood Four" had met their end within seventeen days' time and within a few miles of each other in the South Pacific.

It is strange that of the four vessels comprising the Sewall big wood fleet, the admittedly best dimensioned and proportioned (the smallest and the finest-lined) and, therefore, it was felt, the naturally strongest wood hull was the only one to be lost by foundering at sea. The *Susquehanna* went to the bottom when only fourteen years old because her wood hull, when deep laden with a heavy cargo, was too weak to withstand the stress of heavy weather. It is interesting to recall the comment, at the time of the building of the *Susquehanna*, of the practical, experienced shipwrights who worked on her to the effect that the timbers used in her construction and the Georgia pine planking, whereas, according to the builders, of as high a quality as obtainable in the market, were "not as good and as sound" as the material "that used to be used in the building" of Bath Down Easters. Evidently, the days of wood shipbuilding were hurrying to a close and the nonavailability of suitable timber and planking for the building of big deep-sea square-riggers was one factor, seldom considered, that hastened the end. Of the Sewall "Big Wood Four," the *Rappahannock* and the *Roanoke*—the first and the last—were lost by fire, the *Shenandoah*, after developing structural weakness in 1907 (when sixteen years old), was soon afterwards sold, converted into a towing barge, and lost by collision in 1915, and the *Susquehanna* ended a rather brilliant career as a sailer by ignominiously foundering at sea as had McKay's big wood ship, the *Great Republic*, before her.

(d) *Roanoke*, 1892

The *Roanoke*, the last of the Sewall "Big Wood Four," was the largest wood square-rigged deep-sea sailing vessel ever built in the world. She was the last wood ship constructed by the Sewalls, and when launched from their Bath, Maine, yard into the Kennebec River on

September 20, 1892, she was referred to as "the 94th wood vessel built by the Sewalls." They declared that in the building of the *Roanoke* the limit of size had been reached for which wood could be used in shipbuilding. The *Roanoke* was said by her promoter-builders (the Sewalls owned but a very small part of the vessels that they built and operated) to be the biggest carrier that it was possible to build of wood. They predicted that big deadweight and volume capacity in a single bottom would pay, for they affirmed that the operating costs would be "no more than in a ship carrying a third less"; that "when big cargoes are carried each voyage, a trifle less speed can be expected," but success in marine transportation, it was affirmed, was dependent on the freight realization in relation to the cost of carrying per ton per mile. Time, it was said, was important in the handling of general and available cargoes for sailing ships to the degree that it affected the cost of transportation per ton-mile through cost of crew (pay and supplies) and the charges for maintenance, insurance, and depreciation; but "a ship a little slower carrying a great deal more cargo would pay when a faster ship with smaller carrying capacity and earning less revenue from cargo per passage would be unprofitable to operate."

When the *Roanoke* was built, it was known that the pioneer of the big wood quartet—the *Rappahannock*—had been a slow and unhandy vessel. The smaller and finer-lined third member of the "Big Four"—the *Susquehanna*—gave promise of being faster and handier, but as her builders said, "She will carry less and obtain, therefore, less revenue from her cargoes while it will cost about as much to man her and keep her in repair as a larger ship." The potent influencing factor, however, that determined the size and model of the *Roanoke*, the last member of the big Sewall-built wood quartet, was the success being obtained by the *Shenandoah* (the second one of the quartet of big wood square-riggers) and the enthusiastic praise of the vessel and the optimism expressed by her commander, Capt. "Jim" Murphy. As far as model was concerned, the *Shenandoah* was merely a lengthened *Rappahannock*, but she was a four-masted shipentine instead of a three-masted ship. The Sewalls—always economical as far as building costs and the utilization of models and molds were concerned—reasoned that if the addition of 12½ ft. to the *Rappahannock*, with a change of rig, produced "an unbeatable big-carrying handy *Shenandoah*," then a further addition of about the same number of frame timbers to the middle body, while duplicating the rig of the *Shenandoah*, would make the new vessel "probably as fast or faster than the *Shenandoah*, about as handy, and a larger cargo carrier and bigger money-maker."

"Man proposes, but God disposes." The *Roanoke*, being a longer vessel than the *Shenandoah*, did not have the identical spar and sail plan of the latter vessel, and her masts seemingly were not as well placed. Moreover, she did not have a Capt. "Jim" Murphy—with his personality, daring, and luck—to command her, and the record of the *Roanoke* as a fast sailer and for handiness was about as bad as that of the *Shenandoah* was good. The *Roanoke* measured 3,539 tons gross and 3,400 tons net register; she was 311.2 ft. long, 49.2 ft. beam, and 29.2 ft. deep. Her hull length over-all was 350 ft., and she was said to carry 5,400 tons on 27-ft. draft. As the *Great Republic* was originally built, she measured larger than the *Roanoke*, but as the *Great Republic* was reconstructed and sent to sea (after being damaged by fire before she spread her sails on her maiden voyage), that vessel was smaller than the *Roanoke*. The original dimensions of the *Great Republic*—as designed—are of no more practical value in comparing ships that sailed the seas as merchantmen engaged in trade than would be the size and proportions of another claimed "world's largest wood sailing ship," the Quebec-built *Baron of Renfrew*. This Canadian craft, built by Charles Wood in 1825, was a "timber ship" and carried a pine timber cargo of 8,500 tons. She was rigged with four masts and built of solid pine timber in order to evade home duties and was known as the "raft ship." After a long and tedious passage, the *Baron of Renfrew* arrived in the English Channel, but was unmanageable in restricted waters, went ashore, and was broken up.

The size of the hull of the *Roanoke* compared with other big wood sailing vessels is stated herewith:

Name	Year Built	Rigged	Number of Masts	Registered Dimensions			
				Gross Tonnage	Length	Beam	Depth
BARON OF RENFREW (a "raft ship"—an impractical "temporary" craft, built to make one voyage)	1825	Square	4	<i>Tons</i> 5,294 (old measurement)	<i>Feet</i> 304	<i>Feet</i> 61	<i>Feet</i> 34
GREAT REPUBLIC (as originally built, but not as operated)	1853	Square (shipentine)	4	4,555 (old measurement)	335	53	38

The following vessels (but not the above) were all measured under the formula and system adopted in 1865 for the determination of registered tonnage, known as the "new measurement," with the exception of the GREAT REPUBLIC, which was measured in 1855 by the old tonnage formula (based on only certain prime dimensions) in effect at that time. The ratio between the old and new tonnage measurements of a large number of extreme clippers of the GREAT REPUBLIC type gave the tonnage as per original, or old, measurement some 30 per cent in excess of the new measurements, which were adopted in 1865 and have been in effect since that year. On this basis of relationship of official registered tonnage measurements, the tonnage of the GREAT REPUBLIC, which was 3,356.6 tons as per old measurement, would be only 2,582 tons by new measurement, and the tonnage of the all-time big wood sailing hulls ROANOKE (square-rigged) and WYOMING (schooner-rigged) built at Bath, Maine, in 1892 and 1909 would figure 37 and 44 per cent, respectively, larger than Donald McKay's mammoth clipper ship GREAT REPUBLIC as she first moved under her own canvas in 1855.

WYOMING	1909	Fore-and-aft (schooner)	6	3,731	329.5	50.1	30.4 (to upper deck)
ROANOKE	1892	Square (shipentine)	4	3,539	311.2	49.2	29.2 (to upper deck)
EDWARD B. WINSLOW	1908	Fore-and-aft (schooner)	6	3,425	318.4	50	23.7 (to main deck)
SHENANDOAH	1890	Square (shipentine)	4	3,406	299.7	49.1	28.6 (to upper deck)
ELEANOR A. PERCY	1900	Fore-and-aft (schooner)	6	3,402	323.5	50	24.8 (to main deck)
GREAT REPUBLIC (as rebuilt and as operated)	1855	Square (shipentine)	4	3,356	302	48.4	29.2 (to upper deck)
EDWARD J. LAWRENCE	1908	Fore-and-aft (schooner)	6	3,351	320.2	50	23.9 (to main deck)
SUSQUEHANNA	1891	Square (shipentine)	4	2,744	273.6	45.1	28.1 (to upper deck)

When the *Roanoke* was built, she was the largest wood vessel in the world and had the largest (measured) hull of any practical and operative wood sailing ship built up to that time (1892). The *Roanoke* continued to be the world's biggest sailing vessel constructed of wood until the mammoth six-masted coastwise fore-and-aft-rigged schooner *Wyoming* was built in Bath, Maine, in 1909 (seventeen years after the *Roanoke*), and she remains to this day the largest deep-sea and the largest square-rigged wood vessel ever built.

The *Roanoke's* keel was of white oak, 16 in. square, in two tiers; garboards, 8 in. thick; ceiling in lower hold, 14 in. She was fastened with locust treenails and bolted and edge-bolted. The construction of this vessel, we are told, involved the use of 25,000 cu. ft. of oak, 1,300,000 ft. of Georgia (southern, or yellow) pine, 100,000 treenails, and 550 hackmatack knees.

Comparing the crew of the *Roanoke* with that of the *Great Republic*, the official records compiled by United States Government authorities give the number of the crew of the *Roanoke* as 30 men, all told. The old records of the *Great Republic* (which was also rigged as a four-masted shipentine and the first vessel of this rig to be built in the United States) state that originally "the complement consisted of 100 to 120 men and 30 boys." When rebuilt under the direction of Capt. "Nat" Palmer in New York, her rig was materially reduced, and attempts were made "to make a practical vessel out of her." It is said that she sailed on her maiden voyage with "a crew of 50 men and 15 boys—less than half the number put on board by her builder and original owner, Donald McKay, and her first appointed master, Capt. Lauchlan McKay."

The *Roanoke* was evidently a fairly good sailer "in good blows" before the wind, but she was reputed to be "dull on the wind." She was described by one of her skippers as "a burdensome, full-bodied and bulky ship" and "a big, heavy and unhandy vessel to work," and at least throughout her early years at sea she had "dyed in the wool" real "bucko" officers who manhandled her crews and caused her to be twice listed in the "Red Record." Many of the *Roanoke's* voyages were surprisingly slow; whereas she has few fast complete passages to her credit, yet she did some "smart sailing" at times between points. She is credited with a day's run of 320 nautical miles, which is an average speed of $13\frac{1}{3}$ knots per hour for twenty-four hours. On a passage to San Francisco in 1895-1896, she was only 19 days from 50° S. Pacific to the equator and only 17 days from there to "within sight of the Farallones," and both of these runs between points are very close to "clipper ship" records. In 1898, she is credited with a fast passage of 102 days from San Francisco to New York, but actually she made Sandy Hook in 99 days and was then blown offshore; on this—one of her very few good passages—she made a run of 21 days from Cape Horn to the equator in the Atlantic and sailed from there to Sandy Hook in 26 days, requiring only 47 days for the entire Atlantic half of the passage.

Leaving New York on her maiden voyage on December 18, 1892, the *Roanoke* went aground, but was hauled off undamaged. This incident, however, served to recall to the minds of superstitious people the fact that several persons had been injured on or about the ship just before and after her launching. Indeed, the heads of many old-timers and sea-salts wagged as the vessel left Bath in tow, and the prediction was freely made at the time that she was unlucky, too large for wood, and "Sewalls' big mistake." The *Susquehanna* left New York three days after the *Roanoke*, and both reached San Francisco the same day, the *Susquehanna* slightly in the lead, her passage being 122 days. Two days later, the *Jabez Howes*, a typical Down Easter, made port in 106 days from New York, she having made better time than the others over each of the five sections of the passage. Completing this voyage, the *Roanoke* returned to New York in 111 days, averaging 5.6 knots per hour while at sea for the complete round maiden voyage, which was considered good sailing considering the size and model of the vessel and the amount of cargo carried.

The *Roanoke's* other voyages can be briefly summarized as follows:

- No. 2, outward:* To Shanghai with 126,500 cases of oil (said to be "the largest cargo of case oil ever laden on a sailing vessel").
Homeward: Via Manila to New York. Both passages of the voyage were distressingly slow and were described as "long and tedious." It was reported that the ship "was becalmed for 50 days in the China Sea."
- No. 3, outward:* Sailed from New York June 20, 1895, for San Francisco; was 40 days to the equator; met bad gales in the South Atlantic (three men were lost and five severely injured) and made Rio de Janeiro primarily for hospital attention for sixteen men. Resuming later, after some six weeks' port detention following a loss of about 30 days at sea, the *Roanoke* reached the Golden Gate after a run of 87 days from Rio.
Homeward: In ballast from San Francisco to Hilo, Hawaiian Islands, and a passage of 127 days thence to New York.
- No. 4, outward:* To Yokohama with case oil.
Homeward: Yokohama to Honolulu (in ballast) in 36 days and from there to New York with sugar in 109 days.
- No. 5, outward:* Sailed from New York December 27, 1897, and arrived at San Francisco after a passage of 141 days, during which three men were killed in working the ship and another died a natural death.
Homeward: A fast run of 102 days, San Francisco to New York (99 days to Sandy Hook).
- No. 6, outward:* New York to San Francisco in 145 days.
Homeward: San Francisco to Queenstown in 106 days and to Liverpool in 108 days—a fast and good passage; crossed the Atlantic to Baltimore in ballast.
- No. 7, outward:* Baltimore to San Francisco with coal. Grounded in Chesapeake when sailing March 9, 1900, and forced to lighten part of her 4,800 tons of cargo. Was 20 days making Cape Horn from Staten Island, a distance of 300 miles (i.e., covered only 15 miles per day on this part of the journey). She required 34 days to round Cape Horn and reached San Francisco after a passage of 156 days.
Homeward: Sailed from San Francisco with grain for Falmouth and made a passage of 134 days; crossed the Atlantic in ballast.

No. 8, *outward*: Sailed from Norfolk, Va., June 15, 1901, with coal for San Francisco. On November 12 fire discovered in cargo; changed course and headed for Honolulu, where she arrived November 25. Discharged all but 1,000 tons of her cargo and reached San Francisco January 7, 1902, 19 days from Honolulu and 206 days out from New York, the ship having been 182 days at sea.

Homeward: Sailed from San Francisco (with some cargo) to Seattle to complete loading. When full laden, the cargo was said to be worth \$850,000 and "the most valuable that had left Puget Sound in one bottom." Arrived

New York after a passage of 155 days from Seattle.

No. 9, *outward*: Sailed from New York June 24, 1904, for Sydney. When 56 days out, put into Rio de Janeiro, badly damaged by collision with British S.S. *Liangibby*. Detained 106 days while making repairs; then made slow run of 82 days to destination, where she arrived February 23, 1905, 244 days from New York, 138 days of which were spent at sea.

Homeward: Sailed from Sydney in ballast to Noumea, New Caledonia, to load chrome ore for delivery at Philadelphia. On August 10, 1905, caught fire with 3,037 tons of ore aboard and was destroyed at her anchorage.

The *Roanoke* does not show up well in the average length of her passages. Her three direct runs from New York to San Francisco westward around Cape Horn averaged 137 days, a fourth being a long passage via Rio de Janeiro for repairs with a fair run from the Brazilian port to San Francisco in 87 days. Two additional westward Cape Horn passages to San Francisco occupied 156 days from Baltimore and 206 days from Norfolk via Honolulu (where she put in with her cargo of coal on fire and discharged most of it) and 182 days at sea. Eastbound around the Horn, her passages were made in better time. Two from San Francisco to New York averaged 106½ days and two to British ports averaged 121 days, but her one run from Puget Sound to New York was very slow and occupied 155 days. The *Roanoke* made two sugar passages to East Coast U. S. A. ports from the Hawaiian Islands, which averaged 118 days.

American Steel Square-riggers

During the years 1893-1902 inclusive, nine deep-sea steel square-riggers were built by Arthur Sewall & Company, Bath, Maine, and they were the only vessels of this type ever built in the United States. The following is a description of these nine vessels:

Name	Rig	Launched	Registered Tonnage		Dimensions in Feet			Remarks
			Gross	Net	Length	Beam	Depth	
DIRIGO	4-masted shipentine	Feb. 3, 1894	3,004	2,855	312	45.1	25.6	Sunk by Germans, May 31, 1917.
ERSKINE M. PHELPS	4-masted shipentine	July 26, 1898	2,998	2,715	312.1	45.2	25.6	Sold to the Union Oil Co., of San Francisco, Feb. 4, 1913, for conversion into a barge. Still afloat 1945.
ARTHUR SEWALL	4-masted shipentine	Feb. 23, 1899	3,209	2,919	332	45.2	25.6	"Went missing" in 1907.
EDWARD SEWALL	4-masted shipentine	Oct. 3, 1899	3,206	2,916	332	45.3	25.5	Sold to Texas Oil Co. in 1915. Sold to Alaska Packers Association in 1922; renamed STAR OF SHETLAND. Sold to Japs, 1936.
KAIULANI	3-masted bark	Dec. 2, 1899	1,570	1,430	225.7	42.3	20	Sold to salmon packers; renamed STAR OF FINLAND. Still afloat 1945.
ASTRAL	4-masted shipentine	Dec. 8, 1900	3,292	2,987	332.3	45.4	26	Sold to packers in 1909; renamed STAR OF ZEALAND. Sold to Japs, Aug. 1935.

Name	Rig	Launched	Registered Tonnage		Dimensions in Feet			Remarks
			Gross	Net	Length	Beam	Depth	
ACME	4-masted shipentine	May 21, 1901	3,288	2,987	332.2	45.4	26.1	Sold to packers, 1910; renamed STAR OF POLAND. Wrecked Japan, Sept. 15, 1918.
WILLIAM P. FRYE	4-masted shipentine	July 13, 1901	3,374	2,998	332.4	45.4	26.2	Sunk by Germans, Jan. 28, 1915.
ATLAS	4-masted shipentine	Jan. 11, 1902	3,381	3,006	332.4	45.4	26.1	Sold to packers, 1910; renamed STAR OF LAPLAND. Sold to Japs, 1936.

The *Astral*, *Acme*, and *Atlas* were built for the Standard Oil Company, the bark *Kaiulani* for Williams, Dimond & Company, of San Francisco and Honolulu, and the other five vessels—all four-masted shipentines—for the builder's account as managing owner. Arthur Sewall & Company, of Bath, Maine, was not, as generally supposed, the real owner of the so-called Sewall fleet, for the Sewalls sold shares, or fractions, in each ship that they built to their "friends," which meant the investing public, the Sewalls making money in both the building and operation of the vessels. In the Sewall-built and supposedly Sewall-owned steel shipentines, the investment of the Sewalls was much less than the profit which they received as shipbuilders. When the *Dirigo* was first sent to sea, Arthur Sewall & Company, as a firm, owned no part of her, and the individual partners comprising the company owned only 7/64ths of her (about 11 per cent). Of the *Erskine M. Phelps*, they owned 4/64ths (6¼ per cent); *Arthur Sewall*, 3/64ths (4.7 per cent); and *Edward Sewall*, 7/128ths (less than 5½ per cent). When the *William P. Frye* sailed, the three Sewalls (William D., Samuel S., and Harold M.), following the death of Arthur Sewall, owned together only 6/128ths, or 4.7 per cent, of the vessel. The Sewalls boosted American merchant sail and made money on the ships that they built and operated as managing owners. Their profits were sure, and they risked very little of their capital. On the four steel shipentines built supposedly for themselves as owners and operators, the Sewall firm evidently made a profit as builders of over \$53,000 and invested in the four ships the sum of only \$30,500, or 57 per cent of the conservatively stated net builders' profits. By functioning as promoters, builders, and operators, the Sewalls kept vessels, in which they owned only about 5 per cent of the invested capital, in their own hands, and as long as the vessels were afloat and in service these ships brought them good money and a desirable income as operators. It would seem that the Sewalls had everything to gain and nothing to lose by building ships "for their own account" as long as they could get other people as investors and "associate owners" to carry 95 per cent of the building cost, pay them 10 per cent net profit for building, and then pay them throughout the life of the ship for operating the vessel.

No sea captain, however competent, could command a Sewall ship unless he "bought into her," and the Sewalls used their skippers to some degree as salesmen of fractions. When Capt. George W. Goodwin, of Calais, Maine, sailed as master of the *Dirigo*, he either owned or was committed to the financing of her to the extent of one-eighth for \$20,000. The firm of Arthur Sewall & Company wrote him on March 2, 1893:

You will take 1/8 of this ship. You will pay in \$10,000 cash on account. Of the balance due, Mr. Arthur Sewall agrees to advance you \$5,000; that will leave \$5,000 for us to carry for you until you can liquidate it by your earnings. We will be much pleased to have you command this ship, and when you are ready to pay the \$10,000, we will consider the matter closed and so advise you.

The *Dirigo* sailed on April 26, 1894, from the Delaware on her maiden voyage carrying case oil for Japan, and we are told: "It was a courageous Goodwin that took the *Dirigo* to sea, but a tired and none-too-spirited Goodwin. It had not been an easy matter to meet the financial obligations entailed by his buying into the new ship . . . and he felt burdened by responsibility." As a matter of fact, Captain Goodwin appears in the early official records of the *Dirigo's* owners as the holder of 6/64ths instead of 8/64ths, but friends of Goodwin

owned fractional interests, one from Calais (his home town), and it is said: "Sewalls used Goodwin and most of their captains as promoters or share-sellers."

Capt. Robert J. Graham of the *Erskine M. Phelps* owned 16/128ths of that vessel, or twice as much as all the three members of the Sewall firm (Arthur, William D., and Samuel S.) owned together; yet Captain Graham addressed the Sewalls as if they were owners of the ship and he a humble employee. Capt. L. S. Colley, who also evidently wanted the job (and later was in command), purchased a 4/128ths share in the *Erskine M. Phelps* and was later given the command of the *Dirigo* and the British-built Sewall-owned steel four-master *Kenilworth*. Captain Graham owned as much of the ship *Erskine M. Phelps* as did the Chicago capitalist for whom she was named. When Capt. "Jim" Murphy took command of the *Arthur Sewall*, 12/128ths of the ship was registered in the name of Mary Jane Murphy, and this was twice as much as the collective amount owned by the three Sewalls who comprised the firm, which posed as the owner of the vessel. The permanent register of the *William P. Frye*, the last of the Sewall ships, dated October 22, 1901, closely following the launching of the vessels, shows that Capt. "Joe" Sewall had bought into the ship to an amount equal to that owned by any member of the firm (2/128ths). However, Captains Colley and Gaffry were each registered owners of an equal share, and Captains Goodwin and Amesbury each owned 1/128th; therefore, five skippers of the Sewall fleet of steel shipentines owned 8/128ths of the new vessel among them, whereas William D. and Samuel S. Sewall, the managers of the firm, collectively owned only half of this amount and with Harold M. (the son and one of the heirs of Arthur Sewall) only 6/128ths of the ship.

The following has been compiled from official statistics of ownership of the five four-masted steel shipentines that Arthur Sewall & Company, of Bath, Maine, built and operated as managing owners:

Name of Vessel.....	Fraction or Percentage of Total Ownership				
	DIRIGO	ERSKINE M. PHELPS	ARTHUR SEWALL	EDWARD SEWALL	WILLIAM P. FRYE
Date of record of permanent register	Mar. 23, 1894	Aug. 23, 1898	Mar. 6, 1899	Oct. 27, 1899	Oct. 22, 1901
Ownership of Arthur Sewall.....	3/64	4/128	2/128	3/128	2/128 (Harold)
Ownership of Samuel S. Sewall....	2/64	2/128	2/128	2/128	2/128
Ownership of William D. Sewall...	2/64	2/128	2/128	2/128	2/128
Total ownership of Sewall firm.....	7/64	8/128	6/128	7/128	6/128
Total fractions owned in Bath, Maine	8/64	11/128	9/128	11/128	8/128
Total fractions owned in and around New York	17/64	50/128	56/128	63/128	61/128
Total fractions owned in and around San Francisco	15/64	8/128	27/128	27/128	17/128
Percentage owned by Sewall firm....	10.93	6.25	4.68	5.47	4.68
Percentage owned in Bath (total)..	12.50	8.59	7.02	8.59	6.25
Percentage owned in New York....	26.56	39.06	43.75	49.22	47.65
Percentage owned in San Francisco..	23.44	6.25	21.09	21.09	13.28
Total number of part owners.....	18	20	28	24	38
Approximate stated cost.....	\$157,000	\$140,000	\$145,000	\$145,000	\$150,000
Value of holdings of the Sewall firm	\$ 17,160	\$ 8,750	\$ 6,780	\$ 7,930	\$ 7,020
Value of average individual holdings	\$ 8,722	\$ 7,000	\$ 5,178	\$ 6,042	\$ 3,947

The *Dirigo*, the pioneer vessel of the Sewall steel fleet, was British-designed and built of British steel in an American yard. The *Erskine M. Phelps* was built from the same plans as the *Dirigo*, but a few small changes in the lines (as many as the economy-minded building "owners" would tolerate) made her a faster vessel. The other seven steel shipentines built by the Sewalls followed identically the model of the "*Phelps*," with 20 ft. added to the parallel middle body; but the deck was raised 6 in. in the last four vessels built, the deck

arrangement modified, and after the building of the *Arthur Sewall*, a partial turtle-back on the ends was done away with because of cost and the hull lines run up straight to the fore-castle and poop decks. The adding of 20 ft. midships to the last six of the eight steel shipentines built by the Sewalls made the vessels badly proportioned in dimensions, and from the first they were in this respect inferior to Bath wood Down Easter models. Whereas the Sewall steel shipentines would stand up without ballast when light, their narrow beams made them deficient in initial stability both at light drafts and when loaded with homogeneous cargoes. They carried no water ballast, and the gross cost of handling the ballast (in and out) that had to be put into them before they could be moved at sea was a big expense, took up much time, and as the years advanced became an annoying problem, particularly when "Chinese mud" was used as ballast and quarantine regulations required the dumping of it before the ship was permitted to enter certain ports. Captain Goodwin, upon the completion of the maiden passage of the *Dirigo*, reported to the managing owners that the ship was "very tender" and had been loaded "six inches too deep." He added: "She is very wet and with a heavy sea on board will stop almost still. I have gotten used to her now but at first it was more than I was used to and when she was on her beam ends I thought she was there for good. I did not think a ship could go over so far and recover herself." The *Arthur Sewall* "went missing" at sea, and it is presumed that she capsized and was lost in some sudden, heavy squall because of inadequate initial stability due primarily to her narrow beam and the standing upper topsail yards (the only one of the fleet so fitted), which Capt. "Jim" Murphy put on the vessel and which all other skippers of the Sewall steel fleet disliked greatly. It has been felt by competent authorities that the standing upper topsail yards "tripped" the *Arthur Sewall* in a quick, strong blow and capsized her. There were no survivors, no trace of wreckage, and her end is mere conjecture; but Captain Goodwin, who had narrowly escaped the same fate with the *Dirigo* (which was less dangerously rigged and had a greater margin of safety to work on), was always convinced that he knew what had happened to Captain Gaffry and the *Arthur Sewall*.

The *Dirigo* and the *Erskine M. Phelps* carried skysail yards, and the other four-masted steel shipentines built by the Sewalls carried double topgallants and royals, but only the *Arthur Sewall* had standing upper topsail yards. The following is a comparison of the length of spars of the smaller vessels of the fleet (the *Dirigo* and the "*Phelps*") and the six larger shipentines, three of which were of the Sewall fleet and three owned by the Standard Oil Company:

Masts or Spars	The Two Smaller 3,000-ton Vessels				The Six Larger 3,206- to 3,381-ton Vessels			
	Length in Feet				Length in Feet			
	Fore	Main	Mizzen	Spanker	Fore	Main	Mizzen	Spanker
Steel lower masts—steel deck to top	52	55	52	48	52	55	55	56
Top to crosstrees	47	47	47	45½	42½	42½	42½	35
Head	10	10	10	9	13	13	13	9
Topgallant masts	26	26	26	24	37	37	37	30
	20½	20½	19½	17	22	22	22	17
	16	16½	15½	7	7	7	7	6
	8	10	7					
	Pole	Pole	Pole	Pole				
Bowsprit outboard			42				45	
Spanker boom			50				50	
Spanker gaff			40				37	
Yards	Length of Yards in Feet				Length of Yards in Feet			
Foremast	Lower yard			92	Lower yard			96
Mainmast	Lower topsail yard			84	Lower topsail yard			84
Mizzenmast (yards on each of these masts were the same)	Upper topsail yard			76	Upper topsail yard			79½
	Topgallant yard			65	Lower topgallant yard			75
	Royal yard			55	Upper topgallant yard			67½
	Skysail yard			46	Royal yard			57½

The larger Sewall steel shipentines carried about 5,000 tons deadweight, whereas the *Dirigo* and *Erskine M. Phelps* loaded about 4,500 long tons. The *William P. Frye*, on one occasion, took on 5,111 tons of coal. Her average for seven sugar loadings was reported as 5,004 tons and for three wheat cargoes, 4,948 tons. The *Dirigo* averaged 4,430 tons in the coal trade and 4,532 tons for her six wheat loadings; while the *Erskine M. Phelps* averaged 4,634 tons on her coal loadings and on one occasion carried 4,619 tons of sugar around the Horn eastward, but the *Dirigo* once carried a load of 4,735 tons over the same course. Following instructions of the managing owners to load deeply and get every ton of paying freight aboard for each passage, the Sewall captains vied with each other to carry big cargoes to please the main office and, as a result, frequently ran into trouble with surveyors representing the underwriters, particularly at San Francisco, where freeboard dimensions were closely watched for deep-sea passages, to the annoyance of the Sewall company and its captains. It was made to the advantage of the masters of Sewall ships to load deeply and fully, for their income was derived partly from primage on freight. Captain Goodwin of the *Dirigo* loaded that ship with 4,860 tons of sugar at Honolulu in 1900 for delivery at San Francisco and wrote the managing owners: "I could not get any surveyor's certificate on the grounds that the ship was below her certificate draft. . . . Charterers told me to load the ship to suit myself. I thought I had 5,500 on board [short tons; 4,911 long tons] when I stopped. It was low water when we finished and I could not see what I was doing as the ship was on the mud."

The draft marks on the ships were generally scanned closely by the command, but when Captain Gaffry on one occasion had 4,973 tons of sugar put aboard the *Arthur Sewall* at Honolulu, he wrote: "We sail this afternoon with a cargo of 5,570 [short] tons. The *Edward Sewall* carries that amount of cargo and why not the *Arthur*? Surveyor thinks the ship is too deep and just how deep she is I do not know. When the ship docks next time I will stencil the figures on the bow and stern myself." It was the *Arthur Sewall*, with the same skipper aboard (Captain Gaffry), that in 1907 "went missing" on a passage from the Delaware to Puget Sound around Cape Horn. The owners stated that the ship was not overloaded, as Captain Gaffry reported a normal cargo of 4,900 tons of coal aboard on a fresh-water draft of 22 ft. 7 in. forward and 23 ft. 1 in. aft; but a "normal" cargo for the ship does not necessarily mean a safe and proper cargo. Unfortunately, American ships did not carry Plimsoll marks painted on their sides and were not subject to British shipping laws, but the loss of the *Arthur Sewall*, it would seem, could be attributed to the proportions of the ship herself (rather than her lading) and to the use of standing upper topsail yards.

The Sewall steel ships were operated under most trying and unfortunate conditions. During the years that they saw service, there were still some excellent masters available to command big deep-sea square-rigged windjammers but very few capable and reliable first and second mates and no junior officers, for American young men had long since stopped going to sea on merchant sail; the life had become too hard, tough, and unpleasant, and there was no future, as the era of sail was fast reaching its close. The experienced captains were getting old, and in the days of the steel ships, skippers took command of them at an age beyond that of retirement during the real deep-sea sailing ship era. It became increasingly difficult during the American steel square-rigger period to get any kind of crew, and gradually but few, if any, white men were to be found in the forecabin. Ships went to sea at times with one or two licensed officers aboard (and on one occasion, or more, with only one), on whose shoulders rested the entire responsibility of navigating and working a big square-rigger. At times only two or three men and on a few occasions not a single man in the forecabin could speak or understand English; sometimes all the members of the crew were greenhorns that knew nothing about a ship or any rope on her, and such men had to be taught to operate and steer the ship. If the captain succeeded in finding an experienced mate, he considered himself most fortunate, particularly if the mate would stay sober most of the time—a condition that rarely happened during the last few years of sail. When all the facts bearing upon the operation of big square-riggers on the Seven Seas during the last years of the era

of merchant sail are taken into consideration, it is surprising that the ships made as good passages as they did and remained in service until well into the twentieth century. The masters of these big and heavy full-modeled deep-sea square-riggers, which carried tremendous yards and sail spread and required a moderate wind to move them and a favorable gale to show much speed, were as brave as they were hard-working and resourceful.

The following is a sailing record of the vessels built in 1893-1901 that made up the famous fleet of American deep-sea steel square-riggers. All were built on the west bank of the Kennebec River at Bath, Maine, by Arthur Sewall & Company, which was both the ship-builder and managing owner.

(a) *Dirigo*, 1894

Launched Feb. 3, 1894. Left Bath, Maine, in tow Mar. 28, 1894, in ballast, for Philadelphia to take a cargo of case oil to Japan.

Voyage No. 1: Left Philadelphia Apr. 26, 1894, for Hiogo (port of Kobe). Was off Hong Kong when 119 days out and reached Hiogo Oct. 2, 1894.

Outward passage from Philadelphia to Hiogo (Japan), 159 days.

Left Hiogo Mar. 5, 1895, after 154 days of port detention, for New York via Cape Horn. Capt. George W. Goodwin, master of the *Dirigo*, was admittedly fearful of a voyage down the China Seas in his big iron ship, with a foul bottom, at that time of the year and preferred to try an eastward Cape Horn run to the customary westward Indian Ocean and Cape of Good Hope route from the Orient to a North Atlantic port. Arrived at New York July 23, 1895. Best day's run, 226 miles.

Homeward passage from Hiogo (Japan) to New York, 140 days.

Voyage No. 2: After a port detention of 72 days, left New York Oct. 3, 1895, with 4,498 tons of general cargo for San Francisco, where she arrived Mar. 4, 1896.

Outward passage from New York to San Francisco, 153 days.

After a port detention of 28 days, left San Francisco Apr. 1, 1896, in ballast, for Honolulu to load sugar for New York. Made landfall at dusk on the 14th day, anchored outside for the night, and entered port Apr. 16, 1896, after a run of 15 days from San Francisco to Honolulu. Best day's run, 279 miles; highest speed by log, 13 knots per hour.

Left Honolulu May 14, 1896, after 28 days of port detention and 71 days after completion of outward passage at San Francisco; loaded with sugar for New York, where she arrived Sept. 28, 1896.

Homeward passage from Honolulu to New York, 137 days.

Voyage No. 3: After a port detention of 60 days, left New York Nov. 27, 1896, with 4,453 tons of general cargo, for San Francisco, where she arrived May 17, 1897.

Outward passage from New York to San Francisco, 171 days.

After a port detention of 30 days, left San Francisco June 16, 1897, with 4,603 tons of wheat, for Cork (Queenstown), Ireland, "for orders" (as to final destination). Arrived at Queenstown Harbor Oct. 4, 1897.

Return passage (to North Atlantic port) from San Francisco to Queenstown, 110 days.

Reported as a 109-day run at sea. Was towed from Queenstown to Liverpool. After discharging, left Liverpool Nov. 2, 1897 (29 days after arrival at Queenstown), for New York, in ballast, arriving Dec. 8, 1897, after a transatlantic westward crossing of 36 days, and arriving at New York when 175 days out from San Francisco.

Voyage No. 4: After a port detention of 36 days, left New York Jan. 13, 1898, with 4,587 tons of mixed cargo for Shanghai, arriving out May 30, 1898.

Outward passage from New York to Shanghai, 137 days.

After a port detention of 40 days, left Shanghai July 9 with 1,400 tons of ballast aboard for Puget Sound, where she arrived Aug. 9, 1898, after an eastward transpacific crossing of 31 days. Went to Seattle to load coal for San Francisco and, upon return to Puget Sound, loaded wheat at Tacoma for Antwerp. On Jan. 10, 1899 (154 days after arrival at Puget Sound from Shanghai), sailed from Tacoma. Because of severe weather, put into Clallam Bay and did not commence her sea passage for Antwerp until Jan. 26, 1899, or 16 days after she left Tacoma. Arrived at Flushing June 26, 1899, where she had to lighten to a draft of 20 ft. before she could be towed to Antwerp.

Return passage (to North Atlantic port) from Tacoma to Flushing (for Antwerp), 167 days; sea run from Clallam Bay to Flushing, 151 days.

Left Antwerp with 1,020 tons of sand aboard for ballast on Aug. 10, 1899, after a port detention in Belgium of 45 days and reached

New York Sept. 11, 1899, after a *transatlantic westward passage of 32 days*. Reached New York 244 days after departure from Tacoma.

Voyage No. 5: After a port detention of 49 days, left New York Oct. 30, 1899, with case oil for Hong Kong, where she arrived on Mar. 21, 1900, after a passage by log of 17,759 miles.

Outward passage from New York to Hong Kong, 143 days.

After a port detention of 30 days, left Hong Kong Apr. 20, 1900, in ballast for Honolulu, where she arrived June 15, 1900, after a *run of 56 days*. After a port detention of 54 days, left Honolulu on Aug. 8, 1900, loaded with 4,860 short tons of sugar (4,339 long tons) for San Francisco, where she arrived Aug. 31, 1900, after a 23-day run, in which she logged 2,282 miles and which was reported as a *run of 22 days 15 hours from Honolulu to San Francisco deep laden*. She reached San Francisco 306 days after her departure from New York (via Hong Kong and Honolulu).

After a port detention of 50 days, left San Francisco Oct. 20, 1900, for Liverpool with 4,531 tons of wheat and general cargo and arrived at Liverpool Mar. 31, 1901.

Return passage (to North Atlantic port) from San Francisco to Liverpool, 162 days.

After a port detention of 38 days, left Liverpool May 8, 1900, in ballast for New York, where she arrived on May 30 after a *transatlantic westward run of 22 days* made under very favorable conditions of wind and sea. Reached New York 222 days after departure from San Francisco.

Voyage No. 6: After a port detention of 31 days, left New York June 30, 1900, with case oil for Hong Kong, where she arrived Dec. 7, 1900.

Outward passage from New York to Hong Kong, 160 days.

After a port detention of 47 days, left Hong Kong Jan. 23, 1902, in ballast for Honolulu. After 44 days of beating around in the China Sea and sailing 4,336 miles by log, she reached Honolulu May 9, 1902, making a *very long run of 106 days from Hong Kong to Honolulu* and reaching Honolulu 313 days out from New York via Hong Kong. After a port detention of 34 days, during which she loaded 5,069 short tons of sugar (4,472 long tons), she sailed June 12, 1902, for the Delaware Breakwater "for orders" and arrived there Nov. 27, 1902.

Return passage (to North Atlantic port) from Honolulu to Delaware Breakwater, 168 days, making the round voyage New York-Hong Kong-Honolulu-Delaware Breakwater in 515 days, or 1 year 4 months 28 days. Upon arrival at Philadelphia, Capt. George W. Goodwin, who had been in the ship from Mar. 1894 to Dec. 1902 (8¾ years) and had "bought into her" in order to obtain the command, left the ship and went to

a hospital a sick and worn-out man. Capt. Lewis S. Colley relieved him as master and was in the *Dirigo* fourteen months, from Jan. 1903 to Mar. 1904 (during which time Arthur Sewall & Co. required him to have a substantial financial interest in the *Dirigo*). The *Dirigo*, after discharging at Philadelphia, was towed to New York to load.

Voyage No. 7: After 39 days had elapsed following her arrival at Delaware Breakwater, the *Dirigo* left New York Jan. 5, 1903, bound for Sydney, N.S.W., where she arrived May 6, 1903.

Outward passage from New York to Sydney, 121 days.

The ship went from Sydney to Newcastle, N.S.W., loaded 4,585 tons of coal, and after a detention in N.S.W. (Australia) of 51 days, sailed from Newcastle June 26, 1903, for Honolulu, where she arrived Aug. 21, 1913, after a *run of 56 days from Newcastle* (also stated as 57 days). Upon arrival at Honolulu, the *Dirigo* was 228 days out from New York via Sydney and Newcastle, N.S.W. After a port detention of 41 days, during which the ship discharged her coal and loaded sugar, she sailed Oct. 1, 1913, for the Delaware Breakwater, where she arrived Mar. 4, 1914.

Return passage (to North Atlantic port) from Honolulu to Delaware Breakwater, 154 days.

Length of round voyage New York-Australia-Honolulu-Atlantic breakwater, 423 days. After unloading at Philadelphia, the ship was towed to New York, where she arrived Mar. 25, 1904, after an absence of 444 days (1 year 2 months 20 days).

Voyage No. 8: Captain Goodwin resumed his command, and after a port detention of 45 days, the *Dirigo* left New York May 9, 1904, with case oil for Shanghai and arrived at the bar Sept. 12, 1904; was at Woosung anchorage on Sept. 14 and at Shanghai Sept. 15.

Outward passage from New York to bar off Shanghai, 126 days.

After a port detention of 55 days in China (from bar, where ship had to lighten draft to cross it, to time of departure), the *Dirigo* left Shanghai Nov. 6, 1904, in ballast for Honolulu, where she arrived Dec. 13, 1904, after a *run of 37 days*, during which the ship did some good sailing, covering 311 miles in one day and 304 miles on another. Honolulu was reached 218 days out from New York via Shanghai. After a detention of 79 days in port, during which the ship loaded 4,735 short tons of sugar (4,228 long tons), the *Dirigo* left Honolulu Mar. 2, 1905, for Philadelphia, where she arrived Aug. 7, 1905.

Return passage (to North Atlantic port) from Honolulu to anchor for Philadelphia, 158 days.

The round voyage New York-Shanghai-Honolulu-Philadelphia occupied 455 days (1 year 2 months 29 days).

Voyage No. 9: After a port detention of 22 days, during which the *Dirigo* discharged her cargo of sugar and loaded 4,528 tons of navy coal to be delivered at Honolulu, the ship left Philadelphia Aug. 29, 1905, and when 64 days out, put into Montevideo Nov. 1, 1905, with part of cargo showing a temperature of 174° F. and the Clayton fire extinguishing apparatus that had been installed aboard evidently unable to lower the temperature and function as claimed. Detained at Montevideo 63 days and voyage resumed Jan. 3, 1906. Reached Honolulu Apr. 18, 1906, 105 days out from Montevideo and 232 days from Philadelphia, of which 169 days were sailing days and 63 days port detention due to fire.

Outward passage from Philadelphia to Honolulu (via Montevideo), 232 days (169 sailing days).

The coal put in the ship at Philadelphia was damp when loaded. After a port detention of 36 days, during which the *Dirigo* discharged her coal and loaded 4,579 tons of sugar, the ship left Honolulu May 24, 1906, for the Delaware Breakwater "for orders" and arrived there Sept. 10, 1906.

Return passage (to North Atlantic port) from Honolulu to Delaware Breakwater, 109 days.

The round voyage Philadelphia-Honolulu (via Montevideo)-Delaware Breakwater occupied 377 days (1 year and 12 days). Was at Philadelphia to discharge Sept. 11, 1906, and after unloading and dry-docking was towed to Baltimore, where she loaded 4,541 tons of coal for San Francisco.

Voyage No. 10: After port detention of 43 days, during which she discharged, changed ports, and loaded, the *Dirigo* sailed from Baltimore Oct. 23, 1906, bound for San Francisco, where she arrived Mar. 10, 1907. On this passage, she sailed with the ship *Bangalore* from Baltimore and beat her by one day to the Golden Gate and port.

Outward passage from Baltimore to San Francisco, 138 days.

After a port detention of 40 days, the ship left San Francisco Apr. 19, 1907, in ballast for Honolulu, where she arrived May 7 after a run of 18 days from San Francisco and 196 days out from Baltimore via San Francisco. At Honolulu, loaded 4,566 tons of sugar and after a port detention of 28 days sailed June 4, 1907, for the Delaware Breakwater "for orders," arriving there Oct. 23, 1907.

Return passage (to North Atlantic port) from Honolulu to Delaware Breakwater, 141 days.

Was sent to New York to discharge, arriving there Oct. 27, 1907, 145 days out from Honolulu and completing round voyage Baltimore-San Francisco-Honolulu-Delaware Breakwater-New York in 369 days (1 year and 4 days). After discharging and dry-docking, was towed from New York

to Baltimore in ballast, arriving there Nov. 18, 1907. Loaded 4,511 tons of coal at Baltimore.

Voyage No. 11: After a total port detention (New York and Baltimore) of 45 days, left Cape Henry Dec. 11, 1907, coal laden for Honolulu and arrived at that port Apr. 16, 1908.

Outward passage from Cape Henry (Baltimore) to Honolulu, 127 days.

After a port detention of 37 days, during which she discharged her coal and loaded 4,509 tons of sugar, the *Dirigo* left Honolulu May 23, 1908, bound for Delaware Breakwater "for orders," arriving there Sept. 27, 1908.

Return passage (to North Atlantic port) from Honolulu to Delaware Breakwater, 127 days.

Had made round voyage Cape Henry-Honolulu-Delaware Breakwater in 291 days (10 months and 16 days). Discharged at Philadelphia and towed from there Oct. 17, 1908, to Baltimore to load coal.

Voyage No. 12: After a port detention of 33 days (from arrival at Delaware Breakwater to departure on next voyage), sailed past Cape Henry from Baltimore Oct. 30, 1908, but a bad leak developed, and the *Dirigo* put into Rio de Janeiro Dec. 20, 1908 (51 days out), for repairs to a cracked shell plate well under water. Resumed passage Jan. 26, 1909, after a port detention of 37 days and arrived at Honolulu May 15, 1909, 109 days from Rio de Janeiro.

Outward passage from Cape Henry (Baltimore) to Honolulu via Rio de Janeiro, 197 days and 160 days at sea.

Captain Goodwin resigned his command at Honolulu and left the sea for good, worn out and sick. He was sixty-one years old and died in retirement at Brighton, Mass., in 1916, when sixty-eight years of age. Captain Goodwin had been master of the *Dirigo* for 13¾ years all told in two periods of 8¾ and 5 years, respectively. Capt. Omar E. Chapman relieved Captain Goodwin in command of the *Dirigo*. After a port detention of 42 days, during which the ship discharged her coal cargo and took aboard 4,545 tons of sugar, the *Dirigo* sailed from Honolulu June 26, 1909, bound for the Delaware Breakwater "for orders" and arrived there Oct. 23, 1909.

Return passage (to North Atlantic port) from Honolulu to Delaware Breakwater, 119 days.

Had made round voyage Cape Henry-Honolulu (via Rio de Janeiro)-Delaware Breakwater in 358 days (11 months and 27 days). The ship was promptly ordered to Philadelphia, where she arrived Oct. 24, 1909, for discharge, following which she was towed to New York in ballast.

Voyage No. 13: After a total port detention of 88 days at Philadelphia, New York, and period in tow, the *Dirigo* left New York Jan. 19, 1910, with 4,438 tons of general cargo bound for San Francisco, where she arrived July 4, 1910.

Outward passage from New York to San Francisco, 166 days.

After a port detention of 50 days, the ship left San Francisco Aug. 23, 1910, with 4,307 tons of general cargo, and reached New York Jan. 6, 1911.

Return passage from San Francisco to New York, 136 days.

The round voyage was made in 302 days at sea and 352 days (11 months and 18 days) including port detention. The ship then went to Baltimore in tow to load, and Capt. Walter M. Mallett assumed the command.

Voyage No. 14: After a total port detention of 49 days at New York, Baltimore, and in tow, during which the ship had loaded 4,501 tons of coal at Baltimore, the *Dirigo* sailed Feb. 24, 1911, for San Francisco and arrived there Aug. 5, 1911.

Outward passage from Baltimore to San Francisco, 162 days (reported as 161 days).

After a port detention of 26 days, during which the ship discharged and loaded 5,066 short tons of barley (4,523 long tons), the *Dirigo* sailed for New York Aug. 31, 1911, and arrived home Jan. 21, 1912.

Return passage (to North Atlantic port) from San Francisco to New York, 143 days.

The round voyage was made in 305 days at sea and 331 days (10 months and 28 days) including port detention. The ship was towed to Baltimore to load.

Voyage No. 15: After a total port detention (New York, Baltimore, and in tow) of 40 days, the *Dirigo* left Baltimore (in tow) Mar. 1, 1912, with 4,516 tons of coal aboard bound for Seattle and arrived there July 26, 1912.

Outward passage from Baltimore to Seattle, 147 days.

Leaving Puget Sound after a port detention of 93 days, the *Dirigo* was towed to sea Oct. 27, 1912, after being loaded with 4,623 tons of wheat, and set sail for Liverpool, where she arrived Mar. 30, 1913.

Return passage (to North Atlantic port) from Tacoma to Liverpool, 154 days.

The round voyage Baltimore-Seattle-Tacoma-Liverpool was made in 302 days at sea and 394 days (1 year and 29 days) including port detention. The ship crossed in ballast from Liverpool to Cape Henry in 40 days and was at Baltimore June 11, 1913, making the entire round voyage from Baltimore out to Puget Sound and return to Baltimore via Liverpool in 342 days at sea and 467 days (1 year 3 months 10 days) including port detention.

Voyage No. 16: At Baltimore, loaded 4,560 tons of coal and after a port detention of 18 days sailed June 29, 1913, from Baltimore for Puget Sound. Made Cape Flattery on the 160th day and was at Seattle Dec. 8, 1913.

Outward passage from Baltimore to Seattle, 162 days.

After port detention of 52 days, left Seattle in tow Jan. 29, 1914, but this detention was increased to 56 days before the ship actually got started on her eastward passage (Feb. 2, 1914) carrying 4,357 tons of barley to Britain. Arrived Ipswich, England, June 21, 1914.

Return passage (to North Atlantic port) from Seattle to Ipswich, 143 days; but 139-day passage at sea and was 136 days to the Lizard, with the last 320 miles in tow.

The round voyage Baltimore-Seattle-Ipswich occupied 301 days at sea and 357 days including port detention. After port detention of 39 days in England, sailed July 30, 1914; was off the Lizard Aug. 1, 1914, bound for Newport News, Va., and arrived Hampton Roads Sept. 19, 1914, after a westward transatlantic crossing of 51 days. The entire round voyage Baltimore-Puget Sound-England-Hampton Roads required 352 days at sea and 447 days including port detention (1 year 2 months 21 days). Was towed to Philadelphia to load.

Voyage No. 17: After port detention of 120 days (discharging, towing, and loading case oil for the Orient), left Philadelphia Jan. 17, 1915, under tow and sailed from the Delaware Capes Jan. 19, 1915 (122 days' total port detention), for Shimonoseki, Japan, via the Panama Canal. Was at Colon Feb. 2, when 13½ days out from the Delaware. Entered Canal Feb. 4, and on Feb. 6, 1915, had been towed seven miles into Pacific from outside Canal entrance and left by tug. The *Dirigo* arrived at quarantine (six miles from her destination), Japan, Apr. 26, 1915, 79 days from off Cristobal and 97 days out from Henlopen.

Outward passage from Henlopen (Delaware) to Shimonoseki (Japan), 97 days.

When part of cargo unloaded and ship moved May 20 to Itosaki to complete discharging, Captain Mallett, ordered to San Carlos, Luzon, Philippine Islands, to load, tried to get a tug to tow the *Dirigo* down there; but the steam tug *Oura Maru* obtained was not big or powerful enough, so the ship cast off her lines and put into Kobe, arriving there June 17, 1915. After a delay of 55 days at Kobe and 107 days' total detention at Japan, the *Dirigo* left Kobe Aug. 11, 1915, for Puget Sound and arrived at Port Townsend Oct. 2, 1915, after a transpacific eastward run of 52 days from Kobe. This was the last run made by the *Dirigo* as a Sewall ship, for while at sea she had been sold, according to official records, to G. W. McNear, Inc. The real new ownership of the *Dirigo* is clouded in mystery. On Mar. 10, 1916, the ship was officially owned as per records by C. C. Mengel & Brother, Inc., of Louisville, Ky., and in Nov. 1916 by the Axim Transportation Co., of Anchorage, Ky. (home port, Pensacola, Fla.).

The *Dirigo*, upon arrival at Port Townsend on Oct. 2, 1915, was 256 days out from Henlopen, of which 142 days had been spent at sea under sail on her course and 4 days at the Panama Canal. After 12 days' port detention in Puget Sound, the ship left on Oct. 14, 1915, laden with barley for Kalmar, Sweden. On Mar. 2, 1916, when 140 days out, the *Dirigo* was seized by a British patrol boat and ordered to the Orkney Islands. Captain Mallett was still in command, but the crew consisted of several Scandinavians, some South Americans, and a German, who was arrested and interned. The British had information that the cargo of the *Dirigo* had been shipped by a German agent and was intended to reach German hands. The ship was condemned and cargo disposed of by the prize court. With

the U.S.A. in the war, the *Dirigo* was permitted to sail across the Atlantic to New York. Upon arrival in America, Captain Mallett gave up his command, and Capt. John A. Urquhart, of Brooklyn, took the ship to sea on May 4, 1917, bound for Havre. British patrol boats took charge of her movements upon entering European waters, but in the early morning of May 31, 1917, when six miles S.W. of Eddystone Lighthouse and about fourteen miles from land, she was shelled by a German submarine. The officers and crew took to the boats, and when the ship was abandoned, the Germans boarded her, planted bombs, and blew her up. The *Dirigo* had been afloat 23 years and 28 days when she came to her tragic end.

A recapitulation of the completed passages made by the *Dirigo* (all under the management of the Sewalls) during the period Apr. 26, 1894-Oct. 2, 1915 (21 years 5 months 6 days), is as follows:

1. *North Atlantic ports to San Francisco*: Five passages averaging 158 days. Three of these were made from New York in 153, 171, and 166 days, respectively—an average of $163\frac{1}{3}$ days. Two were made from Baltimore (Cape Henry) in 138 and 162 days, respectively—an average of 150 days.

2. *North Atlantic ports to Puget Sound*: Two passages averaging $154\frac{1}{2}$ days. Both were made from Baltimore (Cape Henry) in 147 and 162 days, respectively.

The average length of the seven passages made from North Atlantic (U.S.A.) ports to North Pacific (U.S.A.) ports was 157 days.

3. *North Pacific (U.S.A.) ports to North Atlantic*:

(a) *From San Francisco*: Two passages to New York in 136 and 143 days, respectively—an average of $139\frac{1}{2}$ days. One passage to Liverpool in 162 days and one to Queens-town in 110 days—an average for the two British passages of 136 days and an average for the four passages from San Francisco of $137\frac{3}{4}$ days.

(b) *From Puget Sound*: One passage to Liverpool in 154 days, one to Ipswich in 143 days, and one to Flushing (for Antwerp) in 167 days—an average for the three passages from Puget Sound of $154\frac{2}{3}$ days.

The average length of the seven passages made from North Pacific (U.S.A.) ports to North Atlantic ports was 145 days.

4. In the sugar trade, the *Dirigo* made eight eastward Cape Horn passages from Honolulu to East Coast U.S.A. ports, one direct to New York in 137 days and seven to Delaware Breakwater "for orders" in 168, 154, 158, 109, 141, 127, and 119 days, respectively—an average of $139\frac{3}{4}$ days.

The average length of the eight passages made from Honolulu to East Coast U.S.A. ports was $139\frac{1}{8}$ days.

5. *Westward Cape Horn passages from North Atlantic (East Coast U.S.A.) ports to Honolulu* were three in number, and on two of them the *Dirigo* had to put into a South American port en route for repairs. Two passages were made from Baltimore (Cape Henry) to Honolulu in 127 and 197 days, respectively, port to port, an average of 162 days; but the second passage was made in 160 sailing days, and the average of the two runs expressed in days under canvas at sea was $143\frac{1}{2}$ days. A third run made from Philadelphia (Henlopen) to Honolulu occupied 232 days, port to port, and 169 sailing days.

The average length of the three passages from East Coast U.S.A. ports to Honolulu was $185\frac{1}{3}$ days, port to port, and 152 sailing days.

6. Other major passages made by the *Dirigo* were: Two passages from New York to Shanghai in 137 and 126 days, respectively—an average of $131\frac{1}{2}$ days.

Two passages from New York to Hong Kong in 143 and 160 days, respectively—an average of $151\frac{1}{2}$ days.

(The average length of the four New York-China runs was $141\frac{1}{2}$ days.)

One passage from New York to Sydney in 121 days.

One passage from Philadelphia (Henlopen) to Japan via Cape of Good Hope in 159 days and one via Panama Canal in 97 days. Returning from the Orient, the *Dirigo* ran from Hiogo (Japan) to New York in 140 days.

7. Between San Francisco and Honolulu, the *Dirigo* made one westward run in 15 days and two eastward runs in 23 and 18 days, respectively—an average of 20½ days. A run from Shanghai to Honolulu was made in 37 days, but the two runs made from Hong Kong to Honolulu occupied 56 and 106 days, respectively—an average of 81 days. (The three passages from China ports to Honolulu averaged 66⅓ days.) A run from Shanghai to Puget Sound was made in 31 days and one from Kobe to Puget Sound in 52 days, the average of the two transpacific eastward runs to Puget Sound being 41½ days. One passage, coal laden, was made from Newcastle, N.S.W., to Honolulu in 56 days.
8. The *Dirigo* made four westward transatlantic passages before she was captured and condemned by the British in 1916 during the first World War. Two from Liverpool to New York were made in 36 and 22 days, respectively, one from Liverpool to Cape Henry (Baltimore) in 40 days, and one from Ipswich to Hampton Roads in 51 days, the average length of these four westward transatlantic runs being 37¼ days.

(b) *Erskine M. Phelps, 1898*

Launched July 26, 1898. Left Bath, Maine, in tow down the river to the ocean and then under sail in ballast to Cape Henry and tow to Baltimore, where she loaded 4,506 tons of coal.

Voyage No. 1: Sailed on her maiden voyage Sept. 27, 1898, to San Francisco, with Capt. Robert J. Graham, who was to be associated with the ship for some twenty years, in command. The "*Phelps*" reached San Francisco Feb. 24, 1899.

Outward passage from Baltimore to San Francisco, 149 days.

After a port detention of 38 days, left San Francisco Apr. 3, 1899, for Honolulu and made a good run of 13 days, reaching Honolulu to load on Apr. 17, 1899, when 201 days out from New York. After a port detention of 54 days, during which the ship loaded 4,566 tons of sugar, sailed June 10, 1899, for Delaware Breakwater (for orders), where she arrived Oct. 19, 1899.

Return passage (to North Atlantic port) from Honolulu to Delaware Breakwater, 131 days.

Went to New York to discharge, arriving there Oct. 23, 1899. The round voyage Baltimore-San Francisco-Honolulu-Delaware Breakwater occupied 293 days at sea and 387 days including port detention (1 year and 22 days). Was towed from New York to Norfolk, Va., to load.

Voyage No. 2: The "*Phelps*" loaded navy coal at Norfolk for delivery at the Philippines, sailed Nov. 20, 1899, and made a good run of 77 days out from Hampton Roads, Va., to Straits of Ombay (1,200 miles east of Anjer), during which she averaged 192 miles a day, made 310 miles in one day, and averaged 14 knots per hour for eight hours. In a run across the Indian Ocean, she covered 6,500 nautical miles in 26 days—an average of 250 miles per day and over 10.4 knots per hour. Arrived off Manila Mar. 23, 1900.

Outward passage from Norfolk to Manila, 123 days as reported (from port to port evidently 125 days). After 33 days' port detention, went from Manila to Honolulu, where she arrived June 14, 1900, after a run of 50 days, during which the ship logged 4,780 miles. Loaded 4,875 short tons of sugar at Honolulu (4,353

long tons) and after a port detention of 37 days sailed July 21, 1900, and was 25 days to Point Reyes and 26 days to San Francisco, where she arrived Aug. 16, 1900, 269 days out from Hampton Roads.

After 63 days' port detention at San Francisco, the "*Phelps*" sailed on Oct. 18, 1900, with a general cargo for New York and arrived there Mar. 13, 1901.

Return eastward passage from San Francisco to New York, 146 days.

The round voyage Norfolk-Manila-San Francisco-New York occupied 479 days (1 year 3 months 21 days), of which 345 days were at sea.

Voyage No. 3: After 44 days' port detention at New York, sailed Apr. 26, 1901, loaded with case oil bound to Anjer "for orders." Was off Java Head 80 days from New York, having averaged 250 miles a day for 26 days on the run; best day's run, 300 miles. Was delayed in Sunda Straits and reached Anjer July 23, 1901.

Outward passage New York to Anjer, 88 days (80 days to Java Head).

Went to Batavia to discharge and arrived there Aug. 1, 1901, 97 days from New York. Left Batavia on Oct. 2, 1901, after port detention of 62 days, for Taltal, Chile, to load nitrate for Philadelphia. Arrived at Taltal Nov. 30, 1901, after a passage of 59 days from Batavia, during which the "*Phelps*" averaged 198 miles per day (8¼ knots per hour) and, we are told, "on one occasion made a scant 15 knots per hour by log for about five hours." Went from Taltal to Caleta Buena (Dec. 3-9) to complete the loading and left Caleta Buena Jan. 1, 1902, after 32 days' detention at Chilean ports and change of port, with 4,625 tons of nitrate bound for Philadelphia, and arrived "in the bay" (Delaware) Apr. 8, 1902.

Return passage (to East Coast port) from Caleta Buena to Delaware Breakwater, 97 days.

Was at Philadelphia to discharge Apr. 9, 1902, 98 days out from Chile. The round voyage (around the world sailing eastward) from New York to Batavia, thence to Chilean ports and return to Philadelphia Breakwater occupied 347 days (11 months 13 days), of which about 253 days were at sea but only 244 days in straight passages.

Went from Philadelphia in tow to Newport News, Va. Went in dry dock and on May 4, 1902, reached Norfolk in tow. Loaded 4,634 tons of coal at Norfolk.

Voyage No. 4: After a total port detention (Philadelphia, Newport News, Norfolk, and in tow) of 34 days, sailed May 12, 1902, for Honolulu, where she arrived Aug. 19, 1902.

Outward passage from Norfolk, Va., to Honolulu, 99 days.

After a port detention of 31 days, left Honolulu Sept. 19, 1902, in ballast for Taltal, Chile, where she arrived Nov. 26, 1902, after a run of 68 days from Honolulu. Loaded nitrate, partly at Taltal and partly at Iquique, and completed her lading at Caleta Buena, from which port, after a total detention of 36 days in Chile, she sailed Jan. 1, 1903, for Baltimore and arrived in the bay for that port Apr. 6, 1903.

Return passage (to East Coast port) from Caleta Buena to Baltimore, 95 days.

The round voyage Norfolk-Honolulu-Chilean ports-Baltimore occupied 329 days (10 months 25 days), of which 262 days were spent at sea making three passages, the middle one in ballast, and 194 days on the outward and homeward passages.

Voyage No. 5: After dry-docking at Baltimore, the "Phelps" was towed to Norfolk, where she loaded 4,625 short tons of coal (4,130 long tons) and after a port detention of 28 days sailed May 4, 1903, from Hampton Roads for Honolulu, where she arrived Sept. 15, 1903.

Outward passage from Hampton Roads to Honolulu, 134 days.

After a port detention of 51 days, during which she discharged her coal cargo and loaded 5,059 short tons of sugar (4,517 long tons), the "Phelps" sailed Nov. 5, 1903, for Philadelphia and arrived at Delaware Breakwater Mar. 4, 1904.

Return passage (to East Coast port) from Honolulu to Delaware Breakwater, 120 days.

Was discharged and dry-docked at Philadelphia. The round voyage Norfolk-Honolulu-Philadelphia had occupied 305 days (10 months), of which 254 days were at sea.

Voyage No. 6: After port detention of 67 days, the "Phelps" left Philadelphia May 10, 1904, with 4,525 tons of coal aboard for Honolulu, where she arrived Aug. 31, 1904.

Outward passage from Philadelphia (Hemlophen) to Honolulu, 112 days.

On this run, beat the big German ship *Potosi* and had a brush with the *Dirigo*, taking eight days to leave what was virtually her sister ship out of sight astern. After a long port detention of 130 days, the "Phelps" left Honolulu Jan. 8, 1905, with 5,073 short tons of sugar aboard (4,528 long tons), bound for Delaware Breakwater "for orders," where she arrived May 7, 1905.

Return passage from Honolulu to Delaware Breakwater, 119 days.

The ship was discharged and dry-docked at Philadelphia. The round voyage Philadelphia-Honolulu and return was made in 361 days (11 months 27 days), with the outward and homeward passages totaling 231 days.

Voyage No. 7: After port detention of 19 days, the "Phelps" left Philadelphia May 26, 1905, with 4,600 tons of coal for Manila and arrived at Cavite Sept. 7, 1905.

Outward passage from Philadelphia (Hemlophen) to Manila (Cavite), 104 days.

During transit and upon arrival, cargo was seriously overheated and dangerous. After 30 days' port detention, ship left Manila Oct. 7, 1905, in ballast, for Honolulu, where she arrived Dec. 11, 1905, after a run of 65 days. At Honolulu, loaded 4,569 tons of sugar and after a port detention of 50 days sailed Jan. 30, 1906, for the Delaware Breakwater "for orders," arriving there May 15, 1906.

Return passage from Honolulu to Delaware Breakwater, 105 days (reported as 104 days). Reached Philadelphia May 16, 1906, in tow. The round voyage Philadelphia-Manila-Honolulu-Philadelphia occupied 355 days (11 months 20 days), of which 274 days were spent at sea and 209 days on the outward and homeward passages. Was dry-docked at Philadelphia and reached Baltimore in tow June 21, 1906.

Voyage No. 8: After port detention of 49 days (Philadelphia, Baltimore, and in tow), left Baltimore July 3, 1906, with 4,632 tons of coal aboard for Manila, arriving at Cavite Oct. 27, 1906.

Outward passage from Cape Henry to Manila (Cavite), 114 days.

Reported making "14½ knots per hour for 2 hours in Indian Ocean." Was 84 days to Java Head and 87 days to Anjer.

After port detention of 32 days, left Manila Nov. 28, 1906, in ballast for Honolulu, where she arrived Jan. 11, 1907, after a run of 44 days. Loaded 4,569 tons of sugar and after 35 days' port detention sailed from Honolulu Feb. 15, 1907, for the Delaware Breakwater "for orders," where she arrived May 27, 1907.

Return passage from Honolulu to Delaware Breakwater, 101 days.

Was ordered to Philadelphia to discharge and arrived there, in tow, May 30, 1907. The round

voyage Cape Henry (Baltimore)-Manila-Honolulu-Delaware Breakwater occupied 328 days (10 months 24 days), of which 259 days were at sea and 215 days on the outward and homeward passages.

Voyage No. 9: After a port detention of 23 days, sailed from Philadelphia June 19, 1907, with 4,600 tons of coal aboard, bound for Puget Sound. Rounded Cape Horn (50° to 50°) in 11 days and ran from 50° S. Pacific to equator in 20 days. (Was only 31 days from 50° S. Atlantic to Pacific equator.) Arrived off Cape Flattery Oct. 29, 1907, and docked at Seattle Nov. 4, 1907.

Outward passage from Henlopen (Philadelphia) to Cape Flattery, 132 days; to Seattle, 138 days.

Was in collision at Seattle and after leaving that port Dec. 15, 1907, after 41 days' port detention, bound for the Hawaiian Islands, put into San Francisco because of leak. After repairs, sailed Jan. 13, 1908, in company with three other ships and beat them all out in race from the Golden Gate to Kahului, which she reached Jan. 26, 1908, after a run of 13 days. The other contestants finished: *Fort George*, 15 days; *Irmgard*, 16 days; and *Gerard C. Tobey*, 17 days. After a detention of 24 days, sailed from Kahului for Delaware Breakwater "for orders" Feb. 19, 1908, and arrived off the lightship May 27, 1908.

Return passage from Kahului to Delaware Breakwater, 98 days.

Ordered to Philadelphia to discharge and was there May 28, 1908, 99 days from Kahului. The round voyage from Philadelphia (Henlopen) to Puget Sound and return via San Francisco and the Hawaiian Islands to the point of origin occupied 344 days (11 months 9 days), of which 236 days were required for the two main passages outward to Seattle and return from Kahului to the Delaware.

Voyage No. 10: After a port detention of 25 days, sailed from Philadelphia June 22, 1908, with 4,619 tons of coal aboard for Puget Sound. Was at Cape Flattery Oct. 30, 1908, when held back by adverse winds. Was in tow Nov. 7 and reached Seattle Nov. 8, 1908.

Outward passage from Philadelphia to Seattle, 139 days (reported as 130 days to landfall and 138 days to port).

After a port detention of 60 days in Puget Sound, the ship sailed from Port Townsend Jan. 7, 1909, with 3,086 tons of salmon and general cargo aboard bound for Norfolk, Va. Leaving port and when getting under canvas, ran away from the tugboats, which were making 12 knots, and soon the "*Phelps*," when within sight of land, was logging 14 knots per hour. Made 320 miles in 24 hours on this passage and, it was reported, "made 15 knots per hour several times." Arrived "off the Capes" and anchored Apr. 21, 1909.

Return passage (to East Coast port) from Puget Sound to the Capes (Norfolk), 104 days.

Took tow to Norfolk. The round voyage Philadelphia-Puget Sound and return to anchorage off the Capes for Norfolk occupied 303 days (9 months 30 days), of which 242 days were spent under canvas. The ship was towed from Norfolk to Baltimore, where she loaded 4,604 tons of coal for Puget Sound.

Voyage No. 11: After a port detention of 29 days, left Baltimore May 20, 1909, in tow down the bay and took departure for Seattle May 23. Arrived off Cape Flattery Oct. 13 and reached Seattle Oct. 15, 1909, in tow.

Outward passage—sea run—from Baltimore to Puget Sound, 144 days (146 days to Seattle and 149 days under sail and in tow from Baltimore to Seattle).

Captain Graham reported that from Cape Henry to 50° S. in the Pacific, the "*Phelps*" passed eighteen ships and three tramp steamers, all going the same way. "At the time we passed the tramps, the '*Phelps*' was going between 12 and 13. Steamers apparently going 9 or 10 knots. The '*Phelps*' has never met a ship which could keep up with her in any wind, the *Dirigo* giving her the hardest task to pass her of anything that we have ever fallen in with."

After 56 days' port detention, left Port Townsend Dec. 10, 1909, for Honolulu and arrived there Dec. 29, 1909, after a passage of 19 days made in bad weather and an 18-day sea run from Cape Flattery to Diamond Head. Loaded 4,555 tons of sugar at Honolulu and, after 45 days' port detention, left Feb. 12, 1910, for the Delaware Breakwater "for orders," where she arrived and anchored off Cape Henlopen June 6, 1910.

Return passage from Honolulu to Delaware Breakwater, 115 days.

Capt. Robert J. Graham, worn out and sick, left the "*Phelps*" after being in her some 11 years 10 months, and Capt. William H. Curtis took over the command. The round voyage Baltimore-Puget Sound-Honolulu-Delaware Breakwater had occupied 379 days (1 year 14 days), of which 278 days had been spent at sea and 259 days on the outward and homeward passages carrying coal out to Seattle and sugar back from Honolulu.

Voyage No. 12: The "*Phelps*" discharged at Philadelphia, ballasted, and was towed to Norfolk, where she loaded 4,610 tons of navy coal for delivery at Honolulu. She sailed Aug. 4, 1910, was only 9 days rounding Cape Horn (50°-50°), was off Diamond Head Dec. 6, and arrived at Honolulu Dec. 7, 1910. (The ship generally did well rounding the Cape, her longest time "between the fifties" under Captain Graham being 27 days.)

Outward passage from Norfolk to Honolulu, 125 days.

After 70 days' port detention, during which she loaded 4,567 tons of sugar, the "*Phelps*" left Honolulu Feb. 15, 1911, for the Delaware Capes, where she arrived June 12, 1911.

Return passage from Honolulu to Delaware Capes, 117 days.

She was then towed to Philadelphia to discharge, arriving there June 14, 1911. The round voyage Norfolk-Honolulu-Delaware Capes had occupied 312 days (10 months 8 days), of which 242 days had been spent on the outward and homeward passages carrying coal out to Honolulu and returning with sugar.

Voyage No. 13: After a port detention of 31 days, during which she loaded 4,617 tons of coal, the "*Phelps*" sailed July 13, 1911, for Seattle and arrived off Cape Flattery Nov. 22, 1911, reaching Seattle in tow Nov. 24.

Outward passage from Philadelphia (Hellen) to Puget Sound (Flattery), 132 days.

After a port detention of 23 days, left Seattle, in ballast and in tow, on Dec. 17, but ran into a gale and was storm-bound at Clallam Bay until Dec. 21, 1911. Passed Cape Flattery Dec. 22, 1911 (30 days following her arrival), and reached Honolulu, after adverse winds off that port, on Jan. 8, 1912, after a run of 17 days (reported as "a fine run of 14 days from Puget Sound to the Islands"). Loaded 5,174 short tons

of sugar (4,619 long tons) at Honolulu and, after a port detention of 39 days, sailed Feb. 16, 1912, for Delaware Breakwater "for orders," arriving there June 5, 1912.

Return passage from Honolulu to Delaware Breakwater, 110 days.

Was towed to Philadelphia for discharge and arrived there June 6, 1912. The round voyage Philadelphia-Puget Sound-Delaware Breakwater had occupied 328 days (10 months 23 days), of which 259 days had been spent at sea and 242 days on the outward and homeward sea passages carrying coal out to Puget Sound and sugar home from Honolulu.

Voyage No. 14: After a port detention of 73 days, the "*Phelps*" sailed from Philadelphia Aug. 17, 1912, with 4,518 tons of steel for San Francisco and arrived there Dec. 28, 1912, to complete her last passage under sail.

Outward passage from Philadelphia to San Francisco, 137 days.

The "*Phelps*" was sold to the Union Oil Co., of San Francisco, Feb. 4, 1913, for conversion to an oil towing barge. She was fourteen and a half years old when sold, has given splendid service in the trade for which she was bought, and is continuing in it in the 1940's, when some forty-five years old.

A recapitulation of the passages made by the *Erskine M. Phelps* during her entire sea life under canvas, from Aug. 1898 to the end of Dec. 1912, a period of some 14 years 4½ months, is as follows:

1. *North Atlantic ports to San Francisco:* Two passages averaging 143 days. One from Baltimore in 149 days and one from Philadelphia in 137 days.

2. *North Atlantic ports to Puget Sound:* Four passages averaging 136½ days. Three from Philadelphia in 132, 138, and 132 days, respectively, averaging 134 days and one from Baltimore in 144 days.

The average length of the six passages from East Coast U.S.A. ports to North Pacific U.S.A. ports was 138⅔ days.

3. *North Atlantic ports to Honolulu:* Six passages averaging 114⅔ days. Three from Norfolk in 99, 134, and 125 days, respectively, averaging 119⅓ days. Two from Philadelphia in 112 and 104 days, respectively, averaging 108 days. One from Baltimore in 114 days.

4. *San Francisco to New York:* One passage of 146 days.

Puget Sound to Norfolk: One passage of 104 days.

Total from North Pacific U.S.A. ports to East Coast U.S.A. ports, two passages averaging 125 days.

5. *Chilean nitrate ports to East Coast U.S.A. ports:* Two passages averaging 96 days. Both orig-

inated at Caleta Buena (exactly one year apart); one was to the Delaware Breakwater in 97 days and the other to Baltimore in 95 days.

6. *Sugar passages from the Hawaiian Islands to Delaware Breakwater (for orders):* Nine passages averaging 113 days. Eight runs were from Honolulu in 131, 120, 119, 105, 101, 115, 117, and 110 days, respectively, an average of 114¾ days. One run from Kahului was made in 98 days.

7. *Other long sea runs, both outward passages, were:* Norfolk, Va., to Manila, 123 days. New York to Anjer (for orders), 88 days, following which, after delays, ship proceeded to nearby Batavia to unload and then made a very fast passage of 59 days, in ballast, from Batavia to Taltal, Chile (a nitrate port).

8. The "*Phelps*" also made a slow run of 68 days, in ballast, from Honolulu to Taltal, Chile. Three runs were made from Manila to Honolulu in 50, 65, and 44 days, respectively, an average of 53 days. Four runs were made from the United States mainland to Honolulu that averaged 15½ days. Two from San Francisco were each made in 13 days, and two from Puget Sound were made in 19 and 17 days, respectively, an average of 18 days.

(c) *Arthur Sewall, 1898-1899*

Launched Feb. 23, 1899. Left Bath Mar. 28, 1899, in ballast, for Philadelphia, making the deep-sea part of the run under canvas. Capt. James F. Murphy, who had had charge of sparring and rigging the ship (as he had of the wood shipentine *Shenandoah*), was in command.

Voyage No. 1: Left Philadelphia in tow May 19, 1899, with coal and general cargo aboard and sailed from Cape Henlopen May 21 for San Francisco, where she arrived Sept. 25, 1899.

Outward passage from Philadelphia to San Francisco, 127 days.

After a port detention of 61 days, left San Francisco Nov. 25, 1899, with a cargo of 4,767 tons of wheat bound for London and arrived at Gravesend Apr. 1, 1900.

Return passage (to North Atlantic port) from San Francisco to Gravesend (London), 128 days.

Reported as a run of 127 days. The round voyage consisting of outward and return passages, both with cargoes, had occupied 316 days, of which 255 days were spent at sea. After a port detention of 61 days, the ship left the Thames June 1, 1900, with some chalk as ballast and arrived at New York July 14, 1900, after a westward transatlantic passage of 43 days (reported as "a run of 42 days from London"). The complete round voyage Philadelphia-San Francisco-London-New York had occupied 422 days (1 year 1 month 25 days), of which 298 days had been spent under canvas at sea. Captain Murphy, who was not happy in the big steel ship, relinquished his command, and Capt. Burton Gaffry replaced him.

Voyage No. 2: After a port detention of 40 days, the ship left New York Aug. 23, 1900, laden with case oil for Yokohama, where she arrived Jan. 31, 1901.

Outward passage from New York to Yokohama, 161 days.

After 24 days' port detention, left Yokohama Feb. 24, 1901, in ballast to load sugar at Honolulu and reached that port Mar. 19, 1901, after a run of 23 days. Reached Honolulu 208 days after leaving New York, of which 184 days had been spent at sea. At Honolulu, took aboard 4,843 tons of sugar and, after a port detention of 30 days, sailed Apr. 18, 1901, bound for the Delaware Breakwater "for orders," where she arrived Aug. 6, 1901.

Return passage (to East Coast U.S.A. port) from Honolulu to Delaware Breakwater, 110 days.

Round voyage New York-Yokohama-Honolulu-Delaware Breakwater had occupied 348 days (11 months 14 days), of which 294 days were at sea and 271 days carrying cargo on the outward and homeward passages. The ship was ordered to Philadelphia for discharging, dry-docking, and taking on a cargo of case oil for Japan.

Voyage No. 3: After 52 days' port detention, left Philadelphia Sept. 27, 1901, with case oil for Kobe and arrived at Hiogo (port of Kobe) Feb. 5, 1902.

Outward passage from Philadelphia to Hiogo (Kobe), 131 days.

After 35 days' port detention, left Hiogo Mar. 12, 1902, in ballast, for Honolulu and arrived there Apr. 16, 1902, after a run of 35 days. Reached Honolulu 201 days out from New York, of which 166 days had been spent at sea. Loaded 5,453 short tons of sugar (4,869 long tons) and, after a port detention of 24 days, sailed from Honolulu May 10, 1902, for Delaware Breakwater "for orders," arriving there Sept. 9, 1902.

Return passage (to East Coast U.S.A. port) from Honolulu to Delaware Breakwater, 122 days.

The round voyage Philadelphia-Kobe-Honolulu-Delaware Breakwater occupied 347 days (11 months 13 days), of which 288 days were spent at sea and 253 days on the outward and homeward passages laden with paying freight. Was towed to Philadelphia to discharge, following which was towed to New York, in ballast, where she was dry-docked and loaded with case oil for China.

Voyage No. 4: After a total port detention (the Delaware, Philadelphia, New York, and in tow between the ports) of 62 days, left New York Nov. 10, 1902, bound for Shanghai, arriving and anchoring at Woosung Mar. 26, 1903.

Outward passage from New York to Shanghai (Woosung), 136 days.

After port detention of 28 days, left Shanghai (river) Apr. 23, 1903, for Honolulu, where she arrived May 24, 1903, after a run of 31 days, reaching Honolulu 195 days and 167 sailing days out of New York. After a port detention of 37 days, during which she loaded 4,861 tons of sugar, left Honolulu June 30, 1903, bound for Philadelphia Breakwater "for orders" and arrived Nov. 9, 1903.

Return passage (to East Coast U.S.A. port) from Honolulu to Philadelphia Breakwater, 132 days.

The round voyage New York-Shanghai-Honolulu-Delaware Breakwater had occupied 364 days (a day scant of a year), of which 299 days were spent at sea and 268 days on the outward and homeward passages carrying paying freight. Ordered to Philadelphia to discharge and left Nov. 21, 1903, in tow and in ballast, for New York to load.

Voyage No. 5: After a total port detention (Delaware, New York, and in transit behind a tug) of 93 days, left New York Feb. 10, 1904, with case oil for Shanghai via Anjer (Straits of Sunda), arriving out (Woosung) June 22, 1904.

Outward passage from New York to Shanghai (Woosung), 133 days.

After a port (and river) detention of 48 days, left Shanghai (river) Aug. 9, 1904, in ballast, for Puget Sound, where she arrived, at Port Townsend, Oct. 1, 1904, after a run of 53 days. After a detention of 87 days in Puget Sound, sailed Dec. 27, 1904, with a cargo of lumber to Shanghai, arriving Mar. 15, 1905, after a long run of 78 days. She had been absent from Shanghai 218 days, of which 131 days had been at sea. Took on ballast at Shanghai and sailed May 2, 1905, after a port detention of 48 days, for Honolulu, where she arrived June 14, 1905, after a run of 43 days (reported as 41 days). When the *Arthur Sewall* reached Honolulu to load sugar, she was 490 days (1 year 4 months 4 days) out from New York, and of this time, 183 days had been spent in ports, harbors, and rivers and 307 days at sea, of which 53 days were in ballast and only 254 days (or 52 per cent of the total time) had been devoted to carrying cargoes. After a port detention of 23 days at Honolulu, during which she loaded 5,563 short tons of sugar (4,967 long tons), the ship sailed July 7, 1905, for the Delaware Breakwater "for orders" and arrived there Nov. 4, 1905.

Return passage (to East Coast U.S.A. port) from Honolulu to Delaware Breakwater, 120 days.

When the *Arthur Sewall* anchored off Hellen Nov. 4, 1905, she had been away from an East Coast U.S.A. port 633 days (1 year 8 months 25 days), of which only 253 days were spent on the outward and homeward passages, all of the intermediate period, including the carrying of a load of lumber from Puget Sound to Shanghai, being unprofitable—all things considered. Was ordered to Philadelphia to discharge and dry-dock.

Voyage No. 6: After a port detention of 38 days, sailed from Philadelphia Dec. 12, 1905, with 4,920 tons of government coal bound for Manila. The ship was at Anjer Mar. 19, 1906, 97 days out from Philadelphia, with her cargo badly overheated. She was towed to Batavia, where the coal was worked on, and after detention of 42 days and the discharging of 459 tons of coal at Batavia, she arrived at Manila May 24, 1906.

Outward passage from Philadelphia to Manila via Batavia, 163 days—under sail 121 days.

After port detention of 28 days, left Manila June 21, 1906, in ballast for Honolulu, where the ship arrived Sept. 3, 1906, after a run of 74 days, reaching Honolulu 265 days from Philadelphia, of which 195 days were under sail. After port detention of 37 days, during which she took on board 4,859 tons of sugar, sailed Oct. 10, 1906, for Delaware Breakwater "for orders" and arrived there Mar. 3, 1907.

Return passage (to East Coast U.S.A. port) from Honolulu to Delaware Breakwater, 144 days.

Round voyage Philadelphia-Batavia-Manila-Honolulu-Delaware Breakwater occupied 446 days (1 year 2 months 19 days), of which 339 days were spent at sea and 265 were sailing days on the outward and homeward passages cargo laden. Discharged and dry-docked at Philadelphia.

Voyage No. 7: After a port detention of 30 days, during which she loaded 4,900 tons of coal, the *Arthur Sewall* left the Delaware Breakwater Apr. 2, 1907, on a Cape Horn passage around the Horn to Seattle, and on Feb. 5, 1908, Lloyd's posted the big ship as "missing." After leaving the Delaware, no word was ever received of the ship, and no part of the ship nor any member of the crew was ever seen again; she totally disappeared. In the last letter written by Capt. Burton Gaffry in the cabin of the *Arthur Sewall* to the owners, Arthur Sewall & Co., dated Mar. 30, 1907, we read, "Will you kindly send my wife \$1,000 and let her have \$100 a month out of my wages. I am buying a home and would like to pay for it."

A recapitulation of the passages made by the *Arthur Sewall* during her entire sea life under canvas, from Mar. 1899 to her loss in 1907, a period of over eight years, is as follows:

1. *North Atlantic ports to San Francisco:* One passage of 127 days from Philadelphia—on maiden voyage.
2. *San Francisco to Gravesend (London):* One passage of 128 days (the return passage of the maiden voyage).

The *Arthur Sewall* visited San Francisco only once and was at a British (or any other European) port only once—the sailing to both San Francisco and Britain being on her

maiden voyage. During the balance of her career (July 1900 to her end in 1907), she never sailed to or from a North Pacific U.S.A. port on a Cape Horn passage, although she was bound to Seattle from Philadelphia in 1907 when she "went missing."

3. *East Coast U.S.A. ports to Japan:* Two passages averaging 146 days; one from New York to Yokohama in 161 days and the other from Philadelphia to Hiogo (Kobe) in 131 days.

4. *New York to Shanghai*: Two passages averaging 134½ days; one in 136 and the other in 133 days.
5. *Philadelphia to Manila*: One passage of 163 days made via Batavia (a forced call because of trouble with coal cargo) in 121 sailing days between ports.
6. *Sugar passages from Honolulu to Delaware Breakwater*: Five passages averaging 125¾ days, the runs being made in 110, 122, 132, 120, and 144 days, respectively.
7. *Oriental ports to Honolulu*: Four passages averaging 33 days. Two from Shanghai in 31 and 43 days, respectively; average, 37 days. Two from Japan, one of them from Yokohama in 23 days and the other from Hiogo (Kobe) in 35 days, the average of the two runs from Japanese ports being 29 days.
8. *Shanghai-Puget Sound transpacific passages*: Made a round voyage of 53 days eastward (in ballast) and 78 days westward (laden with lumber).
9. *Manila to Honolulu*: One passage of 74 days.
10. *Transatlantic westward passage*: Made one such run of 43 days from Gravesend (London) to New York, which was the last leg of her maiden voyage.

(d) *Edward Sewall, 1899*

Launched Oct. 3, 1899. Left Bath, Maine, Nov. 6, 1899, with Capt. Joseph Ellis Sewall in command. Towed down Kennebec to Atlantic and, with 1,205 tons of coal aboard as ballast (or stiffening), made a run in something less than 6 days to the Bay, where she picked up a tug to take her to Baltimore to load coal for San Francisco.

Voyage No. 1: Left Baltimore Jan. 18, 1900 (seventy-three days after sailing from Bath), with 4,880 tons of coal aboard bound for San Francisco. Coal heated, and Captain Sewall put into Montevideo 68 days out from Baltimore for attention. Was at Montevideo 46 days and arrived at San Francisco Aug. 13, 1900, after a run of 94 days from Montevideo.

Outward passage from Baltimore to San Francisco via Montevideo, 208 days, port to port, and 162 sailing days.

Captain Sewall reported a passage of 160 days at sea and 46 days of detention at Montevideo—a total of 206 days. After a port detention of 54 days at San Francisco, during which she loaded 4,674 tons of wheat and general cargo, sailed from the Golden Gate Oct. 6, 1900, for Liverpool, where she arrived Feb. 24, 1901.

Return passage (to North Atlantic port) from San Francisco to Liverpool, 141 days.

After a port detention of 40 days, left Liverpool in ballast for New York on Apr. 5, 1901, and arrived May 13, 1901, after a run of 38 days (reported as 37 days). The round voyage Baltimore-San Francisco-Liverpool-New York had occupied 481 days (1 year 3 months 25 days), during which the ship had been 341 days at sea (303 days with cargo on her outward and eastward passages and 38 days in ballast). Upon arrival at New York, Capt. "Joe" Sewall left the *Edward Sewall*, disgusted with life at sea and with his luck with the big new steel ship. (Capt. "Jim" Murphy, another wood ship skipper, had acted similarly after making the maiden voyage, over very much the same course, with the *Arthur Sewall*.) Capt. Richard Quick replaced Capt. "Joe" Sewall in command of the *Edward Sewall* and remained in her as long as Arthur Sewall &

Co. and later The Texas Co. owned her—a period of some twenty-one years.

Voyage No. 2: After a port detention of 34 days, during which the vessel loaded case oil for China, the *Edward Sewall* left New York June 16, 1901, bound for Shanghai, where she arrived Nov. 29, 1901.

Outward passage from New York to Shanghai, 166 days.

After a port detention of 28 days, left Shanghai Dec. 27, 1901, for Puget Sound in ballast. Sighted Cape Flattery when 26 days out, but did not reach port until Feb. 4, 1902, after a run of 39 days from Shanghai. Went to Ladysmith for coal and then to Port Townsend, where she arrived Mar. 5. After a port detention of 32 days in Puget Sound, sailed Mar. 8, 1902, for Honolulu, where she arrived Mar. 22, 1902, after a good run of 14 days. The ship reached Honolulu 279 days out of New York via Shanghai and Puget Sound, of which 219 days had been under canvas and 60 days in port detention. After a port detention of 33 days at Honolulu, during which the ship loaded 5,514 short tons of sugar (4,923 long tons), the *Edward Sewall* sailed Apr. 23, 1902, for the Philadelphia Breakwater "for orders" and arrived there Aug. 9, 1902.

Return passage (to East Coast port) from Honolulu to Delaware Breakwater, 108 days.

The ship was ordered to Philadelphia to discharge and arrived there in tow Aug. 10, 1902. The round voyage New York-Shanghai-Puget Sound-Honolulu-Delaware Breakwater had occupied 419 days (1 year 1 month 24 days), of which 327 days were spent at sea (288 days with paying freight and 39 days in ballast).

Voyage No. 3: From Philadelphia was towed to New York, where she arrived Sept. 9, 1902, to

dry-dock and load case oil for China. Left New York Oct. 5, dropped pilot Oct. 6, 1902, bound for Shanghai, and started on her sea run fifty-eight days after arrival at Delaware Breakwater. Arrived at Shanghai Mar. 5, 1903.

Outward passage from New York to Shanghai, 150 days.

After a port detention of 26 days, left Shanghai Mar. 31, 1903, in ballast for Honolulu and arrived there May 9, 1903, after a run of 39 days and 215 days out of New York. Loaded 5,507 short tons of sugar (4,917 long tons) and, after a port detention of 28 days, left Honolulu June 6, 1903, for the Delaware Breakwater "for orders," arriving there Oct. 20, 1903.

Return passage (to East Coast port) from Honolulu to Delaware Breakwater, 136 days.

The round voyage New York-Shanghai-Honolulu-Delaware Breakwater had occupied 379 days (1 year 14 days), of which 325 days were spent at sea (286 days with paying freight and 39 days in ballast). Was ordered to Philadelphia to discharge.

Voyage No. 4: After a port detention of 32 days, during which she loaded 4,985 tons of coal, left Philadelphia Nov. 21, 1903, for San Francisco, where she arrived Mar. 29, 1904.

Outward passage from Philadelphia to San Francisco, 129 days.

After a port detention of 33 days, left San Francisco May 1, 1904, in ballast for Honolulu, where she arrived May 12, 1904, after a very fast run of 11 days, reaching Honolulu when 173 days out from Philadelphia. Loaded 5,500 short tons of sugar (4,911 long tons) and, after 40 days of port detention, sailed from Honolulu June 21, 1904, for Delaware Breakwater "for orders," where she arrived Oct. 11, 1904.

Return passage from Honolulu to Delaware Breakwater, 112 days.

The round voyage Philadelphia-San Francisco-Honolulu-Delaware Breakwater had occupied 325 days (10 months 20 days), of which 252 days were spent at sea (241 days with paying freight and 11 days in ballast). The ship was ordered to Philadelphia and reached that port in tow Oct. 12, 1904. After discharging, was ordered to Baltimore, where she arrived Nov. 27, 1904, in tow for dry-docking and loading coal for the Philippines.

Voyage No. 5: After a port detention of 97 days (Delaware, Philadelphia, Baltimore, and in tow), during which she took about 5,000 tons of coal, sailed from Baltimore Jan. 16, 1905, for Manila, where she arrived June 8, 1905.

Outward passage from Baltimore to Manila, 143 days.

After 29 days of port detention, left Manila July 7, 1905, in ballast for Newcastle, N.S.W., where she arrived Oct. 18, 1905, after a very

slow run of 103 days. After a port detention of 25 days and taking aboard 5,093 tons of coal, sailed from Newcastle Nov. 12, 1905, bound for Honolulu, arriving at that port Jan. 10, 1906, after a run of 59 days. Reached Honolulu 359 days (six days less than a year) out from Baltimore, of which 305 days had been at sea and only 202 days of which were carrying paying freight. After 58 days of port detention, during which the ship took aboard 4,936 tons of sugar, left Honolulu Mar. 9, 1906, for Delaware Breakwater "for orders," where she arrived July 17, 1906.

Return passage (to East Coast port) from Honolulu to Delaware Breakwater, 130 days.

The round voyage Baltimore-Manila-Newcastle (N.S.W.)-Honolulu-Delaware Breakwater occupied 547 days (1 year 6 months 1 day), of which 435 days were spent at sea (332 days with paying cargoes and 103 days in ballast). Ordered to Philadelphia to discharge, arriving there in tow July 19.

Voyage No. 6: After a port detention (including tows) of 41 days, during which she loaded 5,007 tons of coal, sailed from Philadelphia Aug. 27, 1906, for San Francisco. Put into Montevideo Oct. 29, when 63 days out (reported as 62 days out), to land an injured seaman and delayed one day. Off Cape Horn, beat the French four-master *Michelet* and an English ship and arrived at San Francisco Jan. 23, 1907.

Outward passage from Philadelphia to San Francisco via Montevideo, 148 days.

After 38 days of port detention, left San Francisco Mar. 2, 1907, in ballast for Honolulu and reached port of destination Mar. 17 after a run of 15 days, during which she covered 642 miles in two consecutive days—an average of 321 miles per day. Honolulu was reached when 201 days out from Philadelphia. After a port detention of 39 days, during which the ship took aboard 4,921 tons of sugar, sailed from Honolulu Apr. 25, 1907, for the Delaware Capes "for orders," arriving Aug. 13, 1907.

Return passage from Honolulu to Delaware Breakwater, 110 days.

The round voyage Philadelphia-San Francisco-Honolulu-Delaware Breakwater occupied 351 days, of which 273 days were spent at sea (258 days with paying freight). Was discharged at Philadelphia; taken in tow to Newport News, Va., to dry-dock and then to Baltimore to load coal.

Voyage No. 7: After a total port detention (Delaware, Philadelphia, Newport News, Baltimore, and in tow) of 55 days, left Baltimore Oct. 7, 1907, with 5,015 tons of coal aboard bound for Honolulu. Was 46 days reaching Atlantic equator and arrived at Honolulu Mar. 7, 1908.

Outward passage from Baltimore to Honolulu, 152 days.

After 30 days of port detention, during which she loaded 4,847 tons of sugar, left Honolulu Apr. 6, 1908, for Delaware Breakwater "for orders," arriving Aug. 10, 1908.

Return passage (to East Coast port) from Honolulu to Delaware Breakwater, 126 days.

The round voyage Baltimore-Honolulu-Delaware Breakwater occupied 308 days (10 months 3 days), of which 278 days were spent at sea on the outward and homeward passages, both laden with paying freight.

Voyage No. 8: After discharging at Philadelphia and taking 5,018 tons of government coal aboard, sailed Sept. 4, 1908, after a total port detention of 25 days, for San Francisco, where she arrived Feb. 5, 1909.

Outward passage from Philadelphia to San Francisco, 154 days.

After a port detention of 92 days, during which she loaded 4,911 tons of general cargo, sailed from San Francisco May 8, 1909, for New York, arriving Aug. 26, 1909.

Return passage (to East Coast port) from San Francisco to New York, 110 days.

The round voyage Philadelphia-San Francisco-New York occupied 356 days, of which 264 days were spent at sea carrying paying freight on the outward and homeward Cape Horn passages to and from California.

Voyage No. 9: The ship was discharged and dry-docked in New York and left Sept. 21, 1909, in tow for Newport News, where she loaded 5,027 tons of coal. Sailed Oct. 11, 1909 (after a total port detention of 46 days), for Honolulu, arriving there Feb. 21, 1910.

Outward passage from Newport News, Va., to Honolulu, 133 days.

Loaded some sugar at Honolulu and sailed to Hilo (6 days) to finish loading. Left Hilo on May 29, 1910 (after a total detention of 97 days at the Islands), with only two white men aboard (captain and mate), bound for the Delaware Breakwater "for orders," arriving there at midnight on Oct. 2, 1910.

Return passage (to East Coast port) from Hilo (Hawaiian Islands) to Delaware Breakwater, 126 days.

The round voyage Newport News-Honolulu-Hilo-Delaware Breakwater occupied 356 days, of which 259 days were spent at sea on the outward and homeward passages. Ordered to Philadelphia to discharge, where she arrived in tow Oct. 5, 1910. Later towed to Newport News to dry-dock and load 5,016 tons of coal.

Voyage No. 10: After a total port detention of 34 days, sailed Nov. 5, 1910, from Newport News, Va., for San Francisco, where she arrived Mar. 9, 1911.

Outward passage from Newport News, Va., to San Francisco, 124 days.

After 27 days of port detention, left San Francisco Apr. 6, 1911, bound for Kahului, where she arrived Apr. 18 after a sea run of 12 days; but was held outside port 9 days because of preference given steamers in entering, loading, and clearing. Finally loaded 5,525 short tons of sugar (4,933 long tons) and, after a total detention at the Islands of 22 days, sailed May 10, 1911, for Delaware Breakwater, where she arrived Aug. 25, 1911.

Return passage (to East Coast port) from Kahului (Hawaiian Islands) to Delaware Breakwater, 107 days (106 days from Diamond Head, Honolulu).

The round voyage Newport News-San Francisco-Hawaiian Islands-Delaware Breakwater occupied 293 days (9 months 20 days), of which 243 days were spent at sea and 231 days on the outward and homeward passages with paying freight. The ship was ordered to Philadelphia for discharging, following which she was dry-docked and loaded with 4,886 tons of general cargo for San Francisco.

Voyage No. 11: After 41 days of port detention, sailed from Philadelphia Oct. 5, 1911, but was partly dismantled during gales encountered soon after getting to sea and put into New York Oct. 17, 1911, for repairs. Left New York Nov. 4, 1911, after 17 days' detention at that port (twenty-nine days after leaving Philadelphia and seventy-one days after her arrival at the Delaware Breakwater from the Hawaiian Islands) and reached San Francisco Mar. 10, 1912.

Outward passage from New York to San Francisco, 127 days.

After 27 days' port detention, left San Francisco Apr. 6, 1912, in ballast for Honolulu and thence to Kahului, arriving at Honolulu Apr. 21 after a run of 15 days. Was at the Islands 27 days; loaded 5,035 tons of sugar and sailed from Kahului May 18 for the Delaware Breakwater, where she arrived Oct. 5, 1912.

Return passage (to East Coast port) from Kahului to Delaware Breakwater, 140 days.

Discharged at Philadelphia; vessel was reported arriving there "140 days out from the Hawaiian Islands." The round voyage New York-San Francisco-Hawaiian Islands-Philadelphia occupied 336 days (11 months 1 day), of which 282 days were spent at sea; of these, 267 days were spent on the outward and homeward passages laden with cargo. Was towed from Philadelphia to Baltimore, where she loaded 5,023 tons of government coal for delivery at the Mare Island Navy Yard.

Voyage No. 12: After port detention of 31 days (at Philadelphia, Baltimore, and in tow), sailed Nov. 5, 1912, from Baltimore for San Francisco, where she arrived Mar. 18, 1913.

Outward passage from Baltimore to San Francisco, 133 days.

Was at San Francisco 24 days and left in tow Apr. 11, 1913, made sail and dropped pilot on Apr. 12, and arrived at Kahului, in ballast, Apr. 28, 1913, after a run under canvas of 16 days from outside the Golden Gate. After a detention of 24 days in the Hawaiian Islands, sailed May 22, 1913, with 4,944 tons of sugar from Kahului for the Delaware Breakwater, where she arrived Sept. 15, 1913.

Return passage (to East Coast port) from Kahului to Delaware Breakwater, 115 days.

The round voyage Baltimore-San Francisco-Hawaiian Islands-Delaware Breakwater occupied 312 days (10 months 10 days), of which 264 days were at sea and 248 days on the outward and homeward passages carrying paying freight. Discharged at Philadelphia and loaded 5,046 tons of coal.

Voyage No. 13: After a port detention of 34 days, left Philadelphia and sailed Oct. 19, 1913, for Seattle. Put into Bahia Blanca Dec. 18, 1913, when 60 days out, with broken bowsprit; was in port 20 days for repairs and sailed Jan. 7, 1914. Was back at Bahia Blanca Jan. 23, 1914, with bowsprit again broken; repairs required 32 days. She again sailed Feb. 24, 1914, and was 67 days rounding the Horn (from 50° S. Atlantic to 50° S. Pacific). Passed Cape Horn three times and once got 300 miles to the westward of it, but was driven back to a point 40 miles east of the Cape. Arrived Honolulu July 8, 1914, 134 days from Bahia Blanca and 262 days from Philadelphia. Had been at sea 210 days and in port 52 days. After a day at Honolulu getting fresh food and water, continued passage and was 29 sailing days to Seattle, arriving there Aug. 7, 1914.

Outward passage from Philadelphia to Seattle, 293 days, of which 240 days were at sea.

Loaded wheat for Ireland and, after a port detention of 76 days, sailed Oct. 22, 1914, and reached Dublin Mar. 6, 1915.

Return passage (to North Atlantic port) from Puget Sound to Dublin, 135 days.

Round voyage Philadelphia-Puget Sound-Dublin occupied 504 days (1 year 4 months 15 days), of which 375 days were at sea on the outward and homeward passages. Left Dublin, in ballast, on Apr. 17, 1915, after 42 days' port detention and reached Hampton Roads May 16, 1915, after a transatlantic westward run of 29 days. The entire passage from Philadelphia and return to Hampton Roads had occupied 574 days, of which 404 days had been spent at sea.

Voyage No. 14: Loaded coal at Norfolk, Va., and, after a port detention of 23 days, sailed June 8, 1915, for Montevideo. When 46 days out, was off the River Plate, but a S.W. pampero blew the ship offshore, and she did not get to Montevideo until Aug. 2, 1915.

Outward passage from Norfolk to Montevideo, 55 days.

After discharging, was towed up the Parana River to Santa Fe, Argentina, to load quebracho wood. The river falling, ship had to discontinue loading and, using three tugboats, got safely to Buenos Aires to finish loading at that deeper-water port. After a detention in Uruguay and Argentina of 81 days, left Buenos Aires Oct. 22, 1915, and arrived New York Dec. 22, 1915.

Return passage from Buenos Aires to New York, 61 days.

The round voyage Norfolk-Montevideo-Parana River-Buenos Aires-New York occupied 197 days (6 months 14 days), of which 116 days had been spent at sea on the outward and homeward passages.

Voyage No. 15: After discharging and dry-docking at New York, the *Edward Sewall* was towed to Norfolk, Va., where she loaded 5,231 tons of coal and, after a total detention (New York, Norfolk, and in tow) of 74 days, sailed Mar. 5, 1916, for Rio de Janeiro, where she arrived May 4, 1916.

Outward passage from Norfolk to Rio de Janeiro, 60 days.

After 23 days' detention at Rio, left May 27, 1916, for Buenos Aires, where she arrived July 3, 1916, after a run of 37 days from Rio de Janeiro. Loaded 4,759 tons of linseed and, after a port detention of 28 days at Buenos Aires, left July 31, 1916. Was anchored off Montevideo Aug. 10 and reached New York on Oct. 4, 1916.

Homeward passage from Buenos Aires to New York, 65 days (54 days at sea from Montevideo).

This was the last passage of any of the ships of the Sewall steel fleet under the flag of that company. The Texas Co. bought the *Edward Sewall* Oct. 25, 1916; but, instead of putting power in her as expected, continued to operate her under canvas, with Capt. Richard Quick retaining the command. In 1918 she left Port Arthur, Texas, in tow of the S.S. *Virginia* for Buenos Aires, broke away in a gale, and had a terrible experience in a fierce West Indian hurricane, losing everything above the steel lower masts. That the vessel was a staunch, strong, sturdy, well-built ship was proven by her weird experience in the "core," or "dead center," of this most vicious Caribbean Sea hurricane, from which she emerged very much of a wreck but without any water in her and with no signs of leaks having developed as a result of a terrific pounding and wrenching. Captain Quick worked the ship back to Port Arthur, where she discharged. She was taken to Mobile for repair, which, it was reported, cost \$136,000. The *Edward Sewall* was sold to the Alaska Packers Association in 1922 and renamed *Star of Sheiland*. In 1936, when thirty-seven years old, she was purchased by the Japanese.

A recapitulation of the passages made by the *Edward Sewall* while operated under the management and flag of Arthur Sewall & Co. during the period from her first putting to sea on Nov. 6, 1899, to her sale on Oct. 25, 1916 (16 years 11 months 19 days), is as follows:

1. *North Atlantic ports to San Francisco*: Seven passages averaging 146 days, port to port, and 139½ sailing days. Three from Philadelphia in 129, 148, and 154 days, respectively, averaging 143⅔ days. Two from Baltimore in 208 and 133 days (the former in 162 sailing days via Montevideo), averaging 170½ days, port to port, and 147½ sailing days. One from Newport News, Va., in 124 days and one from New York in 127 days.
2. *North Atlantic ports to Pacific U.S.A. ports*: Eight passages averaging 164½ days, port to port, and 152 sailing days. In addition to the seven passages to San Francisco mentioned above, there was one passage from Philadelphia to Seattle that occupied 293 days, port to port, of which 240 days were spent at sea.
3. *East Coast U.S.A. ports to Honolulu*: Two passages averaging 142½ days. One from Baltimore in 152 days and one from Newport News in 133 days.
4. *Baltimore to Manila*: One passage in 143 days.
5. *New York to Shanghai*: Two passages averaging 158 days; one in 166 days and the other in 150 days.
6. *San Francisco to North Atlantic ports*: Two passages averaging 125½ days; one to New York in 110 days and the other to Liverpool in 141 days.
7. *North Pacific U.S.A. ports to North Atlantic ports*: Three passages averaging 128⅔ days. In addition to the two passages from San Francisco eastward around the Horn mentioned above, there was one passage from Puget Sound to Dublin in 135 days.
8. *Sugar passages from Hawaiian Islands to Delaware Breakwater*: Ten passages averaging 121 days. Six passages from Honolulu averaged 120⅓ days and were made in 108, 136, 112, 130, 110, and 126 days, respectively. Three passages from Kahului averaged 120⅔ days and were made in 107, 140, and 115 days, respectively, and one passage from Hilo was made in 126 days.
9. *East Coast U.S.A. and East Coast South American ports*:
 - (a) *Southbound* from Norfolk: One passage to Montevideo in 55 days and one passage to Rio de Janeiro in 60 days (the latter was continued with a passage from Rio to Buenos Aires in 37 days).
 - (b) *Northbound*: Two passages from Buenos Aires to New York averaging 63 days; one in 61 days and the other in 65 days (54 days from Montevideo).
10. *Westward transatlantic passages*: Two runs averaging 33½ days; one from Liverpool to New York in 38 days and the other from Dublin to Hampton Roads in 29 days.
11. *Eastward transpacific passages*: One in 39 days from Shanghai to Puget Sound.
12. *Mainland ports (U.S.A. West Coast) to Hawaiian Islands ports*: Five runs averaging 13⅔ days. Four runs from San Francisco to the Islands averaged 13½ days; two to Honolulu in 11 and 15 days, respectively, averaged 13 days, and two to Kahului in 12 and 16 days, respectively, averaged 14 days. One run from Puget Sound to Honolulu was made in 14 days.
13. *Shanghai to Honolulu*: One passage of 39 days (in ballast).
14. *Newcastle to Honolulu*: One passage of 59 days (coal laden).
15. *Manila to Newcastle*: One passage of 103 days (in ballast).

(e) *William P. Frye, 1901*

Launched early Oct. 1901. Scheduled to go overboard Oct. 2 and was christened on that day, but ship refused to move and slid into the Kennebec later. The last of the Sewall steel fleet of shipentines to be built to operate under Sewall management. Capt. Joseph Ellis Sewall, who was master of the *Edward Sewall* on her first voyage (Nov. 1899-May 1901) and left her in disgust, surprisingly bought the master's share of the *William P. Frye* (built from the same lines as the *Edward Sewall*), having apparently become tired of life ashore after about four months. With only 600 tons of ballast (stone and gravel) aboard, the *William P. Frye* left Bath, Maine, in tow Oct. 23 and, with riggers still working aboard to complete her, arrived at New York Oct. 25, 1901. The ship was not ready to be put at the loading berth until Nov. 19 (twenty-five days after arrival at New York), but on Nov. 30 she was towed down the Bay to anchorage with 4,955 tons of oil (131,000 cases) aboard. It was not until Dec. 7, 1901 (forty-five days after her departure from Bath, Maine), that the "*Frye*" put to sea to commence her maiden voyage.

Voyage No. 1: Capt. "Joe" Sewall, with clearance from New York for Shanghai, decided to take the "Frye" out by avoiding the South China Seas and going around Tasmania, a course quite generally followed by the big Sewall steel shipentines, which, Captain Sewall admitted, added some 3,500 miles to the length of the passages. (Sometimes they returned home from north oriental ports by way of Cape Horn rather than follow the orthodox and much shorter course down the China Sea, Straits of Sunda, Indian Ocean, and Cape of Good Hope.) The "Frye" reached Woosung Roads (Shanghai) May 3, 1902.

Outward passage from New York to Shanghai (Woosung anchorage), 147 days.

After a port detention of 45 days, left Shanghai May 26, 1902, for San Francisco, where she arrived July 10, 1902, after a run of 45 days from Shanghai (river); reported as 44 days. After a port detention of 55 days, left San Francisco Sept. 3, 1902, with 5,377 short tons (4,800 long tons) of general cargo aboard, for New York and arrived at that port Jan. 29, 1903, after a long run.

Return passage (to East Coast U.S.A. port) from San Francisco to New York, 148 days.

The round voyage New York-Shanghai-San Francisco-New York had occupied 418 days (1 year 1 month 22 days), of which 340 days had been spent at sea, the outward and homeward passages with pay loads requiring 295 days.

Voyage No. 2: Once again, for a while, Capt. "Joe" Sewall had had enough of the sea in command of a big Sewall steel shipentine and wanted a rest, so Capt. "Jim" Murphy, who after a long maiden voyage in the *Arthur Sewall* had left that ship in disgust, was influenced to take the command of the "Frye" as a relief skipper for a passage. The ship left New York in ballast and in tow for Baltimore Mar. 28, 1903, loaded 4,945 tons of coal, and left Baltimore, after a total port detention (New York, Baltimore, and in tow) of 83 days, on Apr. 22 for San Francisco, where she arrived Aug. 20, 1903.

Outward passage from Baltimore to San Francisco, 121 days.

Capt. "Joe" Sewall again took command of the ship after her "smart westward Cape Horn run under Capt. "Jim" Murphy," but the vessel was held at San Francisco for a long time while waiting to locate a cargo for the homeward run. After a port detention of 126 days, left San Francisco Dec. 24, 1903, with 700 tons of ballast aboard, for Honolulu and reached that port Jan. 9, 1904, after a run of 16 days, port to port, recorded as "a 15-day run." After a port detention of 63 days at Honolulu, during which she loaded 5,544 short tons of sugar (4,950 long tons), the "Frye" sailed from that port Mar. 12, 1904, to the Delaware Breakwater "for orders" and arrived there July 25, 1904.

Return passage (to East Coast port) from Honolulu to Delaware Breakwater, 135 days.

The round voyage Baltimore-San Francisco-Honolulu-Delaware Breakwater had occupied 460 days (1 year 3 months 3 days), of which 272 days had been spent at sea and 256 days on the outward and homeward passages laden with coal going west and sugar returning. Was ordered to Philadelphia to discharge, where she arrived in tow July 27. After unloading, the ship was towed to New York to take on case oil for Shanghai.

Voyage No. 3: After a total port detention of 52 days (Delaware, Philadelphia, New York, and in tow), left New York Sept. 15, 1904, for Shanghai. Capt. "Joe" Sewall elected to make this passage via the Ombay and Gillolo straits. Arrived at Woosung (Shanghai) Feb. 21, 1905.

Outward passage from New York to Shanghai, 159 days.

After a port detention at Shanghai and in the river 24 days, sailed Mar. 17, 1905, in ballast for Honolulu, where she arrived Apr. 26, 1905, after a run of 40 days. Was at Honolulu 30 days, during which she loaded 5,605 short tons of sugar (5,005 long tons), and sailed May 26, 1905, for the Delaware Breakwater "for orders," arriving there Oct. 19, 1905.

Return passage (to East Coast port) from Honolulu to Delaware Breakwater, 146 days.

The round voyage New York-Shanghai-Honolulu-Delaware Breakwater occupied 399 days (1 year 1 month 4 days), of which 345 days were spent at sea, including 305 days on the outward and homeward passages. Discharged at Philadelphia. Arrived by tow at Newport News Nov. 5, 1905, for dry-docking and was at Norfolk Nov. 11, where she loaded 5,011 tons of coal.

Voyage No. 4: After a total port detention (Delaware, Philadelphia, Newport News, Norfolk, and in tow) of 46 days, sailed from Norfolk Dec. 4, 1905, for Manila.

Outward passage from Norfolk to Manila, 170 days.

At Anjer Apr. 16, 1906, after a very tedious passage of 133 days and was at Cavite (Manila) May 23, 1906. After a port detention of 21 days, left Manila for Honolulu in ballast June 13, 1906, and arrived at the Hawaiian Island port Aug. 18, 1906, after a slow run of 66 days. At Honolulu, loaded 4,946 tons of sugar and, after a port detention of 33 days, sailed Sept. 20, 1906, for the Delaware Breakwater "for orders," where she arrived Mar. 19, 1907, after a very long run with a foul bottom.

Return passage (to East Coast port) from Honolulu to Delaware Breakwater, 180 days.

The round voyage Norfolk-Manila-Honolulu-Delaware Breakwater occupied 470 days (1 year 3 months 15 days), of which 416 days had been spent at sea and 350 days on the outward and homeward passages, which was slow sailing.

The "*Frye*" was ordered to Philadelphia to discharge and arrived there in tow Mar. 22, 1907. Once again Capt. "Joe" Sewall resigned his command and once more left the ship and the sea in disgust. Capt. "Jim" Murphy, who had made a good westward Cape Horn passage in the "*Frye*," agreed to take command of her, and this time he remained in her nearly two years. The ship was towed to Baltimore Apr. 9, 1907, where she was dry-docked and laden with 5,106 tons of navy coal.

Voyage No. 5: After a total port detention of 44 days (Delaware, Philadelphia, Baltimore, and in tow), sailed from Cape Henry May 2, 1907, bound for San Francisco, where she arrived Sept. 18, 1907.

Outward passage from Baltimore (Cape Henry) to San Francisco, 139 days.

Loaded 4,976 tons of general cargo at San Francisco and, after a port detention of 45 days, sailed Nov. 2, 1907, for New York, where she arrived Mar. 22, 1908.

Return passage (to East Coast port) from San Francisco to New York, 141 days.

The round voyage Baltimore-San Francisco-New York occupied 325 days, of which 280 days were spent at sea on the outward and homeward Cape Horn passages. Was dry-docked at New York and left that port in tow Apr. 19, 1908, for Newport News to load coal for San Francisco.

Voyage No. 6: After a port detention of 43 days (New York, Newport News, and in tow), during which she loaded 5,111 tons of coal, sailed from Newport News May 4, 1908, for San Francisco and arrived there Sept. 23, 1908.

Outward passage from Newport News to San Francisco, 142 days.

These three consecutive passages of the "*Frye*" in the California trade under Capt. "Jim" Murphy (two westward and one eastward) were of uniform length and averaged $140\frac{2}{3}$ days (shortest, 139 days; longest, 142 days—both west-bound). Captain Murphy's four California passages with the "*Frye*" (three westward and one eastward) averaged $135\frac{3}{4}$ days, the three westward passages averaging 134 days (shortest, 121 days; longest, 142 days). After 80 days' port detention at San Francisco, the "*Frye*" left on Dec. 12, 1908, for Kahului (Hawaiian Islands), where she arrived Dec. 25, 1908, after a *good run of 13 days*. After 49 days' detention at the "Sugar Islands," sailed from Honolulu Feb. 12, 1909, with 4,990 tons of sugar aboard, for the Delaware Breakwater "for orders" and arrived there June 24, 1909.

Return passage (to East Coast port) from Honolulu to Delaware Breakwater, 132 days.

The ship was ordered to Philadelphia to discharge, and Captain Murphy resigned his command and "was through with steel ships." (Later, he went out to San Francisco to bring his old

and favorite wood ship *Shenandoah* east around the Horn to New York, where she had been sold for conversion into a barge.) Capt. H. A. Nickerson took command of the "*Frye*," and after taking some cargo aboard in Philadelphia, she was towed to New York to complete loading. The round voyage Newport News-San Francisco-Honolulu-Delaware Breakwater had occupied 416 days (1 year 1 month 20 days), of which 287 days were spent at sea, 13 days under ballast and 274 days on her outward and homeward passages cargo laden.

Voyage No. 7: After loading 5,067 tons of cargo and after a total port detention of 58 days (Delaware, Philadelphia, New York, and in tow), sailed from New York Aug. 21, 1909, for San Francisco and arrived there Jan. 11, 1910.

Outward passage from New York to San Francisco, 143 days (reported as 142 days).

After a port detention of 46 days, left San Francisco Feb. 26, 1910, in ballast, for the Hawaiian Islands and arrived at Kahului Mar. 14, 1910, after a *run of 16 days*. Was 40 days at the "Sugar Islands," during which she loaded 5,000 tons of sugar and sailed from Kahului Apr. 23, 1910, for the Delaware Breakwater "for orders," arriving there Aug. 26, 1910.

Return passage (to East Coast port) from Kahului to Delaware Breakwater, 125 days.

Was ordered to Philadelphia to discharge and arrived there in tow Aug. 26, 1910. The round voyage New York - San Francisco - Hawaiian Islands-Philadelphia occupied 370 days (1 year 5 days), of which 284 days were spent at sea and 268 days on the outward and homeward passages laden with paying cargo.

Voyage No. 8: Was towed to Norfolk to load and, after 45 days' port detention (Philadelphia, Norfolk, and in tow), left Norfolk Oct. 10, 1910, for San Francisco, where she arrived Mar. 10, 1911.

Outward passage from Norfolk to San Francisco, 151 days.

After a port detention of 36 days, left San Francisco in ballast on Apr. 15 for Honolulu and made a *good run of 12 days*, arriving there Apr. 27, 1911. Had a port detention of 25 days, during which she loaded 5,250 short tons of sugar (4,687 long tons). Sailed May 22, 1911, for Delaware Breakwater "for orders" and arrived there Oct. 17, 1911.

Return passage (to East Coast port) from Honolulu to Delaware Breakwater, 148 days (reported as 146 days).

The round voyage Norfolk-San Francisco-Honolulu-Delaware Breakwater occupied 372 days (1 year 7 days), of which 311 days were at sea and 299 days with paying freight on the outward and homeward passages.

Voyage No. 9: After 27 days' port detention, during which she loaded 5,003 tons of coal, sailed

Nov. 13, 1911, for San Francisco, where she arrived Apr. 5, 1912.

Outward passage from Delaware Capes (Philadelphia) to San Francisco, 144 days (reported as 143 days).

After 29 days' port detention, left San Francisco May 4, 1912, in ballast for Honolulu, where she arrived May 21, 1912, after a run of 17 days from the Golden Gate. After 39 days' detention in the Hawaiian Islands, during which she loaded 4,950 tons of sugar, sailed from Kahului June 29, 1912, for the Delaware Breakwater and arrived Dec. 2, 1912.

Return passage from Hawaiian Islands (Kahului) to Delaware Breakwater, 156 days.

The round voyage Philadelphia-San Francisco-Honolulu-Delaware Breakwater occupied 384 days (1 year 19 days), of which 317 days were at sea and 300 days were spent on the outward and homeward passages. After discharging at Philadelphia, was towed to Baltimore, where she loaded 4,992 tons of coal.

Voyage No. 10: After a total port detention of 68 days, left Baltimore Feb. 8, 1913, for San Francisco, where she arrived July 3, 1913.

Outward passage from Baltimore to San Francisco (anchor off Lightship), 145 days.

Had heavy weather in the North Atlantic and light winds in the Pacific, but rounded the Horn (50° S. to 50° S.) in 10 days. Reached San Francisco Harbor in tow July 4, 1913. Had a long detention of 78 days at San Francisco waiting to obtain a cargo, but left Sept. 19, 1913, with 4,919 tons of barley for New York and arrived there Feb. 28, 1914.

Return passage (to East Coast port) from San Francisco to New York, 162 days.

The round voyage Baltimore-San Francisco-New York occupied 385 days (1 year 20 days), of which 307 days were spent at sea (laden) on the outward and homeward passages. After discharging and docking at New York, the ship was towed to Baltimore to load coal. Capt. H. A. Nickerson relinquished his command in New York, and Capt. H. H. Kiehne, who had been chief mate on the "Frye," was appointed captain.

Voyage No. 11: After a total port detention of 41 days, during which the ship loaded 5,051 tons of coal for the Puget Sound Navy Yard, she sailed Apr. 10, 1914, to begin her last voyage and arrived at Port Townsend, Puget Sound, Sept. 24, 1914.

Outward passage from Baltimore to Puget Sound, 167 days.

After a port detention of 43 days, during which she loaded 5,034 tons of wheat for "Queenstown, Falmouth or Plymouth for orders," left Seattle in tow Nov. 6 and cast off tug on Nov. 7, 1914. When 82 days at sea, on Jan. 28, 1915, in Lat. 23° 34' S. and Long. 24° 25' W., was taken by the German converted raider *Prinz Eitel Friedrich*, blown up, and sunk. She was the first American merchantman to be destroyed by the Germans in World War I. The tragic end of the *William P. Frye* came when she had been in service about thirteen and a quarter years and when she, as a neutral, was carrying food to a belligerent country. The *Prinz Eitel Friedrich* was later interned at Newport News, Va.

A recapitulation of the passages made by the *William P. Frye* during her lifetime is as follows:

1. *North Atlantic (East Coast U.S.A.) ports to San Francisco:* Seven passages averaging 140 $\frac{1}{4}$ days. Three from Baltimore in 121, 139, and 145 days, respectively, averaging 135 days. One from New York in 143 days; two from Newport News or Norfolk in 142 and 151 days, respectively, averaging 146 $\frac{1}{2}$ days; one from Philadelphia in 144 days.
2. *North Atlantic (East Coast U.S.A.) ports to Pacific U.S.A. ports:* Eight passages averaging 144 days. In addition to the seven passages to San Francisco mentioned above, there was one passage from Baltimore to Puget Sound in 167 days.
3. *New York to Shanghai:* Two passages averaging 153 days; one in 147 days and the other in 159 days.
4. *Norfolk to Manila:* One passage in 170 days.
5. *San Francisco to New York:* Three passages averaging 150 $\frac{1}{3}$ days; the passages made in 148, 141, and 162 days, respectively.
6. *Sugar passages from Hawaiian Islands to Delaware Breakwater:* Seven passages averaging 146 days. Five passages from Honolulu in 135, 146, 180, 132, and 148 days, respectively, averaging 148 $\frac{1}{6}$ days. Two passages from Kahului in 125 and 156 days, respectively, averaging 140 $\frac{1}{2}$ days.
7. *San Francisco to Hawaiian ports:* Five runs averaging 144 $\frac{1}{6}$ days. Three runs to Honolulu in 16, 12, and 17 days, respectively, averaging 15 days. Two runs to Kahului in 13 and 16 days, respectively, averaging 14 $\frac{1}{2}$ days.
8. *Shanghai to San Francisco:* One passage of 45 days.
9. *Shanghai to Honolulu:* One passage of 40 days.
10. *Manila to Honolulu:* One passage of 66 days.

(f) Comparative Sailing Performances of the Sewall-built and Operated Four-masted Steel Shipentines

The following is a comparative record of the passages made by each of the five Sewall four-masted steel shipentines during their service under the Sewall flag and management:

Passages	DIRIGO		ERSKINE M. PHELPS		ARTHUR SEWALL		EDWARD SEWALL		WILLIAM P. FRYE		Total Passages and Average Length	
	No. of Pas-sages	Aver-age Length	No. of Pas-sages	Aver-age Length	No. of Pas-sages	Aver-age Length	No. of Pas-sages	Aver-age Length	No. of Pas-sages	Aver-age Length	No. of Pas-sages	Aver-age Length
	<i>Days</i>		<i>Days</i>		<i>Days</i>		<i>Days</i>		<i>Days</i>		<i>Days</i>	
N. Atlantic to Pa-cific U.S.A. ports.	7	157	6	138½	1	127	8	164½ (152 at sea)	8	144	30	150.8 (147.5 at sea)
N. Atlantic ports to San Francisco.	5	158	2	143	1	127	7	146	7	140¾	22	145.9
Pacific U. S. A. to N. Atlantic ports	7	145	2	125	1	128	3	128¾	3	150½	16	139.4
San Francisco to N. Atlantic ports ...	4	137¾	1	146	1	128	2	125½	3	150½	11	138.8
Honolulu to East Coast U. S. A. ports	8	139½	9	113	5	125¾	10	121	7	146	39	127.9
East Coast U. S. A. ports to Hono-lulu	3	185½ (152 at sea)	6	114¾	—	—	2	142½	—	—	11	138.8 (129.7 at sea)
New York to Shanghai	2	131½	—	—	2	134½	2	158	2	153	8	148.2
New York to Hong Kong	2	151½	—	—	—	—	—	—	—	—	2	151.5
New York to Syd-ney	1	121	—	—	—	—	—	—	—	—	1	121
Philadelphia to Japan via Cape of Good Hope...	1	159	—	—	—	—	—	—	—	—	1	159
Philadelphia to Japan via Pan-ama Canal	1	97	—	—	—	—	—	—	—	—	1	97
Japan to New York	1	140	—	—	—	—	—	—	—	—	1	140
East Coast U. S. A. ports to Manila.	—	—	1	123	1	163 (121 at sea)	1	143	1	170	4	149.7 (139.2 at sea)
Chilean nitrate ports to U. S. A. East Coast ports.	—	—	2	96	—	—	—	—	—	—	2	96
New York to An-ger "for orders".	—	—	1	88	—	—	—	—	—	—	1	88
Batavia to Chilean nitrate ports ...	—	—	1	59	—	—	—	—	—	—	1	59
Manila to Hono-lulu	—	—	3	53	1	74	—	—	1	66	5	59.8
Manila to New-castle, N. S. W..	—	—	—	—	—	—	1	103	—	—	1	103
Newcastle, N. S. W., to Honolulu....	1	56	—	—	—	—	1	59	—	—	2	57.5
Honolulu to Chil-ean nitrate ports	—	—	1	68	—	—	—	—	—	—	1	68
Hong Kong to Honolulu	2	81	—	—	—	—	—	—	—	—	2	81
Shanghai to Honolulu	1	37	—	—	2	37	1	39	1	40	5	38

(Continued on next page)

Passages	DIRIGO		ERSKINE M. PHELPS		ARTHUR SEWALL		EDWARD SEWALL		WILLIAM P. FRYE		Total Passages and Average Length	
	No. of Passages	Average Length	No. of Passages	Average Length	No. of Passages	Average Length	No. of Passages	Average Length	No. of Passages	Average Length	No. of Passages	Average Length
	Days		Days		Days		Days		Days		Days	
Japan to Honolulu	—	—	—	—	2	29	—	—	—	—	2	29
Japan to West Coast U. S. A. ports	1	52	—	—	—	—	—	—	—	—	1	52
Shanghai-West Coast U. S. A. ports	1 east	31	—	—	1 east	53	1 west	78	1 east	39	1 east	45
Honolulu to West Coast U. S. A. ports	2	20½	—	—	—	—	—	—	—	—	2	20.5
U. S. A. West Coast ports to Honolulu	1	15	4	15½	—	—	5	13¾	5	14¾	15	14.6
Westward transatlantic crossings	4	37¼	—	—	1	43	2	33½	—	—	7	37
Norfolk to Montevideo	—	—	—	—	—	—	1	55	—	—	1	55
Norfolk to Rio de Janeiro	—	—	—	—	—	—	1	60	—	—	1	60
Buenos Aires to New York	—	—	—	—	—	—	2	63	—	—	2	63
Rio de Janeiro to Buenos Aires ...	—	—	—	—	—	—	1	37	—	—	1	37

Whereas the sailing performance of the *Erskine M. Phelps* was poor on her only Cape Horn runs to and from San Francisco (averaging 143 days for two westward passages and 146 days for her one eastward run), the number of such passages was far too small for purposes of comparison with those of the *Dirigo*, *Edward Sewall*, and *William P. Frye*, each of which made three or more times as many runs over the course. The *Erskine M. Phelps* has the best record for length of passages of any of the Sewall steel fleet. In the Honolulu sugar trade, the "*Phelps*" was outstanding, averaging only 113 days for nine eastward passages to and 114½ days for six westward passages from East Coast U. S. A. ports; the average length of the other thirty eastward passages made by the Sewall-built steel shipentines was 132½ days and of their other five westward passages, 168½ days (148¼ sailing days). Basil Lubbock, the British marine historian, writing of the *Erskine M. Phelps* in *THE DOWN EASTERS* (published in 1929), says: "It is evident from her performances, that she must have been a finer model than the *Dirigo*, or else her commander, Captain Bob Graham, must have been a marvel at getting her along." Lubbock sets forth "a few of her astonishing records," which are reproduced here in comparison with the length of the runs as recorded in the before-stated continuous log of the vessel:

Passage	As Stated by Basil Lubbock		As Herein Recorded	
	Mileage Logged	Length of Passage in Days	Year	Length of Passage in Days
Norfolk, Va., to Honolulu	15,000	97	May-Aug. 1902	99
Norfolk, Va., to Ombai Passage	14,880	77	Nov. 1899-Feb. 1900	77
New York to Java	13,000	80	Apr.-July 1901	80
Java to Chile	11,600	58	Oct.-Nov. 1901	59
Chile to Philadelphia	10,000	95	Jan.-Apr. 1902	97
Chile to Baltimore	10,000	96	Jan.-Apr. 1903	95

Lubbock says that the *Erskine M. Phelps* made a passage from Seattle to Philadelphia in 88 days, but this is evidently an error; the best run of the ship from Puget Sound to an East Coast U. S. A. port was a passage of 104 days from Port Townsend to Norfolk made in January-April 1909. Lubbock also credits the "*Phelps*" with a run across the Indian Ocean, in which she is said to have logged 6,500 miles in 26 days. This is probably part of the 77-day run to Ombai Passage, in which Captain Graham reported covering an average of 192 miles per day for that period and a day's run of 310 miles. To cover 6,500 miles in 26 consecutive days, the "*Phelps*" would have had to average 250 miles a day and about 10½ knots per hour for that period, which, for a deep-laden full-modeled ship, is a high speed to be maintained for a period of from three to four weeks. The "*Phelps*" is also credited with a rounding of Cape Horn (50° S. Atlantic to 50° S. Pacific) in 11 days and with running from Bath, Maine (presumably Seguin Rock at the mouth of the Kennebec), to Cape Henry (a distance stated as 540 miles) in 2½ days. Lubbock also says that in 1908 the *Erskine M. Phelps* made a day's run of 359 miles, which would seem to be impossible for a ship of her model fullness, deep laden, on a westward Cape Horn passage. He also records a run from the Atlantic equator to Hatteras in 18 days, in which he says that she made 14 knots per hour at times and covered 310 miles in one day and 1,675 miles in six consecutive days—an average of 279 miles a day and 11⅝ knots per hour.

(g) *Kenilworth*

The *Dirigo* was the first deep-sea steel square-rigger built in the United States, but she was not the first steel ship operated by Arthur Sewall & Company, of Bath, Maine, as managing owners, which sent the British-built four-masted steel shipentine *Kenilworth* to sea from San Francisco under its house flag and American registry in April 1890, about four years before the pioneer American-built steel ship started on her maiden voyage. British records state that the *Kenilworth* was built in 1887 by John Reid & Company, Port Glasgow, Scotland, for Williamson, Milligan & Company's British "Waverley Line." When launched, she was proclaimed by builders and owners as "the finest steel four-masted ship in the world." She measured 2,293 gross and 2,146 net tons (length 300.2 ft., beam 43.1 ft., depth 24.2 ft.). Under the British skipper Captain McNair, the *Kenilworth* made two westward Cape Horn passages from Liverpool to San Francisco in 131 and 128 days, respectively, and one homeward run in the grain trade from San Francisco to Cork (Queenstown) "for orders" in 105 days. While loading grain at Port Costa for her second homeward run, the ship was burned by the disastrous fire of August 27, 1889, which destroyed the American wood ship *Armenia* and the British ship *Honouwar*. The *Kenilworth*, the luckiest of the three vessels burned, succeeded in getting clear of the wharf, and before she was damaged beyond repair, she was scuttled in deep water by her crew. The owners of the *Kenilworth* abandoned her to the underwriters, who, it is said, sold her "for a song" to Arthur Sewall & Company; the new American owners had the ship repaired by the Union Iron Works at an expense of \$45,000 (about 50 per cent over the Sewalls' estimate), and this cost qualified her for American registry. Capt. James G. Baker (who was destined to die on the ship as a result of a fire in the vessel's cargo in July 1898) was appointed to the command.

On the maiden voyage of the *Kenilworth* under the Stars and Stripes, she left San Francisco in late April 1890, grain laden, and made a run to Liverpool in 101 days. After a 30-day transatlantic crossing to New York, the ship loaded case oil for Calcutta, making a slow passage of 119 days from New York to pilot off the Hooghly and 120 days to tow. She arrived at anchorage in the river April 2, 1891. Loading jute at Calcutta, the "fire accursed *Kenilworth*" experienced her second fire on "Friday the Thirteenth" of May 1891. After a long port detention (discharging, loading, and making repairs) caused by the fire, the *Kenilworth* dropped her pilot off Sand Heads July 25, 1891, and headed for New York, where she arrived in 100 days. On January 3, 1893, the ship left Sandy Hook with a gen-

eral cargo and made a 118-day run to Puget Sound, her first westward Cape Horn passage under the American flag. She had been dry-docked and overhauled in New York and was "in apple pie condition," but on this run the British-built steel shipentine, which became known as "the clipper of the Sewall fleet," was passed at sea by the fuller-modeled wood Down Easter *Henry B. Hyde*, which, greatly to Captain Baker's chagrin, ran his fast steel "limey" hull down from dawn to dusk and did it with such ease and conviction that the amazed Baker admitted that his British-built "iron clipper" could not sail with the Bath-built wood Down Easter. He proclaimed the *Henry B. Hyde* to be in a class by herself and "the fastest wooden ship afloat." Reaching Puget Sound May 1, 1892, the *Kenilworth*, grain laden, bound for Liverpool, did not put to sea until December 3. This port detention of 216 days was due primarily to the fact that the Sewalls and Baker refused business offered at "going freight" and gambled for a high rate, which they obtained after five and a half months' lay-up, when they closed on October 15, 1892, to carry grain to Queenstown "for orders" at 32½ shillings, or 10 shillings more than had been offered in mid-July. Owners and skipper, ignoring the fact that their ship was idling month after month in Puget Sound, were proud that they had made the "best spot charter of the season." With 3,410 short (3,044 long) tons of wheat aboard and down to deep draft, the *Kenilworth* ran to Queenstown in 113 days. Ten days later, the ship was at Havre to discharge and, after a month's time, was off the Lizard ballasted with chalk and commencing a 27-day westward transatlantic crossing to Sandy Hook. The ship arrived at New York June 2, 1893, seventeen months after she had left that port to commence, as an American ship, her first Cape Horn round voyage (New York-Puget Sound-Havre-New York) originating at an East Coast U. S. A. port.

The following is a synopsis of the remainder of the *Kenilworth's* passages while operating under the flag of Arthur Sewall & Company:

	<u>Days</u>
1893 New York to Woosung (Shanghai) with 94,000 cases of oil.....	138
1894 Hong Kong to New York.....	92
1894 New York to San Francisco (reported as 116 days).....	119
1895 San Francisco to Honolulu—in ballast.....	24
1895 Honolulu to New York (best day's run, 317 miles).....	91
1895-1896 New York to San Francisco.....	144
1896 San Francisco to Honolulu—in ballast (reported as 19 days).....	21
1896 Honolulu to New York (elapsed time, port to port, 100 days).....	98
1896-1897 New York to San Francisco.....	115
1897 San Francisco to Honolulu—in ballast.....	16
1897 Honolulu to New York with 3,476 tons of sugar.....	112
1897-1898 New York to San Francisco.....	118
1898 San Francisco to Hilo (Hawaiian Islands)—in ballast.....	15
1898 Hilo (Hawaiian Islands) to New York via Valparaiso; at sea, 123 days (reported as 121 days); port detention, 48 days.....	171
1899 New York to San Francisco.....	103
1899-1900 San Francisco to Queenstown "for orders" (reported as 134 days).....	135
1900 Off Beachy Head (English Channel) to Delaware Breakwater, in ballast, returning from Leith, Scotland (where she discharged), to Philadelphia.....	26
1900 Philadelphia (Henlopen) to San Francisco with coal (reported as 138 days).....	139
1900-1901 San Francisco to Queenstown "for orders" (discharged at Birkenhead).....	115
1901 Liverpool to Delaware Breakwater (reported as 17 days 8 hours Galley Head Light to Delaware Breakwater and distance logged 3,700 miles).....	19
1901 Philadelphia (Henlopen) to Banjoewangi (Java); reported a day's run of 341 miles..	87
1901 Soerabaja to Puget Sound—in ballast.....	79
1902 Puget Sound to Queenstown "for orders".....	131
1902 Queenstown to Hamburg (to discharge).....	9
1902 Hamburg to Vancouver (reported as 118 days from Folkstone).....	124
1903 Puget Sound to Honolulu—in ballast.....	22

	<u>Days</u>
1903 Honolulu to Delaware Breakwater "for orders" (with 3,460 tons of sugar).....	111
1903-1904 Philadelphia (Henlopen) to Hiogo (Kobe), Japan, with case oil via Ombay Straits (re- ported as 147 days).....	148
1904 Kobe (Hiogo), Japan, to Hilo (Hawaiian Islands)—in ballast.....	44
1904 Hilo (Hawaiian Islands) to Delaware Breakwater "for orders" (with 3,531 tons of sugar).....	100
1904-1905 Philadelphia (Henlopen) to Manila (reported as 230 days); went out around Australia and Guam.....	232
1905 Manila to Hong Kong—in ballast.....	15
1905 Hong Kong to Newcastle, N.S.W.....	82
1905 Newcastle, N.S.W., to Honolulu with coal.....	50
1906 Hilo (Hawaiian Islands) to Delaware Breakwater "for orders".....	142
1906-1908 Philadelphia (Henlopen) to San Francisco via Montevideo and Rio de Janeiro; at sea, 423 days.....	579

This was the last passage of the *Kenilworth* under the Sewall flag and the last Cape Horn or long sea passage of the British-built vessel, which in late November 1908 was sold to the Alaska Packers Association and renamed *Star of Scotland*. The *Kenilworth* was twenty-one years old when the Sewalls were glad to dispose of her, and she had operated under their flag at sea for about eighteen years (April 1890-March 1908). During her career as a member of the Sewall fleet, the *Kenilworth* had several commanders. Her first American skipper was the able Capt. James G. Baker, who died on the "fire accursed limey" from suffocation (together with Chief Mate Piper and Apprentice Hobson) at sea on July 8, 1898, with the ship's cargo of sugar afire. Capt. James F. Murphy took the *Kenilworth* from Valparaiso (in which port she had sought refuge on fire and in distress) to New York, at which port Capt. William Taylor assumed command. After about five years on the ship, Captain Taylor left her at Philadelphia in 1903, asserting that he "was tired of going to sea," and Capt. H. A. St. Clair was placed in command; but in August 1904 (after St. Clair had made one round voyage in her), Capt. Lewis S. Colley relieved him. After a long 142-day run from the "Sugar Islands" to the Delaware in 1906 (following previous long runs in her, including a 232-day passage from Philadelphia to Manila), Captain Colley left the ship at Philadelphia, and Capt. J. A. Amesbury took over the command.

The *Kenilworth* was a very fast ship under sailing conditions that suited her, and at times she was very lucky and made fast passages, so that she became known as the "clipper of the Sewall fleet." The ship's 103-day westward Cape Horn passage from New York to San Francisco in 1899 and her 91-day passage from Honolulu to New York in 1895 were outstanding sailing performances, as was her westward transatlantic passage in 1901 (in which year she also ran from the Delaware to Java in 87 days and reported a day's run of 341 miles). However, under Captains Colley and Amesbury, the ship did not seem to be able to sail, and she was guilty of some wretched performances at sea, part of which may be attributed to her command. It is evident that Captain Colley erred in judgment when he took the *Kenilworth* from Philadelphia to Manila around Australia and via Guam. The ship was east of Tasmania when 120 days out, which was slow sailing; but at that time she should have been at her destination, and Captain Colley did not reach Manila until she had been at sea 232 days and had been required to stop a day at Guam for provisions and water. Several of the commanders of the Sewall four-masted steel shipentines were evidently afraid of attempting to take them through the South China Seas and seemed to avoid those waters and the Straits of Sunda. Captain Amesbury's experience with the *Kenilworth* is amazing, and the trouble was primarily in the ship herself, although a younger and more "dare-devil" skipper would have either forced the *Kenilworth* around the Horn (or at least around the Cape of Good Hope) to her port of destination or driven her to the bottom rather than have her beat him. Captain Amesbury left the Delaware August 14, 1906, had a tough time of it off the Horn, and put back to Montevideo for repairs and so that the vessel could

"lick her wounds," arriving at the Uruguayan port February 12, 1907, in distress, 182 days out from Henlopen. After 52 days' port detention, during which the needed repairs were made, Captain Amesbury left port April 5, 1907, and again received a terrific battering when attempting to round the Horn. It is evident that the skipper became not only disgusted with the model and lack of seaworthiness of his ship but also fearful of her thin plates, so he turned tail to the westerly gales and "greybeards" off Cape Horn and sailed east, planning to round the Cape of Good Hope and Australia as he continued his run to San Francisco. The *Kenilworth* was clearly out of luck on this voyage, for she ran into head gales instead of the anticipated strong favorable winds, and Captain Amesbury, fearing again that she would founder, put back and this time made for Rio de Janeiro, where the ship arrived September 4, 1907, 152 days out from Montevideo and 386 days out from the Delaware.

Capt. "Joe" Sewall was sent from Bath, Maine, to take charge of the *Kenilworth*, make the necessary repairs, and get the ship to San Francisco, but Captain "Joe" lost his nerve after he had examined and conditioned the vessel, and Capt. William Taylor had to be called upon to take the ship to sea to complete her passage. Taylor succeeded, but he took a severely battered ship, with a bad list and in an unseaworthy condition, into San Francisco on March 15, 1908, 89 days out from Rio de Janeiro, but 579 days out from the Delaware, completing a passage during which she had spent 423 days at sea. Captain Taylor, however, like Captains Amesbury and Colley, who had preceded him, had had quite enough of the *Kenilworth*, so the Sewalls put Capt. Omar E. Chapman in command of the ship to condition her and get her "in apple pie order" for going to sea again. The owners had no intention of having their property condemned and sold "for a song," but neither did they plan to operate her any more under their own flag. The ruse worked. The ship was repaired and made quite suitable for the Pacific trade (but positively not for Cape Horn service), and during an extended lay-up in San Francisco, when looking "spick and span," she was presumably only waiting for a paying cargo. The *Kenilworth* was sold over eight months after her arrival at San Francisco for the salmon fisheries and cannery trade and renamed *Star of Scotland* by her new owners. The ship did well in her new and relatively light employment, and as a floating hull she has lived to a surprising old age notwithstanding that Capt. "Joe" Sewall had reinforced shell plates (originally one-half inch thick; found corroded to one-quarter inch thick) with cement at Rio de Janeiro in November 1907.

The *Kenilworth* made five passages from New York to San Francisco that averaged 119 $\frac{4}{5}$ days, the best being a run of 103 days and the longest one of 144 days. She made nine passages from North Atlantic ports to San Francisco, which averaged 175 days, this high average being due to her last passage over the course, which required 579 days; eliminating this long passage, the average length of the remaining eight runs was 124 $\frac{5}{8}$ days. The *Kenilworth* made eleven passages from North Atlantic to Pacific U. S. A. ports, which averaged 165 $\frac{3}{11}$ days, and eliminating her last long passage of 579 days, the other ten runs averaged 124 days. Traveling eastward around Cape Horn, the ship averaged 118 $\frac{1}{3}$ days for three passages from San Francisco to Queenstown "for orders" and, with her one fast run of 101 days to Liverpool, averaged 114 days for her four passages from San Francisco to British ports. Two passages from Puget Sound to Queenstown averaged 122 days, and all the ship's six passages from Pacific U.S.A. to North Atlantic ports averaged 116 $\frac{2}{3}$ days. The *Kenilworth* was supposedly very fast in the sugar trade. All her runs in this trade were eastward, and the seven of them averaged 118 days, port to port, or 111 sailing days. Her four westward transatlantic passages averaged 25 $\frac{1}{2}$ days at sea, and five passages from U.S.A. West Coast ports to the Hawaiian Islands averaged 19 $\frac{3}{5}$ days. Under conditions to her liking, the British-built *Kenilworth*, because of her sharper-modeled hull, was faster than any of the U. S. A.-built four-masted steel shipentines, but occasional long passages spoiled her average. Notwithstanding her few brilliant sailing performances, the average length of all passages, port to port, of the *Erskine M. Phelps* is better than that of the *Kenilworth* over many ocean courses as the following comparisons show:

Courses	KENILWORTH		ERSKINE M. PHELPS	
	No. of Passages	Average Length in Days	No. of Passages	Average Length in Days
North Atlantic to Pacific U.S.A. ports.....	11	165 $\frac{3}{4}$ ₁₁	6	138%
Honolulu to East Coast U.S.A. ports.....	7	118	9	113
U.S.A. West Coast ports to Honolulu.....	5	19%	4	15 $\frac{1}{2}$
East Coast U.S.A. port to Manila.....	1	232	1	123

Although the *Kenilworth* had what may be termed a "half clipper" model and was very fast at times when she found wind and sea to her liking, it is interesting to note that Bath-built wood ships outsailed her. Captain Baker reported that the *Henry B. Hyde* beat the *Kenilworth* fair and square and passed her at sea, horizon to horizon, during the daylight hours of one day. When the *Kenilworth* made her 98-day passage from Honolulu to New York in 1896, the Sewall wood Down Easter *Henry Villard* left the "Sugar Islands" one day after the *Kenilworth* and reached Sandy Hook in company with her, beating "the clipper of the Sewall fleet" by one full day on the run home. To add "insult to injury," the full-bodied wood Sewall shipentine *Susquehanna*, soon after the ships had sailed from North Atlantic ports in 1904, deep laden, sighted the *Kenilworth* ahead, caught up with her, and left the British-built "clipper" out of sight astern in about six hours.

The Sewalls obtained ownership of the *Kenilworth* because of a fire that would have entirely destroyed her, had she not been well handled in the emergency and scuttled. At Calcutta, in May 1891, a bad fire in her jute cargo came close to destroying the vessel. On May 10, 1898, a fire started on the ship, when she was loading sugar at Hilo, that was evidently of incendiary origin. Captain Baker was outraged, but on May 28 wrote the owners as the ship was ready to sail: "Hope to make good time home and go Safely. Should have liked a little more war news [Spanish-American War] before sailing but hope luck will follow us and arrive in good time." Captain Baker was worried more by his crew than by the possibility of encountering Spanish warships, and he also wrote that the fire on his ship had made him "mad clear through." He added: "I suppose I have got one of the worst sets of hoodlums for a crew that ever went on board of a ship. . . . I do not know who the villain is, but I do know it was one or more of the nine men off duty. I may find out before I get home." The capable and most worthy skipper, who was known among seafaring men for his justice and humanity, never reached home. It is the generally accepted theory that he lost his life on July 8, when 40 days out from Hilo bound for the Delaware, as a result of a fire in the sugar cargo deliberately started by members of the crew to force the ship to make for Valparaiso. This fire caused the death of Captain Baker, First Officer Piper, and Apprentice Hobson, who were found by Second Mate Genereaux around midnight in the cabin dead from asphyxiation. The MARINE JOURNAL of New York (August 6, 1898) said:

We have taken pains to interview several prominent shipmasters as to the cause of this disaster, and each one did not hesitate to say . . . there was no doubt in their minds that the *Kenilworth's* cargo was set on fire by her hoodlum crew, and Capt. Baker, his mate and cabin boy [apprentice] as foully murdered through this dastardly act as if their throats had been cut.

For some reason, the managing owners of the ship, Arthur Sewall & Company, surprisingly elected to absolve the crew of the *Kenilworth* of all blame for the tragedy.

With Capt. "Will" Taylor in command, the *Kenilworth*, lying at 26th Street, South Brooklyn, in December 1898, experienced her fifth fire. A dock employee noticed and reported it, and when Captain Taylor was aroused, the "cabin was full of smoke." It is no wonder that fire was called the "*Kenilworth's* old hoodoo," and she became generally known, even though built of steel, as "the fire-accursed ship."

Basil Lubbock says that forty-one iron (or steel) foreign-built sailing ships acquired American registry. Of these, twelve (including the *Kenilworth*) were bought as "cheap tonnage" by the Alaska Packers Association, three sizable vessels were bought for Pacific trade

by each of the Rolph Navigation & Coal Company and the Robert Dollar Company, while the Matson Navigation Company, San Francisco, acquired title to nine old British ships, with tonnage ranging from 903 to 1,889 tons. The San Francisco Shipping Company bought the British ship *John Ena* of 2,842 tons, built by R. Duncan & Company on the Clyde in 1892, and Capt. E. R. Sterling acquired the *Lord Wolseley* of 2,577 tons, built in 1883 by Harland & Wolff, Belfast, and renamed her *E. R. Sterling*. None of the British iron (or steel) ships bought by Americans, other than the *Kenilworth*, was purchased for and operated on the Cape Horn route or in service on the Seven Seas, but these vessels were "bought cheap" during the last days of sail for service for a few years in protected Pacific trade.

(h) *ASTRAL (1900), ACME (1901), and ATLAS (1902), the Standard Oil Company Trio of Sewall-built Shipentines*

The Sewall-built four-masted steel shipentines *Astral*, *Acme*, and *Atlas*, owned and operated by the Standard Oil Company, were ordered constructed to carry case oil from East Coast U. S. A. ports to the Orient. These vessels had the identical models of the *Arthur Sewall*, *Edward Sewall*, and *William P. Frye* and were undoubtedly generally similar sailers under corresponding conditions, such as route, weather (wind and sea), foulness of bottom, and quality of command and crew. These ships were sparred the same as the Sewall "big steel three," with double topgallant and royal yards, but no skysail yard, and the royal yards were 57½ ft. long. Basil Lubbock says that these three American-built Standard Oil ships "amongst the British-built oil sailers had the reputation of being very heavy to handle owing to their large sail plans."

ASTRAL: Launched at Bath, Maine, December 8, 1900. Tonnage, 3,292 tons gross; 2,987 tons net. Commanded by Capt. J. W. Denham, of Salem.

When at Honolulu in 1908, both the *Astral* and the *Edward Sewall* found it impossible to sign up a crew of American or European sailors, so Captain Denham shipped a crew of twenty-four Japanese for a passage to New York and "raised a terrific howl" along the water front among American and European sailors, who, through crimps and agitators, claimed that there were "half a hundred white men on the beach without jobs or money." If such American and European sailors were in existence, it is evident that they did not want jobs on a big four-masted steel shipentine; for they ignored the earnest calls for men by the shipping commissioner and the captains of the *Astral* and the *Edward Sewall*, and such experiences drove the vessels from sea service under both the Sewall and Standard Oil flags.

On the next outbound passage from New York, the *Astral* reached San Francisco in May 1909 after a run reported as 159 days from New York, of which 45 days were spent rounding the Horn. Shortly thereafter, the vessel was sold to the Alaska Packers Association for the fisheries and was renamed *Star of Zealand*. In August 1935, she was acquired by the Trans-Pacific Commercial Company and sent from San Francisco to Japan, with the scrap pile as her final destination.

ACME: Launched at Bath, Maine, May 21, 1901. Tonnage, 3,288 tons gross; 2,987 tons net. First commander was Capt. Reuben S. Lawrence, of Malden, Mass., who was a native of the Kennebec town of Dresden, Maine.

The first voyage of the *Acme*, which was to the Far East and back, was a disappointment to her owners because of its length and the vessel's evident slow speed. Replying to a query of the Standard Oil Company regarding the shipentine's performance, Arthur Sewall & Company wrote the owners: "We are unable to account for it, except that such will occur at times. We believe the ship to have fair sailing qualities. Our ships on the same lines we consider rather better than fair sailers."

The *Acme* was the only one of the eight Bath-built steel shipentines ever to return to the Kennebec River after departing therefrom to enter ocean service. In 1911, Capt. Jeremiah G. Park brought the *Acme* on an eastward passage around the Horn from Puget Sound loaded with lumber consigned to Morse Brothers, of Bath, Maine.

The *Acme* was sold to the Alaska Packers Association for the salmon fisheries or packing trade about three years before the first World War of the twentieth century and was renamed *Star of Poland*. The vessel was wrecked on Katsura Island in the Japan Sea in 1918, when engaged in United States Government work.

ATLAS: Launched at Bath, Maine, January 11, 1902. Tonnage, 3,381 tons gross; 3,006 tons net. First commander was Capt. A. F. McKay (born in Nova Scotia), formerly of the HELEN BREWER of Boston, Mass., which was a steel ship of 1,582 tons built in 1890 at Glasgow for British owners.

The *Atlas* differed above deck from her sisters, the *Astral* and *Acme*, as she was fitted (like the Sewall-owned ship *William P. Frye*) with a 68-ft. bridge deck amidships. When the *Atlas*, the last of the trio of four-masted steel shipentines built by the Sewalls for the Standard Oil Company, was under construction, her owners seriously considered changing her over from a sailing vessel to a towing oil barge. The decision to go ahead and finish her as a windjammer was not made until mid-November 1901, and she was launched in early January 1902. About 1906 the *Atlas*, under a tough blue-nose skipper, got an unsavory reputation as a "hell ship," and under a new command the vessel was compelled to put into Rio de Janeiro with a mutiny on board, following which, on June 6, 1907, off the Horn, she ran down and sank the 2,541-ton Norwegian bark *Viking*, of whose complement only thirteen men survived. As a result of the collision, the *Atlas* had to put back to Rio for repairs.

The *Atlas* was sold by the Standard Oil Company to the Alaska Packers Association, of San Francisco, at the same time as the *Astral* and about five years before World War I. She was renamed *Star of Lapland* and became the flagship (and was the largest vessel) of the Alaska Packers' fleet. As the *Star of Lapland*, the Bath-built four-masted steel shipentine *Atlas* made a fine reputation for herself in the North Pacific as a fast sailer and reliable vessel in a large fleet of windjammers, which for twenty years consisted of most of the world's best surviving old square-riggers, both European- and American-built. When the British-built *Star of Alaska* (formerly *Balclutha*) made the northbound run to the salmon packing grounds in 14 days, it was reported as "very smart work"; but the *Star of Lapland* made this run in 1917, from San Francisco to Bristol Bay, in the amazing time of only 7 days and 5 hours. It was said that "to cut the record between ports almost in half would seem of itself to constitute a record." In 1936 the old *Atlas* (like the *Astral* before her) was sold to the Japanese, and her final destination was the shipbreakers, as she was evidently purchased for her metal.

(i) *KAIULANI (1899), a Three-masted Bark Built for the Hawaii-San Francisco Trade*

Launched at Bath, Maine, December 2, 1899. Tonnage, 1,570 tons gross; 1,430 tons net. First commanded by Capt. R. Dabel.

The Sewall-built three-masted steel bark *Kaiulani* was owned and operated by Williams, Dimond & Company, of San Francisco and Honolulu, and used in carrying general freight out to the Hawaiian Islands and in returning with raw sugar. This vessel gained a reputation for speed while engaged in Pacific trade. Basil Lubbock says of her: "This rakish-looking steel barque . . . was considered one of the fastest square-riggers in the Pacific in the days before the [first World] War, and her master, Captain P. Colly, firmly believed that she could sail round anything afloat." She was sold in 1907, when some seven and a half years old, to the Alaska Packers Association, renamed *Star of Finland*, and operated in the salmon trade between Pacific Coast ports and Alaska as long as the Association used sailing vessels

for this service. When steam displaced sail at the end of the twenties, the *Star of Finland* was not sold (as was the balance of the fisheries fleet), but was retained by the Alaska Packers Association for sentimental reasons. She was chartered at times during the thirties to Hollywood film companies, but during World War II (when forty-three years old) was put into deep-sea trade again as a sailing vessel, her rig being changed to that of a fore-and-after, as competent and experienced men were no longer available to operate square-riggers.

*The Sewalls' Dream of Five-masted Steel Barkentines for
Cape Horn and Deep-Sea Trades (1905)*

The Unfortunate Experience of the Steel Schooner KINEO in This Service

William D. and Samuel S. Sewall, members of the firm of Arthur Sewall & Company, of Bath, Maine, wanted to build and manage deep-sea steel sailing vessels after they completed the construction of four-masted steel shipentines in early 1902; but the days of square-riggers were over, for men could not be found to operate them, and such ships required rather large crews. In an attempt to keep in business, the Sewall partners had plans prepared by B. B. Crowninshield, of Boston (designer of the ill-fated seven-masted steel schooner *Thomas W. Lawson*, built at Quincy, Mass., in 1902), for a five-masted steel barkentine, square-rigged, with six yards, on the fore and schooner-rigged, with boom, sliding gaff, and fore-and-aft sails, on the other four masts like a coasting schooner. The drawings showed a vessel 332 ft. long, 47 ft. beam, and 29 ft. deep, with a cargo capacity stated as 5,400 tons and a double bottom to hold 2,100 tons of water and give her a draft of 15 ft. when sailing in ballast. When in 1905 the Sewalls tried to interest investors in their proposed new type of deep-sea merchant sailing vessel, they wrote:

We see certain advantages this type of vessel would have over full-rigged ships. We think she would make equal, or better, passages; she would save the large expense and necessary delay in loading and discharging ballast; she can be handled as efficiently as the full-rigged ships with a ship's company of but two-thirds the number required to sail the ship. She therefore saves the one-third of wages and provisions which must be provided by the full-rigged ships, and can often get a crew in certain ports without delay when a ship requiring fifty per cent more men might be delayed a week or two for them. She will insure as cheaply as the full-

rigged ships. . . . Of course the vessel will be equipped with steam appliances for working ship, pumping ballast and handling cargo. Based upon the rates of freight we are now obtaining on coal from Atlantic U. S. to Manila, thence in ballast to Hawaii and thence with sugar to Philadelphia, conservative estimates show that the vessel would pay full insurance and about 13½ per cent on her cost in addition thereto annually, and the net returns would be further increased should Congress pass favorable legislation for American shipping, which it is very likely to do early next session.

The Sewall partners were quite evidently shrewd traders and keen office men, who watched the pennies and kept going for long years with profit to themselves; but they were intensely ignorant of the sea, and apparently neither one of them had ever made a long deep-sea voyage or a passage of even more moderate length in a sailing ship. Following the turn of the century, in order to keep their yard occupied, they had laid down a five-masted steel schooner, which, in their prospectus to possible fraction buyers, they had described as of "about 2,000 tons register, estimated to carry 3,000 tons of cargo, or over, on sea voyages, and about 3,500 tons in the coasting trade," equipped with water ballast tanks and "all the best labor-saving devices for working vessel and handling cargo." The advantages of building a schooner of steel (and her cost was estimated at \$120,000 as against \$145,000 to \$150,000 for each of their three large four-masted steel shipentines of about 3,300 gross tons and

5,000 long tons deadweight capacity), the Sewalls set forth as: lower insurance on hull, cargo, and freight; smaller annual depreciation; smaller cost of ordinary repairs for maintenance; larger cargo-carrying capacity per ton register; ability to engage in either coastwise or foreign trade; lighter draft of water and consequent adaption to a greater number of ports of loading and discharging. Evidently, the Sewalls were referring to the advantages of a steel schooner over one built of wood, but as early as 1901 they had very definite ideas of possibly using fore-and-aft steel schooners on the trade routes of the Seven Seas. This Sewall five-masted schooner was not launched until April 16, 1903, and she was christened *Kineo*. The schooner was of 2,128 gross and 1,868 net registered tons (length 259.5 ft., beam 45.3 ft., depth 22.9 ft.). She was sent to sea on a long hazardous voyage by the Sewalls, leaving Norfolk, Va., bound for Manila in January 1905 under the command of Capt. Frank W. Patten, with 2,907 tons of navy coal aboard and drawing 20 ft. 1 in. Captain Patten was an experienced and brave deep-water master who had commanded both full-rigged ships and big wood schooners, but the Sewalls should have known better than to send the *Kineo* on a voyage around the world, even if she was dispatched over the easy route sailing to the eastward, where she would generally encounter favorable winds and avoid the westward rounding of Cape Horn. When the *Kineo* got out into the deep Atlantic, trouble commenced, and Captain Patten reported that the sea "caused the sails to slat so badly that the jaws began to break and there was much valuable time I had to be under bare poles." He continued:

This was a usual thing while running the easting down. . . . A long rolling swell caused the schooner to slat so heavily that every time the wind dropped to a three knot breeze down, the sails had to come in to save them and the gaffs. . . . Another thing against the schooner is the necessity of reducing sail in latitudes where gales are to be expected. Our vessel has done some very heavy washing this trip

and the sails have to be reefed in time or they can not be handled with the heavy water washing across the decks. The wear and tear on sails and ropes has been much harder than I expected. We have used up all our canvas owing to having split our foresail and mainsail so badly. [These two big sails were "burst" after they were reefed soon after leaving Cape Henry.]

The *Kineo* got low in fresh water because of the great demand for steam in handling the lower sails, "sometimes hoisting lower sails several times a day," and as the schooner approached Manila Captain Patten wrote: "I shall have to get some new jaws to my gaffs out here as they are now all patched up with awning stanchions." The log of the ship on the passage to Manila frequently refers to the need of yards and square sails and of the fore-and-aft sails' "slatting awfully" and the disadvantage of the schooner rig on this deep-water course. After discharging at Manila, Captain Patten received orders to take the schooner in ballast to Newcastle, N. S. W., but on November 21, 1905, he put into Brisbane in distress, in need of repairs, and with a very sick crew. During a typhoon, "the jigger was blown completely away, leaving not even a rag." After the typhoon, the schooner averaged only 32 miles a day for 65 days, and Patten wrote from Brisbane: "This passage has been hard on ropes, sails and iron work and I am inclined to think that all deep-water trips will be. My sails leaving Manila were in good order but the wear and tear has been very bad. I shall have to have seven new sails here, a jigger and mizzen and a whole set of topsails. We have been sail making all the time and we cannot keep up with the wear and tear." The *Kineo* finally reached Newcastle and carried coal to the Hawaiian Islands, with the schooner favored by weather, but the crew was kept busy repairing sails and at Kahului "jumped ship," as the men had had enough of the schooner rig in deep-sea work and wanted berths on steamers or square-riggers. Captain Patten loaded 3,081 tons of sugar and sailed for Philadelphia, where he arrived after a fearful passage of 205 days, during which "the ship has been dismantled five different times." We also read:

The wear and tear has been something enormous, and both sails and ropes are now in very bad condition. All our time nearly has been spent in repairing and patching to enable us to get along. . . . There is not a mast hoop left on the ship. She has shot them to pieces and we have had to improvise

hoops out of anything we could raise, such as iron wire and ropes. . . . We have lost 14 sails this trip. . . . My experience off Cape Horn [sailing eastward "the easy way"] is what every other big schooner will go through [in these waters].

After each lap of the memorable voyage, the *Kineo* limped into port "a slammed and banged patched-up mess" and with an exhausted crew. The schooner "was extremely lucky to get back at all from her perilous adventure in the Far East." She did, however, and thereby ended the most fearful "successful" sea voyage in modern history. The *Kineo* was sold in early 1916 to The Texas Company and later became the motor vessel *Maryland*.

The voyage of the *Kineo* killed the Sewall partners' "bright idea" of building and selling to investors five-masted schooners, with yards on the foremast (five-masted barkentines), for deep-sea trade, but what happened to the *Kineo* on her awful and long drawn-out voyage was what all deep-sea men well knew would happen to any schooner-rigged vessel, with her fore-and-aft sails, booms, and sliding gaffs, over the trade route traversed. The only surprising thing about the voyage was that the *Kineo* finally completed it under her own sail, but this was due to the amazing courage and resourcefulness of her Yankee skipper, Capt. Frank W. Patten.

Sam and Will Sewall, before the *Kineo* had proved to them the impossibility of using schooners on the great ocean trade routes of the world, had approached the leading big schooner operators on the Atlantic Coast (Percy & Small, of Bath, Maine; J. S. Winslow & Company, of Portland, Maine; William F. Palmer, of Dorchester, Mass., and Capt. J. G. Crowley, of Boston, Mass.), urging them to co-operate with the Sewalls in handling deep-sea coal shipments for the government and thus assure the Navy Department of adequate American tonnage for transporting all its requirements, with this available tonnage owned by several firms other than the Sewall Company. But the schooner people were wiser than the Sewalls and well knew what was square-rigger and what was schooner trade. Mark W. Hennessy, the historian of the Sewalls, admits that "it was just as well for all concerned that none of the big wooden schooners were sent around the Horn," and he adds: "Of the fore-and-afters, only the *Thomas W. Lawson* had even one possible practical quality on which to base sending her out in the wake of the square-riggers. That was her steel construction, and it can be doubted that this alone would have served her any better than it served the five-masted steel *Kineo*." Hennessy further refers to the heavy financial loss and "a proper physical beating" given the *Kineo* when she attempted a deep-sea voyage with government coal and adds that one such experience with the steel fore-and-aft was quite enough for Samuel and William Sewall.

Capt. J. G. Crowley, of Boston, was managing owner of that fearful monstrosity—the seven-masted steel schooner *Thomas W. Lawson*, and he had too much sense as an operator of fore-and-afters to send this big vessel over the deep-sea route traversed by square-riggers and attempted by the *Kineo*.

XVI.

THE SPEED OF SAILING VESSELS

Fast Passages, Big Day's Runs, and High Speed in Knots per Hour

THE SAILING vessel is dependent upon the wind for motive power, and the average speed attained for any voyage bears a definite relation to the direction and force of the wind and the condition of the sea. The model, spar plan, and sail spread of a ship are important factors in the attainment of speed through the water, but the most perfect model, with well-balanced and adequate canvas, cannot show a high rate of speed unless the wind is favorable in direction and velocity and the sea is satisfactory for carrying canvas and driving the hull through the water. No sailing vessel on a long voyage enjoys the benefit of persistently favorable wind and sea. Therefore, the average maintained ocean speed of all sailing ships is low when passages of several thousand nautical miles and of weeks' and months' duration are considered. Too much emphasis has been given to the speed of sailing ships made over short periods of time under unusually favorable conditions. During the early fifties, even designers and builders referred to certain of their vessels as 16-, 18-, and even 20-knot ships—a ridiculous designation when the inevitable variableness of wind and sea, both in direction and intensity, that is encountered in actual service is taken into consideration.

The speed of sailing ships, under average wind conditions, in the North and South Atlantic and the Pacific is entirely different from the speed of the same vessels in the tropics. There can be no comparison between the speed of a sailing ship in the northern or southern latitudes and in the doldrums of the tropics. A steam vessel operates with fairly constant speed irrespective of wind unless gale force builds up very heavy seas, but a sailing ship cannot move without a breeze and is absolutely dependent upon wind for motive power and high winds for speed. Notwithstanding the marvelous speed records of sailing ships for short spurts, for a day's run, or even for a number of consecutive days, no sailing vessel has ever been built that could equal the maintained sea speed of an average steamer on voyages of ten thousand miles or more. All the record performances of clippers in their prime on long voyages show an average low rate of speed per hour, notwithstanding that most of them claimed, at times, speeds of 16 to 20 knots per hour, or even more, for short periods of time under unusually favorable sailing conditions of wind and sea.

The speed of sailing ships in knots per hour is not truly comparable with the speed of steamships, for the latter follow, as near as is practicable, a direct short course between ports. The sailing vessel often drifts or is blown far from a theoretical track. At times a long course is deliberately chosen in order to be assured (based on Maury's charts and the accumulated experience of sail) of stronger and more favorable winds, which permits of shorter passages in time, but necessitates much greater mileage. The distance traveled by sailing ships is stated either as the mileage logged or as may be computed by observations. The latter, converted into speed as a certain number of knots (or nautical miles) per hour, is more nearly comparable with the speed of steamships, but, as before stated, does not tell the

true story of relative speed and the time required to voyage between certain ports. The steamer seeks and approximately follows a straight or, theoretically, the shortest course with due consideration being given to prevailing currents. The sailing vessel follows a track with many variations, deviations, and wanderings therefrom, which, because of the direction of wind, may give a mileage between points from 10 to 50 per cent or even more in excess of that covered by a steamship. On passages around the Horn from Sandy Hook to the Golden Gate, the logs examined of certain outstanding sailing ships show a total mileage traveled in which the maximum (excluding extremely bad voyages) exceeded the minimum by 24 per cent.

Early sailing ships of colonial days rarely attained a speed in excess of 10 knots per hour; yet occasionally they made distance runs in surprisingly good time. The schooner *Eagle* (Capt. Ebenezer Bowditch, Jr.), on October 31, 1753, logged from 9 to 9½ knots per hour for ten consecutive hours while on a voyage from Salem to the Azores and Madeira. The schooner *John* (Capt. Joshua Riggs), on a transatlantic crossing from Cape Ann to Lisbon in February-March 1762, recorded a day's run of 208 miles (8⅔ knots per hour), and the log shows speeds of 9 to 9½ knots on several occasions. During the War of the Revolution, several American privateers recorded speeds of 10 knots per hour. The letter of marque schooner *Success* (Capt. Phillip Thrash), in the North Atlantic eastbound in October 1778, reported a day's run of 200 miles and a speed logged of 10 knots, and the privateer *Scorpion* (Captain Brooks), which sailed from Salem March 18, 1778, recorded on her log a speed of 10 knots for six consecutive hours while cruising against the enemy. About the same time, the little American "frigate" *Boston*, we are told, "logged 210 miles in a noon to noon run, which occupied less than 24 hours," and somewhat more than an average speed of 8¾ knots for the day.

In the early days of the young republic, American ships are credited with making occasional transatlantic, China, Indian, and East Indian passages in a seemingly incredibly short time; but evidently no high day's runs were recorded, although occasional speeds of 11 knots per hour were logged. Prior to the War of 1812, there were few, if any, ships that could be forced through the water much above a speed of 12 knots per hour. The fast Salem privateer *America*, built in 1804, on January 3, 1813, with Capt. Joseph Ropes as master, recorded a 13-knot speed for two consecutive hours; this vessel was "sharp built" for her period and carried more canvas, it is said, "than any vessel of her size afloat," but this is the fastest speed mentioned in any of her logs. The *Fame*, *Herald*, and *Glide* were smart sailers of this period; yet they seldom recorded a speed as high as 11 knots. The privateer schooner *Rollo* (Capt. James Dooley) of Bristol, R. I., according to her log, often showed a speed of 9 to 10 knots and on November 29, 1812, under excellent sailing conditions, made 12 knots per hour for a brief period. The Salem-built frigate *Essex* made 12 knots, and the *Constitution* is credited with showing a speed of 13½ knots per hour, but such speed was not verified by log or supporting data and is not accepted.

The *Philadelphia*, a 40-gun frigate built in 1799 by Joshua Humphreys in Southwalk, Philadelphia, was, according to Augustus C. Buell, "the fastest sailing warship in the world, beating the *Constitution* by nearly two knots an hour." On her first and, unfortunately, her last voyage from this country to Tripoli, the *Philadelphia* is said to have logged on one occasion 337 miles in twenty-four hours, being an average slightly exceeding 14 knots per hour (assuming that the miles stated are nautical miles). The *Philadelphia* was a finer-modeled vessel and was built with speedier lines and proportions than the *Constitution*, but her claimed high speed was never verified, and the reported performance was probably helped by favoring currents and long following seas. A speed of 14 knots per hour through the water, it would seem, was not even closely approached by any vessel, merchant or naval, until well after the War of 1812.

Several merchant ships of the early days made fast passages, but, like sailing ships of later years, their average speed in knots per hour was low, and they made no big day's runs

nor showed a spurt of high speed. The *Oliver Ellsworth* of 410 tons, built in 1801 at Norwich, Conn., the *Rebecca Sims* of 400 tons, built in 1807 at Philadelphia, and the *Milo* of 398 tons, built in 1811 at Newburyport, Mass., are all credited with amazingly fast transatlantic passages, but none of these vessels were capable of a high rate of speed for a few hours or a day. It is claimed that the *Milo*, in 1829 (when eighteen years old), on a voyage from Boston to Hamburg, averaged close to 8 miles per hour for nine consecutive days, "covering 42 degrees of easting." One of the best vessels ever owned by Elias Hasket Derby, the merchant prince of Salem, was the *Astrea*. She was a ship of 360 tons (and less than 100 ft. long), built in Salem as a privateer or letter of marque in 1783, and was distinguished for her great speed, it being claimed that she had made more than 260 sea miles in a day and logged over 12½ knots per hour. On her maiden voyage, she went from Salem to France in 18 days and returned (with news of the peace treaty that ended the War of the Revolution) in 22 days or less, as it is claimed that she made the round voyage in 37 days in the open sea—amazing, if true. Later, on a voyage to the Baltic, it is said, the *Astrea* ran from the United States to the Irish coast in 11 days. If this is true, the run is one of the fastest transatlantic passages ever made under sail, as in early March 1855 the big clipper *Donald McKay* (2,598 tons), credited with 421 nautical miles in one day and with logging 19 knots per hour, boasted of a 12-day crossing from Boston Light to Cape Clear.

The speed claims for the frigate *Philadelphia* of the early U.S. Navy (337 miles in twenty-four hours) are of particular interest in relation to the statements made by marine authorities that the fastest day's run of the famous *Dreadnought*, "the Wild Boat of the Atlantic" built fifty-four years later, was only 345 miles, and it is well known that this fast packet very seldom exceeded a run of 300 miles a day; neither, as a matter of fact, did the *Sea Witch* or any clipper or fast sailer built prior to 1850. The best day's run of the *Sea Witch* during her entire career on the Seven Seas was 358 miles under unusually favorable conditions. On her fast record run of 77 days from China to New York in early 1848, her best day's run was only 289 miles. Up to and including the amazing sustained-speed performances of the clipper *Sea Witch* about the middle of the nineteenth century, no claim was made for a sailing vessel showing a speed in excess of 15 knots per hour.

Some fast voyages of long duration were made in the first half of the nineteenth century. During 1805-1806, the ship *Anacreon* journeyed from Newburyport to Virginia and thence to Cork, London, Gulf of Mexico ports, Boston, Cape of Good Hope, South African ports and return to Newburyport. She traveled 36,750 nautical miles in 262 days at sea, an average of over 140 miles per day and 5.85 knots per hour. For the first 200 days at sea of this extended series of deep-sea runs, the *Anacreon* covered 28,810 miles, or 144 miles per day, at an average speed of 6 knots per hour.

In 1821, a "cod-headed and mackerel-tailed" ship, *The George* of Salem, Mass., came home from Calcutta in the unprecedented time of 95 days. The following season she went out in 89 days. The Honourable John Company's vessels—the fleet of The United Company of Merchant Adventurers trading to the East Indies—took from five to eight months in making the shorter passage to or from London. For a generation, *The George* was known up and down the sea lanes of the world and in the ports at their ends as "the Salem Frigate." All told, the "Frigate" made twenty-one successful Indian voyages, and not one of them was in excess of 100 days.

The small brig *John Gilpin* of 283 tons, built in 1831 at St. Michaels, Md., was only 104 ft. long, 26 ft. beam, and 11 ft. 9 in. deep. She sailed from Cape Henry May 20, 1832, crossed the equator June 17, and anchored off Anjer August 10 after a passage of only 82 days, during which period she logged 15,261 miles, an average of 186 miles per day or 7¾ knots per hour. From the time of the departure of the *John Gilpin* from Cape Henry in 1832 until her arrival at Canton, China, in 1839, this ship spent 1,443 days at sea and logged 228,553 nautical miles—an average of 159 miles per day and 6⅔ knots per hour. During this period, she was occasionally becalmed. This would seem to be not only an exceptional

performance for sailing speed in the thirties but also, considering mileage covered and average speed at sea, noteworthy in the complete annals of sail.

The early clipper ship *Sea Witch* (908 tons; built in 1846 by Smith & Dimon, New York, for Howland & Aspinwall) has been well described as a "fascinating and revolutionary ship-builder's product," which, early in her career, made "the most spectacular achievements in the entire history of sail" and "the world's first permanent sailing record." Certainly the sailing performance of the *Sea Witch* is one of the finest, if not the best, of all time. It was on Sunday afternoon, March 25, 1849, that Capt. "Bob" Waterman brought the phenomenal ship into New York after an all-time record passage of 74 days and 14 hours from Hong Kong—after anchorage stops at Anjer and St. Helena. The "Speed Queen" had left Hong Kong on January 8, 1849 (see log and the China MAIL of January 11, 1849), three days after the *Oneida* (Captain Creesy) and the *Carrington* (Captain Abbott) had sailed from Canton, and she reached New York twenty-six days before the *Oneida* and nineteen days before the *Carrington*, beating those vessels on the run home by twenty-nine and twenty-two days, respectively. The arrival of the *Sea Witch* with a cargo of tea on March 25, 1849, completed her third oriental voyage and a phenomenal passage from New York to China via South American ports and return by rounding South Africa. The series of passages via Cape Horn, Valparaiso, Callao, Hong Kong, and Cape of Good Hope covered 35,240 nautical miles in 194 sailing days, an average of 182 miles per day at sea and 7.66 knots per hour. The passages that made this famous world voyage consisted of:

	<i>Nautical Miles</i>	<i>Time in Days</i>	<i>Average Speed Knots per Hour</i>
New York to Valparaiso	10,568	69	6.40
Callao to China	10,417	50	8.63
China to New York	14,255	74	7.88
Total	35,240	194	7.66

The best run for ten consecutive days was 2,664 nautical miles, an average of 266½ miles per day and 11.1 knots per hour.

The *Sea Witch* was a remarkable little vessel as far as design was concerned, and under Capt. Robert H. Waterman—a skilled and fortunate but notorious driver—she broke more records than any ship of her dimensions. She was the first vessel to go around the Horn to California in less than 100 days (97 sailing days from New York to San Francisco, arriving July 24, 1850, 101 days out, which included a four-day stop at Valparaiso), and her run of 74 days 14 hours from Canton to New York in 1849, when in her prime, as well as certain other record runs of her time, has never been equaled by any ship under sail. Her run of 81 days from Canton to New York against the monsoon (reaching New York July 25, 1847, in only 62 days from Anjer—an all-time record) is in some respects a sailing performance even more wonderful than her passage of 77 days or even than her all-time record run of 74 days between the same ports. On her next outward run to China, she passed the Cape of Good Hope 42 days out, having sailed 8,894 miles, an average of 206 miles a day for six consecutive weeks (a record speed for distance performance), and for ten days she averaged 248 miles per day. The *Sea Witch* passed Java Head when 70 days 10 hours out (another record), and her best day's run up to that point was 302 miles. On her return, she left Whampoa December 29, 1847, and ran to Anjer in 10 days (best day's run, 284 miles). She was at Anjer January 8, 1848, and at the Cape of Good Hope February 3 in the record time of 36 days from Whampoa and 26 days from Anjer, her best day's run up to this point being 289 miles. The *Sea Witch* crossed the equator when 55 days out and ran from 5° S., 32° W. to 21° 30' N., 60° 30' W., covering 2,200 miles, in 8 days—an average of 275 miles per day (she also made 2,640 miles in 10 days; best day's run, 312 miles). She reached New York March 15, 1848, after a passage of 77 days from Whampoa, the fastest sailed until she herself lowered it, and this run still stands as the second fastest passage under

sail between the ports. On her maiden voyage, leaving New York December 23, 1846, the *Sea Witch* covered 1,330 miles in $117\frac{2}{3}$ hours—an average speed of $11\frac{1}{3}$ knots per hour. Running south in mid-Atlantic, she averaged 276 miles per day for five consecutive days (an average of $11\frac{1}{2}$ knots per hour) and ran from New York to Lat. 23° S. in 25 days—an average of 215 miles per day. On her second voyage, leaving New York en route to Canton, the pilot reported that in clearing the harbor she sailed 19 miles in 63 minutes. On her fourth voyage, when on the Pacific in the southeast trades and leaking badly, with pumps working three-quarters of the time, she ran 2,599 miles in ten consecutive days—an average of $10\frac{7}{8}$ knots per hour.

The *Sea Witch*, during the first three years of her career, when new and in good physical condition and under the command of Capt. Robert H. Waterman, was the fastest ship that had ever sailed the seas. Considering her voyages from the standpoint of both geography and the season of the year, she must be ranked among the swiftest sailing vessels of all time. Between December 23, 1846, when she sailed from New York to Hong Kong on her maiden voyage, and March 7, 1850, when she arrived in New York completing her fourth round voyage to the Orient and her second around the world (a period of 1,170 days), she was at sea for 765 days. She made two round voyages from New York to Hong Kong and Canton; also two from New York to Hong Kong via Cape Horn and Valparaiso outbound and from Canton to New York direct on the homeward runs. The following is a summary of these passages:

Two outward runs from New York to Hong Kong, 104 and 105 days, respectively; average, $104\frac{1}{2}$ days.	Two outward runs from New York to Hong Kong via Valparaiso and Callao, 121 and 118 days, respectively; average, $119\frac{1}{2}$ days.
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Four homeward runs from Canton to New York,
81, 77, 74, and 85 days, respectively; average, $79\frac{1}{4}$ days.

This is a most remarkable series of voyages, especially when considering the seasons of the year during which those to China were made. The uniformity of the passages is not only particularly noteworthy but also outstanding. The best day's run of the *Sea Witch* was 358 miles, a speed of about 15 knots per hour; yet she was "marvellously fast." She did not make many high day's runs, but maintained her speed remarkably well in varying conditions of wind and sea and was phenomenally fast in the light airs of the tropics. On her fourth voyage, George W. Fraser, her former first mate, took command, and the *Sea Witch* traveled from New York to Hong Kong via Valparaiso and Callao in 118 sailing days as against 121 days on her previous record voyage when under the command of "driving Bob" Waterman. The ship did not have as good a chance to show speed on the way home from China; but she, nevertheless, made splendid time considering the wind and sailing conditions, making a run of 85 days from Whampoa and 73 days from Anjer, and the entire around-the-world voyage via Cape Horn, Valparaiso, Hong Kong, and the Cape of Good Hope was negotiated in 203 sailing days as against 194 days on the previous voyage.

The *Sea Witch* was at her best in the conditions generally experienced in the China run, where size, model, and rig were considered in relation to wind and sea. A bigger ship had the advantage in the heavy-weather belts, but on a run that encountered all kinds of weather and was mostly in the trades and doldrums, a small ship with big sail spread generally proved not only capable of more than holding her own but also decidedly faster. Clippers bigger than the *Sea Witch* had the best of it going around the Horn (and for this service the *Sea Witch* was not built), but smaller clippers of 1,000 tons and less showed their superiority in the China trade, as is proven by the exploits of the *Sea Witch* and certain other small American clippers and the later records of the *Thermopylae* and other small British clippers. The *Sea Witch* lasted for some ten years, 1846-1856, a period by all odds the most remarkable ten years of sail in the history of the world. She measured 192 ft. length over-all, 170 ft. registered length, 34 ft. beam, 19 ft. depth, and 908 tons register. Her history is typical of the real American clipper.

The voyage of the clipper *Sea Witch*—built for an entirely different trade—around Cape Horn in 1850, during the early days of the speed rush by vessel from Atlantic ports to California, is of particular interest. She participated in one of the world's most interesting and historic deep-sea "races." Keen rivalry was in evidence between the clippers and particularly between the old and proven ships and the new "speedsters," heralded by their builders as the fastest greyhounds of the ocean. Thousands of dollars were often wagered upon the result of clipper races, but in this respect also the great "around-the-Horn race of 1850" was outstanding, for stakes were very large and every contestant had her backers. This more or less theoretical race was between the *Houqua* (583 tons; built in 1844), *Samuel Russell* (957 tons; built in 1847), *Memnon* (1,068 tons; built in 1848), and *Sea Witch* (908 tons; built in 1846), which were old rivals in the China trade, and the new and supposedly more modern and improved clippers *Celestial* (860 tons; built in 1850), *Mandarin* (776 tons; built in 1850), and *Race Horse* (a bark of 530 tons; built in 1850 by Samuel Hall, East Boston, Mass.). The time of departure from eastern Atlantic ports was not exactly the same, as it varied from January 15 to August 4, 1850, and the arrivals at destination from May 6 to November 29, 1850. When the *Samuel Russell* arrived at San Francisco, 109 days out from New York (better by eleven days than the best Cape Horn westbound run of 1849 and all prior years), everyone supposed she was the winner until the *Sea Witch* arrived after a wonderful passage of only 97 sailing days from New York and 101 days from New York, port to port, because of a four-day stop en route at Valparaiso (which actually affected her sailing time from New York to San Francisco by some five or six days). The *Sea Witch* thereby established a new record and had the credit of sailing from New York to San Francisco in thirty-three days' less time than the record in effect when her voyage commenced. The performance of most of the seven contesting clippers—not one of them large—was remarkable, considering the route and the sailing conditions encountered, and the average length of the passages was only 114 days and net ranged from 97 to 126 days. Cutler says that during the first two weeks of September 1849, "23 vessels arrived from eastern ports at San Francisco, none of which were clippers." The average passage for the entire fleet was 200 days, and from July 2 to 10, 1851, there were 13 arrivals from East Coast ports with passages that averaged 197 days.

Although the *Sea Witch* was not built for the California trade and was not deemed suitable for it, she, nevertheless, made three westbound Cape Horn passages from New York to San Francisco in the years 1850, 1851, and 1852, and she averaged only 105 days on the runs, with all of the passages being 110 days or under. All these California voyages were made under the command of Captain Fraser after Capt. "Bob" Waterman had left the little ship. On her last voyage in this service, only one of thirty-two fine new clippers sailing from an East Coast U.S.A. port during the 106-day period July 1-October 14, 1852, made a faster passage, and that was the new giant McKay clipper *Sovereign of the Seas* of 2,421 tons ($2\frac{2}{3}$ times the size of the *Sea Witch*), which went out in 103 days as against 108 days for the *Sea Witch*. The average length of passage of the other thirty clippers, excluding the "*Sovereign*" and the "*Witch*," was $131\frac{1}{2}$ days. The fast China clipper *Samuel Russell* (Captain Limeburner) left New York over ten days ahead of the *Sea Witch*, and both reached San Francisco the same day. The *R. B. Forbes*, which sailed from New York nine days before the *Sea Witch*, arrived at San Francisco nine days after her, and the *Golden Fleece*, which left Boston six days before the *Sea Witch* cleared New York, did not reach San Francisco until January 4, 1853, making a passage reported as 140 days, or thirty-two days longer than that of the *Sea Witch*.

The clipper *Oriental* (1,003 tons; built in 1849), from September 14, 1849, to December 3, 1850, sailed 67,000 miles on the Seven Seas in 367 days—an average of 183 miles per day and 7.6 knots per hour. In 1850 the *Oriental* made two passages between China and New York (one west and one east, each in 81 days); also her famous initial voyage of 97 days (port to port) in the British tea trade from China to London, three very profitable pas-

sages, all in the space of 10 months 13 days—a splendid performance record that boosted sail. During her all-time record passage of 81 days from New York (May 18, 1850) to Hong Kong (August 8), the *Oriental* traveled 7,890 miles in thirty-three consecutive days—an average of 239 miles per day and 10 knots per hour; on eleven successive days, she averaged 264 miles per day (11 knots per hour), with 302 miles on the best (12.6 knots) and 228 miles (9½ knots) on the poorest day. She entered Prince's Straits on July 29, when only 71 days out, having sailed 14,521 miles to that point—an average of 204½ miles per day and over 8½ knots per hour.

The clipper ship *Swordfish* (1,036 tons; built by Webb, New York, in 1851; 169½ ft. length, 36½ ft. beam, 20 ft. depth) did a good year's work in 1854. Leaving New York on April 3, she rounded the Horn to San Francisco in 110 days and reached the Atlantic equator in 18 days 15 hours, Cape Horn when 48 days out, and the Pacific equator when 77 days out (which was "35 days under the average for that season of the year"); lack of wind in the northern Pacific prevented what it was hoped would be a 100-day passage. The Webb-built clipper arrived at San Francisco July 23, 1854, crossed the Pacific to Hong Kong in 42 days, went to Manila to load, and was 102 days on the homeward passage, anchoring at New York (inside the Hook) at 11:00 p.m. on February 13, 1855. The total time spent on this around-the-world voyage was 316 days, of which 261 days were spent at sea and 55 days in port. The total distance traveled as per the ship's log, in some ten and a third months, was 39,977 miles—an average of 153 miles per day at sea and a speed of about 6.4 knots per hour when under canvas.

The *Swordfish*—one of the fastest clippers for her inches of all time—left New York on her maiden voyage on November 11, 1851, and raced with Donald McKay's big 1,505-ton clipper *Flying Fish* around Cape Horn to San Francisco, making the run in 90 days 18 hours as against 100 days 6 hours for the *Flying Fish*. The *Swordfish* then made a passage to China in 46 days and a return run to New York in 89 days against the monsoon, a most creditable performance. She made the entire round voyage, New York to China via San Francisco and return (China to New York direct), of about 38,000 miles in only 226 days—a record for time and indicative of an average speed of about 7 knots per hour. The *Swordfish* made many fast record voyages, including one of 81 days' duration from Shanghai to New York (where she arrived March 2, 1860). During this passage, she was becalmed in the Atlantic for a period of five days, but ran from the equator to New York in only 16 days. She also made a record passage of 32 days 9 hours from San Francisco to Shanghai, arriving at the Chinese port July 19, 1853, and a record run of 10 days in December 1859 between Shanghai and Anjer.

The clipper *Comet* (1,836 tons) was built in 1851 by Webb, New York, and measured 228 ft. length, 40.4 ft. beam, and 22 ft. depth. In her record run of 84 days from Liverpool to Hong Kong (83 days 21 hours from pilot to pilot) in 1854, she covered 17,810 miles and averaged 212 miles per day and 8.8 knots per hour. The captain of the *Comet* reported an average day's run of 215 nautical miles for the voyage and an average speed of 9 knots per hour. He stated the best day's run at 350 miles, a speed of 14.2 knots per hour. It may be said that the *Comet* is one of the greatest of record-holders for speed between a great variety of ports and established points. In 1853 this clipper made an amazing record voyage of 76 days from San Francisco to New York eastbound around the Horn. Her best passage between the same ports westbound, however, was a run of 103 days in 1852, on which voyage she covered 15,083 nautical miles, with an average of 146.4 miles per day and a speed of 6.1 knots per hour.

In 1857 the medium clipper *Nabob* (1,246 tons; built in 1854) made a good voyage from New York to Hong Kong in 85 days, running from Cape St. Roque to destination in only 52 days as against 54 days by the *Oriental* on her record 81-day passage. The *Nabob* traveled 17,532 miles, making this passage with an average run of 208.7 miles per day and an average speed of 8.7 knots per hour.

The bark *Dragon* (289 tons) of Salem, Mass. (Capt. Thomas C. Dunn), was an improved rather full-bodied vessel of the period, built at Newburyport in 1850. In 1854 she made the 16,670-mile run from Salem to the Fiji Islands in 85 days, an average of 8.2 knots per hour for the entire voyage. Many tramp steamers in operation half a century later could do no better.

The clipper ship *Red Jacket* (2,305 tons) was built at Rockland, Maine, in 1853, and was considered by many authorities to be not only "the handsomest ship afloat" but also one of America's "very fastest ships of the speed-craze clipper era." On her first round voyage between Liverpool and Melbourne, Australia, under charter (before she was purchased by the British colonial White Star Line), she occupied only 5 months 10 days and 22½ hours, including detention in port for loading and unloading and all work incidental thereto and time lost in the ice when in the vicinity of Cape Horn on the homeward run. The outbound passage was made (May 4-July 12, 1854) in 69 days 11¼ hours, of which she was under sail 67 days 13 hours; she covered 13,880 miles—an average of some 206 miles per day and 8.6 knots per hour. The homeward passage required 73 days (August 3-October 15, 1854), although the run to the equator was made in only 42 days, and calms and light winds were then experienced for the next 31 days. The complete voyage around the world, as per log, occupied 140½ sailing days and gives an average distance covered of 204½ miles per day and an average speed of 8½ knots per hour. The best day's run on the outbound passage was 400 miles and on the homeward, 376 miles; the highest speed recorded on the log was "at the rate of 19 knots."

The Australian run was a better course on which to show speed than either the California or the China and Indian runs, as the ships in that trade (following Maury's suggestions) sailed east all the way and journeyed around the world. On both the outward and the homeward passages, an Australian packet crossed the tropics only once and had the benefit of the westerly winds in the Roaring Forties; whereas ships in the California or oriental trade had to cross the tropics twice (i.e., on both their outward and homeward passages) and had no long run with favorable strong winds in the southern latitudes. A ship on the California run had to buck strong westerly winds and seas in rounding Cape Horn on her westward passage, and a ship in the Indian, China, or East Indian trade, returning home, often experienced bad weather and head winds rounding the Cape of Good Hope.

The clipper *Golden Gate* (1,341 tons; 193.6 ft. length, 38.8 ft. beam, and 21.6 ft. depth) was built by Westervelt, New York, in 1851. She arrived off Beachy Head (southeast coast of England) February 23, 1855, from Shanghai in a net sailing time of 86 days, which is the record and shows an average speed for the passage of about 7¾ knots per hour.

The yacht-like clipper *Nightingale* (1,066 tons), built at Portsmouth, N. H., in 1851, was the last of the "Yankee" clippers to distinguish herself in the China-to-England tea trade before this service was abandoned "for economic reasons" by Americans. She sailed from Shanghai February 16, 1855, and took a pilot off Beachy Head May 18, after a passage of 91 days and an average speed of around 7¼ knots per hour. During this voyage, the best day's run was reported at 336 miles and the highest speed 14 knots for a day, 14¾ knots for a watch, and a maximum of "well over 15 knots" for a short time. On this voyage, the *Nightingale* made a great record run of 70 days from Batavia Roads to London, covering 13,790 miles and averaging 197 miles per day and 8.2 knots per hour.

The average speed of American-built clippers from port to port in the China-Britain tea trade, 1850-1860 inclusive, based on British statistics (which generally understated the speed performance of American ships) and considering the claimed and substantiated records of 134 voyages of all kinds of participating sailing craft (fast and slow, clippers and non-clippers), was about 5 knots per hour for an average run of 130 days (shortest reported as 92 days; longest as 236 days). The best speed performance on these reported runs was 7¼ knots per hour for the entire voyage. Actually, on this record-breaking voyage the average speed during deep-sea sailing was 7¾ knots per hour.

In the most famous of all China-Britain tea races—that of 1866—the *Taeping* (767 tons; built in 1863 of composite construction), *Ariel* (853 tons; built in 1865 of composite construction), and *Serica* (706 tons; built in 1863 of wood) all made the run in 99 days, with a difference of only twelve minutes in sailing time between the first two ships, *Taeping* and *Ariel*. The 16,000 miles were covered by these winning clippers at the rate of 162 miles per day and a speed of $6\frac{3}{4}$ knots per hour. The best day's runs for the two leaders in the race were 319 miles for the *Taeping* and 330 miles for the *Ariel*, an average speed for a day of about $13\frac{1}{4}$ knots and $13\frac{3}{4}$ knots per hour, respectively.

In 1845 the old New Orleans packet *Natchez* (524 tons; 130.3 ft. length, 29.8 ft. beam, 14.8 ft. depth; built by Webb & Allen, New York, in 1831) arrived at New York from Canton on April 3 after a record passage of 78 days, in which she covered 13,955 miles. The average distance traveled per day was 179 miles and the average speed 7.46 knots per hour.

The early American semi-clipper *Houqua* (583 tons; built by Brown & Bell, New York, in 1844), on her very fast run of 90 days from Hong Kong to New York (87 days, pilot to pilot), which was the return trip of her maiden voyage, traveled 14,272 miles by log and averaged 164 miles per day and 6.8 knots per hour.

The fast ship *Helena* of the pre-clipper era (598 tons; built by Webb, New York, in 1841) ran from New York to Java Head in 1846 in the record time of 73 days 20 hours and covered 13,510 miles, averaging 183 miles per day and $7\frac{7}{8}$ knots per hour. Her best day's run was 275 miles, or $11\frac{1}{2}$ knots per hour, and her worst day's performance was 60 miles, or $2\frac{1}{2}$ knots per hour.

In 1846 the *Montauk* (505 tons; length 128 ft., beam $29\frac{1}{2}$ ft., depth 17 ft.; built in 1844 by W. H. Webb, New York, expressly for the China trade), under the command of Capt. William McMichael, arrived at New York on April 8 after a passage of 87 days from Macao—10 days to Anjer and 42 days from Macao to the Cape of Good Hope. This was the fourth voyage of the *Montauk* between New York and China, and her command and owners claimed that she had not been at sea over 90 days on any one of them. This was a remarkable record of consistently fast sailing and an average deep-sea speed of about a year's actual sailing time at sea approaching 7 knots per hour.

The same year, 1846, also saw the record voyage of the early clipper *Rainbow* (752 tons; length 159 ft., beam 32 ft., depth $18\frac{1}{2}$ ft.; built in 1845 by Smith & Dimon, New York). This vessel reached New York on April 16 after a run of only 79 days from Macao, crossing the equator 60 days out from Macao. The *Rainbow* had left New York October 1, 1845, and completed the entire voyage, out and back, in the fast time of 6 months 16 days (or 197 days)—the record. She ran out in 92 days against the northeast monsoon and came home bringing news of her own arrival in China. On her first voyage in 1845, the *Rainbow* made a round trip to China in 7 months 17 days, a record at that time.

The clipper bark *Dawn* (387 tons; length 126 ft., beam 28 ft., depth 12 ft.; built in 1857 by Thomas Collyer, New York) made a record run of 36 days from Buenos Aires to New York, where she arrived at 2:00 a.m., June 11, 1860. She covered the distance of 6,515 miles at the rate of 181 miles per day and an average speed of $7\frac{1}{2}$ knots per hour. A more remarkable fact is that this little speedy bark made three successive voyages between the same ports in 36, 39, and 38 days, respectively, an average of 37 days 16 hours and an average speed of $7\frac{1}{4}$ knots for the 19,600 miles covered on her three runs north.

The clipper *Surprise* (1,261 tons; designed by Samuel H. Pook), on her fast run of 96 days and 15 hours on her maiden passage from New York to San Francisco (December 1850-March 1851), traveled 16,308 miles and averaged 169 miles per day and 7.1 knots per hour. In the summer of 1851, the *Flying Cloud* covered 15,274 nautical miles on her maiden voyage from New York to San Francisco, which she negotiated in 89 days 21 hours—an average of 170 nautical miles per day and 7.1 knots per hour. This vessel, built by Donald McKay at East Boston, Mass., and one of the fastest clippers ever built, logged 1,256

nautical miles in four consecutive days. Her best day's run on the voyage was 374 miles. This entry appears in the *Flying Cloud's* log for July 31: "Distance run this day by observation three hundred and seventy-four miles. During squalls eighteen knots of line were not sufficient to measure the rate of speed." Translated, that means an average of about $15\frac{1}{2}$ knots per hour for a day. Not until 1874 was an ocean-going steamer to attain a 15-knot speed. For four consecutive days, earlier in this around-the-Horn passage, the *Flying Cloud* averaged $13\frac{1}{2}$ knots and for twenty-six consecutive days $9\frac{3}{8}$ knots per hour. After clearing the Golden Gate and crossing the Pacific, this clipper, on the same initial round voyage, made 2,000 miles from Canton, China, to Java Head in 6 days, which almost halved the previous record for the run between points.

The clipper *Andrew Jackson* (1,679 tons; built in 1855), with a record run of 89 days 4 hours from dropping pilot at Sandy Hook to pilot ground off the Golden Gate, covered only 13,700 miles—an amazing and seemingly incredible mileage—and averaged 153.6 miles per day and 6.4 knots per hour. The McKay clipper *Flying Cloud* (1,782 tons; built in 1851), the only vessel to dispute this record, in her fastest run between the same ports traveled 15,091 miles from pilot to pilot in 89 days 8 hours and averaged 169 miles per day and 7 knots per hour. Capt. J. E. Williams of the *Andrew Jackson* was a skilled navigator and not interested in high speeds as reflected in day's runs, average mileage per day, or speed in knots per hour. He studied and profited by Maury's charts, but seldom went "chasing after wind" or departing much from his course with a desire to retain longer the benefit of strong favorable winds. His one idea was to make the fastest run and the shortest mileage possible, consistent with a quick passage, port to port.

For these long distances of from about 13,500 miles to some 228,500 miles on outstanding and record voyages made during the period 1832-1860 inclusive, average speeds per hour ran from 6.1 knots to 8.8 knots per hour, varying with the distance, geographical run, and influencing sailing conditions of wind and sea. For shorter distances, higher average speeds on record voyages have naturally been reported.

The clipper *Swordfish* ran from Shanghai to San Francisco in 31 days in 1855, covering 7,440 miles and averaging 240 miles per day and 10 knots per hour under phenomenally favorable sailing conditions. The medium clipper *Samuel Russell* (957 tons; built by Brown & Bell, New York, in 1847) ran from Canton to New York in 1851 and covered 6,780 miles in 30 days—an average of 226 miles per day and 9.42 knots per hour. The clipper *Oriental* (1,003 tons; built in 1849), which made the all-time record passage of 81 days from a U. S. East Coast port to China when she ran from New York (May 18) to Hong Kong (August 8) in 1850 under Capt. Theodore D. Palmer, made the deep-sea passage to Prince's Straits in 71 days and covered 14,521 miles by observation. This was an average of $204\frac{1}{2}$ miles per day and about $8\frac{1}{2}$ knots per hour. For thirty-three consecutive days (June 19-July 21), she averaged 239 miles per day (about 10 knots) and for eleven days (July 10-21) 264 miles (about 11 knots), with the best day's run reported as 302 miles and the highest spurt speed by log about " $13\frac{1}{2}$ to 14 knots." The *Flying Cloud* covered 5,912 nautical miles in twenty-six consecutive days on her voyage of 89 days 21 hours from New York to San Francisco in 1851. She averaged 227 miles per day and 9.46 knots per hour during this period, but this was during the best one-third of the longer voyage as far as sailing conditions and favorable winds were concerned. On this same voyage, the *Flying Cloud* sailed 1,256 miles in four days and averaged 314 miles per day and 13.1 knots per hour. The shorter the distance and time, the greater the possibility of favorable sailing conditions and high speed. The best day's run of the *Flying Cloud* was 374 miles, which is at the rate of 15.6 knots per hour. This performance can be compared with that of the clipper *Stag Hound* (1,534 tons; built by McKay, Boston, in 1850) on her maiden voyage over the same course earlier in the year. This vessel claimed a passage of 107 days made under difficulties and reported her best day's run as 358 miles at a scant 15 knots per hour and a maximum speed of 17 knots per hour.

The *Sovereign of the Seas* (2,421 tons; length 258.2 ft., beam 44.6 ft., depth 23.5 ft.), another product of Donald McKay's East Boston shipyard, we are told by Bostonians and McKay's publicists, "electrified the country with her performances" in 1853. On her first passage out, after losing main-topmast, mizzen-topgallant mast, fore-topsail yard, and all the foremast canvas off Valparaiso (a damage that took many days to repair), she entered the Golden Gate 103 days out from New York. Donald McKay's brother Lauchlan commanded her; the best day's run as per log was 368 miles and highest speed 17 knots per hour. Homeward bound, after loading sperm oil at Honolulu, she sailed on February 12, 1853, and arrived at Sandy Hook May 6, 1853, 83 days later, reported as a passage of 82 days—called a record at that time. The *Sovereign of the Seas* is reported to have covered 5,391 nautical miles in 22 days, an average of 245 miles per day or 10.2 knots per hour "in the 40's and 50's of south latitudes with strong northwest trade winds." This big clipper also made a transatlantic crossing from New York to Liverpool in a stated 13 days 19 hours, sailing from Sandy Hook June 18, 1853, but the remarkable part of this reported fast run is the statement of the command that "the passage from the Grand Banks to Liverpool anchorage was made in only 5 days 17 hours."

In 1860 the *Andrew Jackson*, the record-holder for time from pilot to pilot ground for westbound passages around Cape Horn to San Francisco, made a record of 30 days at sea for a round-trip transatlantic voyage. This performance has never been equaled by any sailing vessel. The distance covered was 6,500 miles, and the average run per day was 217 miles with an average speed of 9 knots per hour.

In runs of some 5,000 miles between ports, the clipper *Game Cock* (1,392 tons; designed by Samuel Harte Pook and built by Samuel Hall, East Boston, Mass., in 1850) made the record run from Honolulu to Hong Kong in 1852. She logged 4,959 miles in 19 days, an average of 261 miles per day and 10.87 knots per hour. This remarkable performance beat the record of the clipper ship *R. B. Forbes* (757 tons; also built by Hall a year later, i.e., 1851). This vessel made a passage between the same ports the same year in 21 days 13 hours, corrected time, and traveled 5,400 miles at an average speed of 10.46 knots per hour. On another voyage in the Indian Ocean, the *Game Cock* made 342 miles in one day, by observation, and averaged 306 miles per day for seven consecutive days.

The early clipper *Memnon* (1,068 tons; built in New York in 1847) and the Maine clipper *Red Gauntlet* (1,038 tons; built in 1853) made passages between Honolulu and Hong Kong in 1850 and 1856, respectively, of between 19 and 20 days at an average speed of about 10½ knots per hour. The clipper *Golden West* (1,441 tons; built by Paul Curtis, East Boston, Mass., in 1852) arrived at San Francisco June 2, 1856, after a run of 4,860 miles from the coast of Japan in 20 days, an average speed of 10⅞ knots per hour.

Whereas a good passage across the Pacific, with average favorable winds and a track based on Maury's sailing directions, was 52 days from Shanghai to San Francisco (which means an average speed of about 5 knots per hour), the little schooner *Sierra Nevada* of Sag Harbor made the run early in 1851 in 34 days at an average speed of 7½ knots. The record for the shortest passage across the Pacific between major ports has been claimed for the bark *Mermaid* of 533 tons (built in Boston in 1851), which arrived at San Francisco August 23, 1865, having made the run from Shanghai in 31 days—an average speed of 8⅓ knots per hour. In 1853 the *Mermaid* went from Batavia to San Francisco in the fast time of 50 days, but on this passage she is credited with running from the coast of China to the Golden Gate in 30 days and covering 320 miles in one day. Considering distance and the course, many authorities maintain that the passage of 33 days of the *Challenge* (of 2,006 tons; built by Webb, New York, in 1851) from Hong Kong to San Francisco under Capt. John Land, in the spring of 1852, constitutes the all-time transpacific speed record between major ports. On April 22, 1852, the *Challenge* arrived at San Francisco in 33 days from Hong Kong and reported having run from a position opposite Japan to the Golden Gate in only 18 days. On this record crossing, the clipper made 360 nautical miles, by observation, in a day of

twenty-three and a half hours, a speed of $15\frac{1}{3}$ knots per hour, with a maximum speed by log well in excess of 16 knots per hour. Returning to China, the *Challenge* did more brilliant sailing. She made a record run from San Francisco to Honolulu, which she passed without stopping, and it is said that notwithstanding only moderate winds during a period of two weeks, "on her 23rd day from the Golden Gate she was within 400 miles of Hong Kong," when she was headed off by strong adverse winds.

The *Memnon* of 1,068 tons, during November-December 1850, made a run from San Francisco to Whampoa (Canton) of 36 days, and the *Golden City* of 810 tons (built at New York in 1852) ran in 1854 from San Francisco (February 28) to Woosung (April 5) in 36 days (reported as 35 days). A record Pacific crossing traveling westward was made by the extreme clipper *Swordfish* of 1,036 tons (built by Webb, New York, in 1851). Sailing from San Francisco June 16, 1853, she anchored at 11:00 p.m. on July 19 off the entrance to Shanghai after a passage of 32 days and 9 hours, having sailed 7,200 miles and averaged 225 miles per day and a scant $9\frac{1}{2}$ knots per hour; her best day's work was 340 miles. The *Celestial* of 860 tons (built by Webb, New York, in 1850) is generally credited with what was probably the fastest westward transpacific passage from San Francisco to Hong Kong. Following her arrival at San Francisco November 1, 1850, the *Celestial* continued her maiden voyage with a run to Hong Kong of 33 days and then went up the coast to Shanghai, where she loaded for New York.

Outstanding crossings of the southern Pacific from Australian to West Coast of South America ports were made in the mid-fifties by small American clippers. The *Gem of the Sea* of only 372 tons (built at Warren, R. I., in 1853) under Captain Bowen, in early 1854, ran from Port Phillip to Callao in 35 days and reported covering 5,330 miles in twenty-two consecutive days—an average of 242 miles per day and an average speed of well over 10 knots per hour for over three weeks. The *Rover's Bride*, a Baltimore clipper of 376 tons (built in 1853), reached Valparaiso June 18, 1855, and reported a run of 31 days from Sydney, and about sixteen months later (on October 23, 1856) the big medium clipper *Carrier Dove* of 1,694 tons (built at Baltimore in 1855), under Captain Conner, arrived also at Valparaiso in 32 days from Melbourne and reported a passage of 30 days, pilot to pilot.

On the relatively short run of some 2,100 miles from San Francisco to Honolulu, the *Flying Cloud* of 1,782 tons, sailing from San Francisco September 26, 1852, is said to have passed Honolulu 8 days $8\frac{1}{2}$ hours out, which indicates an average speed of about $10\frac{1}{2}$ knots per hour; but the logged distance has been stated as 2,300 miles and the average speed through the water "about $11\frac{1}{2}$ knots per hour." The medium clipper *Fair Wind* of 1,299 tons (built at South Boston in 1855) made a splendid run from San Francisco to Honolulu in early 1861, which has been claimed as a record passage between the ports, anchorage to anchorage. Leaving San Francisco January 12, the *Fair Wind* anchored at Honolulu on January 21 after a run of 8 days and 18 hours. Not only is the time outstanding but also the short mileage reported for a sailing ship between the ports is noteworthy. According to the log, the mileage traversed, by observation, was as follows:

Day	Mileage Reported	Day	Mileage Reported	Day	Mileage Reported
1st	209 (19 hours' run)	4th	213	7th	215
2nd	243	5th	224	8th	260
3rd	261	6th	254	9th	225 (23 hours' run)

The total distance reported of 2,104 miles is the record short distance ever made by a sailing ship between the ports and was said to be "only about twenty miles greater than the shortest possible direct steamship course."

If the time of a ship from dropping the pilot to a point "passing Honolulu" constitutes the record between San Francisco and Honolulu, then the honor for the quickest passage

does not go, as generally stated, to the *Flying Cloud*, with Captain Creesy's claimed run of 8 days 8½ hours, but to the *Challenge*, which under Captain Land left San Francisco April 29, 1852, and passed Honolulu May 7, "making the run in just 8 days."

Other noteworthy fast runs between the two ports were those of the clipper *Flying Eagle* (1,004 tons; built in Maine in 1852), which sailed from San Francisco July 9, 1858, and arrived at Honolulu July 19 after a run of 9 days 22 hours (an average speed of about 9.7 knots per hour), and of the *Hurricane* (1,608 tons; built by Smith, of Hoboken, N. J., in 1851), which made a passage of 10 days in September 1854. A 10-day run between these ports was also claimed later by the command of the big full-bodied four-masted steel shipentine *Edward Sewall* (3,206 tons; built in Bath, Maine, in 1899). On this run, it was said, the big merchantman "averaged over 9½ knots per hour and at times made about 13 knots."

The wood clippers designed and built by Donald McKay showed to better advantage as regards speed in the California around-the-Horn and Australia around-the-world trade than they did in the China, Indian, and East Indian trades via the Cape of Good Hope. The McKay ships, even the wonderful "Cape Horn Greyhound" *Flying Cloud* of 1,783 tons, while excelling in whole-sail and hard breezes, could not equal some of the smaller clippers in light wind. The *Flying Cloud* made two runs from Sandy Hook to the Golden Gate in the splendid time of about 90 days, which means an average of some 175 or 180 nautical miles per day consecutively for three months and about 7½ knots per hour. Only the clipper *Andrew Jackson*, in 1860, made the passage in equal or faster time (89 days 4 hours). On the maiden voyage of the *Flying Cloud* under the command of Capt. Josiah Creesy, of Marblehead, she made 374 miles in one day (July 31, 1851) while steering to the northward in the Pacific under topgallant sails. On the other hand, in light airs, she made only 105 miles in two days (52½ miles per day) and 288 miles in four consecutive days, an average of 72 miles per day and a speed of 3 knots per hour. The clipper, however, did a great deal of good sailing on this voyage, for in a period of four consecutive days she covered 1,256 nautical miles—an average of 314 miles per day and 13½ knots per hour. In 26 days she made 5,912 miles, an average of 227 miles per day and 9½ knots per hour, under conditions that were favorable for good sailing but not phenomenal. When the *Flying Cloud*—believed by many experts to be Donald McKay's finest creation—made her day's run of 374 miles, this performance constituted a record up to that time for both sail and steam. It exceeded by 42 miles the best twenty-four-hour run that had been made by any transatlantic steamship. This triumph of sail, exemplified by an average speed for a full day of over 15½ knots per hour, caused excitement throughout the world and a great measure of enthusiasm in the United States. The owners of the *Flying Cloud* (Grinnell, Minturn & Company, New York) had her log printed in gold on white silk for distribution among their friends and the leaders in the maritime world. (Only four years later, an owner of "a piece of the *Flying Cloud*" was demanding "cold hard money rather than symbols of glory" as a dividend return on his investment in "the Greyhound of the Seas.")

Running from San Francisco to China shorthanded, the *Flying Cloud* on her first day out once more reported having made 374 miles in a day. The *Stag Hound* (1,534 tons) was one of the earliest of all "out-and-out" clippers and was built by McKay at East Boston in 1850. On her maiden voyage around the Horn in 1851, she made 358 nautical miles—a scant 15 knots per hour—as her best day's run. The captain reported: "She is a very fast ship in moderate breezes; while in strong winds she frequently logged 16 and 17 knots." When the *Young America* (built by William H. Webb in 1853) was twenty-three years old in 1876, on a 99-day passage from San Francisco to New York, she covered 1,423 nautical miles in four consecutive days. Her day's runs were 365, 358, 360, and 340 miles, respectively, an average of 356 miles per day—a truly remarkable bit of fast sailing on that course, as it shows an average speed of over 14.8 knots and a maximum day's run at a speed of 15.2 knots per hour. In 1875 this clipper, in the Cape Horn California trade, covered 6,435 nautical miles in the month of March, an average of 207½ miles per day, and in one week

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she made 1,802 miles, an average of 257½ miles per day (best day, 270 miles). In 1872, outbound to San Francisco, the *Young America* covered 2,747 miles in eleven consecutive days and 1,238 miles in the first four of them. Other good runs made by the ship in a week's sailing were 1,780 and 1,667 miles.

The *Sovereign of the Seas* (2,421 tons), built by Donald McKay on speculation in 1852, with the California and Australia trades primarily in mind, made one voyage from England to Australia and return, under charter to the British Black Ball Line, while still under American ownership. Upon her return to Liverpool, the *Sovereign of the Seas* was bought by the Germans, who sent her out to Sydney via Cape Horn. On this passage, Captain Müller claimed that his ship ran "410 miles in 24 hours" and traveled occasionally at the rate of 22 knots per hour.

In the Australian run, the American-built clipper *Lightning* (2,084 tons), in March 1857, before strong westerlies of gale force (in the Roaring Forties) made 790 nautical miles in two days—a maximum of 430 and an average of 395 miles. This fast and powerful clipper was built in 1854 by Donald McKay, East Boston, Mass., for James Baines & Company, Liverpool, England, and the British-Australian Black Ball Line. The *Lightning*, on her record voyage northbound, left Melbourne August 20, 1854, and arrived off Point Lynas, Liverpool, October 23 after a passage of only 63 days and 16 hours from Port Phillip to pilot and a stated passage of 64 days 3 hours. On the first voyage of the *James Baines* to Australia, leaving England December 9, 1854, this fast American-built clipper of 2,515 tons (also designed and constructed by McKay for Baines in 1854) made 423 miles on February 6, and on two consecutive days, January 26 and 27, she made 391 and 407 miles, respectively—an average for the two days of 399 nautical miles. On a voyage from Liverpool to Melbourne in 1856, the *James Baines* made 384 miles on May 27 and 404 miles on May 28, a total of 788 miles for two consecutive days and an average of 394 miles per day. The *Lightning*, on a companion voyage between the same two ports, made 382 miles on July 3 and 364 miles on July 4, a total of 746 miles for the two consecutive days and an average of 373 miles per day. In one week the *James Baines* covered 2,276 nautical miles (an average of 325 miles per day) and the *Lightning* 2,188 miles (an average of 313 miles per day). On the homeward run from Melbourne to Britain in 1856, the *James Baines* made 356 miles on August 9 and 340 miles on a later day. The *Lightning*, on her return voyage, made 377 miles one day and showed more speed in light winds than the *James Baines*, being also more generally favored on this run by both winds and seas. All the big day's runs and very fast sailing in the Australian trade were made when sailing to the westward in the Roaring Forties of the southern latitudes.

The *Red Jacket* of 2,305 tons (built in Maine in 1853 from designs of Samuel H. Pook), on her maiden voyage to Australia, made 400 miles on July 6, and on July 8, 9, and 10 she covered 1,041 miles—an average of 347 miles per day. For the five days July 6 to 10 inclusive, she ran 1,740 nautical miles—an average of 348 miles per day. On her initial run under canvas, when crossing the Atlantic eastbound, the *Red Jacket* made a record passage and covered 413 miles in one day.

The American-built clipper ship *Blue Jacket* of 1,790 tons (built by Robert E. Jackson, East Boston, in 1854 from a model attributed to Samuel H. Pook) was sold to the British and made some fine runs in the London "Fox Line" and Liverpool "White Star Line" of Australian and New Zealand packets. Capt. Joshua N. Taylor, of Orleans, Mass., sailing master for Capt. James White, wrote of the ship's 63-day run made in 1865 from Lyttelton, New Zealand, to the East India docks, London:

A heavy south-west gale followed us for several days, and running our easting down, we averaged 20 knots at times, with all sails set; at times the patent log even showed 23 knots. These gales carried us until we had passed Cape Horn and hauled

up to 'norrard, and up to this time we had averaged 384 nautical miles per day, beating all records ever made by a sailing ship up to that time. We crossed the equator on our 42nd day and were in the East India docks [London] on the 63rd day.

The *Cutty Sark*, on her seventh voyage out from England to Australia in 1875-1876, is reported to have covered 2,163 nautical miles in six consecutive days—an average of 360½ miles per day or 15 knots. It was claimed that at times she reached a speed of 17 knots and on some days made a total run of 370 miles. On this passage, reported as 75 days, the *Cutty Sark's* time was beaten by the *Thermopylae*, which is said to have made the run out in 68 days. The spars and sail spread of the *Cutty Sark* were cut down in March 1880, but on July 11, 12, and 13 of that year she is reported to have covered 1,050 miles—an average of 350 miles per day and a claimed maximum speed of 17½ knots per hour. In 1886, when bound to China with scrap iron and drawing 21 ft. of water, the *Cutty Sark*, it is said, covered 1,017 miles in three consecutive days, an average of 339 miles per day. In 1889 her command claimed that she traversed 7,678 miles in thirty consecutive days, an average of 256 miles per day.

During the last five years under the British flag, before she was sold to the Portuguese (July 1895), the *Cutty Sark* evidently made many fine runs. In 1890 she was reported to have made 3,737 miles in thirteen consecutive days "before favorable westerly gales" in the run between the Cape of Good Hope and the Leeuwin—an average of 286 miles per day. On the run from Antwerp to Sydney in 1893, during the three days September 27, 28, and 29, the *Cutty Sark* is said to have traversed 974 miles (an average of 325 miles per day) in the Roaring Forties, and her command said that from October 14 to 20 she covered 2,180 miles in the seven days—an average of 311½ miles per day, with a maximum day's run of 353 miles. It is also said that she ran 3,457 miles in eleven consecutive days, an average of 314½ miles per day. On her last voyage in 1894, before being sold and when twenty-five years old, the *Cutty Sark* reported covering 7,107 miles in thirty consecutive days—an average of 237 miles per day. Captain Woodget, her last British commander, said that the vessel ran for him (after she had been cut down aloft and her stunsails discarded) 182 miles in twelve hours and 80 miles in five hours, and her best day's runs at various times were 360, 353, 350, 342, 340, 336, and 330 miles.

In 1856 the little American bark *Maury* (600 tons) raced the fast British tea clipper *Lord of the Isles* (770 tons), which is said by the British to have made during the previous year a remarkable fast run of under 90 days from Shanghai to London during the northeast monsoon and under phenomenally favorable sailing conditions. The small American clipper, sailing four days after the *Lord of the Isles*, arrived a short time ahead of the crack British boat, beating her four full days on the run, but because of weather and unfavorable winds the passage required 128 days. This fact is indicative of the great effect of wind and sea and the season of the year on the records of sailing ships. During this race between the *Maury* and the *Lord of the Isles*, the little American clipper bark traveled 370 miles in one day, about 15½ knots per hour, and covered 3,067 nautical miles in twelve days (July 27 to August 7) crossing the Indian Ocean, an average of 272 miles per day and 11½ knots per hour.

All the speeds herein recorded for sailing ships are phenomenal performances; they are outstanding achievements, and the average speed of sailing vessels over the same seas over a term of years is an entirely different matter.

In the thirties, forties, and fifties of the nineteenth century, much was made of the fact that occasionally a sailing ship beat a steamer. When, as not infrequently happened, a packet ship running before a westerly gale on an eastbound passage overhauled a wallowing side-wheel steamer in mid-ocean bound the same way, it was the practice for the ship dramatically to pass the steamer close, but to windward, and greet its command, crew, and passengers with scornful and derisive yells. No seafaring men cared for the early wooden paddle-box steamers nor, later, for the "dirty, smelly tea-kettles," but the progress from wood to iron and then to steel, and from sail to paddle-wheel and then to the screw propeller, was inevitable, even if those people interested in the romance and beauty of sail for many decades emotionally underestimated the advantages and virtue of metal and steam and, ostrichlike, refused to see the truth and the trend. It seemed impossible for the builders and operators

of sailing craft to consider fairly and weigh the innumerable triumphs of steam over sail. For years they persisted in blindly emphasizing and unduly dwelling upon the very few occasions when sail defeated steam—and this with fanatical fervor permeated with prejudice.

In 1851, when the clipper *Flying Cloud* made 374 miles in one day on her record 89-day run from New York to San Francisco around the Horn, the boast was made that this was the fastest day's run ever made and beat by 42 miles the best day's run of any steamer. When the clipper *Sovereign of the Seas* crossed the Atlantic in 1853 and anchored in the Mersey July 2 after completing an ocean passage from New York of 13 days 22 hours 50 minutes, it was announced that the Cunard S.S. *Canada* (1,831 tons) had sailed from Boston the same day and that for the five-day period from June 25 to 30 the sailing clipper had outsailed the steamer by 325 miles and had shown two day's runs of 344 and 340 miles, respectively, against a maximum day's run for the S.S. *Canada* of 306 miles. (Nevertheless, the *Sovereign of the Seas* was beaten by the steamer two days on the crossing.) When the *Adelaide* (1,831 tons; built by A. C. Bell, New York, in 1854) made her fast eastbound run from New York to Liverpool in 1864 (recorded as a 12-day 8-hour crossing), it was reported that she beat the British steamer *Sidon* on the transatlantic passage in time from port to port.

The early clipper *Memnon* (1,068 tons; built by Smith & Dimon, New York, in 1847) took pilot off Point Lynas on November 20, 1848, after a record transatlantic run from New York in 14 days 7½ hours. She reported "breezing past the steamship *Europe* on the way at 13 knots per hour." The *Memnon* won her glory on the Atlantic with but a single chance, but the early clipper made a record run from Honolulu to Hong Kong and from San Francisco to Whampoa in 1850. In early March 1860, the medium clipper *Intrepid* of 1,173 tons (built by Webb, of New York, in 1856) on a passage from Shanghai to Hong Kong—usually a slow and tiresome run for a sailing vessel—beat the mail steamer *Yang Tsze*, which had a reputation for speed, by a full two hours from port to port. The *Sovereign of the Seas* (2,421 tons), on the return passage of her maiden voyage between Britain and Australia, ran from Melbourne to Liverpool in early 1854 in 68 days, beating the steamer *Harbinger* by four days, port to port, and all other vessels sailing about the same time by from two to three weeks.

The speed for a relatively short period of time of a large and powerful clipper, with a strong favorable wind of gale force and a satisfactory or non-impeding sea, is one thing; but a sustained sea speed under all conditions of wind and sea for a long voyage is an entirely different matter. If a record day's run made under extraordinary, auspicious conditions is an index of speed, then the *Lightning*, on her transatlantic run leaving Boston February 18, 1854, for Liverpool, attained an average speed for the day on March 2 that was not equaled by a steam vessel until the eighties. It was claimed that on this memorable day she sailed 436 nautical miles (or 502 statute miles), logged 19 knots at times, and averaged 18.2 knots (or 21 land miles) per hour for the day. If the speed as claimed for the *Lightning* is accepted and the *Flying Scud's* record of 449 miles is denied (which seems to have been the decision of authorities in the fifties and sixties), then the following statement as made some half a century after the event was correct and continued to be correct to the end of sail: "She left more miles of salt water astern in 24 hours than any vessel that had ever sailed the seas or any that, to this day, has ever sailed propelled by wind and canvas." The report of this day's run states that it began about 500 miles off the Irish coast on March 1 "in Lat. 52° 38' N. and Long. 22° 45' W. Wind south. Strong gales. Carried away fore-topsail and lost jib. By log 18 to 19 kts. Lee rail under water." This performance, if correctly stated (and there is doubt about it), entitled the *Lightning* to the proud distinction of being the swiftest ship that ever sailed the seas. No ocean steamship of her day approached her record day's run by less than 100 miles, and a quarter of a century passed before the Atlantic greyhound *Arizona* made 18 knots per hour for a single hour on her trial trip. It was not until 1889, thirty-one years after the world's record for speed was made by the *Lightning*, that an ocean-going steam-propelled merchant vessel exceeded the record of 436 miles for a full day's run that had been established by sail. Three years afterward, the *Lightning* was to come within six miles of

her own record, when as an Australian Black Ball liner, running her easting down, she made 430 miles. When the *Lightning* was at the zenith of her power, speed, and fame, there were, however, many steamers crossing the Atlantic Ocean in much better time than the *Lightning's* or any other clipper's fastest passages. As far as average speed for the year was concerned, the world's fastest sailing vessel made a sorry showing in comparison with the transatlantic iron screw steamers of the fifties and sixties.

The first steamship to carry the mails from England to Melbourne was the iron screw steamer *Australian* of 2,000 tons. She sailed from Plymouth, England, June 5, 1852, on her maiden voyage and made the passage out in 89 days and the homeward run in 76 days, having to stop for coal at St. Vincent, St. Helena, Table Bay, and St. George's Sound (Western Australia). She reached London on her return trip on January 11, 1853, the time for the complete voyage being 7 months 6 days, a performance much inferior to that of a large number of fast sailing ships in the service. In 1854 the *Argo*, a full-rigged iron ship of 1,850 tons with a screw and auxiliary steam power and known as a "steam clipper," followed the route of the sailing ships and made the passage out to Melbourne via the Cape of Good Hope in 64 days and the run home via Cape Horn in 63 days. This was an excellent performance. The *Argo* sailed the entire voyage, used her propeller only in light winds and calms, and was the first vessel with steam power to circumnavigate the globe.

The record of merchant vessels in British Government service employed in the transportation of troops from Britain to India during the Sepoy Mutiny in 1857 gives some interesting comparative statistics in regard to sail versus steam and also shows the superiority of American-built clippers to all the other sailing vessels in that service in the run out from England to the mouth of the Hooghly River.

	<i>Days</i>
Passage of the clipper ship <i>Lightning</i>	87
" " " " <i>Champion of the Seas</i>	101
" " " " <i>James Baines</i>	102
Average passage of other sailing ships	120
" " " sailing vessels with auxiliary power	97
" " " full-powered screw steamships	83

All the high day's runs reported by sailing ships of some 360 miles and over were made with strong favorable winds of gale force and in following small or moderate seas. For clippers in their prime, the best reported day's runs over 400 nautical miles, most of which seem to be generally authenticated, are as follows:

Name of Clipper	Reported Day's Run	Tonnage	Date and Route	Name of Clipper	Reported Day's Run	Tonnage	Date and Route
	<i>Nautical Miles</i>				<i>Nautical Miles</i>		
FLYING SCUD	449	1,713	Nov. 6, 1854 New York to Australia (Roaring Forties)	DONALD MCKAY	421	2,598	Feb. 27, 1855 Boston to Liverpool (with N. Atlantic westerlies)
LIGHTNING	436	2,083	Mar. 1, 1854 New York to Liverpool (with N. Atlantic westerlies)	JAMES BAINES	420	2,515	June 18, 1855 Melbourne to Liverpool (Roaring Forties)
LIGHTNING	430	2,083	Mar. 20, 1857 Liverpool to Australia (Roaring Forties)	RED JACKET	417	2,305	Jan. 19, 1854 New York to Liverpool (N. Atlantic westerlies)
JAMES BAINES	423	2,515	Feb. 6, 1855 Liverpool to Australia (Roaring Forties)	GREAT REPUBLIC	413	3,356	Dec. 12, 1856 New York to San Francisco (N. Atlantic westerlies)

(Continued on next page)

Name of Clipper	Reported Day's Run	Tonnage	Date and Route	Name of Clipper	Reported Day's Run	Tonnage	Date and Route
	<i>Nautical Miles</i>				<i>Nautical Miles</i>		
LIGHTNING	412	2,083	Sept. 1854. On return passage of maiden voyage; on run from Melbourne to Liverpool (Roaring Forties).	FLYING CLOUD	402	1,782	On sixth and last New York-San Francisco Cape Horn voyage. Mar. 13-Sept. 14, 1856. Captain Reynard claimed "113 days at sea and best day's run with favorable gales of 402 miles."
JAMES BAINES	407	2,515	Jan. 27, 1855 Liverpool to Australia (Roaring Forties)	RED JACKET	400	2,305	July 6, 1854 Liverpool to Australia (Roaring Forties)
JAMES BAINES	404	2,515	May 28, 1856 Liverpool to Australia (Roaring Forties)	INVINCIBLE	400	1,769	Dec. 20, 1851 New York to San Francisco via Cape Horn on maiden California voyage.

Of the above fourteen reported day's runs of 400 miles or over made by eight big, fast clippers of from 1,713 to 3,356 tons (all of which were American-designed and built), eight were made in the Australian run and in the Roaring Forties of the southern latitudes, three were made in the north transatlantic by ships running before favorable westerly gales, and three by big clippers engaged in the California Cape Horn run. The fastest day's run of this trio (413 miles by the big 3,356-ton *Great Republic*) was made in the North Atlantic when the ship was only 5 days out of New York and running before a northwesterly gale, during which she is said to have covered 360 nautical miles in 19 hours (an average of 19 knots per hour and at the rate of 455 miles for twenty-four hours).

In lists of high day's runs, credit is usually given the McKay clipper *Sovereign of the Seas* (2,421 tons) for runs of about 424 and 410 miles. The last and smaller of the two claimed big runs for this vessel, stated at "410 miles in 24 hours," with her taffrail log showing that she traveled occasionally "at the rate of 22 knots an hour," was said to have been made on an 84-day passage from Liverpool to Sydney, N.S.W., when she was running before a westerly gale in the Roaring Forties. At this time, the ship was owned by a German firm, J. C. Godeffroy & Son, of Hamburg, and Captain Müller was in command. As attempts to obtain an abstract log of the passage were unsuccessful, the claimed high day's run has not been generally accepted, particularly as the port-to-port time was not fast, and it was reported that actually the passage had been made sailing eastward instead of to the west and that "on the 40th day out [from Liverpool] near Cape Horn she carried away her topmasts," which damage, it is said, was "repaired in six days."

Basil Lubbock says that on March 18, 1853, the *Sovereign of the Seas* made a day's run of 411 miles, this being her best day's work on a 10-day run in the Roaring Forties, in which she covered 3,144 miles. At this time, however, the big clipper was completing the return passage of her maiden voyage in the New York-San Francisco trade, and after loading whale oil and bone at Honolulu she had sailed February 12, 1853, for New York under command of "Capt." Lauchlan McKay, brother of the builder and owner of the vessel. Lauchlan McKay was an excellent shipwright and had occasion to prove his talents in that line with the vessel's spars on both the outward and homeward runs of the ship's maiden voyage. McKay, however, introduced the reporting of statute miles instead of nautical miles in his reports of day's runs and claimed having made 433 miles in twenty-four hours. Lieutenant Maury, in reviewing this passage, says:

From March 9 to March 31 [1853] from 48° South in the Pacific to 35° South in the Atlantic in 22 days she made 5,391 nautical miles, or 6,245 statute miles, averaging 283 statute miles a day. From noon to noon she made 362 knots, equalling

419 statute miles; she made slightly better than this by figuring out the direction and time, 374 knots or 433 statute miles, a little better than the *Flying Cloud*.

Lieutenant Maury was very friendly with the McKays and had furnished Lauchlan McKay with wind and current charts and plotted the "ideal course" for him to follow, both out and home, before he left New York. McKay was no shipmaster or navigator, but he had a capable commander in Captain Warner, who sailed under him as chief officer (and later took command of the ship when she was chartered to the British for an Australian voyage); yet it is surprising that a technical man such as Maury would even refer to statute miles when mentioning distance at sea or fall into the error of referring to a distance covered in a day as "362 knots" instead of 362 nautical miles, for "knots" is a measurement of speed—not of distance. The big day's run of the *Sovereign of the Seas* referred to by Lubbock as 411 miles on March 18, 1853, was evidently the same performance as the 433-mile day's run claimed by Lauchlan McKay, deflated by Maury to 362 nautical miles for a sun day and 374 miles as adjusted. It is also the same big day's run referred to as 424 miles by other historical writers. However, the big day's run of the *Sovereign of the Seas* has been the subject of much analysis and discussion, prompted by Donald McKay's freely expressed criticism of Lieutenant Maury's findings. (McKay had the big ship to sell and was having great trouble in finding anyone interested in buying her.) Later, a group of naval officers studied the ship's log and, we are told, expressed the opinion that the *Sovereign of the Seas*, from noon to noon, ran 410.7 nautical miles in 23 hours and 18 minutes and over 421 miles (423) in twenty-four hours. Other "authorities" place the distance covered as 417¼ nautical miles in twenty-four hours, and as time advanced, it was even said that Captain McKay's log showed 424 miles for the day, an average of 17⅔ knots per hour, and a speed of 19 knots per hour for three consecutive hours. A distance of 424 nautical miles for a day, noon to noon (which the naval officers said was of 23 hours and 18 minutes' duration), would give a speed of 18.2 knots and not 17⅔ knots per hour. The more the day's run has been studied by "experts" at the instigation of McKay, the more it has become evident that Lieutenant Maury's liberal interpretation of Lauchlan McKay's log and report disposes of the matter and that on this occasion the *Sovereign of the Seas* came far from covering 400 nautical miles from noon to noon, ship's time, or in twenty-four hours.

Maury, however, was in error when he said that the *Sovereign of the Seas*, running easterly and making the 362 or 374 "knots," did "a little better than the *Flying Cloud*"; for prior to the splendid day's run of the "*Sovereign*" in March 1853, the *Flying Cloud*, on her maiden passage westbound, covered 374 nautical miles in one day on July 31, 1851, and on the last leg of her second voyage from China to New York she was reported to have run 382 nautical miles on December 21, 1852.

It is surprising that at any time during the era of sail, the commander of a deep-sea ship should report distance traveled and speed in statute (or land) miles per hour. The nautical mile, which is the only unit of measurement on the oceans of the world, is 6,080.27 feet long, or over fifteen per cent longer than the land mile of 5,280 feet; therefore, a day's run of 400 statute miles is equivalent to only 347 nautical miles, and a speed of 18 statute miles per hour represents a speed of only 15.63 knots per hour. It is a universal rule to measure the speed of inland boats on lakes, rivers, and sounds by statute miles and of deep-sea and ocean-going vessels (which have to take observations of the sun, moon, or stars to determine their position) by nautical miles. Occasionally, a coastwise vessel operating in sight of land states distance and speed in statute miles, but when a vessel goes to sea and has to find its position by celestial observations, distance and speed are measured and can be properly stated only in nautical miles. The statute mile is the unit of measurement of the landsman; the nautical mile of the deep-sea sailor.

Several other clippers have claimed day's runs of 400 miles or over, but the ships' logs have not been presented for inspection to substantiate their claims, some of which are known to be false. The ship *Marco Polo* was said to have made a run of 428 miles in twenty-four hours under Captain McDonnell on January 7, 1854, and the *Shalimar* 420 miles under Captain Robertson on her maiden passage out to Australia. These performances were supposedly made sailing before westerly gales in the Roaring Forties, but they were mere newspaper

reports, and even enthusiastic British contemporary marine writers and later-day historians could not verify and accept them.

The claimed day's record of 449 nautical miles of the *Flying Scud* (Captain Bearse) is entitled to fully as much consideration and acceptance as many of the runs set forth—particularly the day's run of 436 miles claimed by the *Lightning* (Capt. "Bully" Forbes), the record of which performance, presented by a British master who not long afterwards lost his reputation, seems to be tainted. The "all-time record" day's run of 436 miles was claimed to have been made by the *Lightning* on an eastbound transatlantic passage on March 1, 1854, and some forty-one days earlier the log of the *Red Jacket* shows that she had made a record day's run of 417 miles on the same course. The claimed performance of the McKay American-built clipper *Lightning*, with Britain's greatest driving skipper in command, was promptly accepted by the British press, and the "record" was honored on both sides of the Atlantic. Britain was tired of the records being steadily made by American clippers commanded by Americans and welcomed the chance to bestow honors on a British-owned ship commanded by a British captain, even if the ship was the product of a Yankee shipyard. The *Red Jacket* had been built at a Down East (Rockland, Maine) yard, and Boston at this time was running an energetic publicity campaign featuring Donald McKay and his ships; for McKay had ships to sell, and Boston, in bestowing laurels on McKay, honored itself. Most writers on the clipper ship era in America have been emotionally prejudiced in favor of McKay's productions, and many would-be historians have approached their subject in a frame of mind that would tend to limit the field of real American clippers to the relatively few but highly advertised and publicized McKay creations.

A perusal of the abstract logs of the *Red Jacket* and *Lightning* when they made their claimed big day's runs of 417 and 436 nautical miles, respectively, is interesting. The record of the *Red Jacket's* complete transatlantic crossing was made available by her commander, Capt. Asa Eldridge of American packet ship fame. Captain Eldridge was formerly master of the transatlantic Dramatic Line sailing packet *Roscius* and was a seaman and navigator of international reputation. The *Red Jacket* left New York on Tuesday, January 10, 1854, and by noon of the 11th had made 103 miles. Up to noon of Monday, January 23, the ship had traveled 3,268 miles by observation, and at that time the pilot was picked up off Point Lynas and the ship was at the bell buoy at 2:20 p.m., where she was compelled to anchor, as the weather was "thick and squally," no steam tug was to be found, and the pilot refused to take the vessel up the river. During the latter part of the passage (officially reported as 13 days 1 hour 25 minutes, port to port), so fierce was the wind and so heavy the sea that Captain Eldridge was obliged to keep the *Red Jacket* dead before it; consequently he ran more distance than he would have done if he had been able to keep his true course. The abstract log of this all-time record eastbound Atlantic passage made by Samuel H. Pook's Maine-built 2,305-ton clipper *Red Jacket* (January 10-23, 1854) between Liverpool and New York is presented herewith:

Date	Latitude		Longitude		Distance	Wind	Course	Remarks
	°	'	°	'	Nautical Miles			
Jan. 11	40	33	71	45	103	S. by E.	E. ½ N.	Rainy, unpleasant weather.
" 12	41	3	68	30	150	S. by E.	E. by N.	Rain, hail and snow.
" 13	42	19	62	41	265	S. S. E.	E. by N. ½ N.	Rain, hail and snow.
" 14	44	25	58	20	232	S. E. by E.	N. E. by E.	Rain, hail and snow.
" 15	46	35	54	15	210	S. E. by E.	N. E. ½ E.	Rain.
" 16	46	13	51	52	106	S. S. E.	E. by S.	Snow and hail.
" 17	45	55	49	3	119	S. S. E.	E. ¾ S.	Snow and hail.
" 18	50	39	47	0	300	E. by S.	N. by E. ½ E.	Snow and hail.
" 19	51	58	35	55	417	W. by S. ½ S.	E. by N.	Terrific gale and high sea.
" 20	50	39	27	0	364	W. by S. ½ S.	E. by S. ¼ S.	Terrific gale and high sea.
" 21	49	27	18	35	342	W. by S. ½ S.	E. by S.	Fresh gales and high sea.
" 22	51	7	11	21	300	W. S. W.	E. by N. ½ N.	Snow, strong wind, heavy squalls.
" 23	53	27	4	11	360	South	Up channel	Snow, strong wind, squally, dirty weather.

The fast transatlantic passage of the *Lightning*, which reached Liverpool some forty days after the *Red Jacket*, was an eastbound crossing from Boston to Liverpool and over a shorter course, and the McKay clipper left Boston twenty-six days after the *Red Jacket* had arrived in the Mersey. Upon arrival in Liverpool by tug during the afternoon of March 4, Capt. James Nicol ("Bully") Forbes of the *Lightning* declared that he had "made the run from Boston Light to Eagle Island, off the Irish coast, in 10 days, to the Isle of Man in 12 days, and to Liverpool in 13 days and 19½ hours" and had also made "a world's record for a day's run on March 1, when the ship ran 436 miles." The only abstract log ever made public and preserved of this good passage is as follows:

Date	Latitude	Longitude	Distance Nautical Miles	Wind	Remarks
Feb. 18	At 2 p.m. left anchorage in tow and at 3 p.m. discharged pilot off Boston.				
" 19			200	W.S.W. and N.W.	Moderate winds.
" 20	43° 5'	59° 25'	328	N.N.E. and N.E.	Strong breezes with snow.
" 21	41° 30'	57° 0'	145	E.S.E.	Snow storms.
" 22	42° 5'	54° 45'	114	E.S.E.	Gale with high cross sea and rain.
" 23	42° 45'	52° 44'	110	N. and E.S.E.	Strong gales; ends moderate.
" 24	46° 30'	47° 45'	312	S.E.	Moderate winds.
" 25	49° 15'	43° 20'	285	E.S.E. and S.E.	Fresh breezes with thick weather.
" 26	51° 5'	37° 19'	295	W.S.W.	Moderate winds.
" 27	52° 38'	22° 45'	260	W.N.W.	Moderate winds.
" 28	52° 30'	13° 50'	306	W. and N.W.	Steady winds.
Mar. 1			436	S.	Strong gales. Bore away for the North Channel.
" 2				S.	First moderate; later light and calm.
" 3					Light winds and calm.
" 4	At 7 a.m. off Great Orme's Head.				
	" 12 noon off the N.W. Lightship.			S.E.	Light winds and calm.

A comparison of the mileage as stated per day on the passages of the *Red Jacket* and *Lightning* is presented herewith:

RED JACKET			LIGHTNING	
Sailed	From New York Jan. 10, 1854		From Boston Light Feb. 18, 1854	
Stated length of passage to Liverpool.....	13 days 1 hr. 25 min.		13 days 19 hrs. 30 min.	
1st day's run	103 miles	Cumulative	200 miles	Cumulative
2nd " "	150 "	253 miles	328 "	528 miles
3rd " "	265 "	518 "	145 "	673 "
4th " "	232 "	750 "	114 "	787 "
5th " "	210 "	960 "	110 "	897 "
6th " "	106 "	1,066 "	312 "	1,209 "
7th " "	119 "	1,185 "	285 "	1,494 "
8th " "	300 "	1,485 "	295 "	1,789 "
9th " "	417 "	1,902 "	260 "	2,049 "
10th " "	364 "	2,266 "	306 "	2,355 "
11th " "	342 "	2,608 "	436 "	2,791 "
12th " "	300 "	2,908 "	?	?
13th " "	360 "	3,268 "	?	?

The *Red Jacket*, for six consecutive days (January 18-23 inclusive), ran 300 nautical miles or more per day and covered in these six days 2,083 miles, or 347 nautical miles per day—a record. We read that on the 19th of January "the main brace was spliced on the strength of four hundred and seventeen miles, being the greatest distance run in a day by anything afloat." Of the two passages and claims for record day's runs, the *Red Jacket* made the fastest and the all-time record crossing; but the *Lightning* may have made the fastest day's run, although it most probably was not as high as the 436 miles claimed by Capt. "Bully" Forbes. The *Red Jacket's* "big run day" seems reasonable and the claim of record

speed more logical and dependable, when viewed in relation to the published log record, than that of the *Lightning*. The log of the *Red Jacket* accounts for 3,268 miles, but that of the *Lightning* records only 2,791 miles of the passage, and the sailing of the last three days of that ship is "deliciously indefinite as far as records for time, position, and distance are concerned." It is no wonder that the claimed day's run of 436 miles, which does not give even the noon position where it ended, has been treated with more and more suspicion as time advanced and the records have been studied by unprejudiced analysts and competent investigators.

It was later declared that the log of the *Lightning* for March 1 said, "Saw the Irish land at 9:30 p.m."; also, "Distance run in the twenty-four hours, 436 miles." According to the abstract log (which was first published in the Liverpool *ALBION*, with its indefiniteness in regard to what really happened in the realm of speed on March 1 to 4 inclusive), the best time that, it would seem, could be claimed for the run from Boston Light to the first sighted land on or off the Irish coast is 11 days 6½ hours (not 10 days as stated by Captain Forbes), and the time according to the boastful British skipper's published log from lightship to lightship is 13 days 21 hours, sun time. (This run was also reported by the owners as "13 days 19½ hours from Boston Light to Rock Light.")

Donald McKay, in a letter to the *SCIENTIFIC AMERICAN*, November 26, 1859, referring to the fast sailing performances of the *Lightning*, said, "I saw recorded in her log (of 24 hours) 436 nautical miles, a trifle over 18 knots an hour." He says nothing of noon positions of March 1, 2, and 3, respectively, or of courses and checks on stated positions and mileage. He simply saw that the log reported 436 miles covered in one day's sailing, with no position given for the end of the day of the record run, and the log apparently then ceased recording anything further concerning position or mileage. McKay and, evidently, all others who were interested in the performance of the vessel accepted a day's run figure as stated by Captain Forbes without scientific investigation and verification, and all available records of the passage showed an abrupt termination of statistics after the "record" run of 436 miles from noon of February 28 to noon of March 1 had been claimed. Later, it was said that a log had been seen which on March 1 said: "Hove the log several times and found the ship going through the water at the rate of 18 to 18½ knots; lee rail under water and rigging slack. Carried away the fore-topsail and lost jib."

The log of a ship should show not what distance the vessel covers in twenty-four hours (unless stated as a side note) but what mileage she has made from noon to noon sun time (i.e., in a day—ship's time). If the *Lightning* covered 436 nautical miles in twenty-four hours, her average speed would have been 18.2 knots per hour; but if from noon to noon sun time, the average speed would have been about 18.7 knots per hour (as she was running east against the sun and had a "short day"). If the ship was averaging any such speed as reported, then her log would not record that the speed of the vessel, at times, reached 18 to 18½ knots; but an entry recording a spurt speed of some 20 knots or over could have been expected, for to average 18.2 or 18.7 knots per hour for a day would have required occasional spurt speeds much higher. Many a clipper ship averaging 15 or 16 knots for a complete day has recorded in the log speeds of 18 knots or over, and spurt speeds of from 18 to 22 knots per hour (and even more) have been claimed by ships that did not claim a record day's run.

When the *Lightning* made her fast day's run and claimed a world record, "speed was king," records for speed under sail were being made on all seas, the press "gobbled up" sensational news, fished for it, and encouraged exaggeration; the public, then as now, was gullible. The command and owners of a vessel could get any statement published that they cared to present, so they advertised the prowess of their ships through the medium of marine news. Shipping news in the fifties and clipper ship days was probably as truthful as political and national propaganda in the twentieth century. A marine writer and authority who accepted the day's run record of the *Lightning*, nevertheless, wrote: "The run to noon, 1st

March, of 436 miles is difficult to check as the ship's log [her real official log, which was never made public for scrutiny] is needed to note the different courses sailed and the exact position of the ship on the chart when she bore away for the North Channel."

As an argument for the correctness of the day's run record of the *Lightning*, it has been said that "Captain Enright, of the *Lightning*, acknowledged this record when he nearly broke it on 9th March 1857," but such support of a popularly accepted tradition is without weight. Capt. Anthony Enright succeeded Capt. James Nicol ("Bully") Forbes to the command of the *Lightning* when Forbes left her to take command of the new clipper *Schomberg*. Both captains were British, and both were enthusiasts, extravagant in their praise and boastful of the speed and superior qualities of the *Lightning*. It was on March 19-20, 1857 (and not March 9, 1857, as stated), and three years and nineteen days after it was claimed that the *Lightning* had made a world's record day's run of 436 miles, that Captain Enright reported for that ship when in the Roaring Forties, on a run from Liverpool to Australia, a day's run of 430 nautical miles. As will be seen from his announcement to passengers, he "firmly believed" this run, which was made from noon to noon sun time, "to be the greatest performance a sailing ship has ever accomplished." Therefore, it would seem that Captain Enright discredited the claim that the *Lightning* had made a day's run of 436 miles on the North Atlantic on March 1, 1854, as claimed by Capt. "Bully" Forbes. The announcement made by Captain Enright to the passengers of the *Lightning*, following the completion of her 430-mile day's run, was as follows:

21st March 1857

LADIES AND GENTLEMEN,—I cannot help informing you of the extraordinary run we have made during the last 48 hours—or rather allowing for change of time, 46 hours and 48 minutes. During this time we have run by thoroughly good and trustworthy observation, no less than 790 knots or 920 statute miles, being an average of nearly 17 knots or more than $19\frac{1}{2}$ statute miles per hour. Yesterday our noble ship made no less than 430 knots amounting to an average during the 24

($23\frac{1}{2}$) hours of more than 18 knots. Our change of longitude has amounted to 18 degrees, each degree being equal to 44 miles.

I firmly believe this to be the greatest performance a sailing ship has ever accomplished.

I hope this information will in some degree compensate you for the inconvenience which the heavy weather has occasioned you

and I remain, LADIES AND GENTLEMEN

Very Faithfully yours,

A. Enright, Commander

It might be argued that as Captain Enright gave the distance traveled by the *Lightning* for two days as well as the one, his claim of a world's record for speed was for two days' sailing, but this is mere conjecture and does not check with Enright's conversation to passengers and others.

British critics of the speed performance of American clippers accused American masters of overstating their speed attainments by (1) "always reckoning 60 miles to a degree of longitude whilst doing their easting"; (2) figuring on twenty-four-hour days and not "sun time" days when running eastward; and (3) stating distances at sea in land, or statute, miles of 5,280 feet instead of nautical miles of 6,080 feet. A British marine writer refers to the skippers of many of the celebrated Black Ball (British-Australian) clippers as "boastful Yankees who are strangers to the truth." As a matter of fact, not one of the Black Ball or White Star British-Australian clippers was commanded by an American, and the unjustifiable and senseless criticism directed at "Yankee skippers" was, in fact, aimed at British masters. Captain Enright's message to his passengers of March 21, 1857, is of special significance, as it definitely refutes the accusation of 60 miles for each degree of longitude; also the confusion between the twenty-four-hour and "sun time" day and the claimed substitution of statute for nautical miles. It is surprising that Captain Enright even mentioned statute miles in his announcement of distance and speed, but he apparently did so merely to impress and speak in the language more intelligible to his landlubber passengers. Enright's error in using the word "knots" (a measure of speed) in lieu of nautical miles (the measure of distance) will be noticed, but in the fifties much more learned men and even scientists, such as Lieutenant Maury, were often guilty of the same error.

The British captains of the clippers in the Australian and other runs were "speed-record crazy," and Capt. Charles McDonnell declared that the *James Baines* (another McKay-built Black Ball clipper in the British-Australian service) was capable of covering "500 sea miles in 24 hours." On one occasion, he wrote in his log: "Ship going 21 knots with main staysail set" (equivalent to 504 nautical miles in twenty-four hours). McDonnell was greatly disappointed when he failed to beat the *Lightning's* record or to sail close enough to it so that he could claim a day's run in excess of 430 or 436 miles. Capt. Samuel Reid of the *Red Jacket* was convinced that his ship was much faster than the *Lightning*, *James Baines*, or any other reported speedy and record-holding clipper, and Captain Pryce, R.N.R., of the *Donald McKay* and Capt. Alexander Newlands of the *Champion of the Seas* talked extravagantly and boastfully of the speed potentialities of their ships.

Historians have since admitted: "There have been doubts cast on the big 24-hour runs made by the McKay clippers, including the *Lightning's* world record run reported as 436 miles." Yet these claimed phenomenal big day's runs "were not considered so extraordinary and unbelievable in the fifties." As a matter of fact, for a time the shipping fraternity interested in sail and its fight against steam was glad to accept as a fact any claim—even if unverified—of the high speed developed by a wind-propelled, fine-lined clipper, and the British press throughout the entire era of sail welcomed news referring to claimed high-speed runs made by a ship, provided she was British.

When the *James Baines* (2,515 tons) made her fast passage in September 1854 of 12 days 6 hours from Boston Light to Rock Light, the best day's run was 337 miles; yet it was reported that she logged 20 knots at times. In February 1855, when the *Donald McKay* (2,598 tons) made her record run of 421 miles, she is said to have crossed from Boston Light to Cape Clear in the reported time of 12 days, but her total time for the crossing appears in the records as 17 days from Boston Light to pilot off Point Lynas. In the Atlantic service eastbound, the *Sovereign of the Seas* (2,421 tons), in June 1853, made a crossing from New York to Liverpool reported as 13 days 22 hours 50 minutes, with her best day's runs of 344 and 340 nautical miles. The *Typhoon* (1,611 tons), on her passage from Portsmouth, N. H., to Liverpool of 13 days 22 hours in March 1851, made 346 miles on her best day's run and covered 659 miles in two consecutive days—an average of about 330 miles per day.

The two fast eastbound transatlantic passages of two of the largest, most powerful, and speediest clippers afloat at the height of the clipper ship era can be compared, with interest, with the sailing performances over the same course of the moderate-sized and medium-modeled and canvased *Dreadnought* of 1,413 tons (Capt. Samuel Samuels), built at Newburyport, Mass., in 1853. The following is taken from the MONTHLY NAUTICAL MAGAZINE, New York, issue of March 1855:

By courtesy of Capt. Samuels, we had been put in possession of the *Dreadnought's* log on her recent remarkable passage:

DREADNOUGHT					
From New York to Liverpool					
Date	Course	Distance	Winds	Lat.	Long.
Nov. 21	E. by S.	120	N.W. by W., moderate	40°-08'	71°-20'
" 22	E.N.E.	57	S.E., strong	40 -30	70 -08
" 23	E. by N.	225	South, moderate	40 -05	65 -05
" 24	E.N.E. ½ N.	300	S.W., "	43 -20	58 -56
" 25	do.	175	W.S.W., "	44 -08	55 -00
" 26	do.	125	E.N.E., "	44 -50	52 -22
" 27	do.	250	S.S.E., "	46 -33	46 -50
" 28	do.	263	S.W. by W., "	48 -25	40 -50
" 29	E.N.E.	240	West, "	49 -22	34 -15
" 30	E. by N. ½ N.	270	N.N.W., "	50 -20	27 -55
Dec. 1	E. by N.	242	N.W., "	50 -50	21 -15
" 2	E. ½ N.	222	N.N.W., "	51 -04	15 -15
" 3	do.	212	N.N.W., brisk	51 -18	09 -32
" 4	do.	320			

At noon, on December 4th, took a pilot off Point Lynas; was detained 8 hours for want of water at the bar; arrived in the Mersey at 10 p.m.; thus making the passage in 14 days, 4 hours, apparent time. Deducting 8 hours for detention of time at the

bar, and also deducting the difference of longitude, 4 hours and 45 minutes, gives the mean or true time of passage 13 days, 11 hours and 15 minutes. Distance sailed, as above, 3,071 miles; average speed for the passage, 9½ miles per hour.

The distance sailed as per abstract log furnished by Captain Samuels was not 3,071 as stated but 3,021 miles from Sandy Hook at 6:00 P.M. on November 20 to taking pilot at noon of December 4. The real time—allowing, as did Captain Samuels, 4 hours 45 minutes for difference of latitude—was 13 days 13 hours 15 minutes covering 3,021 miles, or 9.3 knots per hour. If the vessel was detained 8 hours at the bar and “arrived in the Mersey” at 10:00 P.M., the passage from Sandy Hook to “the Mersey” would have been accomplished as stated in 14 days 4 hours apparent time; but if the true time of passage was 13 days 11 hours 15 minutes as stated, the additional distance covered in 2 hours could not have been 50 miles—or the difference between 3,021 and the stated 3,071 miles.

This transatlantic passage of the *Dreadnought* from New York to Liverpool (November-December 1854) can be compared with two other westbound Atlantic runs of the same vessel:

Day's Run to Noon	Sailed from New York		
	November 20, 1854	January 24, 1856	February 27, 1859
First day	120	345	200
Second day	57	312	293
Third day	225	252	262
Fourth day	300	223	208
Fifth day	175	90	178
Sixth day	125	115	218
Seventh day	250	212	133
Eighth day	263	228	282
Ninth day	240	208	313
Tenth day	270	185	268
Eleventh day	242	238	205
Twelfth day	222	252	308
Thirteenth day	212	244	150
Fourteenth day	320	212	In port
Total distance as per above..	3,021	3,116	3,018
Reported running time	13 days 11¼ hours for 3,071 miles	13 days 19¾ hours	13 days 8 hours
Arrived Liverpool.	December 4, 1854	February 8, 1856	March 12, 1859

There was no run of 436 or 417 nautical miles claimed to have been made from noon to noon by the sailing packet *Dreadnought*, although the length of each of her three eastbound transatlantic passages stated from New York to Liverpool was between 13 and 14 days and averaged 13 days 13 hours as against 13 days 1 hour 25 minutes for the *Red Jacket* and 13 days 19 hours 30 minutes for the *Lightning*. The fastest day's run, noon to noon, of the *Dreadnought* during these passages was only 320 nautical miles, but the ship showed a high average rate of speed throughout her voyages. Consolidating the logs of the *Dreadnought* and considering only known full day's sailings, noon to noon, we find:

- 13.89 per cent of the full day's runs showed distance traveled of 300 or more nautical miles.
- 38.89 per cent of the days gave runs of 250 miles or more.
- 77.78 " " " " " " " " 200 " " "
- 86.11 " " " " " " " " 150 " " "
- 94.44 " " " " " " " " 100 " " "

Expressed in speed of knots per hour, we find:

11.11 per cent of the days at sea showed an average speed of 13 knots or more per hour.

5.56	per	cent	of	days	at	sea	over	12	and	under	13	knots	per	hour.
13.89	"	"	"	"	"	"	"	11	"	"	12	"	"	"
19.44	"	"	"	"	"	"	"	10	"	"	11	"	"	"
13.89	"	"	"	"	"	"	"	9	"	"	10	"	"	"
13.89	"	"	"	"	"	"	"	8	"	"	9	"	"	"
8.32	"	"	"	"	"	"	"	7	"	"	8	"	"	"
5.56	"	"	"	"	"	"	"	5	"	"	6	"	"	"
2.78	"	"	"	"	"	"	"	4	"	"	5	"	"	"
2.78	"	"	"	"	"	"	"	3	"	"	4	"	"	"
2.78	"	"	"	"	"	"	"	under 3 knots per hour.						

Summarizing the above, it is evident:

16.66	per	cent	of	the	days	showed	an	average	speed	over	12	knots	per	hour.
50.00	"	"	"	"	"	"	"	"	"	"	10	"	"	"
77.78	"	"	"	"	"	"	"	"	"	"	8	"	"	"
86.10	"	"	"	"	"	"	"	"	"	"	6	"	"	"
94.44	"	"	"	"	"	"	"	"	"	"	4	"	"	"

The *Great Republic*, the world's largest wood sailing ship, measured 4,555 tons as built by Donald McKay at East Boston in 1853, but caught fire, was burned before she had ever moved under canvas, and was cut down to 3,356 tons as rebuilt (for A. A. Low & Bro., of New York) by Sneed & Whitlock at Greenpoint, Long Island, under the superintendence of Capt. "Nat" B. Palmer. Her maiden voyage was, as McKay originally intended, an eastward passage across the Atlantic. Capt. J. Limeburner, who stayed in the ship for years, was in command and, after the crossing, reported to her owners:

Made the land 12 days from New York. We were 13 days to Scilly; since that time light winds and calms. We made 342 miles in 22 hours [equivalent to 373 miles in 24 hours and a speed of 15½ knots per hour] and then had to bring the ship to on account of thick weather and proximity to land.

According to the log, the *Great Republic*, which cleared New York on February 21, did not actually sail from Sandy Hook until February 24, for her first stated noon observation was on the 25th, at which time she had traveled 232 miles (which was probably more than a full day's sailing, as each of the next two days averaged 202 miles from noon to noon). The log shows a mileage of 342 miles from noon of March 6 to noon of March 7, so on that day the ship covered no more than the 342 miles which Limeburner said that she had made in 22 hours; therefore, the average speed for that day was only 14¼ knots per hour on a twenty-four-hour-day basis and not 15½ knots as implied.

Howe and Matthews say that the *Great Republic* was bound for Liverpool, but that owing to her great draft of 25 feet "she was unable to enter the dock at Liverpool and had to go to the 'Long Reach' to discharge her cargo." They also state that Captain Limeburner wrote from Liverpool to her owners: "We made the run from land to land in 12 days. Passage a rough one. Reached Liverpool in 19 days. The ship behaved nobly." There is confusion as to whether this maiden passage ended at Liverpool or London. The abstract log of the crossing, which is presented herewith for comparison with the logs of the *Red Jacket*, *Lightning*, and *Dreadnought*, clearly indicates London, as the record ends in the middle of the English Channel, some twelve miles south of the western end of the Isle of Wight, and there is a report that the vessel "anchored in the Downs at 3 p.m. on March 12" and another that she arrived at Bosherville (as far as she could proceed up the Thames) on March 15, which date checks the 19 days previously stated as the length of the transatlantic passage.

Date	Lat.	Lon.	Dist.	Dist.	Days	First Pt.	Middle	Latter	Course
1855									
Feb. 25	40.06	68.48	232	—	1	W.N.W.	N.W.	W.N.W.	E. ½ S.
26	41.06	64.09	210	442	2	W.N.W.	N.W.	N.W.	E. by N.
27	42.23	60.08	194	636	3	N.N.W.	N.	N. by E.	E.N.E.
28	43.11	54.33	254	890	4	N.E.	E.	N.W.	E. by N.
Mar. 1	45.23	48.26	296	1,186	5	N.N.W.	N.	N.W.	E.N.E.
2	48.29	43.09	287	1,473	6	N.W.	W.N.W.	W.	N.E. by E.
3	50.36	36.40	287	1,760	7	W. by N.	N.W.	W.N.W.	N.E. by E.
4	50.58	29.47	265	2,025	8	N.W.	N.	N.N.W.	E. ½ N.
5	52.12	26.21	150	2,175	9	N.	E.	S.E.	E.N.E.
6	52.35	22.51	130	2,305	10	S.E.	S.E.E.	S.	E. by N.
7	50.38	15.06	342	2,647	11	W.	N.W.	N.W.	E.S.E.
8	50.11	12.19	141	2,788	12	N.W.	N.	N.N.E.	E. ½ S.
9	49.54	9.23	135	2,923	13	S.E.	S.W.	W.	E. ½ S.
10	50.03	3.42	223	3,146	14	W.	N.	N.N.E.	E. ½ N.
11	50.27	1.28	95	3,241	15	N.E.	Calm	Calm	E. by S.

The total distance traveled in what we can only assume was 15 full days was 3,241 miles (although the time might be several hours longer and cover some mileage prior to noon of February 24, as the ship, according to the press, cleared New York on February 21). From the above abstract log of the *Great Republic*, the following figures for day's runs and average speeds in knots per hour have been compiled:

	Distance in Nautical Miles		Average Speed Knots per Hour (23-hr. 40-min. days)
	For the Period	Average per Day	
Best 2 consecutive days' sailing (Mar. 1-2)	583	292	12.34
Best 3 consecutive days' sailing (Mar. 1-3 inclusive)	870	290	12.25
Best 4 consecutive days' sailing (Mar. 1-4 inclusive)	1,135	284	12.00
Best 5 consecutive days' sailing (Feb. 28-Mar. 4 inclusive)	1,389	278	11.75
Average distance per day covered during the first 3 days.....		212	8.96
" " " " " " " " next 5 days.....		278	11.75
" " " " " " " " following 3 days.....		207	8.75
" " " " " " " " last 4 days.....		148	6.25
" " " " for reported deep-sea voyage, Sandy Hook to noon of Mar. 11 (15 days).....		216	9.13

Captain Limeburner of the *Great Republic* claimed a day's run of 413 miles in the North Atlantic on December 12, 1856, on the fifth day out from New York when commencing a passage to San Francisco. He asserted that his ship covered during that day 360 nautical miles in 19 hours ("an average of 19 knots and at the rate of 456 miles in 24 hours") and, moreover, "crossed the line in 15 days and 18 hours from Sandy Hook—the fastest time on record." The *Great Republic* did no such fast sailing on her February-March 1855 Atlantic crossing, although she had the benefit of high westerly winds throughout most of the passage, and her command reported a rough trip, which for a big sailing vessel traveling eastward generally meant westerly gales and a chance to make good time and some high day's runs.

The transatlantic sailing packet *Garrick* of 895 tons, built by Brown & Bell, New York, in 1836-1837 for Edward K. Collins, was in service as a New York transatlantic packet about twenty years (1837-1856): seventeen years in the famous Dramatic Line (1837-1853) and three years in the James Foster, Jr., Liverpool line (1854-1856). She was known as "the speedy *Garrick*" and was described as one of the fastest of all transatlantic packets. One of the best marine historians of the era has described her as "the fourth fastest transatlantic sailing packet running to and out of the port of New York" during the Western Ocean sailing packet period of 1818-1858. The *Garrick*, when operating in the Dramatic Line, averaged on her westbound "uphill" crossing 32 days; her longest passage was 54 days and her shortest only 18 days, made in the autumn of 1839. (Only five crossings in the history of forty years of packet sailing were shorter: *Yorkshire* and *Harvest Queen*, 16 days; *Cale-*

donia, Columbia I, and Northumberland, 17 days.) In the *Garrick's* first fifteen westward passages, in addition to her record run of 18 days, were crossings of 22, 25, 27, and 29 days, and three of 30 days. Her average time for westbound runs in eleven years was 31.3 days. To show the actual speed in miles per day and knots per hour of a top-flight transatlantic sailing packet of the thirties and forties operating in 1854 (the year that the *Red Jacket* and *Lightning* made their fast passages and big day's runs), the logs of an ordinary slow summer eastward and a westward crossing have been examined, and the following figures have been gleaned therefrom. It should be borne in mind that the *Garrick* was no longer operating under the Dramatic Line colors and that although she was still a fast ship, the season of the year was not favorable for a short passage, particularly eastbound. The analysis suggests the reason why steam packets showing an average speed of 11 to 13 knots per hour drove the sailing packets from the transatlantic service.

NEW YORK-LIVERPOOL TRANSATLANTIC SERVICE

Outbound, or Eastward, Passage

Passed Sandy Hook noon, May 10, 1854.
 Received pilot off Point Linas 5:00 A.M., June 14, 1854.
 Anchored port of Liverpool 10:30 A.M., June 14, 1854.

Time of passage, pilot to pilot.....	34 days 17 hours	Sun Time.
	(approx. 34 " 12 "	True Time)
Time of passage, anchorage to anchorage.....	35 " 2 "	Sun Time.
	(approx. 34 " 21 "	True Time)

Official log gives distance traveled on only 29 of the days of the passage.
 Maximum reported day's run 203 miles; speed 8.46 knots per hour.
 Minimum " " " 20 " " 0.82 " " "
 Average " " " 103 " " 4.30 " " "

Number of day's runs reporting an average speed of 8 knots per hour or over	2 or	6.90	per cent of the total reported.
Number of day's runs reporting an average speed between 7 and 8 knots per hour	3 "	10.34	" " " " " "
Number of day's runs reporting an average speed between 6 and 7 knots per hour	3 "	10.34	" " " " " "
Number of day's runs reporting an average speed between 5 and 6 knots per hour	5 "	17.24	" " " " " "
Number of day's runs reporting an average speed between 4 and 5 knots per hour	1 "	3.45	" " " " " "
Number of day's runs reporting an average speed between 3 and 4 knots per hour	2 "	6.90	" " " " " "
Number of day's runs reporting an average speed between 2 and 3 knots per hour	9 "	31.03	" " " " " "
Number of day's runs reporting an average speed between 1 and 2 knots per hour	2 "	6.90	" " " " " "
Number of day's runs reporting an average speed less than 1 knot per hour	2 "	6.90	" " " " " "
Total.....	29 "	100.00	

On only 6.90 per cent of the days for which mileage was reported, the speed exceeded 8 knots per hour; on only 17.24 per cent of the days was it *over* 7 knots; 27.58 per cent over 6 knots; 44.82 per cent over 5 knots; 48.27 per cent over 4 knots; and on 44.83 per cent of the days the speed averaged *less* than 3 knots per hour; on 13.80 per cent less than 2 knots and on 6.90 per cent less than 1 knot per hour.

Homeward, or Westward, Passage

Passed Rock Lighthouse 4:00 P.M., July 3, 1854.
 Received pilot off American Coast 10:00 P.M., August 8, 1854.
 Saw Highland Lights 10:00 P.M., " 9, 1854.
 Arrived New York Harbor 11:00 A.M., " 10, 1854.

Time of passage, pilot to pilot.....	36 days 6 hours	Sun Time.
	(approx. 36 " 11 "	True Time)
Time of passage, anchorage to anchorage.....	38 " 3 "	Sun Time.
	(approx. 38 " 8 "	True Time)

Official log gives distance traveled on only 29 of the days of the passage.
 Maximum reported day's run 189 miles; speed 7.87 knots per hour.
 Minimum " " " 27 " " 1.12 " " "
 Average " " " 101½ " " 4.23 " " "

Number of day's runs reporting an average speed of 8 knots per hour or over	0 or 0	per cent of the total reported.
Number of day's runs reporting an average speed between 7 and 8 knots per hour	4 "	13.80 " " " " " "
Number of day's runs reporting an average speed between 6 and 7 knots per hour	2 "	6.90 " " " " " "
Number of day's runs reporting an average speed between 5 and 6 knots per hour	5 "	17.24 " " " " " "
Number of day's runs reporting an average speed between 4 and 5 knots per hour	2 "	6.90 " " " " " "
Number of day's runs reporting an average speed between 3 and 4 knots per hour	7 "	24.13 " " " " " "
Number of day's runs reporting an average speed between 2 and 3 knots per hour	7 "	24.13 " " " " " "
Number of day's runs reporting an average speed between 1 and 2 knots per hour	2 "	6.90 " " " " " "
Total.....	29 "	100.00

On only 13.80 per cent of the days for which mileage was reported, the speed exceeded 7 knots per hour; on only 20.70 per cent of the days was it over 6 knots; 37.94 per cent over 5 knots; 44.84 per cent over 4 knots; and on 31.03 per cent of the days the speed averaged less than 3 knots per hour and on 6.90 per cent less than 2 knots.

The record day's run for a sailing ship is acknowledged by some authorities to be held by the *Flying Scud*, which, like another and more popularly famous record-breaking clipper, the *Red Jacket*, was a product of Maine shipbuilders. Whereas the big *Red Jacket* of 2,305 tons was built by George Thomas at Rockland, the *Flying Scud* was constructed at the yard of Metcalf & Norris, Damariscotta, each in the year 1853. The *Flying Scud* (1,713 tons; 220½ ft. long, 40¾ ft. beam, and 23¾ ft. deep) was an extreme clipper and was built primarily for speed. On her maiden voyage from the Maine shipyard, she is said to have shown "amazing and phenomenal" speed. The *Flying Scud* was handicapped by agents who sent her to sea on her first voyage "with her scuppers awash, a heavy deck load, and trimmed two feet by the head." She sailed from New York for Australia September 29, 1853, with 140 passengers aboard. Although severely handicapped by overloading and faulty trim and delayed several days by having her compasses deranged by lightning, she arrived at Port Phillip Heads December 14 after a passage of 75 days. Capt. Warren H. Bearse, of Hyannis, Cape Cod, Mass., was in command, and his log for November 6 contains the notation that on that day she ran 449 nautical miles before a strong favorable gale. She further made "4,620 miles in 16 days when running her easting down, a daily rate of nearly 289 miles," or 12 knots per hour average speed for the distance and period of time stated. Captain Bearse enjoyed a splendid reputation not only as a seaman and navigator but also for character and veracity. That the reported speedy performance of the *Flying Scud* for one day was not a mere "flash in the pan" is proven by other good runs that she made. She still holds the transatlantic sailing record from New York to Marseille, which she negotiated in 19 days 20 hours (December 20, 1855-January 9, 1856) under Capt. Rodney Baxter; she was heavily laden with grain and, it was reported, "as usual, overloaded and badly trimmed." In 1856 she made an excellent run of 81 days to India via the Cape of Good Hope, clearing New York (with Captain Baxter in command) on April 14 and arriving at Bombay on July 4.

There is a legend that credits the *Flying Scud* with an even greater day's work under sail. According to this story from the past, the *Flying Scud*, on one occasion, ran 460 miles, or at a sustained average speed of 19¼ knots an hour, from noon to noon. For years, marine authorities and historians attempted without success to authenticate this legend. Apparently, Captain Bearse was not in command of the ship at the time, as he knew nothing about it, and he had left the ship in March 1856 to take command of the clipper *John Land* (1,054 tons), in which he promptly made two fast Cape Horn passages to San Francisco in 102 and 108 days, respectively. Some shipping people firmly believed the report of the "*Scud's*" 460-mile day's run, but others expressed the opinion that an admirer of the ship projected an

unusual day's work into the measure of land, or statute, miles. Assuming this to be so and 460 to be statute and not nautical miles, the *Flying Scud* on this particular occasion ran 400 miles at a sustained average hourly rate for a day of about 17 knots per hour.

Skepticism in regard to the claimed 449-nautical mile day's run of the *Flying Scud*, reported made on November 6, 1854, is probably due primarily to the fact that it was the surgeon of the ship, John Stratford, that "burst into print" and in the columns of the Melbourne ARGUS boosted the sailing performance of the "*Scud*" shortly after the ship's arrival. In Stratford's communication, the surgeon dwells at length on the ship's being struck twice by lightning early in the passage in the North Atlantic and the effect on the men (who were knocked down and suffered from shock) and the ship's compasses. After an interesting scientific discourse, in which he refers to the handicaps wrought by lightning to the ship's progress, he mentions sailing to the South Atlantic before steering east and says: "On Monday the 6th of November, the ship ran the very large amount of 449 nautical miles in the 24 hours [being favored by very heavy winds]." Had Surgeon Stratford stopped at this point, it is probable that the ship's performance would not have been questioned, but he continued to give noon positions commencing eighteen days later, when sailing eastward in the Roaring Forties, and does not make an arithmetical error in calculating but merely misquotes the mileage covered in sixteen consecutive days (November 24-December 10) as 6,420 nautical miles; whereas it was 4,620 miles and would be so calculated by the ship's position as given by him and taken from the ship's log. The NAUTICAL MAGAZINE of New York, copying from the Melbourne ARGUS under the caption, "Maine Carries the Broom—Excellent Sailing," printed the following article in its May 1855 issue:

The clipper ship *Flying Scud*, Capt. Bearse, of R. W. Cameron's Pioneer Line of Australian Packets, from New York, Sept. 29, for Melbourne, on the 6th of November, ran 449 nautical miles in 24 hours. On the 24th of November, the ship was in latitude 45° 47' S., longitude 32° 6' E., and arrived Dec. 10, in longitude 139° E., running 6,420

nautical miles in 16 consecutive days, averaging 401 nautical miles per day. She crossed the Equator, 26th of October, longitude 32° 41' W., and arrived at Melbourne, Dec. 18, after a passage of 75 days, being the best passage ever made from New York. The *Flying Scud* was built by Messrs. Metcalf & Norris, at Damariscotta, Me.

Surgeon John Stratford of the *Flying Scud* was certainly not a rabid speed booster of that clipper, for he casually mentioned in a postscript of his communication to the Melbourne ARGUS: "Passage 80 days." The American clipper *Nightingale* had reached Melbourne in early August 1854 (some four months before the "*Scud*" arrived) after a sea passage stated at 75 days 16 hours (best day's run, 365 miles), and a Boston champion of the Sampson & Tappan clipper, which had also been chartered by R. W. Cameron & Company's Australian "Pioneer Line," objecting to the honors being given the Maine-built *Flying Scud*, jumped at the erroneously stated 80-day passage and the worthy surgeon's other mistake of stating a mileage of 6,420 instead of 4,620, ignored the claimed big day's run of 449 miles, and obtained a letter from Lieutenant Maury asserting (what Captain Bearse and the officers of the *Flying Scud* well knew and the ship's log clearly showed) that the correct distance covered in the stated sixteen consecutive days was 4,620 nautical miles. With this, an attempt was made to besmirch the *Flying Scud* and discredit all phases of her performance, although no direct attack was made on the claimed day's run of 449 miles.

Capt. William H. Bearse reported from Melbourne to Howes & Company, New York, owners of the *Flying Scud*, of their vessel: "Safe arrival at this port, after a passage of 75 days, all well." However, Surgeon Stratford's offhand "Passage 80 days" has persisted and has been so recorded by many historical authorities. On all passages to Melbourne, there is a question as to where the voyage stopped, whether at Port Phillip Heads, where sail was taken in, or "anchored in Hobson's Bay." Captain Bearse, referring to his 75-day passage, wrote to the owners: "We have lost more miles by the compasses being out of the way than we have by the ship being out of trim, and both put together makes quite an item in

our passage. The *Flying Scud* has made the quickest passage that has ever been made from the States to this port. We beat the ship *Flying Dutchman* seven days."

The *Flying Dutchman* had left Sandy Hook on September 15, 1854 (two weeks before the *Flying Scud* sailed from New York), and the command of the "*Dutchman*" claimed a passage of 81 days from Sandy Hook to Port Phillip Heads at Melbourne, arriving on December 6. Any run of around 80 days from New York or Boston to Melbourne was "exceedingly fast," for Lieutenant Maury, "the Pathfinder of the Seas," estimated: "Liverpool is ten days nearer Melbourne than New York owing to the prevalence of more favorable winds on the early part of the voyage from England." Later, the British-owned but American-built clipper *James Baines* established the all-time sailing record of 63 days between Liverpool (December 10, 1854) and Melbourne (February 12, 1855), and the relatively little China clipper *Mandarin* of only 776 tons, constructed in 1850 by Smith & Dimon, New York (builders of the *Sea Witch*), made the all-time sailing record of 70 days between New York and Melbourne, leaving New York on December 21, 1855, and arriving at Melbourne March 1, 1856. This passage of 70 days, proclaimed by Maury and all competent authorities to be a faster run than a 63-day passage from Liverpool to Melbourne, greatly surprised the marine fraternity, for the ship was too small and had neither the size nor power to compete with the big clippers running east in the Roaring Forties of the southern latitudes. The *Mandarin* (Captain Perit), on this record run, took ten days more time than the record from St. Roque to Melbourne; but she did some brilliant sailing between New York and to the point where she crossed the meridian of Greenwich, and throughout each section of the 13,000-mile voyage she enjoyed the rare experience of meeting with favorable winds and that combination of ship, wind and sea that is requisite to the making of a fast record passage. Neither the *Flying Scud* nor the *Nightingale*, therefore, could boast of holding the New York-Melbourne record for long, and on July 10, 1856, the clipper *Panama* of 1,139 tons (built in New York in 1853) arrived at Melbourne, under the command of Capt. W. P. Cave, after a passage from New York of 74 days 8 hours, which beat the time of both the *Flying Scud* and *Nightingale* and stands second to the amazing record passage of the *Mandarin*.

Octavius T. Howe and Frederick C. Matthews, in *AMERICAN CLIPPER SHIPS, 1833-1858* (Salem, Mass., Research Society), say that the *Flying Scud* in 1854, on a voyage from New York to Melbourne under command of Capt. Warren Bearse, of Hyannis, Mass., "on Nov. 5 was in 27° 41' South and 29° 30' West. The following day she ran 449 nautical miles. Then for a week had variable weather, calms and strong gales." Carl C. Cutler, in *GREY-HOUNDS OF THE SEA—THE STORY OF THE AMERICAN CLIPPER SHIP*, says: "The story is still told around Damariscotta [Maine] that when she [*Flying Scud*] sailed from the port on her maiden voyage, her officers decided that her chronometers were out of order—being of the opinion that no ship could have run down the river and gotten to sea in the time they indicated." Cutler says that R. W. Cameron, of New York (who evidently chartered the *Flying Scud* for a voyage to Australia), promised a 60-day passage to prospective travelers and then overloaded her so outrageously (including a heavy deck load) and trimmed her so badly (two feet by the head) that "she was, therefore, extremely crank and . . . it is remarkable that she made the passage at all." Although handicapped by overloading and bad trim and "delayed several days by having her compass deranged by lightning," she, nevertheless, made "a passage of 76 days" to Melbourne. Cutler continues:

Her log for the 6th of November contains the notation that on that day in Lat. approximately 27-41 S. she ran 449 nautical miles. . . . It is to be regretted that the log of the *Flying Scud* is not available [in the twentieth century] to throw additional light on the claim of 449 miles in a single day. If it can be reasonably authenticated, it would stand as the best day's run ever made by a clipper. In the absence of the log or other corroborative evi-

dence, there is always the possibility of error on the part of Captain Bearse in figuring his distance. On the one hand, however, it must be assumed that it would be difficult to make an honest error which would seriously affect the above result, and on the other an investigation of Captain Bearse's reputation in the neighborhood in which he lived and died indicates it was highly improbable that he would make a dishonest report of any sort.

Captain Bearse was not a publicity-loving skipper. Modest and retiring, he preferred to attend to his affairs assiduously and "keep out of print." He coveted no encomiums. He was a stout Yankee skipper of character, of high common sense, and a man of few words—the very antithesis of Capt. "Bully" Forbes, who, as master of the Boston-built but British-owned clipper *Lightning*, claimed a day's run of 436 miles for his ship and was never able to prove it; nor, it would seem, was a real demand ever made of that bombastic, unprincipled British captain to furnish proof to substantiate his claim.

It is well to bear in mind that the records of sailing ships doing as much as 18 knots or more for a limited period of time are of much more interest as records of the occasional driving force of a strong and favorable wind in a favorable sea on a model capable of high speed than as measures of the effective speed of sailing ships or of the real merits of a ship or of her command. All world records and all outstanding performances of sailing ships in the realm of speed can be attributed in a great measure to Dame Luck and to "unique and unprecedented" conditions of favorable wind and sea.

The *Red Jacket* (2,305 tons), believed by many marine experts to have been the handsomest and fastest sailing ship of her day and "the swiftest ship of her inches ever built," was constructed by George ("Deacon") Thomas, of Rockland, Maine, and designed by Samuel H. Pook, of Boston, Mass. She made her first voyage from Liverpool to Melbourne in 1854 in 69 days 11 hours 15 minutes (but the time under sail was stated as 67 days 13 hours) and, continuing, ran around Cape Horn to Liverpool in 73 days. Incidentally, she lost considerable time on the homeward run among icebergs and field ice off the Horn and in calms and light winds in the North Atlantic. On this voyage, the *Red Jacket* completely circumnavigated the globe in 5 months 10 days 22½ hours, including all detention in the port of Melbourne for loading and unloading, and brought from Australia to England 45,000 ounces of newly mined gold. On the outward passage of her maiden voyage to Australia, the *Red Jacket* had light winds and poor trades to the meridian of the Cape of Good Hope, which she reached on the 51st day out (in Lat. 45° S.), but the ship, in running her easting down, went to 52° S., where she experienced much cold weather, snow, hail, and sleet; nevertheless, she ran from the meridian of the Cape to Melbourne in 19 days—the fastest time on record—traveling 400 nautical miles in one day. Continuing on the homeward passage, the *Red Jacket* had rounded Cape Horn in 20 days, thus making the run between the two capes in the southern latitudes via Melbourne in somewhat less than 39 days—another all-time record; notwithstanding being delayed by field ice and icebergs off Cape Horn, she ran from Melbourne to the equator in the Atlantic in 42 days, covering 10,423 nautical miles and averaging 248 miles per day and about 10⅓ knots per hour for this distance. In the North Atlantic, lack of wind caused the big, fast clipper to take 31 days to cover an additional 4,440 miles of the journey, and she completed the run of 14,863 miles at an average of 203½ miles per day and about 8½ knots per hour, with the best day's run 376 miles and the highest speed logged 18 knots per hour. On the outbound passage, the mileage reported was 13,880 nautical miles, making the distance sailed at sea on the entire voyage 28,743 miles and the average speed about 8½ knots per hour (best speed logged, 19 knots). The *Red Jacket*, in 1855, beat both the *Lightning* and the *James Baines* in the run out to Melbourne, where she arrived December 4 after a splendid run of 44 days from the Atlantic equator. The *Red Jacket*, which holds the record for an eastbound transatlantic crossing, did the best sailing of all the clippers in the Roaring Forties of the southern latitudes and made the best time from Cape to Cape and from the Atlantic to the Pacific equator via Melbourne.

The *Lightning* (2,083 tons), in addition to her claimed 436-mile day's run in the North Atlantic and later a 430-mile day's run in the Roaring Forties in 1857, is also credited with making 412 miles in twenty-four hours on the homeward run of her first voyage between

Liverpool and Melbourne under the command of Capt. "Bully" Forbes in 1854. She ran out in 77 days and home in 63 days 16 hours from Port Phillip to pilot off Point Lynas. On this fast passage to England, Forbes made incredible claims for speed during a period of ten days, but the *Lightning's* best day's run of 412 miles has been generally accepted as authentic. On this voyage, the clipper carried to England about five million dollars worth of Australian gold. On her fourth homeward passage as a Black Ball Australian packet, the *Lightning*, under Capt. Anthony Enright, made 1,908 miles in one week and 5,244 miles in 18 days (an average of 291 miles per day and somewhat over 12 knots per hour). On her fifth voyage outbound, her best week's work was covering 2,188 miles—an average of 312½ miles per day and slightly over 13 knots per hour. On her sixth outward passage, when she made a run of 430 miles on March 19-20, 1857, the *Lightning* made 1,446 miles in four consecutive days, an average of 361½ miles per day and about 15.2 knots per hour; she is also credited during the voyage with a run from the Atlantic equator to Cape Otway of 9,449 miles in 35 days and 15 hours, an average of about 11 knots per hour.

In 1854-1855, the *James Baines* (2,515 tons), with a passage from Liverpool to Melbourne in the record time of 63 days and a run home via the Horn in 69½ days, made the record time of sailing around the world—as reported—in 132 days at sea. She is said to have made the run out, land to land, in only 58 days, although the time is recorded as 65 days 5½ hours from Liverpool to Melbourne and 63 days 18 hours from Rock Light to Hobson's Bay. It was on this voyage that the *James Baines* made her three day's runs of over 400 miles. On the outward passage, she made 407 miles on January 27, 1855, and 423 miles on February 6 when running her easting down in the Roaring Forties; this was a day of 23½ hours, and the average speed was 18 knots per hour. On the homeward run, the ship covered 420 miles in one day according to the log of June 18, 1855. The *James Baines*, during this complete voyage, was lucky as to wind and weather, but she was a very fast and powerful ship as her log testifies. In 1856 the big clipper left Liverpool on April 7 and was 29 days to Cape St. Roque, but from there she took only 48 days and 6 hours to Cape Otway and in the Roaring Forties ran 2,276 miles in seven consecutive days—an average of 325 miles per day and over 13.8 knots per hour from noon to noon. On May 28, she made 2° 15' of latitude and 8° 7' of longitude, calculated as 404 miles, the log showing, "Brisk gales with occasional heavy squalls and rain and wind increasing." Other log entries following this date, while the ship was running her eastings down, read:

June 15th: Commenced fresh breezes with rain and sleet; at 8 a.m. more moderate. At noon sighted a ship ahead under double reefed topsails, we having main skysail set and going 17 knots. At 1 p.m. alongside the ship, the *Libertas*. At 2 p.m. she was out of sight astern.

June 18th: Wind freshening; at 8 p.m. took in all starboard stu'nails; main skysail set; ship making 21 knots. Fine clear night; fresh gale until nearly noon with snow squalls.

This claimed 21-knot speed of the *James Baines* as reported by her British skipper, Capt. Charles McDonnell, in about Lat. 44° S. and Long. 106° E., would seem to be the highest authentic sailing ship record for speed over a short stretch. Claims have been made of spurt speeds as high as 22 and even of 23 knots per hour; but it has not been proven that such speeds were actually attained in traveling through the water, and at least one of the highest claimed speeds was admittedly with the benefit of a strong current.

The *Marco Polo* (1,622 tons), built in 1850-1851 in New Brunswick, Canada, was referred to by her owners, who took pride in her speed, as "the world's ugliest ship." She was described by those who were ignorant of her well-shaped underwater body as "a packing case with masts." Liverpool "know-it-all" ship merchants predicted that this "clumsy" Canadian ship would not log a hundred miles a day. She made her initial trip across the Atlantic "in just over two weeks"; she recrossed to the United States in ballast and at Mobile loaded cotton for Liverpool, making the run in 35 days. The *Marco Polo* was "bought cheap" by

Paddy McGee, a Liverpool ship chandler. He sold her to James Baines, a man who knew about ships and appreciated the vessel's lines below water for speed and her general seaworthiness, internal space, and power. The *Marco Polo* became "the pioneer clipper" of the Australian Black Ball Line (James Baines & Company). Advertisements for passengers to Australia were inserted in the papers, and since the emigrant traffic to "down under" was heavy, the *Marco Polo* sailed on June 24, 1852, for Melbourne crowded with 900 persons.

Strange things happened thereafter. Sixty-eight days later the *Marco Polo* was at Port Phillip Heads, Melbourne. Her time was a full week better than that of the *Australian*, an auxiliary steamer which was advertised as the fastest on the run. From Melbourne the *Marco Polo* sailed for Liverpool by way of the Horn, logging 353 miles in one day and 300 on other days. She was in the Mersey 76 days later. By this time, the world of shipping was paying a great deal of attention to the *Marco Polo*. She did not look anything like a "clipper," and yet there she was cracking off such passages as enabled Baines to charge extra fare. It was reported that she covered 428 miles in a day during January 1854. Another statement by a supposed authority reads, "The *Marco Polo* made 431 miles in one day under 'Bully Forbes'"; but these claims do not seem to have been substantiated and are generally deemed to be statements somewhat lightly made rather than facts capable of being defended and proven by records. Her best sailing was probably shown running her easting down to the southward of the Cape of Good Hope, when she made 1,344 miles in four consecutive days, her best day's run during this period being 364 miles. This vessel, in the England-Australia service, actually sailed twice around the globe within twelve months (July 1851 to July 1852). The *Marco Polo* was also credited with covering 3,740 nautical miles in 13 days, or an average of 288 miles per day and a speed of 12 knots per hour for the period. It was said that this "ugly but sensationally fast" ship established records that stood well into the era of steam. She was evidently a well-constructed and sturdy craft. Baines kept the *Marco Polo* running for twenty years, and then adverse fortunes in other fields forced him to sell her. Her new owners put her in the Mediterranean coal trade. Later she carried guano from South America and finally was set to work carrying timber. In 1883, when thirty-three years old, she was wrecked on Prince Edward Island.

There has always been a tendency to exaggerate the speed of sailing vessels either by the publication of claimed high day's runs or by the statement of phenomenally high speed said to have been shown by the taffrail log for short periods of time under unusually favorable sailing conditions. The log speed claims for a single or an occasional reading during "a burst of speed" of short duration are impossible to check, as they reflect the findings generally of one man, often unverified by the command, who, nevertheless, if the report is favorable to the ship, is likely to record it in the official log. All the big day's runs claimed by clippers in the Atlantic service were eastbound and were helped by favorable westerly winds, good sea conditions, and often by currents from the Gulf Stream. The remainder of the claims were for clippers in the Southern Hemisphere sailing eastward before westerly gales in the Roaring Forties, and a skipper who placed speed ahead of comfort of passengers and even of safety would go far south and lay his course in the fifties (where it was likely to be bitterly cold, with ice, snow and sleet, in the antarctic winter) looking for heavy winds to drive his ship eastward (outbound from the Cape of Good Hope to Australia and on the home run from Australia to Cape Horn). The commanders, particularly during the era when "speed was king," were probably also permeated with pride and optimism and actuated by a favoring psychology affecting the use of instruments and influencing computations and recording media.

Many old sailors were very skeptical about twenty-four-hour runs as reported by the commands of vessels, as they said, "It is so easy to screw up a few more miles on the sextant and book one's reckoning." It is with cause that many items in sailing ship logbooks are

looked upon with askance. Claimed high log speeds were given but little attention; they could not be verified, and most of them were branded as optimistic guesses born of enthusiasm and a sense of pride, with "the wish father to the thought." The one quoted from the logbook (June 18, 1856) of the *James Baines*, "Ship going 21 knots with main skysail set," was generally considered as the limit of credulity, but was, nevertheless, accepted as possible for that ship under the sailing conditions experienced at the time. (Her command claimed that if the wind had held steady, the "*Baines*" would have covered 500 nautical miles in twenty-four hours.) The American-built clipper *Blue Jacket*, on a run in 1865 from New Zealand to London in the Roaring Forties or fifties, reported not a spurt speed but "an average speed of 20 knots per hour running our easting down before heavy south-west gales," and, we are told, "at times the patent log even showed 23 knots."

When Captain Müller, the German commander of the *Sovereign of the Seas* (then owned by Godeffroy, of Hamburg), claimed a day's run of 410 miles during an 84-day passage from Liverpool to Sydney, N.S.W., he reported, "Traveled by log on occasions at the rate of 22 knots per hr." Probably the most extreme statement of the speed of a sailing vessel at sea is that written by an officer of this Donald McKay-built big clipper, the *Sovereign of the Seas* (2,421 tons), during the first part of what proved to be a slow run from San Francisco to Honolulu, on the first leg of the return passage of the maiden voyage, the vessel having left the Golden Gate December 22, 1852: "On the third day out down went the barometer and up went the wind. We were flying light and she heeled over until the lee rail was under water and we finally had to run before the wind; how she did fly; I have seen her sail away at the rate of 20 miles an hour drawing 21 feet but flying light, as she was, she must have been going at the rate of twenty-five."

The Canadian-built clipper *Golden Age* of 1,241 tons, launched at St. John in 1853 and acquired by the British for the Australian packet service, claimed to have sailed "overground" at the phenomenal rate of 22 knots per hour, but the command had the honesty and good sense to admit that the ship had "a strong current to help her." However, it was said: "More than current would be needed to help the *Golden Age* to show a 22-knot speed even if she is classed as a clipper." It was reported by some person who had sailed on the ship *Three Brothers* (the converted American steamship *Vanderbilt*) that the vessel "was known to have done 24 knots per hr. under canvas," but this statement is a gross exaggeration and should not be given serious consideration; the log of the ship at no time shows a spurt speed in excess of "18 to 19 knots."

British skeptics for some time sarcastically referred to the record high day's run of American-built clippers as "American records," and J. N. Barry wrote:

Where American records are concerned much caution must be observed in taking their feats of speed for granted. Our cousins had a canny fashion of, no matter where they might be sailing, always reckoning 60 miles to a degree of longitude whilst doing

their easting, so that a day's run of, say, 240 miles upon a parallel of 45° would by this means give the distance covered as exactly 100 miles in excess of what it should be.

Another nautical writer has said:

The skippers of many of the celebrated Black Ball [Australian] clippers were not above adopting this mode of calculation, viz., 60 miles to a degree

of longitude, but while it gave some wonderful results for a single 24 hours, it did not as a matter of fact make their passages any more rapid.

Basil Lubbock, the British marine historian, has written that he had letters scoffing at the Black Ball Australian packet line records and remarking that "their skippers were a leery lot" and provided "palatable pabulum for the proud passengers." The accusation by the British that the performance of American clippers was tinged, as far as their speed records were concerned, with "American guile, bluff and boastfulness" is amusing, Lubbock admits, when it is known that the skippers of these American clippers credited with record runs were

at the time invariably British. Neither the Black Ball nor the White Star Line of British colonial (Australian) sailing packets during the period under discussion had a ship commanded by an American, and in the Australian trade the American-built clippers that made the records were both British owned and British commanded. Capt. James Nicol Forbes and Capt. Anthony Enright of the *Lightning*, Capt. Charles McDonnell of the *James Baines*, Capt. Samuel Reid of the *Red Jacket*, Captain Pryce, R.N.R., of the *Donald McKay*, Capt. Alexander Newlands of the *Champion of the Seas*, etc., were all British skippers of the largest and fastest ships in the service, all of which—to the chagrin of the British—were Yankee built.

Most of the world's great long-distance speed records under sail have shown no very great twenty-four-hour runs nor any extraordinary high speed for a relatively short period. The amazingly fast *Sea Witch*, as before stated, did not report a speed beyond 358 miles per day and 15 knots per hour, and most of her best day's work on record runs was under 300 miles. The *Oriental*, in her record New York-to-China run, had a maximum day's run of only 302 miles. In the famous and highly publicized China-to-London tea race of 1866, the best day's run of the nine contesting clippers was only 320 miles. The *Comet* had a day's run of 350 miles when making her fast passage from Liverpool to Hong Kong, and the little American bark *Maury*, when she defeated the crack British tea clipper *Lord of the Isles* in 1856, is credited with one day's run of 370 miles. The clipper *Golden Gate* (1,341 tons; 193½ ft. length, 39 ft. beam, 21½ ft. depth; built by Westervelt, New York, in 1851), on her record passage of 86 sailing days from Shanghai to Beachy Head, England, reported day's runs during the voyage of 350, 360, and 380 miles by observation, the latter, it is claimed, being the all-time sailing record in the China tea service.

Most commands have at times shown a superabundance of enthusiasm when both referring to and recording the performance of their vessels. This is not an attribute peculiar to the operators of sailing ships engaged in the Western Ocean packet service, the "Frisco-round-the-Horn," the China tea, or the Australian colonial trade. In the nineties and after the turn of the century, the masters of big full-bodied sailing hulks—operated undermanned by the power of tremendous sail spread and driven relentlessly by bullying skippers—made claims for high day's runs and spurts of incredible speed, but this tendency was not confined to the captains and owners of sailing craft. The maximum speed of the British steamship *Mauretania* was officially stated as some 31 knots per hour and accepted as such by the press on her record-breaking run of a few hours from Havana, off the southern coast of Florida, en route to Diamond Shoal Lightship, off Cape Hatteras; no mention was made of a 4-knot-per-hour favorable current. Many a 15-knot boat on the same run and under similar conditions has been credited with from 18- to 20-knot speed. Ocean currents, at times, greatly affect a vessel's speed for a few hours, for a day, or for several days. Moreover, days at sea are of varying length, and the sun is not always visible at noon. Many recorded day's runs are the result of dead reckoning that takes from or adds to the performance for one or more days, and this to the advantage or detriment of the record of other days. Even in the late 1930's, on transatlantic liners, one day's or two days' runs were robbed to help a high day's run, and to the definite knowledge of discerning and experienced passengers clocks have been manipulated in order to assist in record-making.

Speed as indicated by the old taffrail log was notoriously inaccurate, but so is the speed of modern steamships as determined under leaden skies by engine revolutions, etc. The real and only criterion to establish any vessel's speed is the actual sailing or steaming time between well-established geographic points, and even then favorable or unfavorable wind and water conditions, currents, etc., have to be considered and always the change of time due to longitude and also to standard sectional times, daylight-saving times, etc.

Very occasionally the skipper of a vessel admits that the speed of his sailing ship or steamship has been benefited by a favoring current, but a command is often quick to record

—and guess—the effect of an adverse current. When the bark *Black Squall* (about 400 tons) made the passage leaving Rio de Janeiro May 13, 1852, crossed the equator May 25, and reached Sandy Hook (New York) June 9, Captain Codman claimed a record run of 26 days between the ports and 15 days from the equator. He reported that his vessel made 1,600 miles, 229 miles per day on the average, before reaching the line “notwithstanding an average contrary current of 2 knots per hour, so that our day’s work averaged 277 miles.” He later reported that on this passage the *Black Squall* ran “by daily observation 5,136 miles, an average of 197½ miles per day” (i.e., 8.23 knots per hour), but he does not mention the amount of favoring current experienced during the latter part of the voyage.

In 1928 the Alden-designed schooner *Pinta* (formerly *Nicanor*) participated in the small class division of the transatlantic sailing yacht race from Ambrose Light Vessel, New York, to Santander, Spain. She measured 57.6 ft. L.O.A., 42.5 ft. L.W.L., 14.5 ft. beam, and 7.7 ft. draft. When reporting a record day’s run for this craft of 253 nautical miles in 23 hours and 38 minutes (or 10.7 knots per hour), the command on the *Pinta* took special pains to minimize the achievement by fully recording data on a favoring current and, by so doing, proved himself to be not only a fine type of sportsman but also a man gifted with a scientific mind. He wrote:

We were jubilant that afternoon, for we knew that we had set a mark for a 42-foot boat that might never be broken—an average of eight knots through the water, which is ordinary enough, but of ten and

a half knots over the bed of the sea. The conjunction of a good sailing breeze and a powerful favoring current does not often occur.

Twice he referred to calculations that proved the existence of a 2½-knot-per-hour favoring current, and the record for the day stands at 10.7 knots over the ocean bottom, but only 8.25 knots per hour through the water. Alfred F. Loomis, in his book OCEAN RACING, continued in his report of the passage by saying that the next day’s run was 192 miles, with the wind and speed by log holding about the same, and added: “The Stream which had picked us up now had let us down, and we were making merely our eight knots [over bottom as well as] through the water.” With further reference to the phenomenon experienced, we read:

So we sailed, thankful for what we had received and regretful only that we did not know the meanderings of the artery which helps eastbound ships as it pumps warmth and life to the northern countries of Europe. I have tried twice in later years to put the yacht I was navigating in the position from which *Pinta* began her famous run, and each time the wind has balked me. Once we passed

sixty miles north of it and once thirty miles south and experienced no more than a one-knot set on either occasion. But in the Spanish race *Mohawk* passed less than thirty miles north of *Pinta’s* track and got two consecutive runs of 215 and 231 miles, while *Nina* from a position seventy miles north of us made good only 181 miles on our record-breaking day.

In 1854 the clipper ships *Romance of the Seas* and *David Brown* sailed one of the closest and most remarkable similar passage races of which there is any official and trustworthy record. The particulars of these extreme clippers of generally similar size, built one in Boston and the other in New York at the same time, are set forth herewith comparatively:

Name of Clipper	Builder	Launched	Owner	Captain	Tonnage	Dimensions in Feet and Inches		
						Length	Beam	Depth
ROMANCE OF THE SEAS	Donald McKay, East Boston	Oct. 23, 1853	Geo. B. Upton, Boston (her designer)	Philip Dumaresq	1,782	240-9	39-6	20
DAVID BROWN	Roosevelt & Joyce, New York	Oct. 8, 1853	A. A. Low & Bro., New York	George S. Brewster	1,717	225 (deck)	41	22-6

The *Romance of the Seas* sailed from Boston on December 16 and the *David Brown* from New York on December 13, 1853, for San Francisco and China, and after passages of 96 days 18 hours and 99 days 20 hours, respectively, both reached San Francisco on March 23, 1854. The two ships were towed out to sea through the Golden Gate, side by side, in good ballast trim on March 31, 1854, for the run to Hong Kong, China. They parted company and, we are told, "after a fine passage of 44 days and 22 hours each came to anchor in the same hour at the same port of destination." Actually, the two clippers reached Hong Kong on May 16, 1854, the *Romance of the Seas* about one hour in the lead, after a run of about 45 days. Continuing their voyages, the *David Brown* went up the coast to Shanghai to load and thence to London in 111 days, 72 days from Anjer, while the "*Romance*" loaded at Whampoa and was 102 days to London and 79 days from Anjer. On the run out to China and what was virtually a voyage around the world, there was little, if anything, to choose in the realm of speed between the two clippers, and, as a matter of fact, each skipper claimed a slight advantage for his ship.

When the two clippers left their home ports in December 1853, it was said: "Considerable money was wagered on the result of the runs of the two ships, both of which were the masterpieces of their respective builders." The *Romance of the Seas*, whereas built by Donald McKay, was designed by her talented owner, George B. Upton, of Boston, and the *David Brown*, although built by Roosevelt & Joyce, successors to Jacob Bell (formerly Brown & Bell), had the tradition, experience, and designing talent of Brown and Bell behind her, together with the advice of the ship's most competent owners, A. A. Low & Bro., and their consultant, Capt. "Nat" Palmer.

In the run to San Francisco, the "*Brown*," which left port three days ahead of her rival, increased her lead to four days at the Atlantic equator, making the run from New York to the line in 21 days and logging 4,205 miles, an average of 200 miles a day; whereas the "*Romance*" made the line in 22 days from Boston, covering 3,784 miles and averaging 172 miles per day. The "*Brown*" fell to leeward of Cape St. Roque and had to beat around, in consequence of which she lost two to three days' time, taking 30 days to run from the equator to the Horn. She was within ten miles of the Cape when 51 days out, having sailed 8,408 miles from Boston to that point. The "*Romance*" was within three miles of the Cape in 27 days from the line and 49 days out, having sailed 7,907 miles. Each ship took 13 days to round Cape Horn between the two crossings of Lat. 50° S. (Atlantic and Pacific), and each had a 29-day run from Cape Horn to the Pacific equator, which was crossed in 111° W.; the "*Brown*" was one day ahead and 80 days out as against 78 days out for the "*Romance*." In the North Pacific, the "*Brown*" stood out farther to the westward, taking 15 days and logging 2,656 miles to Lat. 33° N.; while the "*Romance*" was but 12 days to the same latitude, covering only 2,322 miles. From that position to port, the "*Brown*" was 5 days, making 452 miles; while the "*Romance*" was over 6 days, traversing 436 miles. Each ship, on the whole passage, had eight days in which she sailed over 250 miles, the "*Brown's*" best day's run being 284 miles; whereas the "*Romance*" covered 322 miles during her best day. The total distance logged by the "*Brown*" was 16,167 miles (average, 161.1 daily; passage, 99 days 20 hours). Total distance logged by the "*Romance*" was 15,154 miles (average, 156.6 daily; passage, 96 days 18 hours).

This is a remarkable instance of close sailing between two ships over the longest and most difficult course in ocean transportation. When the logs of the ships are carefully studied, it is evident that neither had any advantage over the other as to speed, and this fact was further exemplified by the passages of the two rivals from San Francisco to Hong Kong. It has been authoritatively said: "Although no further opportunity ever occurred for the two ships to sail together, it is apparent that neither had an advantage over the other in sailing ability and both are considered as ranking among the fastest sailing ships ever built."

The *Romance of the Seas* and the *David Brown* sailed from San Francisco across the Pacific for Hong Kong on March 31, 1854, after only eight days in port. The "*Brown*" hauled out into the stream first and saluted her rival with guns when she pulled out from the dock. At 3:30 p.m., both ships were being towed to sea, and many bets had been wagered on the coming race, the "*Romance*" being a slight favorite.

The log of the *David Brown* records that on the first day of the run to Hong Kong the vessel "sailed in company with *Romance of the Seas*, outside and clear of bar, made sail and passed *Romance of the Seas* at 9 a.m." As the day's run of April 1 ended, the notation appears, "*Romance of the Seas* 12 miles astern." On the last day of the run to Hong Kong (May 16), the log of the *David Brown* reads, "At daylight large clipper ship astern. At 8 the above ship having a breeze passed to windward of us while we were becalmed. At 11:30 she anchored and at 30 past meridian we came to anchor close to the above ship, which proved to be the *Romance of the Seas*." The mileage covered by the *Romance of the Seas*, as shown by the log, was 7,727 miles, and the average distance per day was stated as 171 miles, the passage taking 44 days 22 hours. The *David Brown*, according to the vessel's log, traveled 7,610 miles in 44 days 23 hours, the average distance per day being 169 miles.

In this race, we see the work of two skippers who departed from the theoretical track; one favored bearing to the north and the other to the south. Captain Brewster of the "*Brown*" was always conscious of the shortest sea route between ports and departed from the theoretical track only when such a course was suggested by the Maury charts and data based on recorded prevailing winds and known currents. Captain Dumaresq of the "*Romance*," not finding the wind in the regular plotted track, went a little farther afield searching for it. He started the voyage, according to the official log, with "royal studding sails and skysails set," and the record says that they were "never taken in"—an amazing fact in a transpacific voyage of 45 days; yet he reports eight days as "squally," and the log speaks of fresh, brisk and baffling winds. The "*Brown*" pulled away from the "*Romance*" at the start and quickly had her "hull down astern," but after the first nineteen hours' sailing the "*Romance*" had logged 132 miles compared with only 108 of the "*Brown*." By noon of the second day, the "*Brown*" had traveled 242 miles as against 220 miles for the "*Romance*," and at noon of the third day the distance logged was 362 miles for the "*Brown*" and 333 miles for the "*Romance*." The "*Brown*" negotiated the deep-sea run in better time than the "*Romance*," but in making the run logged 117 fewer miles and traveled about 1½ per cent less mileage. The "*Romance*," on her last four days of sailing (May 13-16 inclusive), reports the wind and weather as steadily "moderate and pleasant," but the "*Brown*'s" log shows this designation for only the two days of May 13 and 14. On the 15th, it reports "calms" and on the last day of the voyage "light, baffling air and intervals of calm all day." This accounts for the fact that, whereas the "*Brown*" had the "*Romance*" "hull down astern" at the end of the first day's sailing and at the dawn of the last day, the "*Romance*," benefiting by a variable and fluky breeze, was able to anchor one hour before the "*Brown*" according to the log of the "*Brown*" and one and one-half hours as set forth in the log of the "*Romance*." At noon on May 15, the "*Romance*" was 173 miles from port and the "*Brown*" only 150 miles. In the last two days of sailing, the "*Brown*" covered 314 miles and the "*Romance*" 301 miles, and a comparison of the mileage traversed by the two vessels on other days toward the end of the voyage is here given:

April	"BROWN"	"ROMANCE"	April	"BROWN"	"ROMANCE"
14-16	436	399	11-16	992	793
13-16	654	525	10-16	1,118	996
12-16	800	645	9-16	1,267	1,192

A comparative record of the eight best and eight worst day's runs for each of the two clippers is stated herewith:

Best Day's Runs				Worst Day's Runs			
ROMANCE OF THE SEAS		DAVID BROWN		ROMANCE OF THE SEAS		DAVID BROWN	
Date	Day's Run Nautical Miles	Date	Day's Run Nautical Miles	Date	Day's Run Nautical Miles	Date	Day's Run Nautical Miles
April 15	312	April 16	287	May 5	74	May 2	57
" 14	288	" 15	267	" 6	84	April 30	69
" 19	272	" 17	257	April 2	88	May 3	78
" 6	253	" 6	254	" 30	92	" 7	79
" 23	246	" 7	251	" 4	98	April 4	95
" 13	242	" 18	245	May 1	98	May 5	95
" 16	240	" 14	230	" 10	98	" 1	96
" 18	240	" 11	228	" 7	99	" 11	118

The best day's run and the best consecutive days' runs of from two to seven days for both the "Romance" and the "Brown" and the worst day's run, with the worst consecutive days' runs of from two to seven days, are set forth herewith for each of the clipper contestants:

	Nautical Miles Covered			Nautical Miles Covered	
	ROMANCE OF THE SEAS	DAVID BROWN		ROMANCE OF THE SEAS	DAVID BROWN
Best day's run	312	287	Poorest day's run	74	57
Best 2 consecutive days	600	554	Poorest 2 consecutive days	158	135
Best 3 consecutive days	842	821	Poorest 3 consecutive days	257	231
Best 4 consecutive days	1,082	1,066	Poorest 4 consecutive days	377	300
Best 5 consecutive days	1,317	1,296	Poorest 5 consecutive days	522	423
Best 6 consecutive days	1,540	1,509	Poorest 6 consecutive days	667	564
Best 7 consecutive days	1,780	1,727	Poorest 7 consecutive days	788	705
Best average speed per hour for best 7 consecutive days' sailing	10.18 knots	9.84 knots	Average speed per hour for worst 7 consecutive days' sailing...	4.69 knots	4.20 knots

The best sailing of the "Romance" for ten consecutive days covered 2,445 nautical miles, or an average of 244½ per day and about 10.2 knots per hour; whereas the best sailing of the "Brown" for a similar period covered 2,361 miles, an average of 236 miles a day and about 9.8 knots per hour.

A further analysis of the westbound transpacific passages of the "Romance" and "Brown" is presented herewith:

ROMANCE OF THE SEAS

Speed per Hour Knots	Nautical Miles Covered per Day	Number of Full Day's Runs in This Distance and Speed Range	Speed per Hour Knots	Nautical Miles Covered per Day	Number of Full Day's Runs in This Distance and Speed Range
Between 3 and 4	73-96	4	Less than 4	Less than 96	4
" 4 " 5	97-120	7	Between 4 and 6	97-144	11
" 5 " 6	121-144	4	" 6 " 8	145-192	10
" 6 " 7	145-168	5	" 8 " 10	193-240	12
" 7 " 8	169-192	5	" 10 " 12	241-288	5
" 8 " 9	193-216	7	Over 12	Over 288	1
" 9 " 10	217-240	5	Total number of full days		43
" 10 " 11	241-264	3	Less than 4	Less than 96	4
" 11 " 12	265-288	2	Between 4 and 8	97-192	21
" 12 " 13	289-312	1	" 8 " 12	193-288	17
Total number of full days		43	Over 12	Over 288	1
			Total number of full days		43

Percentage of days of the passage that showed a speed of 4 knots per hour or less = 9.3; over 6 knots, 65.1; over 8 knots, 41.9; over 10 knots, 13.9; over 12 knots, 2.3.

DAVID BROWN

Speed per Hour Knots		Nautical Miles Covered per Day	Number of Full Day's Runs in This Distance and Speed Range	Speed per Hour Knots		Nautical Miles Covered per Day	Number of Full Day's Runs in This Distance and Speed Range
Between 2 and 3		49- 72	2	Less than 4		Less than 96	7
" 3 " 4		73- 96	5	Between 4 and 6		97-144	9
" 4 " 5		97-120	2	" 6 " 8		145-192	7
" 5 " 6		121-144	7	" 8 " 10		193-240	14
" 6 " 7		145-168	5	" 10 " 12		241-287	6
" 7 " 8		169-192	2	Total number of full days			43
" 8 " 9		193-216	11	Less than 4		Less than 96	7
" 9 " 10		217-240	3	Between 4 and 8		97-192	16
" 10 " 11		241-264	4	" 8 " 12		193-287	20
" 11 " 12		265-287	2	Total number of full days			43
Total number of full days			43	Total number of full days			43

Percentage of days of the passage that showed a speed of 4 knots per hour or less = 16.3; over 6 knots, 62.8; over 8 knots, 46.5; over 10 knots, 13.9.

As both the *Romance of the Seas* and the *David Brown* were booked to carry cargoes from China to London, it is to be regretted that the race between these two fast clippers was not continued; for the "*Romance*" loaded at Whampoa, but the "*Brown*" sailed up the coast and took her cargo at the more distant port of Shanghai. The "*Romance*" is credited with a passage from Whampoa to London of 103 days, which was eight days shorter than the 111-day passage of the "*Brown*" from Shanghai to London. The run of the "*Romance*" was given much publicity, and she was reported to have covered 4,172 miles in sixteen consecutive days, an average for this period of 261 miles per day and a scant 11 knots per hour; on seven of the days, the clipper's average was 307 miles and her speed about 12⁷/₈ knots per hour. However, it would seem that the "*Brown*," which had been handicapped by about an additional eight-hundred-mile journey down the China Sea, did the best deep-sea sailing of the two ships when once they passed the Straits of Sunda and headed across the Indian Ocean for England via the Cape of Good Hope and the Atlantic. Whereas the "*Romance*" took 80 days to run from Anjer to London, the "*Brown*" covered this deep-sea part of the course in only 72 days.

The *Romance of the Seas* was the last extreme, or "out-and-out," clipper built by Donald McKay, and some authorities say that she was "the sharpest ship built in Boston." On her third voyage under the command of Capt. William W. Henry, she sailed across the Pacific westbound from San Francisco to Shanghai in the excellent time stated as 34 days 4 hours from pilot to pilot. The log of the clipper gives the time of discharging pilot off the Heads, leaving the Golden Gate, as "8 A.M. Civil Time, Nov. 18, 1856." The time of arrival off Shanghai is also officially stated in the log as "12 Noon, December 23, anchored off the lightship, wind and tide ahead. Took a pilot to take the ship to Shanghai." The distance covered, as stated by log, was 6,795 nautical miles, and with the time as stated the average run per day would be 199 miles and the average speed 8.3 knots per hour. Evidently, the 34 days and 4 hours—length of voyage, pilot to pilot—is what Capt. W. W. Henry calls in his log "Civil Time." As the difference in time between the ports is about eight hours, it would seem that the passage was made in 34½ days (of twenty-four hours) of real sailing time, and the average mileage per day—if all other statistics given by the log are correct—was 197 miles and the average speed 8.2 knots per hour. December 5, being the Meridian Day (or the day of crossing the International Date Line, where west longitude changes into east longitude), was naturally omitted from the log.

Taking the 33 days for which full day's runs are reported in the official log, we obtain the following data:

Average Speed for Day Knots per Hour		Mileage per Day Nautical Miles	Number of Day's Runs during Voyage in Stated Speed Group	Percentage of Days in Stated Speed Group to Total Days Sailed during Voyage
Under 4 knots		Under 96 miles	1	3.03
Between 4 and 5 knots		Between 97 and 120 miles	1	3.03
" 5 " 6 "		" 121 " 144 "	3	9.09
" 6 " 7 "		" 145 " 168 "	4	12.13
" 7 " 8 "		" 169 " 192 "	5	15.15
" 8 " 9 "		" 193 " 216 "	3	9.09
" 9 " 10 "		" 217 " 240 "	5	15.15
" 10 " 11 "		" 241 " 264 "	7	21.21
" 11 " 12 "		" 265 " 288 "	2	6.06
Over 12 knots		Over 288 miles	2	6.06
Total			33	100.00
Under 4 knots		Under 96 miles	1	3.03
Between 4 and 6 knots		Between 97 and 144 miles	4	12.12
" 6 " 8 "		" 145 " 192 "	9	27.28
" 8 " 10 "		" 193 " 240 "	8	24.23
" 10 " 12 "		" 241 " 288 "	9	27.28
Over 12 knots		Over 288 miles	2	6.06
Total			33	100.00
Under 4 knots		Under 96 miles	1	3.03
Between 4 and 8 knots		Between 96 and 192 miles	13	39.40
" 8 " 12 "		" 193 " 288 "	17	51.51
Over 12 knots		Over 288 miles	2	6.06
Total			33	100.00

This run of the *Romance of the Seas* shows unusually steady and uniform sailing under maintained favorable conditions. No calms or light, baffling winds were experienced and, on the other hand, no typhoons, hurricanes, or gales. Each day the wind was moderate or fresh, and on her best day's run the log shows, "Wind moderate, latter part fresh. All sail set." On her day of poorest mileage, the winds were "light and pleasant." Not even a squall was experienced until the 31st day of the voyage, when the log reads, "Took in skysail and royal studding sails for the first time since leaving port." The sea was smooth throughout the passage, and only a rather rough head sea was reported on the 32nd day of the voyage, when the "*Romance*" covered 228 miles at an average speed of 9½ knots per hour. The four best day's runs were 302 miles on November 22, 290 miles on November 28, 264 miles on December 3, and 261 miles on December 15. The poorest day's runs were 89 miles on December 19, 101 miles on December 17, 124 miles on the first day out (twenty-eight hours), and 129 miles on November 29. The best three days' sailing was 796 miles on November 26-28, an average of 265 miles per day and 11 knots per hour. For the seven days December 3-10, the vessel covered 1,758 miles, an average of 251 miles per day and 10.46 knots per hour; for the ten days December 3-13, the mileage was 2,400 (240 miles per day and 10 knots per hour), and in thirteen consecutive days (December 3-16) 3,062 miles were traversed, with an average day's run of 235½ miles and an average speed of 9.8 knots per hour. This period of almost two weeks' maintained steady sailing under favorable conditions of wind and sea is indicative of the general nature of the passage. The poorest sailing performance during the voyage was a run of 331 miles during the three days December 17-19 toward the end of the passage, with the log reading, "Light winds and pleasant." The average day's mileage for this three-day period was 110.3 and the speed 4.6 knots per hour. (On the day before and the day after this brief poor sailing period, the ship averaged 9.2 knots per hour.)

This passage of the *Romance of the Seas* was not the record as was claimed, for the *Swordfish*, sailing from San Francisco June 16 and arriving at anchorage off Shanghai July 19, 1853, made the run between ports in 32 days 9 hours. The *Celestial*, one of the earliest of clippers and a small "sharp-modeled" ship of 860 tons (length 158 ft., beam 34 ft., depth 19 ft.) built by William H. Webb, New York, in 1850 for Bucklin & Crane, New York, was reported to have made a passage from San Francisco to Hong Kong—a greater distance of some 650 miles—in 1852 in only 33 days. As compared with the average time made by sailing vessels between the ports of San Francisco and Shanghai, the 34½-day passage of the *Romance of the Seas* is, nevertheless, noteworthy. Maury's sailing directions and outlined tracks gave the average sailing time between San Francisco and Shanghai as 52 days. (Maury gave the average sailing time between New York and San Francisco, however, as 130 days; whereas three passages were made in 90 days or better, and of ninety vessels which made three or more completed, successful passages between these ports, nine runs were made in less than 95 days and sixteen in better than 100 days.) The mileage reported by log of the *Romance of the Seas* on her fast Golden Gate-China run is high, as the distance given is 6,795 nautical miles, and the steamship route between the ports via Yokohama gives a mileage of only 5,577 nautical miles. This larger log mileage of sailing vessels over steamships following the short theoretical tracks between ports is not given the full consideration it deserves in comparing the speed performance of vessels propelled by wind with those driven by steam, oil, or electricity and which are generally known as "full-powered" vessels. It is the time between ports, actually from dock to dock, that is of prime importance in an economic sense, and the distance run per day or logged per hour is decidedly "secondary data." If the *Romance of the Seas* is considered as having covered 5,577 miles—the steamers' distance between ports—in 34½ days, the average mileage per day becomes only 161½ miles (not 199 miles as claimed) and the average speed 6.7 knots per hour (not 8.3 knots as stated).

The *Romance of the Seas* sailed on her last voyage from Hong Kong to San Francisco on December 31, 1862, when nine years old, and "went missing" in the North Pacific. By a strange coincidence, her old rival, the *David Brown*, came to an untimely and tragic end (after a sea life of seven years) on January 6, 1861, in the North Atlantic, the ship being abandoned when in a sinking condition. All the thirty-five hands aboard the "*Romance*" were lost when the clipper surprisingly disappeared, but all who were on the "*Brown*" were saved by means of the ship's small boats, which were picked up at sea, some being landed at Havana and others at Liverpool.

The following is a partial list of record passages made by United States-designed and built clippers on the Seven Seas during the clipper ship era. Many of the fastest and most outstanding American clippers may not be mentioned in this list, as some other vessel may have beaten their time between the points stated. In the California (as in all other) runs, both westbound and eastbound, only the record fast passages are stated. The *Andrew Jackson's* run of 89 days 4 hours is the record from an East Coast port via Cape Horn to San Francisco, and the two wonderful passages of the *Flying Cloud* in times reported as 89 days 8 hours and 89 days 21 hours are merely mentioned, but not set forth in detail. Eastward over this course, only the record passages of the *Comet* to New York and the *Northern Light* to Boston are mentioned, and such fast passages as the 78-day run of the *Bald Eagle* in 1854 from San Francisco to New York, the 82-day record run of the *Messenger* from San Francisco to Philadelphia in 1853-1854, and the 6-month 24-day round trip of the *Flying Dutchman* between New York and San Francisco in 1852-1853, etc., are omitted as they were inferior to other runs recorded.

The length of passages of British vessels and of chartered vessels in British service is often difficult, if not impossible, to obtain for comparative purposes, as in addition to variable points at which the passage was considered ended in Australia, India, China, etc., the point of commencement of the run, instead of being the port of departure, might be made at any point, rock, or light in the English Channel or British waters. Whereas in the transatlantic

sailing packet era the length of a passage for such American-owned packets was universally recorded as the time from the port (city) of departure to the time of arrival at the port (city) of destination and generally "dock to dock," during the clipper ship and steamship eras the length of a passage came to be computed not from dock to dock or anchor to anchor but from pilot to pilot and then from light to light or from land to land. Many a passage to and from England has been recorded as commencing and ending several days' sailing from the real port of departure or of destination, and points on the mainland or islands off the extreme southwestern coast of England have been considered as the point for the commencement and ending of deep-sea voyages.

Name of Clipper and Tonnage	When and Where Built	Passage		Length of Passage	Remarks
		From	To		
RED JACKET (2,305 tons)	1853 George Thomas, Rockland, Maine	New York Jan. 11, 1854	Liverpool Jan. 23, 1854	13 days 1 hr. 25 min.	Capt. Asa Eldridge. Best day's run, 417 miles; poorest day's run, 106 miles.
ANDREW JACKSON (1,679 tons)	1855 Irons & Grinnell, Mystic, Conn.	Liverpool Nov. 3, 1860	New York Nov. 18, 1860	15 days	Captain Johnson. Return Atlantic round voyage in record time of 30 days.
FLYING SCUD (1,713 tons)	1853 Metcalf & Norris, Damariscotta, Maine	New York Dec. 20, 1855	Marseilles Jan. 9, 1856	19 days 20 hrs.	Capt. Rodney Baxter. Very deep laden.
ANDREW JACKSON (1,679 tons)	1855 Irons & Grinnell, Mystic, Conn.	New York Dec. 25, 1859	San Francisco Mar. 23, 1860	89 days 4 hrs.	Capt. John E. Williams. Beat the two passages of FLYING CLOUD re- ported as 89 days 8 hrs. and 89 days 21 hrs.
COMET (1,836 tons)	1851 Wm. H. Webb, New York	San Francisco Dec. 27, 1853	New York Mar. 14, 1854	76 days	Capt. E. C. Gardner. Was 76 days 7 hrs. from wharf to anchor.
NORTHERN LIGHT (1,021 tons)	1851 E. & H. O. Briggs, South Boston, Mass.	San Francisco Mar. 13, 1853	Boston May 29, 1853	76 days 8 hrs.	Capt. Freeman Hatch. Run from pilot to Boston Light also stated as 76 days 6 hrs.
CONTEST (1,098 tons)	1852 J. A. Westervelt, New York	New York Nov. 16, 1852	New York May 30, 1853 Round voyage N. Y.-San Francisco	195 days	Capt. William Brewster. Net sailing time 180 days.
GREAT REPUBLIC (3,356 tons)	1853 (rebuilt 1854) Original builder Donald McKay, East Boston, Mass.	New York (Sandy Hook) Dec. 7, 1856	Atlantic equator Dec. 23, 1856	15 days 19 hrs.	Capt. Joseph Limeburner. Reported 413 miles in one day and 360 miles in 19 hrs. on passage to San Francisco.
COMET (1,836 tons)	1851 Wm. H. Webb, New York	San Francisco Feb. 13, 1853	Pacific equator Feb. 25, 1853	11½ days	Capt. E. C. Gardner. Discharged pilot at 6:00 p.m., Feb. 13 on passage to New York.
COMET (1,836 tons)	1851 Wm. H. Webb, New York	Pacific equator Feb. 13, 1856	San Francisco Feb. 25, 1856	12 days	Captain Arquit. On passage from New York to San Francisco.
COMET (1,836 tons)	1851 Wm. H. Webb, New York	Atlantic equator Feb. 28, 1854	New York Mar. 14, 1854	15 days	Capt. E. C. Gardner. On record passage from San Francisco to New York. Delayed 200 miles from Sandy Hook by head winds.
COMET (1,836 tons)	1851 Wm. H. Webb, New York	San Francisco Dec. 27, 1853	Cape Horn Feb. 1, 1854	35 days 7 hrs.	Capt. E. C. Gardner. On record passage from San Francisco to New York.

(Continued on next page)

Name of Clipper and Tonnage	When and Where Built	Passage		Length of Passage	Remarks
		From	To		
COMET (1,836 tons)	1851 Wm. H. Webb, New York	Cape Horn Feb. 1, 1854	New York Mar. 14, 1854	41 days	Capt. E. C. Gardner. On record passage from San Francisco to New York.
WITCHCRAFT (1,310 tons)	1850 Paul Curtis, Chelsea, Mass.	Rio de Janeiro June 10, 1851	San Francisco Aug. 11, 1851	62 days	Capt. Wm. C. Rogers. On passage from New York to San Francisco via Rio.
SNOW SQUALL (742 tons)	1851 Alfred Butler, Cape Elizabeth, Maine	New York Feb. 21, 1856	Rio de Janeiro Mar. 21, 1856	29 days	Captain Gerard. Also stated as a 28-day passage.
GREY EAGLE (479 tons)	1848 Abraham & Cooper, Baltimore	Rio de Janeiro May 17, 1852	Philadelphia (Delaware Capes) June 9, 1852	23 days	Capt. W. P. Whipple. Also reported, "Anchored at Quarantine Grounds below Philadelphia in 23 days."
DAWN (bark; 387 tons)	1857 Thos. Collyer, New York	Buenos Aires May 5, 1860	New York June 11, 1860 (2:00 a.m.)	36 days	Capt. Levi B. Chase. Made three successive runs in from 36 to 40 days; average of 37 days 16 hrs.
OCEAN TELEGRAPH (1,495 tons)	1854 J. O. Curtis, Medford, Mass.	Callao Apr. 28, 1855	New York June 25, 1855	58 days	Capt. Geo. H. Willis. Passage in the guano trade.
TELEGRAPH (1,078 tons)	1851 J. O. Curtis, Medford, Mass.	Valparaiso Cleared June 20, 1853	Boston Aug. 20, 1853	58 days	Capt. G. W. Pousland. Clearance to entry, 61 days; but reported and announced in both New York and Boston press as 58 days.
SEA WITCH (908 tons)	1846 Smith & Dimon, New York	New York Apr. 13, 1850	Valparaiso June 11, 1850	59 days	Capt. George Fraser. On record passage to San Francisco of 97 sailing days.
HORNET (1,426 tons)	1851 Westervelt & Mackey, New York	San Francisco Sept. 4, 1853	Callao Oct. 7, 1853	33 days	Capt. Wm. Knapp. Passage in the guano trade.
TELEGRAPH (1,078 tons)	1851 J. O. Curtis, Medford, Mass.	Valparaiso Mar. 12, 1854	San Francisco Off Golden Gate Apr. 16, 1854	34 days	Capt. Kimball Harlow. On passage from Boston to San Francisco; put into Valparaiso for repairs.
DEFIANCE (1,900 tons)	1852 George Thomas, Rockland, Maine	Chincha Islands, Peru Feb. 27, 1855	Hampton Roads, Va. Apr. 20, 1855	52 days	Capt. John Kendrick. Passage in the guano trade.
PHANTOM (1,174 tons)	1852 Samuel Lapham, Medford, Mass.	Callao Sept. 16, 1853	Rio de Janeiro Oct. 18, 1853	32 days	Capt. Alvin H. Hallett. Passage in guano trade, Callao to New York via Rio, 65 sailing days.
WILD PIGEON (996 tons)	1851 Geo. Raynes, Portsmouth, N. H.	Talcahuano Mar. 9, 1860	New York Apr. 28, 1860	50 days	Capt. P. N. Mayhew. In New York and Chilean passenger and cargo trade.
WILD PIGEON (996 tons)	1851 Geo. Raynes, Portsmouth, N. H.	Pisagua Aug. 31, 1858	New York Oct. 21, 1858	51 days	Capt. P. N. Mayhew. In New York and Chilean passenger and cargo trade.
JOHN BERTRAM (1,080 tons)	1850 Elwell & Jackson, East Boston, Mass.	San Francisco July 5, 1851	Rio de Janeiro Sept. 2, 1851	58 days	Capt. Frederick Lendholm. On passage to Boston. Put into Rio for 9 days.

(Continued on next page)

Name of Clipper and Tonnage	When and Where Built	Passage		Length of Passage	Remarks
		From	To		
N. B. PALMER (1,399 tons)	1851 Westervelt & Mackey, New York	Honolulu Apr. 23, 1854	Atlantic equator June 15, 1854	57 days	Capt. Chas. P. Low. San Francisco to Hono- lulu, 10 days; Honolulu to New York, 82 days.
SOVEREIGN OF THE SEAS (2,421 tons)	1852 Donald McKay, East Boston, Mass.	Honolulu Feb. 12, 1853	New York May 6, 1853	82 days (same as N. B. PALMER)	Capt. Lauchlan McKay. Best day's run, 374 miles; made 5,391 miles in 22 days.
MANDARIN (776 tons)	1850 Smith & Dimon, New York	New York Dec. 21, 1855	Melbourne Mar. 1, 1856	70 days	Capt. J. W. C. Perit. Was 23 days to Cape St. Roque and 47 days from there to Melbourne.
FLYING DRAGON (1,127 tons)	1853 Trufant & Drummond, Bath, Maine	Sydney Aug. 14, 1860	Hampton Roads, Va. Oct. 28, 1860	75 days	Capt. Horace H. Watson, Jr. In guano trade; had put into Sydney for repairs.
SWEEPSTAKES (1,735 tons)	1853 D. & A. Wester- velt, New York	New York May 9, 1857	Bombay July 22, 1857	74 days	Capt. Geo. E. Lane. The fourth voyage of a fast clipper and her first to India.
SWEEPSTAKES (1,735 tons)	1853 D. & A. Wester- velt, New York	Bombay Dec. 30, 1857	New York Mar. 20, 1858	80 days	Capt. Geo. E. Lane. Round voyage in record time of 154 days at sea.
WITCH OF THE WAVE (1,498 tons)	1851 Geo. Raynes, Portsmouth, N. H.	Calcutta (Saugor) Apr. 13, 1853	Boston July 3, 1853	81 days	Capt. Benjamin Tay. To Cape of Good Hope, 37 days (never beaten); to Atlantic equator, 58 days.
BEVERLY (676 tons)	1852 Paul Curtis, Medford, Mass.	Boston Aug. 30, 1857	Calcutta (took pilot) Nov. 23, 1857	85 days 16½ hrs.	Captain Chase. This followed a passage from Calcutta to Boston in 1856 of 83 days.
WEBFOOT (1,091 tons)	1856 Shiverick Bros., East Dennis, Mass.	Calcutta (Sand Heads) Dec. 26, 1858	New York Mar. 21, 1859	85 days	Capt. Milton P. Hedge. A medium clipper and a good, fast cargo carrier.
WIZARD (1,601 tons)	1853 Samuel Hall, East Boston, Mass.	Manila Jan. 11, 1861	New York Apr. 5, 1861	84 days	Captain Woodside. Reached N. Y. 72 days from Anjer, 44 from the Cape, 34 from St. He- lena, and 19 days from the equator.
FEARLESS (1,184 tons)	1853 A. & G. T. Sampson, East Boston, Mass.	Manila Feb. 24, 1855	Boston May 21, 1855	86 days	Capt. Nehemiah Manson. In 1854 also made run between the same ports in 86 days, completing voyage around the world in 9 months 12 days, in- cluding all detentions.
N. B. PALMER (1,399 tons)	1851 Westervelt & Mackey, New York	Cape of Good Hope Dec. 11, 1859	New York Jan. 16, 1859	35 days	Captain Higham. On a passage of 82 days from Shanghai and 64 from Anjer.
YOUNG AMERICA (1,961 tons)	1853 Wm. H. Webb, New York	Anjer Oct. 5, 1858	Cape of Good Hope Oct. 30, 1858	25 days	Capt. David S. Babcock. Also equalled by KATH- AY (1,438 tons), Capt. Thos. C. Stoddard, in 1855.
SEA WITCH (908 tons)	1846 Smith & Dimon, New York	Anjer May 24, 1847	New York July 25, 1847	62 days	Capt. Robert H. Water- man; 82 days from Whampoa on maiden voy- age.

(Continued on next page)

Name of Clipper and Tonnage	When and Where Built	Passage		Length of Passage	Remarks
		From	To		
ORIENTAL (1,003 tons)	1849 Jacob Bell, New York	New York May 18, 1850	Prince's Straits July 29, 1850	71 days	Capt. Theodore D. Palmer. Sailed 14,521 miles; average, 204½ miles per day. Passed St. Paul's 58 days out. Reached Hong Kong 81 days from New York.
SEA WITCH (908 tons)	1846 Smith & Dimon, New York	Hong Kong Jan. 8, 1849	New York Mar. 25, 1849	74 days 14 hrs.	Capt. Robert H. Waterman. Sailed 14,255 miles; average speed, 7⅞ knots per hour. Completion of a most remarkable voyage.
SWORDFISH (1,036 tons)	1851 Wm. H. Webb, New York	Shanghai Dec. 12, 1859	New York Mar. 2, 1860	81 days	Capt. Jos. W. Crocker. Was 31 days from Anjer to Cape of Good Hope and 25 days from Cape to equator; 71 days Anjer to New York.
WIZARD (1,601 tons)	1853 Samuel Hall, East Boston, Mass.	New York Aug. 10, 1854	Singapore Oct. 27, 1854	78 days	Capt. S. H. Slate. On passage from New York to East Indies (Hong Kong and Manila) and return.
ORIENTAL (1,003 tons)	1849 Jacob Bell, New York	New York May 18, 1850	Hong Kong Aug. 8, 1850	81 days	Capt. Theodore D. Palmer. Averaged 239 miles a day for 33 days and 264 per day for 11 days. Best day's run, 302 miles.
SWORDFISH (1,036 tons)	1851 Wm. H. Webb, New York	Shanghai Dec. 12, 1859	Anjer Dec. 22, 1859	10 days	Capt. Jos. W. Crocker. Part of 81-day record passage from Shanghai to New York.
KATHAY (1,438 tons)	1853 J. A. Westervelt, New York	Hong Kong Dec. 24, 1857	Bangkok Dec. 31, 1857	6 days 4 hrs.	Capt. Thos. C. Stoddard. Said to be "the quickest run on record."
HURRICANE (1,608 tons)	1851 Isaac C. Smith, Hoboken, N. J.	Hong Kong Nov. 21, 1854	Singapore Nov. 27, 1854	6 days 12 hrs.	Capt. Samuel Very, Jr. Anchor to anchor speed nearly 10 knots per hour.
FLYING CLOUD (1,782 tons)	1851 Donald McKay, East Boston, Mass.	New York Jan. 21, 1854	Hong Kong via San Francisco June 7, 1854	127 sailing days	Capt. Josiah P. Creesy. Gross time, port to port, 137 days, being 10 days at San Francisco.
RAINBOW (757 tons)	1845 Smith & Dimon, New York	New York Oct. 1, 1845	New York Apr. 16, 1846 A round voyage—N. Y. to Canton, China	6 mos. 16 days	Capt. John Land. Went out in 98 days and home in 84 days. This was the clipper's second voyage.
CHALLENGE (2,006 tons)	1851 Wm. H. Webb, New York	Hong Kong Mar. 20, 1852	San Francisco Apr. 22, 1852	33 days	Capt. John Land. Ran from off the Japanese coast to the Golden Gate in 18 days. Best day's run, 360 miles.
SWORDFISH (1,036 tons)	1851 Wm. H. Webb, New York	San Francisco June 16, 1853	Shanghai July 19, 1853	32 days 9 hrs.	Capt. Charles Collins. Distance, 7,200 miles; average, 225 miles per day; speed, 9⅓ knots per hour. Best day's run, 340 miles.
MEMNON (1,068 tons)	1847 Smith & Dimon, New York	San Francisco Nov. 9, 1850	Whampoa Dec. 15, 1850	36 days	Capt. Joseph R. Gordon. Was lost in 1851 in Gaspar Straits a few days out from Whampoa when bound to England.

(Continued on next page)

Name of Clipper and Tonnage	When and Where Built	Passage		Length of Passage	Remarks
		From	To		
FLYING CLOUD (1,782 tons)	1851 Donald McKay, East Boston, Mass.	San Francisco Sept. 26, 1852	Honolulu reported passed Oct. 4, 1852	8 days 8½ hrs.	Capt. Josiah P. Creesy. During passage of 40 days, San Francisco to Hong Kong.
CHALLENGE (2,006 tons)	1851 Wm. H. Webb, New York	San Francisco May 1852	Honolulu May 1852	8 days	Capt. John Land. On 23rd day out, was within 400 miles of Hong Kong.
JAMES BAINES (2,515 tons)	1854 Donald McKay, East Boston, Mass.	Liverpool (Rock Light) Dec. 10, 1854	Melbourne (Hobson's Bay) Feb. 12, 1855	63 days 18 hrs.	Capt. Charles McDonnell. From land to land (Cape Otway), 58 days. Port to port, 65 days 5½ hrs.
YOUNG AMERICA (1,961 tons)	1853 Wm. H. Webb, New York	Liverpool Apr. 18, 1858	Melbourne June 20, 1858	63 days	Capt. D. S. Babcock. Reported as "record pas- sage between the ports."
LIGHTNING (2,083 tons)	1854 Donald McKay, East Boston, Mass.	Melbourne Aug. 20, 1854	Liverpool Oct. 23, 1854	64 days 3 hrs.	Capt. James Nicol Forbes. 63 days 16 hrs. from pilot to pilot, Port Phillip to Point Lynas.
RED JACKET (2,305 tons)	1853 George Thomas, Rockland, Maine	Melbourne Aug. 3, 1854	Atlantic equator Sept. 14, 1854	42 days	Capt. Samuel Reid. To Cape Horn, 20 days. Ran 10,423 miles to equator; average, 248 miles per day.
RED JACKET (2,305 tons)	1853 George Thomas, Rockland, Maine	Meridian of Cape of Good Hope June 23, 1854	Melbourne July 12, 1854	19 days	Capt. Samuel Reid. Ran from Cape to Cape in 39 days and around the world, including deten- tions, in 5 mos. 10 days 22½ hrs.
RED JACKET (2,305 tons)	1853 George Thomas, Rockland, Maine	Atlantic equator Oct. 21, 1855	Melbourne Dec. 4, 1855	44 days	Captain Milwood. On former voyage, had run from line to Heads in 42 days 13 hrs. and to port in 44 days 11 hrs.
NORTH WIND (1,041 tons)	1853 A. C. Bell, New York	London (Downs) Nov. 10, 1859	Melbourne (Port Phillip) Jan. 15, 1860	66 days	Capt. W. S. Morton. Reported as a record be- tween the points.
WHISTLER (820 tons)	1853 Geo. W. Jack- man, Jr., Newburyport, Mass.	Anjer Apr. 24, 1855	Melbourne May 15, 1855	21 days	Capt. Charles H. Brown. A sharp medium clipper. Went ashore and lost Bass Straits on May 23, 1855.
TYPHOON (1,611 tons)	1851 Fernald & Pettigrew, Portsmouth, N. H.	Deal May 13, 1854	Calcutta (Sand Heads) Aug. 7, 1854	80 days from the Lizard	Capt. Samuel Goodhue. Round voyage, England to Calcutta. From port to port, 87 days out and 94 days return.
JAMES BAINES (2,515 tons)	1854 Donald McKay, East Boston, Mass.	Calcutta (Sand Heads) Jan. 29, 1858	Liverpool Apr. 16, 1858	77 days	Capt. Charles McDonnell. Burned Apr. 22, 1858, while unloading at Liver- pool dock.
RED GAUNTLET (1,038 tons)	1853 Jas. W. Cox, Robbinston, Maine	Honolulu Apr. 24, 1856	Hong Kong May 14, 1856	19 days	Capt. Thomas Andrews. Equaled by MEMNON in Nov.-Dec. 1850, but RED GAUNTLET ran from San Francisco to Hong Kong in 36 days.
ONWARD (874 tons)	1852 J. O. Curtis, Medford, Mass.	San Francisco Nov. 2, 1856	Singapore Dec. 15, 1856	43 days	Capt. E. A. Luce. Reported as "a record be- tween the ports." A me- dium clipper.
SOUTHERN CROSS (938 tons)	1851 E. & H. O. Briggs, East Boston, Mass.	San Francisco Oct. 24, 1851	Calcutta (Sand Heads) Dec. 25, 1851	56 days (sailing)	Capt. Levi Stevens. Via Honolulu and Singa- pore (43 sailing days to Singapore).

(Continued on next page)

Name of Clipper and Tonnage	When and Where Built	Passage		Length of Passage	Remarks
		From	To		
CARRIER DOVE (1,694 tons)	1855 Jas. Abraham, Baltimore, Md.	Melbourne Sept. 21, 1856	Valparaiso Oct. 23, 1856	32 days	Captain Conner. Claimed Liverpool to Melbourne in 73 days and around the world in 10 months.
CHALLENGE (2,006 tons)	1851 Wm. H. Webb, New York	Anjer Sept. 13, 1852	London (Deal) Nov. 18, 1852	65 days	Captain Pitts. From Whampoa to Lon- don with tea. Was 39 days from the Cape to the Downs.
EAGLE WING (1,174 tons)	1853 Jas. O. Curtis, Medford, Mass.	London (Downs) Apr. 17, 1855	Hong Kong July 10, 1855	83 days 12 hrs. (pilot to pilot)	Capt. E. H. Linnell. Was becalmed and an- chored off port night of July 9, with pilot aboard. Returned to N. Y. from Shanghai in 86½ days.
NIGHTINGALE (1,060 tons)	1851 Samuel Hans- comb, Jr., Portsmouth, N. H.	Portsmouth, England Feb. 10, 1853	Anjer Apr. 23, 1853	72 days	Capt. Samuel W. Mather. Very heavy weather in South Atlantic. On return, Shanghai to London, beat British CHALLENGER by two days.
COMET (1,836 tons)	1851 Wm. H. Webb, New York	Liverpool June 17, 1854	Hong Kong Sept. 9, 1854	83 days 21 hrs.	Capt. E. C. Gardner. Reported took pilot Sept. 7, when 82 days out. Time, port to port, 84 days 16 hrs.
GOLDEN GATE (1,349 tons)	1851 J. A. Westervelt, New York	Shanghai Nov. 22, 1854	London (Deal) Feb. 23, 1855	86 days	Capt. S. F. Dewing. Collision in China Sea. Put into Batavia for re- pairs, losing several days.

The following is a compilation of outstanding passages of United States-designed and built clipper ships (or reputed "clippers" built prior to "the clipper ship era") made during the years 1845-1860, arranged according to trade routes: China, California, Australia, India, East India, transatlantic, transpacific, and North-South American continent coast passages, both Atlantic and Pacific. To make the latter division of fast runs more complete, the reported record passage of the twenty-six-year-old Maine-built clipper *Rattler* between Callao and San Francisco, made in 1878, has been included. In this list of seventy-three fast passages, the *Flying Cloud* is mentioned four times (but only one of the four sailing performances set forth constituted a permanent record); the *Red Jacket* four times (all sailing records); the *Sea Witch*, *Comet*, *Challenge*, and *James Baines* each three times (with all the stated passages of the *Sea Witch* being records, as were two of the recorded runs of the *Comet*, all three for the *Challenge*, and one for the *James Baines*); the *Andrew Jackson*, *N. B. Palmer*, *Swordfish*, *Lightning*, and *Wizard* are mentioned twice, the *Andrew Jackson* holding both the permanent westward Cape Horn California and the westbound transatlantic records and the *Swordfish* the homeward run from Shanghai and a westbound transpacific record. These records seem to substantiate the statement that the *Sea Witch* was the fastest clipper built prior to 1850 and "in her prime as fast a ship of her size as ever sailed the seas" and that the *Andrew Jackson* "was the fastest and most consistent performer at sea of the clippers built in 1855 or thereafter."

In 1850 the clippers designed by Samuel Harte Pook, the young naval architect of Boston, can be generally regarded as the "fastest, best and most beautiful clippers built"; some of his ships, such as the *Surprise* and the *Witchcraft*, he received credit for as the designer, but many outstandingly fast vessels built in New England about this time were either modeled by Pook or had the lines pirated from him by economy-minded builders. In

1851, Webb, of New York, produced three very fast clippers, the *Swordfish*, *Comet*, and *Challenge*, designed primarily for speed. Donald McKay, during that year, built the *Flying Cloud* (the California Cape Horn "greyhound") and the *Flying Fish*; Briggs, of South Boston, constructed the *Northern Light* (which holds the all-time record from San Francisco to Boston) from designs by Pook; Westervelt & Mackey, New York, built the *Hornet* (which in 1853 beat the *Flying Cloud* eight days in the Pacific run of a California passage from 50° S. to the pilot grounds off San Francisco) and the great China clipper *N. B. Palmer*; and Portsmouth, N. H., launched the *Nightingale*, an historic fast and yacht-like clipper ship. In 1852 the *Sovereign of the Seas* and the *Westward Ho* were built by Donald McKay at East Boston and the *Contest* by J. A. Westervelt at New York. Many fine, fast clippers were built in 1853, probably the fastest and most beautiful being the Pook-designed *Red Jacket*, built at Rockland, Maine. Donald McKay built the mammoth and unfortunate *Great Republic*; the spectacularly sailing *Flying Scud* was launched at Damariscotta, Maine, in November, and Webb, of New York, built the eminently successful Cape Horner *Young America*, which was destined to see about thirty years of service in the California trade. In 1854, Donald McKay built the *Lightning*, *Champion of the Seas*, and *James Baines* for the British-Australian Black Ball packet line and, in January 1855, launched the *Donald McKay*, the last of a famous quartet of big American-designed and built clippers constructed for James Baines & Company and its Liverpool-Australia packet fleet.

Name of Clipper and Tonnage	Captain	When and Where Built	Passage		Date of Passage	Length of Passage
			From	To		
<i>The China Trade; via Cape of Good Hope</i>						
RAINBOW (752 tons)	John Land	1845 Smith & Dimon, New York	Round voyage New York-Canton-New York including detentions		Oct. 1, 1845- Apr. 16, 1846	6 mos. 15 days (or 197 days)
SEA WITCH (908 tons)	Robert H. Waterman	1846 Smith & Dimon, New York	Hong Kong	New York	Jan. 8- Mar. 25, 1849	74 days 14 hrs.
SEA WITCH (908 tons)	Robert H. Waterman	1846 Smith & Dimon, New York	Anjer	New York	May 24- July 25, 1847	62 days
NATCHEZ (524 tons)	Robert H. Waterman	1831 Webb & Allen, New York	Macao	New York	Jan. 14- Apr. 3, 1845	78 days
HELENA (598 tons)	Joseph Eyre	1841 Wm. H. Webb, New York	New York	Anjer	Nov. 1, 1845- Feb. 14, 1846	73 days 20 hrs.
ORIENTAL (1,003 tons)	Theo. D. Palmer	1849 Jacob Bell, New York	New York	Hong Kong	May 18- Aug. 8, 1850	81 days
SURPRISE (1,261 tons)	Charles Ranlett	1850 Samuel Hall, East Boston	Shanghai	New York	Jan. 1- Mar. 24, 1857	82 days
N. B. PALMER (1,399½ tons)	Higham	1851 Westervelt & Mackey, New York	Shanghai	New York	Oct. 25, 1858- Jan. 16, 1859	82 days
SWORDFISH (1,036 tons)	Crocker	1851 Wm. H. Webb, New York	Shanghai	New York	Dec. 12, 1859- Mar. 2, 1860	81 days
COMET (1,836 tons)	E. C. Gardner	1851 Wm. H. Webb, New York	Liverpool	Hong Kong	June 17- Sept. 9, 1854	83 days 21 hrs. (pilot to pilot) 84 days 16 hrs. (anchor to anchor)
EAGLE WING (1,174 tons)	Eben H. Linnell	1853 James O. Curtis, Medford, Mass.	London (Downs)	Hong Kong	Apr. 17- July 10, 1855	83 days 12 hrs. (pilot to pilot)

Name of Clipper and Tonnage	Captain	When and Where Built	Passage		Date of Passage	Length of Passage
			From	To		
<i>The China Trade; via Cape of Good Hope (continued)</i>						
GOLDEN GATE (1,341 tons)	S. F. Dewing	1851 J. A. Westervelt, New York	Shanghai	London (Downs) (via Batavia)	Nov. 22- Feb. 23, 1855	86 sailing days
NIGHTINGALE (1,066 tons)	Samuel W. Mather	1851 Samuel Hanscomb, Jr., Portsmouth, N. H.	Portsmouth, England	Anjer	Feb. 10- Apr. 23, 1853	72 days
CHALLENGE (2,006½ tons)	Pitts	1851 Wm. H. Webb, New York	Anjer	London (Deal)	Sept. 14- Nov. 18, 1852	65 days
<i>The California Trade; via Cape Horn</i>						
FLYING CLOUD (1,782½ tons)	Josiah Perkins Creesy	1851 Donald McKay, East Boston	New York	San Francisco	June 2- Aug. 31, 1851	89 days 21 hrs. (anchor to anchor)
FLYING CLOUD (1,782½ tons)	Josiah Perkins Creesy	1851 Donald McKay, East Boston	New York	San Francisco	Jan. 21- Apr. 20, 1854 (claimed)	89 days 8 hrs. (claimed)
ANDREW JACKSON (1,679 tons)	John E. Williams	1855 Irons & Grinnell, Mystic, Conn.	New York	San Francisco	Dec. 25, 1859- Mar. 23, 1860	89 days 4 hrs. (Sandy Hook to pilot station)
FLYING CLOUD (1,782½ tons)	Josiah Perkins Creesy	1851 Donald McKay, East Boston	New York	Hong Kong via San Francisco	Jan. 21- June 7, 1854	127 sailing days
NORTHERN LIGHT (1,021 tons)	Freeman Hatch	1851 E. & H. O. Briggs, South Boston	San Francisco	Boston	Mar. 13- May 29, 1853	76 days 8 hrs. (also reported 76 days 6 hrs., pilot to pilot)
COMET (1,836 tons)	E. C. Gardner	1851 Wm. H. Webb, New York	San Francisco	New York	Dec. 27, 1853- Mar. 14, 1854	76 days, pilot to pilot. 76 days 7 hrs., anchor to an- chor.
CONTEST (1,099 tons)	Wm. Brewster	1852 J. A. Westervelt, New York	Round voyage New York-San Francisco- New York including detentions		Nov. 16, 1852- May 30, 1853	6 mos. 13 days, or 195 days (180 sail- ing days)
WITCHCRAFT (1,310 tons)	Wm. C. Rogers	1850 Paul Curtis, Chelsea, Mass.	Rio de Janeiro	San Francisco	June 10- Aug. 11, 1851	62 days
JOHN BERTRAM (1,080 tons)	Frederick Lendholm	1850 Elwell & Jackson, East Boston	San Francisco	Rio de Janeiro	July 5- Sept. 2, 1851	58 days
SPARKLING WAVE (665 tons)	John C. Hubbard, Jr.	1853 Mason Barney, Swansea, Mass.	Montevideo	San Francisco	Feb. 12- Apr. 14, 1855	61 days
SEA WITCH (908 tons)	George Fraser	1846 Smith & Dimon, New York	New York	Valparaiso	Apr. 13- June 11, 1850	59 days
TELEGRAPH (1,068½ tons)	G. W. Pousland	1851 J. O. Curtis, Medford, Mass.	Valparaiso	Boston	June 20- Aug. 20, 1853	58 days (as reported)
OCEAN TELEGRAPH (1,495 tons)	George H. Willis	1854 J. O. Curtis, Medford, Mass.	Callao	New York	Apr. 28- June 25, 1855	58 days

Name of Clipper and Tonnage	Captain	When and Where Built	Passage		Date of Passage	Length of Passage
			From	To		
<i>The California Trade; via Cape Horn (continued)</i>						
SOVEREIGN OF THE SEAS (2,421 tons)	Lauchlan McKay	1852 Donald McKay, East Boston	Honolulu	New York	Feb. 12- May 6, 1853	82 days
N. B. PALMER (1,399½ tons)	Charles P. Low	1851 Westervelt & Mackey, New York	Honolulu	New York	Apr. 23- July 14, 1854	82 days
<i>The Australian Trade; Sailing Eastward; via Cape of Good Hope Outbound and via Cape Horn Homeward Bound</i>						
LIGHTNING (2,084 tons)	James Nicol Forbes	1854 Donald McKay, East Boston	Melbourne	Liverpool	Aug. 20- Oct. 23, 1854	63 days 16 hrs., pilot to pilot; 64 days 3 hrs., port to port
JAMES BAINES (2,515 tons)	Charles McDon- nell	1854 Donald McKay, East Boston	Liverpool	Melbourne	Dec. 9, 1854- Feb. 12, 1855	63 days 18 hrs., Rock Light to Hob- son's Bay; 65 days 5½ hrs., port to port. From land to land (Cape Otway) 58 days
YOUNG AMERICA (1,961 tons)	David S. Babcock	1853 Wm. H. Webb, New York	Liverpool	Melbourne	Apr. 18- June 20, 1858	63 days (also reported as 71 days)
NORTH WIND (1,041 tons)	W. S. Morton	1853 A. C. Bell, New York	London (Downs)	Melbourne (Port Phillip Heads)	Nov. 10, 1859- Jan. 15, 1860	66 days
RED JACKET (2,305 tons)	Samuel Reid	1853 George Thomas, Rockland, Maine	Complete voyage Liverpool-Melbourne- Liverpool (around the world, including detentions)		May 4- Oct. 15, 1854	5 mos. 10 days and 22½ hrs.
RED JACKET (2,305 tons)	Samuel Reid	1853 George Thomas, Rockland, Maine	Cape of Good Hope meridian	Melbourne	June 23- July 12, 1854	19 days
RED JACKET (2,305 tons)	Samuel Reid	1853 George Thomas, Rockland, Maine	Cape of Good Hope meridian	Cape Horn via Mel- bourne	June 23- Aug. 23, 1854	39 sailing days
LIGHTNING (2,084 tons)	James Nicol Forbes	1854 Donald McKay, East Boston	Melbourne	Cape Horn	Aug. 20- Sept. 9, 1854	19 days plus
MANDARIN (776 tons)	J. W. C. Perit	1850 Smith & Dimon, New York	New York	Melbourne	Dec. 21, 1855- Mar. 1, 1856	70 days
<i>The Indian Trade; via Cape of Good Hope</i>						
SWEEPSTAKES (1,735 tons)	George E. Lane	1853 D. & A. Westervelt, New York	New York	Bombay	May 9- July 22, 1857	74 days
SWEEPSTAKES (1,735 tons)	George E. Lane	1853 D. & A. Westervelt, New York	Bombay	New York	Dec. 30, 1857- Mar. 20, 1858	80 days
BEVERLY (676 tons)	Chase	1852 Paul Curtis, Medford, Mass.	Boston	Calcutta	Aug. 30- Nov. 23, 1852	85 days 16½ hrs., pilot to pilot
WITCH OF THE WAVE (1,498 tons)	Benjamin Tay	1851 George Raynes, Portsmouth, N. H.	Calcutta (Saugor)	Boston	Apr. 13- July 3, 1853	81 days (37 days to the Cape)

Name of Clipper and Tonnage	Captain	When and Where Built	Passage		Date of Passage	Length of Passage
			From	To		
<i>The Indian Trade; via Cape of Good Hope (continued)</i>						
TYPHOON (1,611 tons)	Samuel Goodhue	1851 Fernald & Pettigrew, Portsmouth, N. H.	England (the Lizard)	Calcutta	May-July 1854	80 days
JAMES BAINES (2,515 tons)	Charles McDon- nell	1854 Donald McKay, East Boston	Calcutta	Liverpool	Jan. 28- Apr. 16, 1858	77 days (Was burned soon after arrival at Liv- erpool.)
HURRICANE (1,608 tons)	Samuel Very, Jr.	1851 Isaac C. Smith, Hoboken, N. J.	Round voyage England-Calcutta-England (out Portsmouth to Sand Heads; return Sand Heads to pilot off Falmouth)		Aug. 12, 1855- Apr. 2, 1856	163 sailing days (84 days 12 hrs., pilot to pilot, out and "79 sailing days" on return)
<i>East Indian Trade; via Cape of Good Hope</i>						
WIZARD (1,601 tons)	Woodside	1853 Samuel Hall, East Boston	Manila	New York	Jan. 11- Apr. 5, 1861	84 days
FEARLESS (1,184 tons)	Nehemiah Manson	1853 A. & G. T. Sampson, East Boston	Manila	Boston	Feb. 24- May 21, 1855	86 days
WIZARD (1,601 tons)	S. H. Slate	1853 Samuel Hall, East Boston	New York	Singapore	Aug. 10- Oct. 27, 1854	78 days
<i>Transatlantic</i>						
RED JACKET (2,305 tons)	Asa Eldridge	1853 George Thomas, Rockland, Maine	New York	Liverpool	Jan. 11- Jan. 23, 1854	13 days 1 hr. 25 min., dock to dock
JAMES BAINES (2,515 tons)	Charles McDon- nell	1854 Donald McKay, East Boston	Boston Light	Rock Light, Liverpool	Sept. 12- Sept. 25, 1854	12 days 6 hrs.
MARY WHITRIDGE (978 tons)	Robert B. Cheese- brough	1855 Hunt & Wagner, Baltimore	Baltimore (Chesa- peake)	English Channel	June-July 1855	12½ days. From Cape Charles to Rock Light 13 days 7 hrs.
ANDREW JACKSON (1,679 tons)	Johnson	1855 Irons & Grinnell, Mystic, Conn.	Liverpool	New York	Nov. 3- Nov. 18, 1860	15 days
FLYING SCUD (1,713 tons)	Rodney Baxter	1853 Metcalf & Norris, Damariscotta, Maine	New York	Marseilles	Dec. 20, 1855- Jan. 9, 1856	19 days 20 hrs.
<i>Transpacific</i>						
MEMNON (1,068 tons)	Joseph Gordon	1847 Smith & Dimon, New York	San Francisco	Whampoa (Hong Kong)	Nov. 9- Dec. 15, 1850	36 days (Was 19 days, Honolulu-Hong Kong.)
CHALLENGE (2,006½ tons)	John Land	1851 Wm. H. Webb, New York	Hong Kong	San Francisco	Mar. 20- Apr. 22, 1852	33 days (from "opposite Japan to San Fran- cisco in 18 days")

Name of Clipper and Tonnage	Captain	When and Where Built	Passage		Date of Passage	Length of Passage
			From	To		
<i>Transpacific (continued)</i>						
GOLDEN WEST (1,441 tons)	Putnam	1852 Paul Curtis, East Boston	Coast of Japan	San Francisco	May 13- June 2, 1856	20 days (average 243 miles per day)
SWORDFISH (1,036 tons)	Charles Collins	1851 Wm. H. Webb, New York	San Francisco	Shanghai	June 16- July 19, 1853	32 days 9 hrs.
ONWARD (874 tons)	E. A. Luce	1852 J. O. Curtis, Medford, Mass.	San Francisco	Singapore	Nov. 1- Dec. 15, 1856	43 days
SOUTHERN CROSS (938½ tons)	Levi Stevens	1851 E. & H. O. Briggs, East Boston	San Francisco	Calcutta	Oct. 24- Dec. 25, 1851	56 sailing days (Reported 43 sail- ing days, San Fran- cisco-Singapore.)
MERMAID (bark; 533 tons)		1851 Samuel Hall, East Boston	Shanghai	San Francisco	Arrived Aug. 23, 1865	31 days (Claim 50 days from Batavia and 30 days from China coast to Golden Gate in 1853.)
CHALLENGE (2,006½ tons)	John Land	1851 Wm. H. Webb, New York	San Francisco	Honolulu	1852	8 days (On 23rd day out was within 400 miles of Hong Kong.)
FLYING CLOUD (1,782½ tons)	Josiah Perkins Creesy	1851 Donald McKay, East Boston	San Francisco	Honolulu	Sept. 26- Oct. 5, 1852	8 days 8½ hrs. (first part of 40- day passage, San Francisco to Hong Kong)
RED GAUNTLET (1,038 tons)	Thomas Andrews	1853 James W. Cox, Robbinston, Maine	Honolulu	Hong Kong	Apr. 24- May 14, 1856	19 days (Part of a passage from San Francisco to Hong Kong made in 36 sailing days.)
<i>Atlantic; North-South American Coast Passages</i>						
SNOW SQUALL (742½ tons)	Gerard	1851 Alfred Butler, Cape Elizabeth, Maine	New York	Rio de Janeiro	Feb. 21- Mar. 21, 1856	29 days
GREY EAGLE (479 tons)	W. P. Whipple	1848 Abraham & Cooper, Baltimore	Rio de Janeiro	Philadelphia (Delaware Quar- antine)	May 17- June 9, 1852	23 days
DAWN (bark; 387 tons)	Levi B. Chase	1857 Thomas Collyer, New York	Buenos Aires	New York	May 5- June 11, 1860	36 days (averaged 180 miles per day)
EAGLE (1,296 tons)	J. S. Farren	1851 Perrine, Patter- son & Stack, New York	Montevideo	New York	June 2- July 8, 1854	36 days
FLYING MIST (1,183 tons)	Eben H. Linnell	1856 James O. Curtis, Medford, Mass.	Cape Horn	Chesapeake Bay (New Point)	Sept. 5- Oct. 13, 1857	37 days

Name of Clipper and Tonnage	Captain	When and Where Built	Passage		Date of Passage	Length of Passage
			From	To		
<i>Pacific; North-South American Coast Passages</i>						
HORNET (1,426½ tons)	Wm. Knapp	1851 Westervelt & Mackey, New York	San Francisco	Callao	Sept. 4- Oct. 7, 1853	33 days
RATTLER (1,121 tons)		1852 George Thomas, Rockland, Maine	Callao	San Francisco	1878	28 days
SEAMAN (546 tons)	Myrick	1850 R. & E. Bell, Baltimore	San Francisco	Valparaiso	Apr. 18- May 23, 1851	35 days
TELEGRAPH (1,068½ tons)	Kimball Harlow	1851 J. O. Curtis, Medford, Mass.	Valparaiso	San Francisco (Point Reyes)	Mar. 12- Apr. 16, 1854	34 days
COMET (1,836 tons)	E. C. Gardner	1851 Wm. H. Webb, New York	San Francisco	Cape Horn	Dec. 27, 1853- Feb. 1, 1854	35 days 7 hrs.

The British-Australian iron semi-clipper *Harbinger* of 1,506 tons (length 253.5 ft., beam 37.6 ft., depth 22.4 ft.) was built by Steele, of Greenock, on the Clyde in 1876. Basil Lubbock describes her as "Steele's supreme effort at producing an iron passenger-carrying sailing ship" and adds: "On her maiden passage the *Harbinger* arrived at Adelaide on January 26, 1877, 76 days out" (evidently land to land and not port to port). In 1884, on an 81-day passage from the Lizard (extreme southwest point of England) to Port Phillip Heads (Melbourne), when running her easting down, during the twenty-three consecutive days August 31-September 22 inclusive the ship covered 5,556 nautical miles—an average of 241½ miles per day and about 10.2 knots per hour. During the last eleven days of this period, the vessel made 2,919 miles—an average of 265½ miles per day. Her three best day's runs on the passage were on September 15-17 inclusive, when she made 298, 305, and 326 miles, respectively, a total of 929 miles and an average of 310 miles per day and a trifle over 13 knots per hour. Lubbock, after a perusal of several logbooks of the *Harbinger*, prepared the following interesting figures, which, he feels, can be taken "as good examples of the ship's speed":

Light unfavorable wind.....	6 knots	Strong fair gale, main royal set.....	11 knots
Light favorable wind.....	8 "	Strong Wly. gale, upper topgallant sails set..	12 "
In the Trades close-hauled.....	9 "	Strong fair wind under royals.....	14 "
In the Trades yards square.....	10 "	Extreme speed logged.....	16 "
Hard gale under lower topsails.....	10 "	Best 24 hours' run.....	340 sea miles

The *Harbinger* had a medium fine model, but was a very lofty ship, with a tremendous sail spread and with long yards (seven on the main); she measured 210 ft. from water line to main truck. In addition to a bowsprit and jib boom, the ship carried a flying jib boom, on which she set "a whole fleet of jibs," and she also carried on the mizzen a large hoisting spanker and a main spencer (or storm spanker).

The American wood "late half clipper" ship *South American* (1,694 registered net tonnage), built by Smith & Townsend, Boston, in 1876 (the same year as the *Harbinger*), during a very fast and record run of 53 days in 1888 from Sydney, Australia, to San Diego, Calif., covered 353 miles in one day, which is an average speed of 14.7 knots per hour and a big day's mileage for a good carrier of the Down Easter type when twelve years old. At times, the log reports, she made 15½ knots per hour. On this record-breaking passage, the *South American*, when 18 days out, passed the British ship *Slieve Bawn*, which had sailed from Sydney ten days before her. In 1879 the *South American* ran from Hong Kong to the Faral-

lones in 39 days. In November 1883, she left San Francisco and was back again in October 1884 after an absence of 10 months and 17 days, during which she had made passages from San Francisco to Liverpool via Queenstown in 100 days, Cardiff to Hong Kong in 89 days, and Hong Kong to San Francisco in 42 days—a total of 231 days for the three fast passages (around the world). It is probable that this record both for days spent under canvas at sea and for the complete voyage, including detention in ports, has never been equaled.

The very successful and fuller-modeled but conspicuously handsome wood ship *Great Admiral* (1,497 registered net tonnage), built in 1869 by Robert E. Jackson, East Boston, Mass., covered 2,735 nautical miles in ten consecutive days, an average speed of 11.4 knots per hour. The best day's run during the period was 304 miles (a speed of $12\frac{2}{3}$ knots per hour), and the minimum run of twenty-four hours during the ten days was 240 miles (a speed of 10 knots per hour). The *Great Admiral* broke no records, and apparently she never sailed more than 305 nautical miles in any one day; but she made at least thirteen passages during her career in close to record time, among which was a fine run from New York to Melbourne in 73 days (averaging 188 miles per day), a passage from Hong Kong to San Francisco in 38 days, and one from San Francisco to Hong Kong in 37 days (an average of 192 miles per day and 8 knots per hour). During the twenty-eight years that she was owned by Weld & Company, of Boston, the *Great Admiral* covered a distance of 726,968 nautical miles in 5,360 sailing days—an average of 135.6 miles per day and 5.65 knots per hour.

The *North American*, another late "half clipper," launched January 3, 1873, by Curtis & Smith at East Boston, Mass., for Henry Hastings & Company, did some good sailing. She registered 1,584 tons net and was 220 ft. long, 41 ft. beam, and 24 ft. deep. On her maiden voyage, this fine American full-rigged wood ship sailed from New York to Melbourne in 72 days, covering 14,112 miles—an average of 196 miles per day. From Melbourne, she ran in 51 days to San Francisco, logging 10,500 miles and averaging 204 miles per day. The ship then proceeded to Liverpool, making the passage of 16,919 miles from San Francisco in 95 days—an average of 178 miles per day. For the complete voyage, the ship covered 41,631 miles in 218 days and averaged 191 miles per day and 8 knots per hour. The *North American*, on various passages, did some remarkably fast sailing between points. She ran from 50° S. Pacific to the equator in $16\frac{1}{2}$ days and on another passage went from the line in the Pacific to the San Francisco Bar in the splendid time of 14 days, which is a day shorter than the best performance of the *Flying Cloud* ("the Greyhound of the Seas"). In the North Pacific, the *North American* ran 2,724 miles in twelve days, an average of 227 miles a day and approaching $9\frac{1}{2}$ knots per hour.

The *Henry B. Hyde* (2,580 tons gross and 2,462 tons net), when launched at Bath, Maine, on November 5, 1884, was the largest ship built in Maine up to that time. Designed and built by John McDonald in the shipyard of Flint & Company, this vessel was a Down Easter par excellence. There was nothing of the clipper about her, as she was a great carrier built to make money, and yet when loaded with big cargoes, she made splendid short passages, some of them in clipper ship time. The SHIPPING LIST, New York, said: "The *Henry B. Hyde* is as fine a specimen of marine architecture as ever entered this or any other port and as speed has not entirely been overlooked in the make-up of her model, it is expected that she will make good time on her run out to the Golden Gate." Between 1890 and 1893, this Down Easter made four consecutive passages from New York to San Francisco in 108, 108, 105, and 112 days, respectively, an average of $108\frac{1}{4}$ days and a sailing performance that but few extreme clippers have beaten. Eastbound, the "*Hyde*" ran from San Francisco to New York in 88 and 94 days and from the Golden Gate to Liverpool in 96 days (95 days 6 hours to pilot at Point Lynas). In 1889 she ran from San Francisco to Honolulu in only 9 days $4\frac{1}{2}$ hours. When the ship made her amazing run of 88 days from San Francisco to New York, she was deep laden with refined sugar and was becalmed for ten days near the Pacific equator, but in the Atlantic she sailed from Cape Horn to New York in only 38 days.

Another Bath-built wood Down Easter, the *A. G. Ropes* of 2,342 net tons, also a John McDonald product built in 1884, made westward Cape Horn passages of 104 and 107 days from New York to San Francisco and runs of 93 days to New York and 104 days to Liverpool from the Golden Gate. In 1885-1886, the "*Ropes*" ran from San Francisco to the British Isles in 104 days, made a westward crossing of the Atlantic (Liverpool to New York) in only 19 days, and then ran from New York back to San Francisco in 104 days, the round voyage (triangular in the North Atlantic) occupying only 227 days at an average speed of about 6½ knots per hour.

The full-bodied wood Sewall ship *Susquehanna*, built at Bath, Maine, in 1891 (launched September 17), was a four-masted shipentine of 2,744 tons gross and 2,628 tons net register (length 273.6 ft., beam 45.1 ft., depth 28.1 ft.). In 1897 this late example of American wood ship construction made a passage from Honolulu to New York via Cape Horn in 89 days, which is "the fastest time made since the days of the out-and-out clippers" and only seven days longer than the much-publicized 82-day passage of the extreme clipper *Sovereign of the Seas* made in 1853. The *Susquehanna's* best day's run, noon to noon, was 270 nautical miles and about 11¼ knots per hour. She covered 3,990 miles in nineteen consecutive days, averaging 210 miles per day, running north in the South Atlantic, and a speed of 8¾ knots per hour. For the entire passage, her average day's run was 160 miles and speed about 6⅔ knots per hour. On the second half of her maiden voyage in the California trade, the *Susquehanna* ran from San Francisco to Liverpool in 93 days and 21½ hours, making this amazing quick passage with a high day's run of 280 miles, or about 11⅔ knots per hour. This big Down East wood ship had no model for a sprinter, but she carried a big cargo and, on each of these two runs with favorable winds, made passages of some three months' duration in clipper ship time.

Speed of Sailing Yachts at Sea and Some Comparisons with the Speed of Merchant Ships

Much has been said and written in regard to the comparative speed of fine-lined sizable sailing yachts and the old fast clipper ships. The races for the America's Cup, even under the best conditions of wind and sea, are sailed at a quite moderate rate of speed that cannot be compared with the phenomenal speed attributed to the extreme clippers. Samuel E. Morison, in *MARITIME HISTORY OF MASSACHUSETTS*, says:

<p>Eight kts. per hr. is considered good speed for an America's Cup Race of 30 miles. The <i>Red Jacket</i> logged an average of 14.7 kts. for six consecutive days in the Western Ocean. . . . A speed of 12.5 kts. on a broad reach in smooth water</p>	<p>by the <i>Resolute</i> or <i>Shamrock</i> excites the yachting reporters. The <i>Lightning</i> logged 18.2 for 24 hrs. in 1854, and there is a record that the <i>James Baines</i>, on an Australian voyage in 1856, attained a speed of 21 kts.</p>
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No pleasure sailing craft or wind-propelled racing machine has ever sailed through the water at a speed of 21 knots per hour, which is the rate of speed claimed in the official log of the McKay clipper *James Baines* in the Roaring Forties in June 1856, and no sailing yacht—built for speed and without any deadweight carrying capacity—has reeled off, according to either taffrail log or observation, 436 nautical miles in twenty-four hours (18⅓ knots per hour) as claimed by the command of the clipper *Lightning* in June 1854 in the North Atlantic nor covered 350 miles or more in a day as has been accomplished by many well-modeled and canvased merchant sailers and claimed by hundreds more. On the records

alone, it would be said that no yacht could ever approach the high rate of speed shown in service by the extreme clippers of 1850-1856 or even of the medium clippers built later; yet one of the fastest of all clippers, the *Red Jacket*, with her all-time record transatlantic crossing in January 1854 of 13 days 1 hour from New York to Liverpool, did not show (except on an extremely big day's run of 417 miles) much greater speed than the much smaller schooner yacht *Atlantic*, which made the run from Sandy Hook to the Lizard in 12 days 4 hours (best day's run, 341 miles). The reported fast eastbound transatlantic run in 1855 of 12 days from land to land and 13 days from Sandy Hook to Scilly made by the extreme clipper *Great Republic* (3,356 tons; built by Donald McKay), the world's largest and most powerful sailing vessel, was a slower passage than that of the little yacht *Atlantic* from Sandy Hook to the Scilly Isles.

The modern, relatively large racing sloops and schooners are generally credited with "amazing and unprecedented speed" that historical records do not justify, even though the racing sailing craft of these days are designated as "racing machines." The yacht *America*, which won the famous cup in England, made a historic crossing of the Atlantic of 21 days in 1851, but in 1866 the 48-ft. sloop yacht *Alice*, built at Portsmouth, N. H., sailed from Boston to England in a reported 19 days and a few hours. Some other noteworthy yacht passages of the North Atlantic by small sailing yachts were the two quick runs made by the two-masted schooner *Sappho* in 1868 and 1869. In July of the former year, she crossed from Sandy Hook to Falmouth with normal rig and a deep-sea skipper and crew, and a year later—trimmed and rigged for speed—she made the run from Sandy Hook to Queenstown in 12 days 9½ hours, the best day's run being 316 nautical miles—an average speed of 13.2 knots per hour for twenty-four hours.

In the summer of 1900, the American composite two-masted schooner yacht *Endymion* (length over-all 135 ft.; designed by Clinton H. Crane) ran from Sandy Hook to the Needles in 12 days 19 hours 58 minutes (best day's run, 304 nautical miles, or at the rate of 12.7 knots per hour), an average for the voyage of close to 10 knots per hour. This was a record transatlantic passage for sailing yachts and for all pleasure and non-merchant privately owned craft until the race in 1905 from Sandy Hook Lightship to the Lizard for the German Emperor's Gold Cup. The *Atlantic*, which won this race, claims the record for the highest speed ever made by any sailing yacht, sloop, or schooner and, it was reported, on a run from New London, Conn., to Newport, R. I., "made about seventeen nautical miles in one hour." It has been said that the *Mayflower*, the last wooden defender of the America's Cup, "under very favorable conditions off the wind could be forced to about thirteen knots," and the *Reliance*, a more modern successful cup defender, "is credited with having reached a speed of sixteen knots per hour for a short time under ideal conditions."

The first of the important transatlantic yacht races was held in late 1866 between Sandy Hook and the Needles. The start was made on December 11, and the race was between three famous fast yachts for the sum of \$90,000, each owner putting up \$30,000. The participants in this widely publicized speed contest, with their dimensions and sailing performances during the crossing, can be briefly summarized as follows:

Name of Yacht	Type	Tonnage	Dimensions in Feet			Length of Passage			Distance as Reported
			Length	Beam	Draft	Days	Hours	Minutes	
HENRIETTA	Keel schooner; 2 masts	205	107	22	11.5	13	21	45	Nautical Miles 3,106
FLEETWING	Keel schooner; 2 masts	212	106.6	24	12	14	6	10	3,135
VESTA	Centerboard schooner; 2 masts	201	105	25	7.5	14	6	50	3,144

The draft of the *Vesta*, as stated, was excluding centerboard. The *Henrietta*, built in 1861, saw service during the Civil War. The *Fleetwing* was built in 1865. The best day's run during the race was 280 miles sailed by the *Henrietta* between the noons of December 16 and 17. The close race between the *Fleetwing* and *Vesta* is amazing as to both elapsed time and mileage.

The next transatlantic race of moment was an unusual one, as it was a westward and not an eastward crossing. It was sailed from Daunt Rock, Ireland, to Sandy Hook Lightship, the start being made on July 4, 1870. There were only two contestants in this race, which was a very good and close one, and the time made was good for a westward passage. The participants in this race, with their particulars and sailing performances, are set forth herewith:

Name of Yacht	Type	Tonnage	Dimensions in Feet			Length of Passage			Distance as Reported
			Length	Beam	Draft	Days	Hours	Minutes	
CAMBRIA	Keel schooner; 2 masts	188 rated	108	21	12	23	5	17	Nautical Miles 2,994
DAUNTLESS	Keel schooner; 2 masts (yard on fore)	215 displacement	120.7 deck	25	12.6	23	7	0	2,983

The *Cambria* was built at Cowes, England, in 1868, and the *Dauntless*, built at Mystic, Conn., in 1866, had been lengthened in 1869 and had a water-line length of 117 ft. The best day's run of the race was 221 miles sailed by the *Dauntless* and ending at noon of July 20.

The *Dauntless*, when twenty-one years old and long past her prime, again raced across the Atlantic in 1887, but this time with the newly built American yacht *Coronet* (launched in 1886), the course being to the eastward from Bay Ridge, New York, to Roches Point, Ireland, and the start was made on March 12. The dimensions of these two yachts and their sailing performances were as follows:

Name of Yacht	Type	Tonnage	Dimensions in Feet			Length of Passage			Distance as Reported
			Length	Beam	Draft	Days	Hours	Minutes	
CORONET	Keel schooner; 2 masts	277 displacement	133 over-all	27	12.5	14	19	3	Nautical Miles 2,934
DAUNTLESS	Keel schooner; 2 masts (yard on fore)	215 displacement	120.7 deck	25	12.6	16	1	43	3,046

The *Coronet* had a water-line length of 123 ft., or 6 ft. longer than that of the *Dauntless*. In this race the *Dauntless*, although beaten, on March 25, 1887, established a world's record for a day's run negotiated by any pleasure sailing craft that held until beaten by the larger and faster *Atlantic* in May 1905. The run of the *Dauntless* from Lat. 47° 17' N. and Long. 31° 44' W. to Lat. 50° 15' N. and Long. 24° 39' W. figured 332 miles for the noon-to-noon run, but the log of the voyage showed 328 miles, an understatement unique in reported day's run records.

The most famous of all the transatlantic yacht races was that of May 1905 for the German Emperor's Gold Cup. The course was eastward from Sandy Hook Lightship to the Lizard, and the race was won handily by the American three-masted steel schooner yacht *Atlantic* over ten other contestants in 12 days 4 hours 1 1/3 minutes. She was designed by William Gardner, with a length over-all of 185 ft. The distance logged was 3,013 miles, and the

conditions at the time—both wind and sea—were admirable for speed except that the wind died down after the yacht made Bishop's Rock. Transatlantic liners time their passages, land to land, from Bishop's Rock off the Scilly Islands, which is forty-nine miles west of the Lizard, to Ambrose Light Vessel, which is six and one-half miles east of Sandy Hook and twenty-two miles out of New York. The time of the *Atlantic's* record transatlantic run from Sandy Hook Light Vessel to Bishop's Rock was 11 days 16 hours 21 minutes, and the average speed was about 10.6 knots per hour. The continued run from the Rock to the Lizard required 11 hours 40 minutes, and the speed dropped to only 4.2 knots per hour, the average speed for the entire crossing to the Lizard, therefore, dropping to about 10.3 knots per hour.

In size the yachts participating in this race varied from the little *Fleur de Lys*, an 86-ton schooner (length 87 ft. water line and 108 ft. over-all), to the 648-ton ship *Valhalla* (length 208 ft. water line and 245 ft. over-all), the world's largest full-canvased, square-rigged auxiliary yacht (with propeller removed); from a racing yawl to square-riggers; and from the old three-masted topsail schooner *Sunbeam* of Lord Brassey, famous for her long voyages on the Seven Seas over a period of thirty years (and for her outstanding and much publicized around-the-world cruise), to modern, high-speed sailing craft designed and built pre-eminently for racing.

The following gives the name, length of passage, and distance reported of each of the contestants in the race, which were beaten by the winning *Atlantic* with her record passage of 12 days 4 hours 1 $\frac{1}{3}$ minutes and a distance reported of 3,013 nautical miles:

Position	Name of Yacht	Length of Passage			Distance as Reported	Position	Name of Yacht	Length of Passage			Distance as Reported
		Days	Hours	Minutes				Days	Hours	Minutes	
					<i>Nautical Miles</i>					<i>Nautical Miles</i>	
2	HAMBURG	13	2	6	3,093	7	FLEUR DE LYS	14	9	53	2,996
3	VALHALLA	14	2	53	3,223	8	AILSA	14	11	30	3,021
4	ENDYMION	14	4	19	3,077	9	UTOWANA	14	11	51	3,101
5	HILDEGARDE	14	4	53	3,009	10	THISTLE	14	19	29	2,980
6	SUNBEAM	14	6	25	3,093	11	APACHE	18	17	5	2,972

The *Atlantic*, in winning this race, established a record day's run for pleasure craft that still holds at the commencement of the second World War of the twentieth century. From noon of May 23 (Lat. 42° 30' N., Long. 46° 57' W.) to noon of May 24 (Lat. 44° 57' N., Long. 39° 50' W.), the fast schooner yacht covered 341 miles in 23 hours 31 minutes 30 seconds and at an average speed for the day of 14.495 knots per hour. In this race the two yachts *Valhalla* and *Sunbeam*, which were never designed for high speed under canvas alone, made surprisingly fast passages, for these craft were built primarily for seaworthiness and comfort, with speed a secondary consideration.

A comparison between these two serviceable yachts' best six consecutive day's runs of sailing during these passages is of interest:

Day No.	VALHALLA	SUNBEAM
1	287 miles	243 miles
2	310 "	272 "
3	289 "	282 "
4	278 "	270 "
5	280 "	250 "
6	278 "	246 "
Total for 6 consecutive days.....	1,722 miles	1,563 miles
Average per day for 6 days.....	287 miles	260 $\frac{1}{2}$ miles
Average speed per hour for the period.	12 knots	10.9 knots

The VALHALLA'S fast sailing was on the 7th to the 12th days of a 14-day run; that of the SUNBEAM covered the 6th to the 11th days.

The yacht *Atlantic*, on her winning run in this transatlantic race, was favored by good winds on only five consecutive days. She made the best run, point to point, and showed the best sailing for any one day, but the good west wind held on her run for only five and not six consecutive days. Her sailing performance for this period (the last five complete days of the passage to Bishop's Rock) was as follows:

Day No. 1	243 miles.	Total for 5 consecutive
" " 2	341 "	days, 1,412 miles.
" " 3	276 "	Average per day, 282½ miles.
" " 4	243 "	Average speed per hour for the
" " 5	309 "	period, 11.8 knots.

When the big clipper ships made their fast transatlantic runs in the fifties of the nineteenth century, they were favored by very heavy west winds of gale force; while such winds lasted the big clippers made splendid speed going with them, but under light breezes in average and smooth seas their sailing performance was not equal to that of the small fast yachts. A comparison of the day's runs in six consecutive days of fast sailing (with which each vessel was favored—all at the end of the passages) of the best transatlantic runs made by the clippers *Lightning* (2,083 tons), *Red Jacket* (2,305 tons), and *James Baines* (2,515 tons) is of interest:

Day No.	RED JACKET	LIGHTNING	JAMES BAINES
1	300 miles	312 miles	342 miles
2	417 "	285 "	200 "
3	364 "	295 "	230 "
4	342 "	260 "	291 "
5	300 "	306 "	337 "
6	360 "	436 "	296 "
Total for 6 consecutive days.....	2,083 miles	1,894 miles	1,696 miles
Average per day for 6 days.....	347 miles	316 miles	283 miles
Average speed per hour for the period.	14.4 knots	13.2 knots	11.8 knots
Reported time of passage.....	New York to Liverpool—13 days 1½ hours	Boston Light to Rock Light—13 days 19½ hours	Boston Light to Rock Light — 12 days 6 hours*

* The JAMES BAINES, whereas not experiencing westerly gales or high west winds approaching gale force for any six consecutive days, nevertheless, enjoyed more steady favorable winds throughout the passage.

Another great transatlantic race for yachts was attempted in 1928, with the course east-bound from Ambrose Lightship, New York, to Santander, Spain. The nine contestants, several of which were very small craft and not designed for ocean sailing, were divided into two classes and participated in one of two separate races. Five yachts rated as "large craft" started July 7, and four yachts classed as "small craft" (limited to boats of from 35 ft. to 55 ft. water-line length) started on June 30. In the race for large craft, the *Azara*, a twenty-four-year-old centerboard three-masted bald-headed schooner designed by A. Cary Smith as a seaworthy pleasure yacht and never intended for racing (not being equipped with spars or canvas to make speed), was never seriously considered as a contender, although she sailed over the course in approximately 27 days "merely for the fun of it." The other four yachts that participated in the "large craft" division of this 1928 transatlantic race, with a record of their sailing performances, were:

Position	Name of Yacht	Length of Passage			Distance as Reported	Position	Name of Yacht	Length of Passage			Distance as Reported
		Days	Hours	Minutes				Days	Hours	Minutes	
					<i>Nautical Miles</i>						<i>Nautical Miles</i>
1	ELENA	16	19	49½	3,311	3	GUINEVERE	17	22	57	3,178
2	ATLANTIC	17	16	25½	3,276	4	ZODIAC	21	0	47½	3,162

The fast three-masted schooner *Atlantic* was beaten by the more modern *Elena*, a two-masted schooner, 96 ft. long on the water and more of a racing machine. The *Guinevere* was a modern three-masted schooner that suffered "a partial lack of racing canvas." The *Zodiac* was a Gloucester, Mass., schooner 98 ft. long on the water, manned by fishermen—both captain and crew. The best day's run during this race was 290 miles made by the *Atlantic* for the day ending at noon on July 23.

The sailing performances of the three yachts of the "small craft" division of the race were as follows:

Yacht	Time of Passage						Distance as Reported
	Elapsed			Corrected			
NINA	23 days	22 hours	1 minute	22 days	17 hours	11 minutes	3,211 miles
PINTA	25 "	3 "	23 "	24 "	8 "	54 "	3,279 "
MOHAWK	24 "	17 "	45 "	24 "	17 "	45 "	3,257 "

Another entry was the *Rofa* (or *Isabella*), a Herreshoff-built yacht, which was 50 ft. over-all, 39 ft. water line, 13.6 ft. beam, and 6 ft. draft. After her masts snapped off, her crew was saved by the British steamer *Tuscarora*, and the little craft evidently went to Davy Jones's locker on July 6 while in tow.

The *Nina* was a racing craft designed by Starling Burgess "to beat the rule" governing the race. She was 59 ft. over-all, 50 ft. water line, 15.2 ft. beam, and 9.3 ft. draft. The *Pinta* was an excellent specimen of the "run-of-the-mine" Alden schooner: 57.7 ft. over-all, 42.3 ft. water line, 14.5 ft. beam, and 7.7 ft. draft. The *Mohawk* was the biggest craft in the race eligible for the small class division, and she was the scratch boat.

The best day's run of this class of small contestants was 253 miles covered by the *Pinta* in a day of 23 hours and 38 minutes ending at noon of July 5. This is said to be a record for a 42-ft. boat in deep-sea (open-ocean) work and figures about 10.7 knots per hour; however, the speed through the water was actually only about $8\frac{1}{4}$ knots per hour, as the craft was favored by a strong current.

There was a transatlantic race for yachts in 1931, with the course eastbound from the Brenton Reef Lightship, Newport, R. I., to Plymouth, England, with the start made on July 4. The record of the sailing performances of the ten contestants was as follows:

	Time of Passage						Distance as Reported
	Elapsed			Corrected			
DORADE	17 days	1 hour	14½ minutes	15 days	2 hours	46 minutes	2,838 miles
SKAL	20 "	7 "	20 "	18 "	8 "	31 "	?
HIGHLAND LIGHT	18 "	23 "	16½ "	18 "	10 "	9½ "	2,992 "
MISTRESS	19 "	8 "	48½ "	18 "	14 "	27½ "	2,961 "
AMBERJACK II	21 "	14 "	27½ "	18 "	14 "	30 "	2,936 "
LANDFALL	18 "	23 "	2½ "	18 "	23 "	2½ "	2,980 "
ILEX	20 "	20 "	0½ "	18 "	23 "	46½ "	2,956 "
WATER GIPSY	19 "	13 "	46½ "	19 "	0 "	19½ "	2,950 "
MAITENES II	21 "	10 "	46½ "	19 "	6 "	36 "	3,039 "
LISMORE	23 "	0 "	23 "	22 "	21 "	27 "	3,091 "

The *Dorado*, considered before the race as "the fifth potential winner" and which won the contest handily both with and without time allowance, was a yawl designed by Olin J. Stephens II in 1930. She was small, being 37 ft. long on the water and 52 ft. over-all. The boat that finished second on time allowance was the *Skal*, which was even shorter than the *Dorado*. The *Highland Light*, selected by many to win, was a Marconi cutter designed by Frank Paine and built at Lawley's, Boston, Mass. She was 61.7 ft. over-all, 50 ft. water line, 15.3 ft. beam, and 9.3 ft. draft. The *Mistress* was a short-sterned Marconi schooner designed by

Sherman Hoyt. The *Amberjack II* was a schooner 45.8 ft. length over-all and 34.5 ft. on the water line. The *Landfall*, one of the favorites of the race, was designed by L. Francis Herreshoff and built in Germany. She was a ketch and measured 71 ft. over-all, 60 ft. water line, 18 ft. beam, and 10.8 ft. draft. The *Water Gipsy* was a John Alden schooner with a length on the water of 43 ft. The *Lismore*, which finished last, had two feet cut off her stern to bring her over-all length to the limit set of 72 ft. The best day's run was reported by *Maitenes II*, which logged 232 miles for the day preceding the noon of July 16. This yacht finished eighth in the race on elapsed time and ninth on corrected time. The performance of the little *Dorado* in this race was outstanding.

In 1935 there was another transatlantic race for yachts which started June 8 from Brenton Reef Lightship, Newport, R. I., with the destination Bergen, Norway. There were six contestants, but one of them, the *Hamrah*, a gaff ketch, withdrew on June 19 after eleven days of sailing. The sailing performances of the five yachts that completed the course were as follows—the *Stoertebeker* (a gaff yawl sailing as a cutter without her mizzen) being completely outclassed:

Yacht	Time of Passage		Distance as Reported
	Elapsed	Corrected	
STORMY WEATHER	19 days 5 hours 32½ minutes	17 days 6 hours 9 minutes	3,118 miles
VAMARIE	19 " 0 " 17 "	19 " 0 " 17 "	3,204 "
MISTRESS	20 " 11 " 25 "	19 " 20 " 33 "	3,256 "
VAGABOND	25 " 18 " 0 "	23 " 21 " 49 "	3,299 "
STOERTEBEKER	34 " 20 " 45 "	32 " 18 " 18 "	?

The *Stormy Weather*, winner of the race on corrected time, was a Marconi yawl; the *Vamarie*, which made the fastest passage, was "a main trisail ketch"; the *Mistress* a Marconi schooner; the *Vagabond* a gaff schooner.

The best day's run was 222 miles up to noon of June 15 reported by the *Vamarie*. She had seven day's runs in excess of 200 miles, and four of them were consecutive, the yacht covering 854 nautical miles in four days and on a different occasion 440 miles in two days. The *Stormy Weather* had two day's runs in excess of 200 miles, and the *Mistress*, which finished third both by elapsed time and by time allowance, had two. For slow day's runs, the *Stoertebeker* reported 33 miles, *Mistress* 52 miles, *Vagabond* 54 miles, *Vamarie* 74 miles, and *Stormy Weather* 82 miles.

The Bermuda races, with the exception of a relatively recent match race (in 1937) between two square-riggers, have generally been for small craft that are racing machines; boats of even less than 20 ft. on the water have participated. The distance for the Bermuda yacht race has usually been 660 miles, but has varied from 628 to 734 miles. Whereas this is a relatively short distance for ocean sailing, it is as far as the Fastnet Course, which the British call "the Grand National of Ocean Racing" and which covers a run out from a south of England port, such as Cowes, Isle of Wight, or Plymouth, down the English and across the Irish Channel to Fastnet Rock off the southwest coast of Ireland, with a return over the same course. Such limited mileage does not permit the Fastnet racing to qualify as a real deep-sea ocean race, although it is a fitful and apt to be a disagreeable course with pronounced psychological hazards. In 1926 the Fife cutter *Hallowe'en*, with a tall Marconi rig, covered the course of 615 miles in 3 days 19 hours and 5 minutes—an average speed of 6.7 knots per hour and a record that has not been equaled since.

In August 1937, a real old-fashioned ocean race was arranged between two small square-rigged sailing ships then at Newport, R. I., the conditions set being a run under sail alone from Newport to Hamilton Harbor, Bermuda (a distance of about 660 nautical miles), by the two ships *Seven Seas* and *Joseph Conrad*. The race was to start from anchor off the Ida Lewis Yacht Club, and following the starting gun, the vessels were required to weigh anchor, make sail, and work out into the open deep sea just as in the days of the old salts. Both con-

testants in this race—a throwback to the nineteenth century—were small full-rigged sailing ships, originally built for specific useful work and then owned and operated as yachts. Both were built in Scandinavian countries, but at the time of the race were under American registry and flying the Stars and Stripes. The *Seven Seas* was the more modern and larger of the two ships. She was of 325 tons register, with a length of 168 ft., and was built as the *Abraham Rydberg*, a training ship, at Stockholm, Sweden, in 1912. The *Seven Seas* was a seaworthy craft, well built of steel, and carried a crew of twenty-six men. The *Joseph Conrad* was an older vessel, had seen much greater service, and had had a checkered career. She was built in 1881 in Denmark—also as a training ship—and had an iron hull; her registered tonnage was 217 tons and length 116 ft., making her probably the smallest full-rigged ship built during the past century. Originally named *Georg Stage*, she was later bought and made famous by Alan J. Villiers, the author-sailor who made some long and interesting voyages in her.

The two small full-rigged ships sailed from Newport on August 26, 1937, and arrived at Hamilton ten days later. The *Joseph Conrad*, being the smaller vessel, claimed a time allowance in yachting fashion, which, if granted, would have made the race a yacht race and not a speed contest between ships. Both vessels made slow time because of adverse and very light winds. The ships finished the voyage together, although they were not in sight of each other during the greater part of the run. At first the *Seven Seas* protested that the *Joseph Conrad* did not finish under her own sail and was outside the five-mile limit set when she passed the finishing line. The owner insisted, however, on the withdrawal of all protests, and the official elapsed times issued showed that the *Joseph Conrad* won the race by 55 seconds—a remarkably close finish for a 650-mile voyage. The times stated were:

JOSEPH CONRAD	10 days 1 hour 0 minutes 57 seconds
SEVEN SEAS	10 days 1 hour 1 minute 52 seconds

The average speed, point to point, of $65\frac{3}{4}$ miles per day, or $2\frac{3}{4}$ knots per hour, is quite low and would be deemed very poor for either merchant vessels or sailing yachts.

On the Pacific, yacht racing between a California port (such as Santa Barbara or San Pedro) and Honolulu, a run of about 2,300 miles, comes under the category of deep-sea work. This erroneously termed transpacific race, first organized by Commodore Clarence MacFarlane in 1906, has been held in alternate years since, with the exception of interruptions during the World Wars. James Flood's 51-ft. yawl *Dorado*, of San Francisco's St. Francis Yacht Club, clocked in 1936 the best time, on a corrected basis, to that date—11 days 3 hours 29 minutes 44 seconds from Santa Monica. There were twenty-three yachts entered in the event, also a record to that date. In 1923 the schooner *Mariner*, designed by Starling Burgess (length on water 78 ft., length over-all 106 ft., beam 26 ft., draft 14 ft., and carrying a complement of only six men), covered the distance from Santa Barbara to Honolulu in 11 days 14 hours 46 minutes, averaging more than 180 miles per day. The shortest time established in a race between San Pedro (the port of Los Angeles) and Honolulu was in July 1926, when the 95-ft. schooner yacht *Invader* negotiated the distance in 12 days 2 hours 48 minutes. Other outstanding performances were the June 1906 run of the *Lurline* of 12 days 9 hours 59 minutes and the July 1930 $12\frac{1}{2}$ -day run of the *Enchantress*. The smallest boat to compete in these races was the sloop *Common Sense* (28 ft. over-all and 24.7 ft. on the water), which participated in 1934, and the largest was the schooner *Enchantress* (136 ft. over-all and 100 ft. on the water), which won the race of 1930 by a close margin.

In 1925 there was arranged a real deep-sea long-distance race for yachts, the course being from San Francisco to Papeete, Tahiti, a distance of 3,700 miles. This was the world's longest yacht race, with part of it in the doldrums. It was also won by the schooner *Mariner*. Other contestants were the *Idalia*, a 51-ft. Lawley schooner; *Eloise*, a 64-ft. schooner; and *Shawnee*, a 53-ft. ketch. The start was made on June 10, and after a week's sailing the *Mariner* and *Idalia* were only a few miles apart; but the *Eloise*, with a damaged centerboard that had to be cast adrift, and *Shawnee*, with a lost topmast and blown-out sails, were about

two days astern. The *Mariner* and *Idalia* sailed diverging courses, and the *Mariner* had all the luck with the wind. She passed through the doldrums in three days, sailed about 2,100 miles in eleven and a half days at an average daily speed of 190 miles (or 8 knots per hour), and when she made Papeete, the *Idalia* had 900 miles still to go and was a week behind. In four days the *Idalia* had progressed only 150 miles, an average of only about 1.5 knots per hour, and two more idling days passed before she had the luck to pick up the Southeast Trades and show fairly good day's runs. The time of the four yachts participating in this most unsatisfactory long-distance ocean race was as follows:

Position	Name of Yacht	Length of Passage			Position	Name of Yacht	Length of Passage		
		Days	Hours	Minutes			Days	Hours	Minutes
1	MARINER	20	11	15	3	SHAWNEE	28	9	30
2	IDALIA	27	21	15	4	ELOISE	29	19	0

The average speed of the *Mariner*, the winning and luckiest yacht (not as per log, but considering the short theoretical course), was 7.54 knots per hour.

In 1882 a novel race was run between the square-rigger merchantman *North American*, leaving Boston en route to San Francisco, and Benjamin F. Butler's yacht *America* (171 tons; length on deck 95 ft., keel 80 ft., beam 23 ft., draft 7 ft. forward and 11 ft. aft). This famous craft was built to cross the Atlantic and bring to the United States the Queen's Cup from Cowes, England, competed for at the International Yacht Race featured in connection with the great Industrial Exhibition of London in 1851. The *North American* was a half clipper of 1,584 net registered tons (length 220 ft., beam 41 ft., depth 24 ft.) built in 1873 (launched January 3) by Curtis & Smith, East Boston, Mass., for Henry Hastings & Company, Boston. By many authorities this vessel was considered, when built, as the finest American ship afloat; she had relatively fine lines—a good compromise between extreme speed and carrying capacity—with lofty spars and a big sail spread. The *North American* made some fast runs in service and, on the Pacific, beat by one day the *Flying Cloud's* sailing record of 15 days from the equator to the Golden Gate. On her maiden voyage, she covered 41,531 nautical miles in 218 days, an average of 190½ miles per day and 8 knots per hour. The race between the big full-rigged merchant ship and the speedy two-masted schooner *America* had been planned some time previously, judges appointed, and the owners were aboard their respective vessels. They passed Boston Light together on August 2, and three days later the yacht arrived back at Boston, having accompanied the ship some 300 miles offshore. In the light winds and smooth seas experienced throughout the whole run, she had complete mastery of the big ship, which, however, was deeply laden with 2,800 tons of cargo aboard and was not favored by conditions of wind and sea.

New York pilot boats, with their seaworthy but yacht-like lines, enjoyed a reputation for speed from the days of the young republic to the end of sail. In the December 26, 1809, issue of the New York COMMERCIAL ADVERTISER appeared the following news item:

To decide a bet that the distance between the Battery and the light-house at Sandy Hook could not be run by any vessel in one hour and a half, the pilot boat *New Thorn* started on Saturday last, and accomplished it in one hour and twenty minutes. The distance is universally admitted to be between twenty-one to twenty-two miles, and by the least calculation she must have sailed at the rate of sixteen miles an hour.

This was fast sailing and apparently record speed for the times, but the distance covered was approximately nineteen miles and the speed 14.3 miles, or 12.4 knots per hour, and most probably the pilot boat was assisted by an ebb tide. Nevertheless, this was high speed in the days when a spurt speed of 10 to 11 knots per hour was considered very fast for a sailing vessel.

A truly marvelous sailing performance was that of the American pilot boat *Fanny* (Captain Kelly), which left Boston, Mass., November 1, 1850, and, after a dreaded passage from

the Atlantic to the Pacific, serenely sailed into San Francisco Bay, California, on February 15, 1851. This was a remarkable, fast, and successful run of only 106 days. The *Fanny* was not built primarily for speed, but being a pilot boat she was naturally a good sailer and was designed to have a good measure of seaworthiness and ability "to keep the seas." The two worst trade routes (excepting seasonal hurricanes, typhoons, etc., in other waters) are generally admitted to be the North Atlantic run, particularly westbound, and around Cape Horn westbound. Small sailing vessels have done well on the North Atlantic in the summer time, but a winter crossing is a very different matter. However, the long voyage of 16,000 miles or more around the fearful Cape Horn (or even through the Straits of Magellan—used by small sailing craft and steamers) going westward against the prevailing strong winds is not a pleasure trip for any small boat at any time of the year, even during an antarctic summer. Big and powerful sailing craft have fought Cape Horn for fifty to even ninety days, and some large and supposedly able vessels have retired defeated and, if not wrecked or foundered, have "turned tail to the western gales and mountain-high greybeards." Many a master of a large or sizable ship, discouraged in his futile attempts to round Cape Horn, has steered to the east and run across the South Atlantic past the Cape of Good Hope and across the Indian Ocean, with strong favorable westerly winds, thus voyaging around the world to get to San Francisco.

The pilot boat *Fanny* was only about half the size of the small schooner yacht *America*. The *Fanny* was also a two-masted schooner, but void of racing canvas. She measured 84 tons and was only 72 ft. long on deck, 21 ft. deep, and drew 9 ft. of water. When the diminutive *Fanny* sailed through the Golden Gate on February 15, 1851, quietly and without any fanfare, she had completed a voyage from an eastern Atlantic United States port to San Francisco in a time second only to that of the 908-ton extreme clipper *Sea Witch*, which had reached the Golden Gate on July 24, 1850, in record time and faster than the passage of any sailing vessel in history prior to that time. A comparison of the phenomenal run of the little *Fanny* with fast clipper ship passages of about the same time is of interest:

Name of Vessel	Ton-nage	Sailed		Arrived San Francisco	Elapsed Time in Days	Comment
		Port	Time			
FANNY	84	Boston	Nov. 1, 1850	Feb. 15, 1851	106	A very seaworthy pilot boat with a good record for speed at sea.
HELENA	598	New York	Oct. 29, 1850	Mar. 12, 1851	134 (reported 132 days)	Fast Webb-built New York sailer; made record from New York to Java Head in 73 days 20 hours in 1846.
URIEL	799	Boston	Nov. 27, 1850	May 3, 1851	157	Clipper ship built by Hall, of Boston.
SEAMAN	546	New York	Nov. 23, 1850	Mar. 10, 1851	107	Fast Baltimore clipper; built 1850.
CELESTIAL	860	New York	July 16, 1850	Oct. 31, 1850	107 (reported 106 days)	Fast Webb-built clipper; built 1850; a record-maker.
SAMUEL RUSSELL	957	New York	Jan. 15, 1850	May 6, 1850	111 (reported 109 days)	Fast New York clipper built by Brown & Bell; claimed on this passage a "record run of 109 days."
SEA WITCH	908	New York	Apr. 13, 1850	July 24, 1850 via Valparaiso (4-day stop)	102 (reported 101 days gross and 97 days net)	The world's fastest clipper of the time; built 1846-1847 by Smith & Dimon, New York, and the maker of sailing speed records that still hold.

In the above comparison, the performance of the little *Fanny* from the standpoint of speed alone—ignoring size—may not seem as great as it really was; for, aside from two contemporaneous sailings (*Uriel* from Boston and *Helena* from New York), only the fastest passages of about that time are set forth. When the pilot boat *Fanny* reached San Francisco

on February 15, 1851, in 106 days from an East Coast United States port, only one vessel had made a faster run from a North Atlantic port to the Golden City of California, and that was the *Sea Witch*, admittedly at the mid-century "the fastest sailing ship in the world." The amazing, fast, and courageous voyage of the *Fanny* will be more truly evaluated if it is borne in mind that among the 1850 westbound passages around the Horn of the new relatively big clippers—built primarily for speed and some for the exacting Cape Horn service—were runs of 157, 157, 150, 148, 142 days, etc. The *Fanny* averaged a speed of 6¼ knots per hour on her fast run from Boston to San Francisco; many of the clippers showed average speeds of only 4 to 4½ knots per hour, port to port, on passages over the same general course made the same year. The builders, owners, and the shipping fraternity commercially interested in the modern clippers discouraged and suppressed publicity in regard to the remarkable sailing performance of the little Boston pilot boat (also of the diminutive Boston brig *Sussex*, which, under Captain Bagley, reached San Francisco on April 5, 1851, after a westward passage of about the same length as that of the *Fanny*). It should be borne in mind, however, that the *Fanny* and the *Sussex* were extremely fortunate in rounding the South American continent (through the Straits of Magellan) in good summer weather in the southern latitudes and that many of the bigger and faster clippers rounding Cape Horn were not so lucky as to either time or winds.

Long Passages and Slow Sailing in Deep-Sea Runs

The very fastest, most reliable, rugged, and seaworthy sailing ships occasionally made a long passage due to no fault of the vessel herself or of her command, but to conditions of wind and sea encountered. No matter how lucky a sailing vessel might be, if she continued to operate in any trade long enough, she would make one or more slow passages. Occasionally, a sailing ship met with such adverse sailing conditions that a long passage was inevitable, and the fastest sailer in the world would make a sorry showing in endeavoring to make mileage toward her destination against persistent head gales and mountainous seas or when subjected to calms and light airs for a long period of time. Favorable winds of good force are a requisite to a good sailing passage, and with any wind-propelled vessel the smiles of Dame Fortune are necessary for a good passage or a smart run.

Fifteen New York transatlantic sailing packets made a westbound passage in 19 days or under during the sailing packet era, and two made crossings in 16 days, port to port (not pilot to pilot or light to light). However, these packets that are in the select speed class also reported passages of from 41 to 66 days, and the relation between the fastest and the slowest of the passages of these "fast" packets is of interest and is presented herewith:

Name of Packet	Tonnage	Length of Passages in Days		Ratio Long to Short	Name of Packet	Tonnage	Length of Passages in Days		Ratio Long to Short
		Short	Long				Short	Long	
YORKSHIRE	996	16	58	3.6	BAYARD	339	18	52	2.9
HARVEST QUEEN	1,383	16	44	2.8	GARRICK	895	18	54	3.0
CALEDONIA	647	17	50	3.0	PRESIDENT	468	19	62	3.3
NORTHUMBERLAND	817	17	60	3.5	DEVONSHIRE	1,149	19	41	2.2
COLUMBIA I	492	17	66	3.9	SOUTHAMPTON	1,299	19	43	2.3
WEST POINT	1,046	18	45	2.5	WELLINGTON	726	19	60	3.2
NEW WORLD	1,404	18	42	2.3	ISAAC BELL	1,072	19	45	2.4
CONSTITUTION	1,327	18	56	3.1					

The relation between the shortest and longest westbound passages of the twelve New York transatlantic sailing packets that made slow crossings of 72 days or over is as follows:

Name of Packet	Tonnage	Length of Passages in Days		Ratio Long to Short	Name of Packet	Tonnage	Length of Passages in Days		Ratio Long to Short
		Long-est	Short-est				Long-est	Short-est	
ASHBURTON	1,015	89	25	3.6	BALTIMORE	658	78	22	3.5
LONDON	1,145	85	23	3.7	AMERICAN				
VICTORIA	860	84	24	3.5	CONGRESS	863	77	21	3.7
HANNIBAL	440	83	25	3.3	NEW YORK II	862	73	22	3.3
SWITZERLAND	567	82	28	2.9	SPLENDID	642	73	21	3.5
ERIE	451	82	24	3.4	PACIFIC II	586	72	25	2.9
FRANCIS DEPAU	595	79	29	2.7					

It is evident, therefore, that the New York transatlantic sailing packets that showed the greatest speed across the ocean, as far as complete fast passages are concerned, all made relatively long passages at times that occupied from 2.2 to 3.9 times as long as their fastest crossings. Moreover, the packets showing the longest single passage showed a ratio of their longest to their shortest crossings of from 2.9 to 3.7 to 1. The speed queen of the Atlantic packets, the consistently fast and reliable *Yorkshire*, which held the record with a 16-day westward passage, port to port, required 58 days to complete one crossing, which was 3.6 times her best run and just twice as long as her lifetime average of 29 days. On the other hand, the *Ashburton* of the Liverpool Blue Swallowtail Line, which made the slowest westbound passage for a regular transatlantic sailing packet (she was in service for twenty-one years), occupied 89 days on this crossing. This was 3.5 times as long as her best westward passage of 25 days and 2.3 times as long as her lifetime average of 39 days.

In the coastwise sailing packet service, the same general conditions prevailed between fast and slow passages from port to port. For the long runs such as from New Orleans or Mobile on the Gulf of Mexico to New York, where the average length of passage northward was about 18 days, the *Silas Holmes* (644 tons) made a run between New Orleans and New York in only 9 days, and while she averaged a scant 17½ days during fifteen years of packet service, her longest passage required 27 days, or three times as long as her fastest run. Fifteen other New York-New Orleans sailing packets during the period 1827-1861 showed a fast average run in the service of 10 days for the northbound passage, but these ships all made long runs varying from 21 to 30 days, or from 2.1 to 3 times their fastest passages. On the shorter coastal runs, the difference between the shortest and the longest sailing packet passage greatly increased as the mileage between ports decreased. In the Savannah trade, where the average length of run to New York was about 7¼ days, five ships made passages between ports in 3 days; but these ships also made northbound runs of from 12 to 22 days; i.e., from 4 to 7.3 times their fastest performance. In the New York-Charleston service, the average sailing packet northbound passage was 6½ days. Eighteen ships made runs of 3 days between the ports; but these packets also made slow passages varying from 10 days for the *Amelia* (204 tons) to 23 days for the *Niagara* (319 tons), the slowest runs for these vessels varying from 3.3 to 7.7 times the length of their fastest sailing performances. The great difference in the length of passage of the sailing packets was not due largely to the season of the year, for in the Charleston run the average passage of the best month was 5½ days in July and for the worst months 7¼ days in February and November—a difference of 1¾ days; New Orleans during the regular operating months showed a variation for length of passage from about 17½ to 19 days for the favorable and unfavorable months.

Old Black Ball transatlantic sailing packet line statistics show an average length of westward passages varying with the months of from 22 days (November) to 25 days (June and September) eastbound and from 33 days (September) to 48 days (December) west-

bound. The difference westbound, according to the statistics published, is very erratic, the four worst months being December, January, February, and June; whereas the best months are September, April, May, and March. Yet ships have made slow passages due to lack of wind in the months when severe westerly gales were anticipated, and occasionally the prevailing westerlies are displaced by heavy easterly winds of gale force, which benefit westbound sailing ships tremendously while correspondingly retarding the passages of ships sailing eastward.

Much has been written of the long westbound transatlantic passages of the Havre Second Line sailing packet *Erie* (451 tons), and she has been called the "slowest of ocean packets." This is incorrect, as she neither made the longest single packet crossing nor held the longest average for all her crossings. Under "the leisurely Capt. Funk," the *Erie* (built by Bergh, New York, in 1829) ran steadily for eleven years in the New York-Havre packet service, and she is the only sailing packet credited with making three westbound crossings requiring 70 days or more. Her longest passage of 82 days focused attention on her and caused much concern in New York as LLOYD'S LIST (the usually very conservative British chronicle of ships' movements and casualties) reported her loss with all hands during a heavy gale shortly after she left Havre. Upon arrival at New York, Captain Funk, with his ship in first-class condition and all aboard safe and well, complained of the weather but of calms and lack of wind and not of gales. His ship had lain becalmed for forty days on the Newfoundland Banks. In the realm of expected heavy westerly blows, this experience was not unique. The brig *Globe*, a transatlantic passenger general trader that in the early 1850's was used as a cistern by the San Francisco fire department, made a 74-day passage "from Liverpool to New York" and lay becalmed for weeks on the Banks to the annoyance of several hundred emigrant passengers who had prepared themselves with provisions for a passage of from 40 to 60 days. When the ship lay idle in the Atlantic for a protracted period, they claimed that the officers had intentionally steered the ship and were keeping her in a calm belt so that they could profit by selling the passengers provisions at high prices. The emigrants, in rebellion, took the ship by force and ordered the officers and crew to take to the boats. We read:

The crew unslung their hammocks; the captain and officers gathered up their chronometers, quadrants, and log-books and prepared to leave. Then one of the passengers, a locksmith, asked the mal-

contents who would bring them into port if they drove away the crew and officers. This simple appeal brought them to their senses, for of their whole number not one could navigate.

As most of the passengers aboard the *Globe* were Germans, it seems more likely that this eventful crossing was from Havre to Boston; for at that time Havre was a popular embarking port for Continental emigrants bound to the United States. (There is a later record of the *Globe's* making a 75-day crossing from Havre to Boston.)

It is said that the all-time record long passage of a transatlantic regular sailing packet was a 110-day crossing made by the *Switzerland* (567 tons; built in 1836) of the London Red Swallowtail Line. There is, however, no record of this ship's requiring more than 82 days to complete a passage, but the *London* of the same line, a sizable craft of 1,145 tons, took 85 days to cross in 1849, and the Liverpool Blue Swallowtail liner *Ashburton* (1,015 tons), when fourteen years old, left Liverpool on January 9, 1856, and did not reach New York until April 7, requiring 89 days to make the crossing and this during the clipper ship decade and the era of high competition between sail and steam for the westbound emigrant trade.

Long transatlantic passages to the westward continued throughout the era of sail just as did long runs against the westerlies from the Atlantic to the Pacific around Cape Horn and long runs when attempting to buck the prevailing westerlies in the Roaring Forties (and fifties) of the southern latitudes. The ship *John T. Berry* (1,420 tons), built at Thomaston, Maine, in 1876, made some smart runs in the North Atlantic (as well as on the Seven Seas), which included a 39-day passage from Havre to New Orleans and a 22-day crossing from New York to Antwerp, with the pilot taken off the Cornwall coast 18 days out from New

York. On January 2, 1877, the "*Berry*" left Liverpool for Baltimore with a fair gale behind her and prospects of a good westward crossing, but she did not reach her destination until April 20, when she completed a passage that had taken 108 days. On this discouraging run, the "*Berry*" was nearly clear of St. George's Channel when she was driven back. Captain Emerson, her commander, went through the North Channel and was about halfway down the west coast of Ireland when a succession of southerly and westerly gales drove him north, and finally Emerson took his ship down the North Sea and anchored on February 18 in the Downs (southeast English coast) when 47 days out and farther from her destination than when she left Liverpool. On February 22, the voyage was resumed, but the ship did not reach Baltimore until 57 days later; in the meanwhile, the crew had been as rebellious as the elements were turbulent. One seaman was put in irons, and two others, with the second mate, were injured in mutinous fights.

An analysis has been made of the reported length of completed passages of American-built, American-owned, and American-manned ships in the China-to-England tea trade during the years 1850-1860 inclusive. Much has been written by marine historians of fast passages made by American clippers in this trade at the zenith of the clipper ship era, but the following records the British-stated length of passage of American ships that occupied 140 days or over from port of departure to the final destination, which was the London unloading dock:

Name of Vessel	Sailed		Length of Passage to London (or Equivalent) in Days
	Port	Date	
NORTH WIND	Foo Chow	Aug. 1, 1857	236
NAUTILUS (bark)	Whampoa	Dec. 14, 1850	233
NORTH STAR	Canton	Aug. 12, 1855	209
RACER	Shanghai	June 11, 1853	184
QUEEN OF THE EAST	Shanghai	July 11, 1854	174
GREENPOINT (bark)	Canton	Nov. 14, 1851	171
VERSAILLES	Shanghai	June 25, 1852	171
REMITTANCE	Shanghai	Nov. 15, 1851	170
SOVEREIGN OF THE SEAS	Shanghai	May 23, 1855	170
SAXONVILLE	Hong Kong	Mar. 5, 1860	167
JOHN WADE	Foo Choo Foo	June 9, 1856	166
GEORGIA	Hong Kong	Feb. 6, 1851	164
CHARLES	Whampoa	June 30, 1851	163
COMPETITOR	Shanghai	Jan. 9, 1857	163
CHALLENGE	Canton	July 13, 1853	162
FAR WEST	Whampoa	Mar. 8, 1851	161
JOHN BERTRAM	Shanghai	Aug. 3, 1852	160
TORRENT	Shanghai	June 6, 1855	159
FRIGATE BIRD	Foo Choo Foo	July 23, 1855	157
NARRAGANSETT	Shanghai	Nov. 1, 1855	156
INCA (bark)	Canton	Mar. 31, 1852	152
HEBER	Woosung	Feb. 24, 1852	150
ROEBUCK	Shanghai	May 13, 1855	150
JENNETTE	Whampoa	Aug. 25, 1850	148
SHERIDAN	Canton	Mar. 21, 1851	148
CYGNET	Foo Choo Foo	Nov. 10, 1854	148
WILD PIGEON	Foo Choo Foo	July 12, 1855	147
ERIE	Woosung	Mar. 27, 1853	146
EUREKA	Foo Choo Foo	July 22, 1855	145
ARGONAUT	Whampoa	Aug. 27, 1850	143
STAG HOUND	Woosung	Apr. 8, 1855	143
INCA	Hong Kong	Mar. 22, 1851	142
STORM KING	Foo Choo Foo	June 23, 1855	142
GOLDEN CITY	Foo Chow	Mar. 30, 1859	141
PRESCOTT	Shanghai	Jan. 25, 1852	140
ECLIPSE	Shanghai	Aug. 23, 1852	140
LAWRENCE BROWN	Foo Chow	Feb. 29, 1860	140

The following statement of the lengths of passages made by American ships in the China-Britain tea trade during 1850-1860 inclusive shows the variability of the length of the run to England with tea and an estimated speed of these vessels engaged in this trade. The lengths of passages are as stated by British authorities and are supposedly for complete passages, anchor to dock, with no time deduction for detention en route or off port.

Year	No. of Passages	Fastest Passage Days	Slowest, or Longest, Passage Days	Average Length of Passage Days	Number of Passages with a Length over the Number of Days Set Forth										Estimated Average Speed for Distance Logged on Direct Course Knots per Hour		
					135	140	150	160	170	180	190	200	225				
1850	8	ORIENTAL 99	NAUTILUS 233	140.3	7	3	1	1	1	1	1	1	1	1	6.5	2.8	4.6
1851	17	WISCONSIN 99 WITCH OF THE WAVE 92	GREENPOINT (bark) 171	134.3	7	7	5	5	2	—	—	—	—	—	7.0	3.7	4.8
1852	18	CHALLENGE 106	VERSAILLES 171	133.0	9	6	4	2	1	—	—	—	—	—	6.1	3.7	4.9
1853	19	CELESTIAL 96	RACER 184	124.3	5	4	2	2	1	—	—	—	—	—	6.7	3.5	5.2
1854	14	GOLDEN GATE 92	QUEEN OF THE EAST 174	124.3	4	2	1	1	1	—	—	—	—	—	7.0	3.7	5.2
1855	23	KINGFISHER 100	NORTH STAR 209	136.0	12	10	6	2	2	1	1	1	—	—	6.5	3.1	4.7
1856	11	GALATEA 104	JOHN WADE 166	121.2	2	1	1	1	—	—	—	—	—	—	6.2	3.9	5.3
1857	8	SWALLOW 106 MAURY (bark) 106	NORTH WIND 236	135.9	3	2	2	1	1	1	1	1	1	1	6.1	2.7	4.7
1858	2	FLORENCE 99	SNAP DRAGON (bark) 104	101.5	—	—	—	—	—	—	—	—	—	—	6.5	6.2	6.3
1859	11	SULTAN 102 FLORENCE 102	GOLDEN CITY 141	124.2	3	1	—	—	—	—	—	—	—	—	6.3	4.6	5.2
1860	4	FAIRY (bark) 115	SAXONVILLE (bark) 167	136.2	2	2	1	1	1	—	—	—	—	—	5.6	3.8	4.7
Total 11 years	135	WITCH OF THE WAVE 92 GOLDEN GATE 92	NORTH WIND 236	130.1	54	38	23	16	9	3	3	3	2	2	7.0	2.7	4.9

It is well to bear in mind that the British figures of the length of passages of American ships are seldom, if ever, correct and are generally computed on a different basis from the length of passages of British ships. The American clipper ship *Golden Gate* (Capt. S. F. Dewing) arrived off Beachy Head, England February 23, 1855, from Shanghai, China, via Batavia in 86 sailing days, or in "86 days net," and the *Nightingale* (Capt. Samuel W. Mather) arrived on May 18, 1855, from Shanghai in 91 days, pilot to pilot; while on the ocean run from Anjer (Sunda Straits) to English pilot, the *Challenge* (Captain Pitts) ran to Deal in 65 days, arriving November 18, 1852, and the *David Brown* (Capt. George S. Brewster) arrived at Gravesend October 28, 1854, after a run of 69 days, with her copper torn and cutwater twisted from being aground.

It is significant that American clipper ship records show very few extremely long passages in the United States-China trade, although the route was uniquely variable in the China Seas (north of Java Head and the straits) in regard to favorable and unfavorable monsoons. The outstandingly long passage was that of the *Union*, a clipper of 1,012 tons, built at Baltimore in 1851. This ship left Shanghai August 7, 1861, and reached New York January 28, 1862, after a passage of 174 days, of which 96 days were spent in the sea run across the Indian Ocean and 78 days beating down the China Sea to clearing the Straits of Allas. The *Eureka*, an extreme clipper of 1,041 tons (built at New York in 1851), when under charter to the U. S. Government in 1862-1863, made a long passage down the China Sea of 73 days from Macao to Anjer, which, although followed by a deep-sea run of 89 days to New York, resulted in a complete passage occupying 162 days. The *Black Prince*, a medium clipper of 1,061 tons (built at Newburyport, Mass., in 1856), made an outbound passage from New York to Shanghai of 167 days in 1862, and on arrival at Woosung she got ashore and had to discharge her cargo in lighters. The *Prima Donna* of 1,529 tons, one of the later medium clippers (built at Mystic, Conn., in 1858), arrived at New York March 27, 1883, 160 days from Hong Kong, but 91 days from Java Head, she having taken 69 days in beating down the China Sea against the southwest monsoon.

Another long passage was that of the clipper *Monsoon* of 773 tons (built at Bath in 1851), which is credited with a run out to Hong Kong of 152 days from New York; she was 110 days over the deep-sea part of the course to Anjer and 42 days beating up the China Sea from Anjer to Hong Kong. The *Monsoon* experienced "very unfavorable weather throughout the entire passage, port to port," and that the long run was not caused by the ship's being a poor sailer is proven by the fact that on her maiden voyage the *Monsoon* covered 346 nautical miles in one day and averaged 293 miles per day for eight consecutive days. Another Maine-built clipper, the *Red Gauntlet* of 1,038 tons (built at Robbinston in 1853), was generally unlucky as to weather and the timing of her passages; as a result, she made two long homeward runs in the China trade. On January 1, 1857, the ship arrived at New York 143 sailing days from Whampoa and 90 days from Anjer, having been 53 days beating down the China Sea. On December 14, 1862, she reached New York after a passage of 148 days from Shanghai and 93 days from Anjer, having taken 55 days to traverse the China Sea, and later she was held up for several days off the Cape of Good Hope by strong westerly gales. The fast Webb-built clipper *Celestial* of 860 tons (built in 1850), on her last voyage in 1857 before she was sold to sail under Spanish colors, made a long passage out to China of 148 days and then followed it with a fast passage of 98 days from Foochow to London, where she arrived January 11, 1858.

The length of almost all long and drawn-out China passages has been due to unfavorable monsoons and adverse sailing conditions encountered in the China Sea. The American clipper ship *Racer* of 1,669 tons (built at Newburyport in 1851) reached London December 13, 1853, after an appallingly long passage of 185 days from Shanghai, of which 81 days had been spent tediously trying to traverse the China Sea. The ship, with a favoring monsoon, could have negotiated this distance in 70 days' less time than was actually required. That the British marine shipping fraternity did not hold the wretchedly long passage against the ship but put the blame on the elements and the season is proven by the fact that, upon her arrival in England, the agents for the *Racer*, "because of her established reputation as a fast sailer," negotiated one of the most profitable charters for a ship ever recorded in Britain, the price paid being £18,000 for the use of the ship for a passage from London to Sydney and from Calcutta to London on the return part of the voyage.

The greatest deep-sea racing course for sail that the world has ever known was from United States East Coast ports via Cape Horn to San Francisco following the finding of gold in California in 1848 and during the clipper ship decade of the 1850's. From January 1 to March 9, 1849, twenty-six sailing vessels cleared East Coast ports (from New Orleans to Boston) for California. Omitting three Baltimore "clippers" that called at ports en route,

the other twenty-three vessels made passages that averaged 203½ days, the shortest runs being 158, 159, 175, 182, and 189 days and the longest 240, 233, 222, 220, and 219 days. Fifteen of these passages occupied 200 days or over; twenty of the twenty-three required 182 or more days. In 1850 there were twenty-four verified passages of clipper ships or reputed clippers over the Cape Horn course to the Golden City, and the average length of run as reported was 125 days, the fastest being that of the *Surprise* with 96 days 15 hours and the *Sea Witch* with 97 days net (via Valparaiso, 101 days); the longest clipper passages reported in the 1850 sailings were 158, 157, and 150 days. The following year (1851) saw the 90-day passage of the *Flying Cloud* (Captain Creesy) from New York on June 2 to arrival at San Francisco on August 31, with a run reported as 89 days 21½ hours and a length of passage that in the entire history of sail has been bettered only twice and that by a few hours: once in 1854 by the *Flying Cloud* herself, with a run reported as 89 days 8 hours, and again by the fast medium clipper *Andrew Jackson* (December 25, 1859, to March 24, 1860) in a passage of 89 days 4 hours.

The recorded history of the clipper ships and of the California Cape Horn course is of fast passages when "speed was king," but there is another side to the story. Whereas west-bound runs from an East Coast port to San Francisco of 100 days or under make interesting reading, yet most of the speedy clipper ships also made slow passages, which have not been given much, if any, publicity. The following is a statement of the number and length of long westbound passages made during the decade 1851-1860 inclusive by first-class American clipper ships in the North Atlantic-San Francisco, around-the-Horn trade taken from published records giving the dates of sailings, or clearances, and arrivals. Only reputed clippers that completed their voyages and the records of whose passages were reported by the contemporary public press have been included in this survey.

Year in Which Passage Commenced	Number of Passages by Reputed Clipper Ships Completed, Reported, and Checked	Number of These Passages That Occupied in Excess of the Below Stated Number of Days									Percentage of Total Completed Voyages That Occupied 155 Days or More
		155	160	170	180	190	200	250	300		
1851	45	4	3	2	1	—	—	—	—	9.0	
1852	116	6	4	2	2	1	1	—	—	5.2	
1853	147	12	9	5	4	2	1	—	—	8.2	
1854	109	6	6	5	4	4	1	1	1	5.5	
1855	120	13	10	5	4	3	2	1	—	10.8	
1856	99	12	11	7	5	4	4	2	2	12.1	
1857	67	8	6	3	2	1	1	—	—	11.9	
1858	97	18	14	7	2	2	—	—	—	18.6	
1859	82	15	13	10	5	5	3	2	1	18.3	
1860	66	4	3	—	—	—	—	—	—	6.1	
Total for decade 1851-1860	948	98	79	46	29	22	13	6	4	10.4	

A passage westbound around the Horn from any East Coast United States port to San Francisco (or any Pacific Coast United States port) that occupied 155 days or more was deemed very slow time for any merchant sailing ship, following mid-nineteenth century, whether the vessel was rated as an extreme (or "out-and-out") clipper, an ordinary (average, standard, or common sharp-lined and heavily canvased) clipper, a medium clipper, a half clipper, a post-clipper sailing ship, or a Down Easter.

The passages enumerated above are not only slow runs for clipper ships but also very long passages for any sizable deep-sea sailing vessels over the course. The following table attempts to interpret these figures of time of passage in terms of speed in knots per hour:

Length of Run Eastern North Atlantic Ports to San Francisco in Days	Estimated Average Mileage per Day Logged	Estimated Average Speed in Knots per Hour	
		Over Distance as Logged be- tween Ports	Over Short (Steamship) Dis- tance between Ports
155	103	4.3	3.8
160	100	4.2	3.7
170	94	3.9	3.4
180	89	3.7	3.2
190	84	3.5	3.1
200	80	3.3	2.9
225	71	3.0	2.6
250	64	2.7	2.4
275	58	2.4	2.1
300	53	2.2	1.9
325	49	2.0	1.8

A clipper making a "very fast run" over the Cape Horn course westbound generally averaged a speed of only about 6 knots per hour over distance as usually logged and about 5.3 knots per hour over the theoretical short route between ports. The ideal of the extreme clippers to make a run of 85 days between New York and the Golden Gate, which was never reached at any time (the record being 89 days 4 hours), would have required an average speed—if the distance logged on such a quick run was 15,500 miles—of about 7.6 knots per hour and over a short course of 14,000 miles, of about 6.86 knots per hour. None of the clippers that claimed day's runs in excess of 400 nautical miles (or in excess of 16 $\frac{2}{3}$ knots per hour) could average sufficient speed to round the Horn in better than 89 days under the most favorable conditions encountered during the entire history of sail. The difference between average speed of the clippers for the entire passage around the Horn westbound and the claimed relatively big mileage and high speed for a single day's run is shown by the following table:

Name of Clipper	Year of Passage	Time of Passage in Days	Estimated Average Speed for Entire Passage—Knots per Hour	Best Reported Day's Run	
				Miles	Speed Knots per Hour
GAME COCK	1851	185	3.6	325	13.54
HORNET	1851	155	4.3	318	13.25
HARRIET HOXIE	1852	132	5.0	311*	12.96
PATHFINDER (bark)	1852	152	4.4	316**	13.17
SWORDFISH	1853	107	6.2	340	14.17
WITCHCRAFT	1854	98	6.8	340	14.17
GREAT REPUBLIC (4-masted shipentine)	1856- 1857	94†	7.0	413	17.21

* Log reports speed of 16 knots per hour.

** Log says, "Makes 13 knots easily."

† Claimed run of 92 days, but vessel sailed from New York December 5, 1856, and passed through Golden Gate March 9, 1857, which is a passage of 94 days.

The ratio of average logged speed for the voyage of from three to six months' duration to the claimed average speed for the best day's run on the passage varies from 3.8 to 1 to 2.1 to 1, and the difference between the rate of speed on the best day's run and the average for the voyage is practically 10 knots per hour for both the *Game Cock*, with a very slow run of 185 days, and the *Great Republic*, with a fast run of 94 days.

During the clipper ship decade, several very long passages were made from an East Coast United States port to San Francisco when the dates of departure and of arrival at

destination (i.e., for a completed voyage, port to port) are considered. Many of these clippers making exceedingly long passages, port to port, claimed fast or at least very fair sailing performances at sea when on their course, and most of the lengthy passages were due to having to make a port en route for necessary repairs. The merit of a ship as a means of transport, however, is the amount of cargo and the number of passengers that she can carry between a predetermined port of departure and port of destination in a stated period of time, and a lay-up at an intermediate port of some ten to a hundred days or more on a passage is even more expensive and uneconomic than if this time had been spent due to slow sailing at sea.

The following record of long passages made by clipper ships in the North Atlantic port-San Francisco trade during the decade when speed was king, with the extreme clipper at the height of her glory, is of interest. The number of long voyages by ships that were built primarily for speed is conspicuous, and the record is far different from the generally prevalent belief.

Name of Clipper	Ton-nage	Length of Passage Clearance to Entry		Length of Passage Port to Port in Days	Name of Clipper	Ton-nage	Length of Passage Clearance to Entry		Length of Passage Port to Port in Days
		Departure East Coast Port	Arrival San Francisco				Departure East Coast Port	Arrival San Francisco	
HOUND	714	New York Sept. 17, 1856	Aug. 26, 1857, via Rio	343	SNOW SQUALL	742	New York July 8, 1856	Jan. 30, 1857, via Mon- tevideo	206
SPARKLING WAVE	655	New York Mar. 18, 1859	Feb. 6, 1860, via Rio and Valparaiso	325	POLY- NESIA	1,084	Boston Sept. 9, 1858	Mar. 25, 1859 (put back for repairs)	198
JOHN LAND	1,054	Boston July 6, 1854	May 13, 1855, via Valparaiso and Tahiti	311	QUEEN OF THE PACIFIC	1,356	Boston Jan. 26, 1853	Aug. 9, 1853, via Valparaiso	195
STAR OF HOPE	1,097	New York Feb. 10, 1856	Dec. 7, 1856, via Montevideo	301	RED GAUNTLET	1,038	New York Aug. 18, 1855	Mar. 1, 1856, via Valparaiso	195
KEYSTONE	853	Boston Feb. 23, 1855	Dec. 10, 1855, via New York	290	CHER- UBIM	1,796	New York May 9, 1859	Nov. 19, 1859, via Valparaiso	194
JOHN LAND	1,054	Boston Nov. 25, 1859	Aug. 21, 1860, via Valparaiso	270	SEAMAN'S BRIDE (II)	758	New York Sept. 25, 1858	Apr. 4, 1859	191
WATER WITCH	1,204	Boston July 31, 1853	Mar. 16, 1854, via Rio	228	VICTORY	670	New York June 17, 1854	Dec. 23, 1854, via Valparaiso	190
RAPID	1,115	New York May 26, 1856	Jan. 5, 1857, via Rio	224	RAVEN	711	New York Aug. 17, 1854	Feb. 23, 1855, via Rio	190
JOSHUA BATES	620	New York Mar. 12, 1851	Oct. 16, 1851	218	NORTHERN EAGLE	665	New York Jan. 25, 1859	Aug. 1, 1859, via Rio	190
GOLDEN EAGLE	1,121	New York May 23, 1859	Dec. 24, 1859 (off Cape Horn 90 days)	217	GALLEGO	373	New York July 1, 1852	Jan. 6, 1853, via Rio	189
AURORA	1,396	New York Apr. 4, 1857	Nov. 6, 1857, via Rio	216	NEP- TUNE'S CAR	1,616	New York Aug. 29, 1857	Mar. 4, 1858, via Rio	187
PEERLESS	633	Boston Dec. 19, 1852	July 20, 1853, via Valparaiso	213	GAME COCK	1,392	New York Apr. 3, 1851	Oct. 5, 1851, via Rio	185
JUNIPER	514	Boston June 6, 1853	Jan. 4, 1854, via Callao	212	FLYING CLOUD	1,782	New York Mar. 13, 1856	Sept. 14, 1856, via Rio	185
CARRIER DOVE	1,694	New York Oct. 5, 1855	Apr. 28, 1856, via Rio	206	WINGS OF THE MORNING	915	New York Jan. 21, 1853	July 23, 1853, via Rio	183

The *Gladiator* (Captain Whitfield), rated by Cutler as a clipper, cleared Baltimore September 22, 1855, and arrived at San Francisco March 29, 1856, after a passage, clearance to entry, of 189 days. The *Arab* (Captain Thurston), also classed as a clipper by Cutler, sailed from Boston July 6, 1853, and reached San Francisco January 6, 1854, after a passage, port to port, of 184 days.

The *Hound* was a sturdy vessel built by Charles Mallory, Mystic, Conn., in 1853. She was of 714 tons (length 143 ft., beam 33 ft., depth 17 ft.), with a clipper model and spar plan. After buffeting South Atlantic gales, she put into Rio de Janeiro on January 3, 1857, when 108 days out from New York, for repairs to hull, spars, rigging, and sails, which required 115 days to make. The *Hound* was unable to resume her voyage until April 28, and then the ship had a hard time of it around the Horn and in the southern latitudes and did not have wind enough in the tropics and North Pacific, so that she required 120 days to run from Rio to San Francisco. She finally reached her port of destination on August 26, 1857, 343 days out from New York (a passage only 22 days less than a full year), of which 228 days were spent at sea.

The *Sparkling Wave* made two passages from an East Coast port to California, and on each she was compelled to make one or more ports en route for repairs. On her first passage from Philadelphia to San Francisco in 1854-1855, she was required to put into Montevideo, but leaving that Uruguayan port, the "*Wave*" is credited with making a record run of 61 days to the Golden Gate. Her second and last passage over the course from New York to San Francisco in 1859-1860 was a "heart-breaker." The ship had to put into Rio de Janeiro because of a bad leak, which required the discharging of her cargo. Leaving Rio, she was 60 days off Cape Horn bucking strong westerlies, and when she put into Valparaiso 97 days from Rio, she was in need of fresh water and provisions as well as repairs. Reaching San Francisco February 6, 1860, Captain McCarthy reported "324 days from New York, 162 days from Rio and 56 days from Valparaiso."

The *John Land* (a sister ship of the *Winged Arrow*) was a reputedly fast sailer, being credited with three runs from Boston direct to San Francisco in 126, 105, and 108 days, respectively—an average of 113 days. On the other two westward Cape Horn runs to California, her record is a miserable one, as she was forced to put into ports in distress, and her completed passages occupied 311 and 270 days, respectively. On her 1854-1855 voyage, which commenced when the ship was only a little over two years old, she put into Valparaiso leaking badly. After undergoing repairs, she continued her passage, but when four degrees north of the Pacific equator and in Long. 102° W., the leaks were getting out of control, and \$50,000 worth of cargo was transferred to the whaler *D. M. Hall* at sea. The "*Land*," escorted by the "*Hall*," went to Nukahiva and thence to Tahiti for repairs, following which she resumed her voyage. The whaler's claims for salvage resulted in an award of \$63,032, of which the owners received \$26,684 and the officers and crew the balance. On her 1859-1860 passage, the *John Land* again had to put into Valparaiso because of leaks. The cargo had to be discharged and part of it sold, following which repairs were made.

The *Star of Hope*, which made a 301-day passage from New York to San Francisco in 1856, had to put into Montevideo en route because of fire; her cargo had to be discharged and salvaged and the ship repaired before she could continue her voyage. The *Water Witch*, upon her arrival at San Francisco on March 16, 1854, completing a 228-day passage, port to port, claimed only 122 days of it had been spent at sea, with the period of 106 days (September 16-December 31, 1853) at Rio de Janeiro undergoing repairs. The *Rapid's* slow passage of 224 days in May 1856-January 1857 was due to bad weather and damages resulting therefrom. On August 18, in Lat. 60° S., Long. 72° W. (south of Cape Horn), the *Rapid* encountered terrific gales and intense cold, the clipper became leaky, her sails were split, and ten men were lost and another ten disabled. Capt. Phineas Winsor, having practically no one on board but the officers and the carpenter to work the ship, turned tail to the gales and put into Rio de Janeiro on September 25, 122 days out from New York and 38 days

after calamity had hit her off the Cape. After repairs were made and half a new crew obtained, the *Rapid* continued her passage and was 11 days off the Cape in heavy gales, in which she sustained more injury. After crossing the Pacific equator, by way of contrast she was becalmed for three days.

The *Golden Eagle* (Captain Luce), on her long 217-day passage from New York to San Francisco in 1859, spent 211 days at sea and six days in port at Talcahuano, where she stopped with fifteen of her crew on the sick list, for fresh water, provisions, and medicines. The prime feature of this long passage was the battling of heavy gales for 90 days off Cape Horn, following a long run of 85 days on the Atlantic stretch due to adverse and severe weather. Off the Cape, the *Golden Eagle* was under bare poles for six successive days, during which her decks were constantly flooded and the ship was driven six degrees eastward. She lost fore and main yards and much furled canvas, and her bulwarks were stove in. It was reported that when the *Golden Eagle* dropped her anchor at Talcahuano, there was "only one spar standing, a lower mast, that she had when leaving New York; fifteen of the crew were down with scurvy and many had broken legs and arms." The period of 90 days in struggling to round Cape Horn can be compared with the record run of 6 days of the *Young America* from Lat. 50° S. in the Atlantic around the Cape to 50° S. in the Pacific, with 7-day runs between these points by the *Flying Fish*, *Flying Cloud*, and *Robin Hood*, and with 8-day runs by the *Flying Dutchman* (twice), *Herald of the Morning*, *Swordfish*, and *Stag Hound*. Whereas in 1859 the *Golden Eagle* spent 90 days battling to round Cape Horn, the following year she made a passage from New York to San Francisco in 110 days, and in 1855 she had made the complete run in 106 days—only sixteen days longer than the time spent in 1859 off Cape Horn.

The *Snow Squall*, on her 1856-1857 westward passage from New York to San Francisco (on September 5 in the South Atlantic in Lat. 46° S., Long. 60° W.), lost all her three topmasts with everything attached. She bore up for Montevideo, where repairs occupied 49 days. When ready for sea, a sudden squall carried a Spanish brig upon her, causing the loss and damage to spars and rigging, which required another 21 days to repair. The *Polynesia*, which left Boston for San Francisco on September 9, 1858, turned back on the 14th (after only five days at sea) leaking badly, with four feet of water in her hold and her pumps useless. The ship was dry-docked, recaulked and repaired, a new foremast stepped, and damaged cargo removed; but soon after she resumed her voyage, the *Polynesia* ran into a terrific gale. Some of the upper spars were cut away to save the ship and repairs made aboard, and the vessel made the second attempted passage in 152 days. The *Queen of the Pacific* made her long passage to California on her maiden voyage. She was cranky (attributed to the melting of part of her ice cargo), could not carry much sail, and received a bad pounding during the 30 days that she was off Cape Horn, in which she lost a topmast and developed leaks. The clipper put into Valparaiso on June 6, 131 days from Boston, and 10 days were spent making needed repairs. Of the 195 days required for this passage, 185 of them were spent at sea. The *Cherubim's* long passage of 194 days was due to the spending of 56 days in very heavy weather off Cape Horn and to the loss of the ship's supply of fresh water through carelessness. The clipper had to put into Valparaiso on September 30, 1859, when 144 days out, for water and repairs and was in port a week, the vessel being at sea 187 days of the 194-day passage, port to port.

The *Flying Cloud*, which boasted of two passages from New York to San Francisco of under 90 days, occupied 185 days on her last and sixth westward run. The clipper was only five years old when she left New York, but Captain Creesy decided not to sail in her. Although it is said that the ship was pronounced "strong and fit," necessary repairs following her hard driving had not been made, the bowsprit was soon found to be badly sprung, and "the vessel unworthy in several points." Her new master, Captain Reynard, drove her hard, however, and in the South Atlantic the ship was so badly damaged in hull, spars, and rigging that she had to make for Rio de Janeiro for repairs, and she lay in that port from May 10

to June 23, 1856 (44 days). On this passage of 185 days, port to port, the "Greyhound of the Seas" was actually 141 days at sea, although the command claimed that the ship was on her course only 113 days—31 days from New York to a point off Rio and 82 days from Rio to San Francisco. It was reported that on this passage the *Flying Cloud* made 402 nautical miles in one day, which is the fastest in her career, being 28 miles more than the two 374-mile days claimed for her by Captain Creesy.

The *Young America*, a medium clipper, with a record for sturdiness and reliability as well as for speed in her thirty years of service as a Cape Horner, had bad luck in 1859, when she was dismasted in the South Atlantic and had to put into Rio de Janeiro for repairs. The long passage, port to port, resulting from this disaster occupied 175 days, but after the clipper had been repaired, she made the run from Rio to San Francisco in 69 days as against the record 62-day passage of the *Witchcraft* made in 1851, the second best run of 65 days between the ports made by the *Spitfire* in 1853-1854, and the third fastest passage of 67 days made by the *Hurricane* in the spring of 1852.

The following is a record of slow passages of from 155 to 182 days (port to port) as made by clipper ships during the clipper ship decade 1851-1860 inclusive in the around-the-Horn westbound run from an Atlantic U.S.A. port to San Francisco:

Name of Clipper	Atlantic Departure		Length of Passage Days	Name of Clipper	Atlantic Departure		Length of Passage Days
	Port	Date			Port	Date	
JUNIATA	Baltimore	May 14, 1858	182	BLACK PRINCE	Boston	Jan. 19, 1858	168
RELIANCE	New York	Feb. 12, 1853	180	ZEPHYR	New York	Oct. 21, 1859	168
RICHARD BUSTEED	Boston	Jan. 10, 1858	179	ALBATROSS	New York	July 29, 1852	167
WILD ROVER	New York	May 25, 1859	179	STAR OF THE UNION	Boston	Nov. 26, 1855	167
GOLDEN WEST	New York	June 28, 1855	178	SANCHO PANZA	New York	June 2, 1857	167
WESTERN CONTINENT	New York	May 22, 1856	177	WAVERLEY	Boston	Mar. 31, 1859	166
YOUNG AMERICA	New York	Jan. 30, 1859	175	E. F. WILLETS	New York	Apr. 18, 1860	166
EUREKA	New York	Apr. 26, 1851	174	ESTHER MAY	Boston	Dec. 8, 1857	165
TSAR	New York	July 25, 1856	174	REYNARD	New York	Sept. 20, 1859	165
RADUGA	Boston	Feb. 24, 1858	174	FLORA TEMPLE	New York	Sept. 8, 1855	164
RAMBLER	New York	July 27, 1858	174	ANGLO-SAXON	New York	Apr. 10, 1858	164
AREY	New York	July 11, 1859	174	WANDERING JEW	New York	Aug. 6, 1858	164
WEST WIND	New York	Aug. 20, 1859	174	FLEETWING	New York	July 3, 1856	163
MISCHIEF	New York	May 20, 1853	173	GAUNTLET	New York	Feb. 27, 1858	163
MAMELUKE	New York	Jan. 13, 1857	173	SEAMAN'S BRIDE	New York	Dec. 10, 1851	162
MOUNTAIN WAVE	Boston	Nov. 24, 1854	171	GRECIAN SPIRIT OF THE TIMES	New York	June 23, 1855	162
FRANCIS A. PALMER	New York	Sept. 15, 1859	171	RATTLER FLYING EAGLE	New York	Mar. 21, 1859	162
WITCHCRAFT	Boston	Mar. 13, 1858	170	B. F. HOXIE	Philadelphia	Apr. 9, 1855	161
CREST OF THE WAVE	New York	Oct. 20, 1858	170	OCEAN PEARL	New York	Aug. 6, 1856	161
FLYING EAGLE	Boston	Feb. 22, 1853	169	FAIR WIND	Boston	Apr. 1, 1857	161
ALBONI	New York	May 5, 1855	169	SHIRLEY	Boston	Sept. 15, 1860	161
REINDEER	New York	June 2, 1856	169	MERMAID (bark)	Boston	May 12, 1851	160
NORTHERN EAGLE	Boston	June 30, 1856	169	DEFIANCE	New York	June 25, 1852	160
FRIGATE BIRD	Philadelphia	July 21, 1857	169	GOLDEN RACER	Baltimore	Mar. 2, 1854	160
MANITOU	New York	Oct. 23, 1858	169	HARVEY BIRCH	New York	Apr. 17, 1858	160
CORINNE	New York	Apr. 28, 1853	168				
WESTERN STAR	Boston	May 27, 1853	168				
WISCONSIN	New York	July 6, 1853	168				

Name of Clipper	Atlantic Departure		Length of Passage Days	Name of Clipper	Atlantic Departure		Length of Passage Days
	Port	Date			Port	Date	
OCEAN BELLE	New York	Oct. 18, 1858	160	BLACK SQUALL	New York	July 31, 1852	156
ALERT	New York	Mar. 15, 1851	159	NORTHERN CROSS	New York	Feb. 8, 1853	156
MEMNON II	Boston	Aug. 30, 1858	159	CARRINGTON	New York	Apr. 13, 1855	156
ASPASIA	New York	Dec. 23, 1858	159	CONQUEST	New York	July 18, 1857	156
BELVEDERE	Boston	Feb. 8, 1859	159	SPARKLING SEA	Boston	Aug. 19, 1857	156
WEBFOOT	New York	May 17, 1859	159	HORNET	New York	Aug. 21, 1851	155
SNOW SQUALL	New York	Feb. 25, 1853	158	ANTELOPE	New York	May 8, 1852	155
ONWARD	New York	May 6, 1856	158	WINDWARD	New York	May 31, 1853	155
ATMOSPHERE	New York	July 18, 1857	158	THOMAS WATSON	Philadelphia	Aug. 27, 1853	155
CARRIER DOVE	New York	Oct. 1, 1858	158	CORINGA	New York	Nov. 30, 1853	155
GOLDEN ROCKET	Boston	Dec. 8, 1858	158	LOOKOUT	New York	Mar. 1, 1855	155
KATE HAYES	New York	Jan. 30, 1852	157	LOTUS	New York	Feb. 1, 1856	155
GOLDEN EAGLE	Boston	Dec. 3, 1852	157	SILVER STAR	New York	June 17, 1856	155
MONSOON	New York	Feb. 27, 1855	157	OCEAN TELEGRAPH	New York	Aug. 1, 1856	155
DERBY	New York	May 15, 1860	157	COURSER	New York	Jan. 30, 1857	155
HIPPOGRIFFE	Boston	May 17, 1852	156				

The clipper ship *Dashing Wave*, built at Portsmouth, N. H., in 1853 (launched July 15), has a splendid record for longevity, being pronounced after a survey at Seattle in the spring of 1920 in first-class condition when sixty-seven years old (although she was stranded and wrecked shortly after). She made eleven Cape Horn westbound passages to California, which proved to be one too many for her fairly good record of an average of 127 days for the first ten voyages in that trade, for the disastrous eleventh passage, made in 1869-1870 (ten years after the close of the clipper ship decade), occupied 341 days. On this eventful and lengthy passage, the *Dashing Wave* sailed from New York March 11, 1869, but when she arrived at 50° S. Atlantic (after a good run of 42 days to that point) and started to round Cape Horn, her troubles commenced. A succession of gales resulted in lost spars and canvas, straining and bad leaks. Captain Mayhew became ill, and the clipper changed her course and headed back with the wind for Rio de Janeiro, arriving there on July 6, 117 days out from New York. Part of the ship's cargo had to be discharged, and she was repaired, following which she left port on October 11 after a stay of 97 days. When reaching the Horn again, heavy gales were once more encountered and new leaks started. Captain Mayhew became very sick again and ordered the ship steered for Valparaiso, where she arrived on December 5, 1869, with Mate Morton in charge and with a mutinous crew. At that time, the ship was 269 days out from New York, and the "*Wave*" had made the run from Rio to Valparaiso in 55 days. Captain Mayhew, taken ashore, died December 10. After the leak had been repaired, the ship sailed on January 2, 1870, having been 28 days at Valparaiso, and she finally reached San Francisco on February 15 after a run of 44 days from the Chilean port. Of the 341 days required to complete this voyage, 216 days were spent at sea and 125 days in port making necessary repairs.

All the above-mentioned long passages in the California trade of clippers and ships built in the clipper ship decade at least finally were completed, even if it required two, three, or four hundred days or more, but there have been several ships that sailed from an East Coast port for the Golden City that never reached their destination. The *White Squall* was an extreme clipper ship of 1,119 tons, built in 1850 by Jacob Bell, successor to Brown & Bell, New York. This beautiful and fast clipper sailed from New York December 22, 1854, bound for San Francisco. When only two days out, she shipped a heavy sea, which stove in the cabin and bulwarks and did so much damage, besides injuring the captain and three men,

that the ship turned back to New York. After repairs were made, she sailed again from New York on February 17 under the command of Capt. E. J. Harding. When four days out, the *White Squall* lost all three topmasts in a severe gale; she continued on her course, but was compelled on March 25, when 36 days out, to put into Rio in distress. Here trouble developed regarding funds, and the ship had to sell part of her cargo to pay a \$13,000 repair bill. Captain Harding left the vessel, and First Mate Burke was appointed to command. A lawsuit developed, and the *White Squall* returned to New York, where she arrived in February 1856, about fourteen months after she had first sailed. After repairs were made and finances straightened out, the clipper set out for the third time to make the desired passage to San Francisco, but in September 1856 she put into Montevideo in distress (twenty-one months following her first sailing from New York). The voyage was abandoned, the ship condemned and ordered sold (640 days after the commencement of her passage to San Francisco), and she had got no farther on her way than Montevideo. The *White Squall*, however, was by no means finished, for she was bought by the French and renamed *Splendide*. After repairs and a thorough reconditioning, she gave good service to her foreign owners until 1877, when, it is believed, she went ashore on a voyage from Rouen to Barcelona and was finally condemned when twenty-seven years old.

Among the ships built during the clipper shipbuilding decade of the fifties and heralded by either their builders or owners as clippers were some vessels that in the seventies made exceedingly long passages. The *Templar*, built by J. T. Foster at Medford in 1858 and generally rated as a medium clipper, sailed from New York September 14, 1878, for San Francisco and did not pass through the Golden Gate until July 31, 1879, to complete a heartbreaking passage of 320 days. The ship was in trouble in the South Atlantic and turned back and made for Rio de Janeiro, where she arrived December 8, 1878, and did not leave until February 20, 1879, when repairs were completed. Upon resuming her voyage, an epidemic of yellow fever swept the ship, and almost all aboard became very ill. Three died, and many, including the captain, were incapacitated for months. The first mate was swept overboard and lost, and the captain's young daughter, when she recovered from the fever, and an inexperienced junior officer navigated the ship and finally got her to the desired destination.

The *King Philip*, built at Alna, Maine, in 1856, left Baltimore May 16, 1874, and a riotous crew tried to set fire to the ship when leaving port. Serious trouble developed when wretched weather was encountered off Cape Horn, and the "*Philip*" returned to Rio de Janeiro, where she was detained about four months undergoing repairs. The vessel finally reached San Francisco in May 1875 after a passage of 351 days from Baltimore (and a run of 107 days from Rio). The big ship *Enoch Train* (1,787 tons) was built by Paul Curtis in 1854. During the sixties (following a long passage of 167 days from Norfolk to San Francisco and a return to Liverpool in 143 days), she made an amazingly slow passage—a "sailing record in reverse"—of 476 days from New York to San Francisco. Twice she reached Cape Horn, encountered heavy gales, and developed such bad leaks from the pounding and wrenching of heavy seas that she put back to Rio de Janeiro for repairs and reconditioning. When the *Enoch Train* finally completed the unfortunate and long drawn-out passage, which occupied some hundred days in excess of a full year, it was said that the underwriters suffered a loss of \$80,000 on the voyage.

Long westward passages to California via Cape Horn were occasionally made by all classes of sailing vessels—clippers, ordinary ships of medium model and moderate sail spread, full-bodied ships, Down Easters, etc.; wood or iron or steel ships, big and little vessels, and these of all nationalities—American and European.

The *Alameda* of 1,474 tons, built in 1876 at Bath, Maine, was an average well-built wood ship of Down Easter type. She made fourteen westbound roundings of Cape Horn and ran from New York to San Francisco in 123 days. Eastbound, she made a passage from Astoria to Queenstown in 1890, when fourteen years old, in 102 days and passed Cape Horn when only 44 days out. She also made passages from San Francisco of 107 days to Queens-

town and 111 days to New York, but this sturdy vessel, as did all other sailing ships, had bad luck at times and made slow runs. On her voyage from Liverpool to San Francisco in 1885, the *Alameda* met heavy weather soon after leaving port and was forced to put into Queenstown Harbor with the cargo shifted. Later, she had similar trouble and was obliged to put into Rio de Janeiro, where she was delayed over three weeks. From the River Plate until getting into the Pacific, the ship for some six weeks experienced continuous heavy weather and, when reaching San Francisco, was 253 days out from Liverpool and 129 days from Rio de Janeiro.

In 1892 the *Alameda*, on a passage from Philadelphia around Cape Horn, had to put back for Montevideo, having lost two lower and two topsail yards and much canvas; she was detained in port three weeks refitting. On the following outward passage from New York, her cargo shifted, and the vessel was thrown on her beam ends when near the Horn in Lat. 50° S. Atlantic. The ship again put about, and three weeks later arrived at Rio de Janeiro. Some 800 tons of cargo had to be discharged in order that repairs could be effected, and the detention in port was nearly four months. The *Alameda* finally arrived at San Francisco 279 days following her sailing from New York.

The *Whittier* of 1,295 tons, built in 1869 by John Currier, Jr., of Newburyport, Mass., left New York March 22, 1875, on her only Cape Horn passage. On May 16, fire was discovered in the general cargo stowed in the fore hold, and Captain Swap made for Montevideo. All the cargo in the ship, except some 700 tons of iron, was discharged and the ship repaired at the Uruguay port. She left Montevideo October 6, 1875, 198 days after she had first sailed from New York on the passage bound for California. The *Whittier* went from Montevideo to her destination in 90 days, thus completing her passage from New York to San Francisco in 288 days.

In 1899-1900, the *A. G. Ropes*, a splendid Down Easter of 2,342 net tons built by John McDonald, Bath, Maine, in 1884, made her last Cape Horn voyage to San Francisco, and her master, Captain Rivers, reported experiencing worse winds and weather than he had ever met in his half-century at sea. Long calms were encountered in the Atlantic, the ship's rudderhead was damaged near Cape Horn, and there was a narrow escape from going ashore on the Falkland Islands. The ship was crashing through floating ice, dodging icebergs, and finally had to turn about and circle the globe by rounding the Cape of Good Hope to get to San Francisco. The vessel made the Falkland Islands and anchored off Port William, but it is said that there was no way to get the "*Ropes*" to Port Stanley without towage assistance, and no such was available. The weather was extremely rough; hence the decision to go with the wind and run east rather than attempt the westward rounding of Cape Horn with improvised steering gear. The ship made port at San Francisco February 21, 1900, after a passage of 204 days from New York and 104 days from the Falkland Islands. The last few years of operation of the *A. G. Ropes* as a full-rigged ship are of interest, as they well illustrate the difficulties of keeping square-riggers at sea when it became impossible to get Americans or white men to man them and trained licensed men to serve as officers. In 1901, Captain Rivers took the "*Ropes*" to sea without a single mate or certified man aboard to help him in navigation and sailing the vessel. Of the entire crew, only eight were white men. In August 1905, the "*Ropes*" was towed into Kobe dismasted and badly damaged by a typhoon. As the repairs could be made only by incompetent men and the estimated cost was \$40,000, Captain Rivers showed his nerve by patching up the ship himself and, under what was virtually a jury rig, sailing her back to New York, where she arrived safely in May 1906.

Even "the incomparable *Henry B. Hyde*," the Queen of all Down Easters, of 2,580 tons gross and 2,462 tons net (also built by John McDonald, Bath, Maine, in 1884), experienced two long voyages when this fine vessel was put in the hazardous coal trade. On the voyage from Norfolk, Va., to Honolulu in 1899-1900, she sailed well and did some fast work under canvas (such as the run from Valparaiso to Honolulu in 38 days, in which she logged on

an average 170 miles per day and a little over 7 knots per hour for five and a half weeks), but with her cargo on fire she was compelled to make port during the voyage and was delayed fifty days as a result. In 1902, however, a still more serious delay was experienced. The "*Hyde*" left Baltimore May 18 for San Francisco, and when she was in the vicinity of the Horn and bucking western gales, her coal cargo was found to be badly heated. Captain McLeod deemed it wise to turn his vessel eastward and run with the wind rather than against it on the stretch of some 4,500 miles across the South Atlantic to Cape Town. The *Henry B. Hyde* anchored in Table Bay August 19, 93 days out from New York. There some six hundred tons of her cargo of coal were discharged, and after examination and treatment of the balance and a great assumption of risk, the voyage was resumed. San Francisco was reached on Christmas Day after a voyage, including port delays and two trans-South Atlantic runs, of 221 days. The voyage from Cape Town to San Francisco was negotiated in 82 days.

There were three sailing ships built of iron in the United States. All were constructed on the Delaware in 1883-1884 for W. H. Starbuck and associates, and all proved to be very poor sailers, being unable to compete as far as speed and profits were concerned with American wood ships (Down Easters) of their size and date. The *Tillie E. Starbuck* of 2,033 tons was the first and best of the trio, but slow. In 1901 the *Clarence S. Bement* of 1,999 tons took 222 days to reach New York from Yokohama, and it was said that she was "more notorious for the length of her passages than for the shortness of them." The *T. F. Oakes* of 1,997 tons (also "a skysail yarder") was apparently the slowest of the three misnamed "iron Down Easters." In 1893 she made a passage from New York to San Francisco in 195 days, but she is chiefly remembered for her long and disastrous passage home from Shanghai in 1896-1897. The "*Oakes*" (Capt. E. W. Reed) left Shanghai in June 1896 and a month later put into Hong Kong (presumably to take on a little more cargo). The ship was supposed to follow the usual route of sailing ships bound for a North Atlantic port, which was via Anjer and the Cape of Good Hope, but the "*Oakes*" permitted herself to be blown east into the Pacific, and Captain Reed determined to sail to New York with the wind by way of Cape Horn, which was not rounded until she was 168 days out. The ship's crew was taken down with scurvy, and five seamen and the mate died of the disease. Gradually all on board the "*Oakes*" became incapacitated and unable to work the ship. She was picked up by the British oil tanker *Kasbek* in the North Atlantic and towed to the quarantine station, New York, where she dropped anchor on March 21, 1897, 259 days out from China and some time after she had been posted as "missing."

The Sewall four-masted wood shipentine *Susquehanna* of 2,628 tons (net) register, launched at Bath, Maine, September 17, 1891, did some fast sailing in clipper ship time. This full-bodied vessel, carrying lofty spars and a big sail spread, ran from San Francisco to Liverpool in 93 days 21½ hours, from Honolulu to New York in 89 days (averaging 160 miles per day), and from Hong Kong to New York in 102 days; but against these fine passages stands the record of a long and tiresome run of 204 days from Norfolk, Va., to Manila. Grave fears were felt for the vessel's safety, and she was about to be placed on the missing list when news of her belated arrival was received with no explanation except "atrocious adverse sailing conditions encountered throughout passage."

Another of the Sewall Bath-built "Big Wood Four," the *Shenandoah*, a four-masted shipentine of 3,258 net tons (launched into the Kennebec River in November 1890), did some fast sailing and is credited with runs of 111 days from New York to San Francisco, 108 days from San Francisco to New York, 102 days (also reported as 100 days) from San Francisco to Liverpool, 139 days from New York to Japan, and 34 days from Yokohama to San Francisco (making 313 miles in one day on the eastbound Pacific crossing). The *Shenandoah* made at least one slow passage between ports. Under the command of Capt. O. E. Chapman, the big shipentine, in her seventeenth year, left Baltimore March 30, 1907, with a load of 5,400 tons of coal consigned to the navy yards of San Francisco. The vessel had such an outstandingly weak and inexperienced crew, mere "riffraff," that Captain Chap-

man decided after a reasonable period, in which he endeavored to make sailors of them (and this without any appreciable success), to make no attempt to round Cape Horn, but to sail for his port of destination via the Cape of Good Hope. East of the Cape in the Roaring Forties, the *Shenandoah* experienced unusually heavy weather, and after a series of gales, with the ship leaking badly, Captain Chapman felt compelled to make for Melbourne, Australia, where he arrived August 6—129 days out from New York. The *Shenandoah* was in such physical condition that it required 60 days in port to have the needed repairs made, and the vessel sailed October 5 for San Francisco. She arrived off the Golden Gate after a run of 82 days from Melbourne and, when in charge of a towboat and pilot, went ashore on the shoals of the Potato Patch on December 26. She was pulled off the next day by three power tugs and towed to the Mare Island Navy Yard, arriving alongside the unloading docks on December 27, 272 days out from New York, and of this time 211 days had been spent at sea and 60 days in port undergoing repairs.

The *Shenandoah* was generally a good sailer, and she made some fast passages. In 1892 the big shipentine left New York March 24 bound for San Francisco. The very fast British ship *Old Kensington* (which had quite a reputation for speed) left an English Channel port March 22, 1892, or two days earlier than the *Shenandoah* sailed from New York. On May 19 the two ships met near Cape Horn, the Britisher coming up from astern and passing the Yankee vessel, but on May 22 in a southwest gale, the *Shenandoah*, making good weather of it, caught up and passed the Britisher, which was laboring heavily and shipping much water. The *Shenandoah* reached San Francisco July 13 after a good passage of 111 days, but the *Old Kensington* found the Cape Horn gales too much for her; she put back to Port Stanley (the Falklands) for repairs, and the Britisher did not reach San Francisco until March 5, 1893, after a passage that had occupied 348 days.

The *Roanoke*, the largest square-rigged wood ship ever built and sent to sea, was the last of the Sewall "Big Wood Four" and the last wood ship constructed by the Sewalls, of Bath, Maine. She was a four-masted shipentine, launched September 20, 1892, and was of 3,539 tons gross and 3,400 tons net. The *Roanoke* did some smart sailing at times, but has few short complete passages to her credit, her best being a run from New York to Sandy Hook in 99 days (although she was then blown offshore, and the completed passage was of 102 days—very good time). The big ship ran up the Pacific from Lat. 50° S. to the Farallones, off San Francisco, in 36 days, which is clipper ship time, and she is said to have covered 320 miles in one day. On a New York-to-San Francisco passage in 1895, the *Roanoke* was detained six weeks in Rio de Janeiro, not for repairs to hull or spars but because of hospitalization of sixteen members of the crew. The days of experienced able seamen were passed, and during a spell of heavy gales and high seas in the South Atlantic, the *Roanoke* lost three men through falls from aloft, and most of the crew were injured—some very seriously. With only eight men aboard physically fit for duty, Captain Hamilton turned tail to the gales when in Lat. 44° S. and bore up for Montevideo; but being unable to fetch that port, he continued up the South American coast to Rio de Janeiro, where he put the injured men in hospital ashore. After losing about 30 days at sea and some six weeks in port, the *Roanoke* resumed her voyage and made a passage of 87 days from Rio to San Francisco.

The *Roanoke* arrived in San Francisco on January 7, 1902, after a slow and dramatic passage of 206 days from Norfolk, Va. This long passage, like many others during the last decades of sail, was due to the cargo carried, coal being a hazardous commodity as it was handled in those days. The *Roanoke* left Norfolk on June 15, 1901, and had a rough time of it rounding the Horn and in the southern latitudes. On November 12, when the ship was 150 days out and in Lat. 10° N. Pacific, the coal cargo was discovered on fire. Captain Amesbury, after many futile attempts to control it, headed for Honolulu, where he arrived on November 25. Here about four thousand tons of coal were discharged, the ship repaired, and with about a thousand tons of coal still on board for ballast the vessel finally reached

San Francisco on January 7, 1902, 206 days out from Norfolk and 19 days from Honolulu; she had been 182 days at sea and 24 days in port en route.

On June 24, 1904, the *Roanoke* left New York for Sydney and, shortly after crossing the equator, came into collision with the British steamer *Llangibby*, which was bound from Rosario and Buenos Aires for Europe. Both vessels were seriously injured. The *Llangibby* headed for Bahia for repairs, while the *Roanoke* made for Rio de Janeiro, where she arrived August 19, 1904, 56 days out from New York. The *Roanoke* was evidently in need of extensive repairs, for she did not leave Rio until December 3, 1904, after a port detention of 106 days. The big ship finally reached her destination on February 23, 1905, 82 days from Rio and 244 days from New York, of which 138 days were spent at sea.

The steel four-masted shipentine *Kenilworth* was "an exceedingly fast ship" and an unlucky one. Built by J. Reid & Company, Port Glasgow, Scotland, in 1887, she was burned loading grain at Port Costa, Calif., August 26, 1889, and abandoned to the underwriters. A. Sewall & Company, of Bath, Maine, bought her, made the necessary repairs, and operated her under American registry—the company's first metal ship. The *Kenilworth* was 300.2 ft. long, 43.1 ft. beam, 24.2 ft. deep, and of 2,293 tons gross and 2,146 tons net register. She became known as "the fire ship" and "the fire-accursed *Kenilworth*"; for in addition to being burned with wheat, she had two fires with Hawaiian sugar, another in a cargo of jute at Calcutta, and many in cargoes of coal. The vessel made many fast passages, such as an 18½-day transatlantic run westbound in 1901 and a 103-day run around the Horn from New York to the Golden Gate in 1899, but she had some "unlucky" voyages, of which by far the worst was her last one around Cape Stiff. She ended this memorable passage when she arrived at San Francisco on March 15, 1908, with a bad list and cargo shifted, 579 days out from Philadelphia by way of Montevideo and Rio (the vessel, like many British ships, was too narrow and lacked stability). On this momentous run, the *Kenilworth* started from Philadelphia on August 14, 1906, with Capt. J. A. Amesbury, of Rockport, Maine, in command, who had bought into the vessel in harmony with the Sewall demands and practice. Capt. L. S. Colley, saying that he had had his "fill of the little Limey," had quit the vessel after he had unloaded his cargo of sugar and gone to his home at Thomaston, Maine. The *Kenilworth* made bad weather of her run south, and Amesbury put a thoroughly battered ship "in distress" into Montevideo. After necessary repairs, she again sailed on April 5, 1907, but—rebuffed time after time—could not get around the Horn. Amesbury then made a futile effort to proceed by way of the Cape of Good Hope, but adverse winds and raging high seas caused him to make for Rio de Janeiro, where he arrived September 4, 1907, and surrendered his command. After further repairs were made, the *Kenilworth* sailed on her final attempt to round the Horn on December 17, 1907. Capt. Will Taylor, of Wiscasset, Maine, who had been her skipper from February 1899 to July 1903 and knew the speedy but cranky vessel well, was in command. He had a miserable time with her, but finally limped into San Francisco with a bad list and in a serious leaking condition on March 15, 1908. This eventful voyage occupied from August 14, 1906, to March 15, 1908, or from port of departure to final port for disembarking, 579 days (one year seven months and one day), of which 423 days were spent at sea.

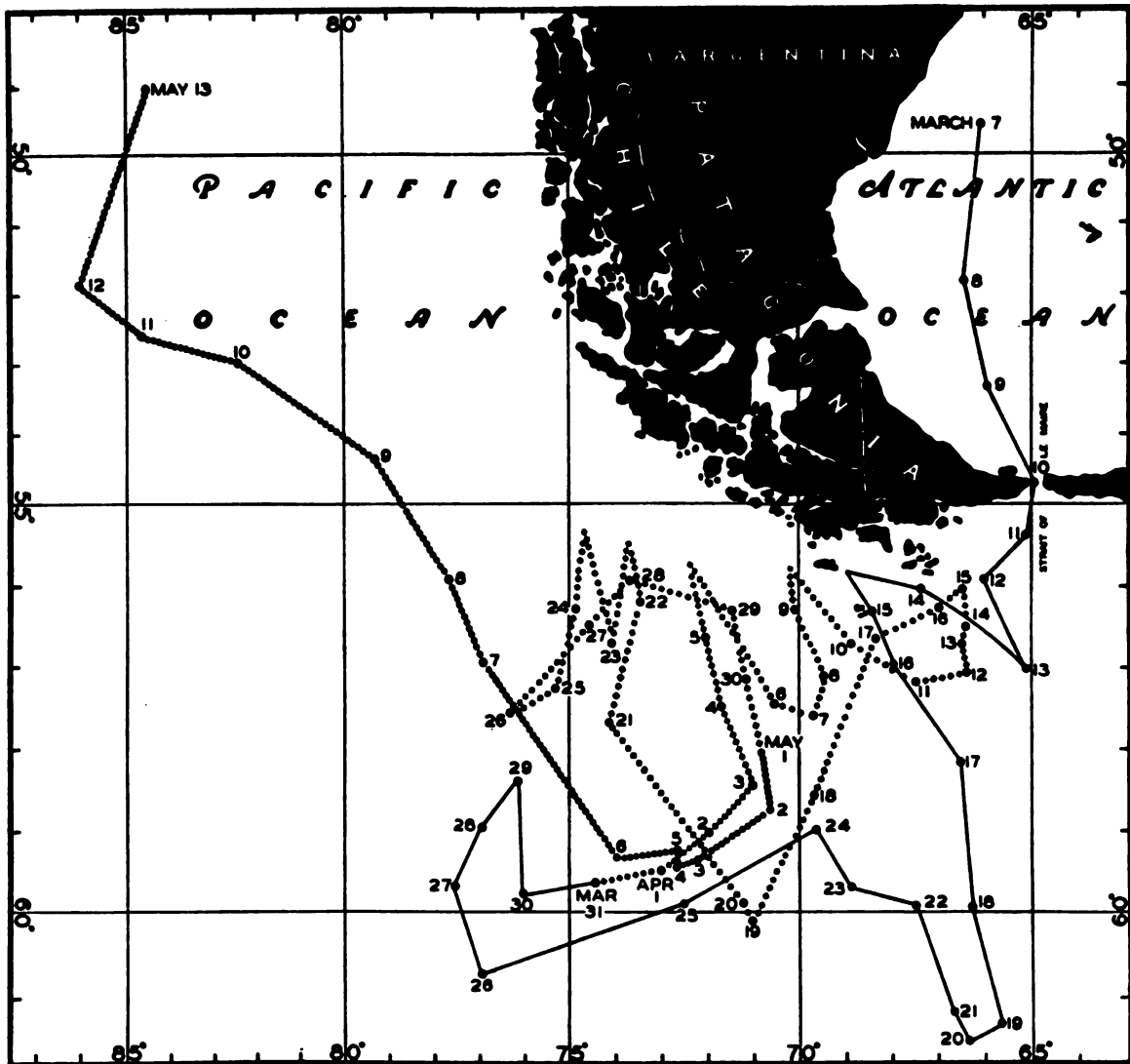
The Sewall steel four-masted shipentines did some good and some poor sailing, depending on the weather experienced, the condition of the vessels' bottoms (unlike the copper-sheathed wood vessels, they fouled very quickly, which greatly retarded their speed), and the steadily increasing difficulty of finding crews of any nationality or race to man them; also competent mates to stand watches and handle the riffraff of the forecabin. Of all the long passages made, that of the *Edward Sewall* in 1913-1914 was the most dramatic, nerve-wracking, and drawn-out. This vessel, built at Bath in 1899 (launched October 3), was of 3,206 gross tons and 2,916 net tons. In 1900 she had experienced bad luck on her maiden voyage on a westward Cape Horn passage from Baltimore to San Francisco. Under the command of Capt. "Joe" Sewall, the new steel shipentine, laden with 4,880 tons of coal, sailed on

January 18. Off the South American coast in the South Atlantic, the coal heated to 102° , and Captain Sewall, calling this "27 degrees above normal" (an inaccurate statement for that latitude), put into Montevideo on March 25, when 67 days out, for advice and orders. Part of the cargo was discharged at an expense of \$13,536, and the *Edward Sewall*, after 46 days' detention in port, sailed again on May 11 and reached San Francisco on August 13, 1900, 207 days out from New York and 94 days from Montevideo. On this passage, the vessel had been 161 days at sea (reported as 160 days) and 46 days in port because of her hazardous cargo, which showed a temperature of 110° during the first week in April.

Under the command of Capt. Richard Quick, the *Edward Sewall* sailed from Philadelphia on October 18, 1913, with a cargo of coal for Seattle. In the South Atlantic, some two hundred miles off the South American coast, the vessel's steel spike bowsprit broke, and Captain Quick put into Bahia Blanca of the Argentine for repairs on December 16. She sailed again on January 7, 1914, after a detention of 22 days, but was back again on the 23rd with the bowsprit again broken. This time a more thorough repair job was done, and after spending another 32 days in Bahia Blanca, the big shipentine sailed again and resumed her voyage on February 24. The account of the *Edward Sewall's* battling for 67 days with the elements rounding the Horn is a classic and possibly sets a record for the end of the nineteenth century and to the end of sail in the twentieth century. However, it is well to note that although we have a better and more impressive record of Captain Quick's great and successful fight with the westerly gales and "giant greybeards" off the Horn, yet much smaller wood ships have withstood a similar buffeting for a longer period of time. In 1859 the wood clipper ship *Golden Eagle* of 1,121 tons (one-third the size of the *Edward Sewall*), under the command of Capt. E. A. Luce, required 90 days (also reported as 88 days) to round the Horn successfully (i.e., 23 days, or about one-third, longer than the Sewall steel four-master), and with this amazing struggle and delay, the *Golden Eagle* made a 217-day passage from New York to San Francisco, which was much shorter than the bigger vessel's passage from Philadelphia to Honolulu.

Capt. Richard Quick has been proclaimed "Master of the Horn" by modern historical writers, and whereas Captain Quick richly deserves to go down in the annals of the sea as one of the world's most dogged, resourceful, and persevering sailors, one wonders, if Captain Quick is entitled to the honor of being known to posterity as the "Master of the Horn," what fitting epithet of distinction and recognition should in justice be bestowed upon Capt. E. A. Luce, who accomplished all that Captain Quick did and much more fifty-five years before him—and this with a sharp-lined and far less able as well as a relatively small wood clipper.

Three times Captain Quick worked his plunging vessel past Cape Horn. Once he gained a position some three hundred miles west of the Cape, only to be driven back to a point about forty miles east of it. During 67 days, the *Edward Sewall* traveled some fifteen hundred miles, west and east, north and south, to round Cape Stiff and make the run from 50° S. Atlantic to 50° S. Pacific, a distance that the old wood clipper ship *Young America* had once covered in 6 days and that the *Edward Sewall* herself had once traversed in 11 days; she had averaged $16\frac{1}{2}$ days on her previous ten westward passages and never required longer than 23 days. On this historic rounding of the Horn, however, the *Edward Sewall* took six times as long as her previous best and three times as long as her former slowest sailing performance. The abstract log of this bad 67-day passage of the *Edward Sewall* around the Horn as written by her master, Capt. Richard Quick, is presented herewith, together with a track chart that graphically portrays the noon positions of the big vessel during her struggle with the winds and seas from March 7, when she crossed the line of Lat. 50° S. Atlantic, until May 13, 1914, when after seven consecutive days of surprisingly good weather, during which she sailed about twelve degrees of longitude west and ten degrees of latitude north, she crossed the 50° line of latitude in the Pacific "after 67 days of the worst weather that a ship could come through" and survive without serious injury.



1914

- March 7. Crossed 50° S. in the Atlantic. Brisk N.W. wind.
- " 8. Fresh N.W. wind with heavy rain till midnight, then quick shift to S.W., blowing gale all day. Ship making good time under 6 topsails and foresails.
- " 9. Heavy S.W. gale all day. Made the land at 6 P.M. and hove to till daylight.
- " 10. 6 A.M., Cape St. Diego, and went through Le Maire Strait. Stood off shore with strong S.W. wind, wore ship at midnight and stood back under the land.
- " 11. Calm till 4 P.M. Then fresh N.E. winds at 4 A.M., was well under Cape Horn.
- " 12. 6 A.M., right under Cape Horn, very heavy S.W. gale with heavy rain. Put ship under topsails and stood off shore. Midnight, moderate, wore ship and stood back to the Cape.
- " 13. Calm till noon, then light N.E. wind and rainy thick weather.

1914

- March 14. Close to Cape Horn, light N.E. wind, fine weather.
- " 15. 4 A.M., well up to Ildefonso Island, heavy W.S.W. gale with snow and called all hands to clew up and haul down till we got ship under 6 topsails and foresail. Had to run off to clear Diego Ramirez and at noon was close to there.
- " 16. Heavy W.S.W. gale. Ship under 3 lower topsails and foresail, standing to the southward.
- " 17. Heavy gale.
- " 18. Ship under 5 topsails and foresail.
- " 19. Heavy gale, ship under three topsails and under water all the time.
- " 20. Heavy gale till 4 P.M., then light E.N.E. till 4 A.M. Then heavy S.W. gale. In 12 hours we have been from 3 lower topsails to all sails and back to 3 lower topsails again.

- 1914
- March 21. Very heavy S.W. gale, ship under 2 lower topsails only and drifting to the N.E.
- " 22. More moderate. Set what sails the ship would carry and making good heavy way, though terrible heavy sea.
- " 23. Heavy S.W. to W.S.W. gale. Ship under 6 topsails and foresail and making some headway.
- " 24. Heavy W.N.W. gale till noon, then wind N.W. Heavy gale and rain, though are making some headway. In wearing ship got 4 men hurt, laid up.
- " 25. Wind N.W., strong gale with terrible heavy cross sea.
- " 26. More moderate but terrible heavy cross sea. Ship under water all the time.
- " 27. Wind W.S.W., strong gale.
- " 28. Calm to heavy N.N.W. gale.
- " 29. Terrible heavy N.W. gale. Lost mizzen upper topsail and main lower topgallant sail. Got 2 men hurt. All hands on deck all night.
- " 30. 6 A.M. Quick shift from N.W. to S.W. with hurricane force, with terrible heavy cross sea. Ship under 2 lower topsails and under water. Lost outer jib, washed off the boom.
- " 31. Wind W.S.W. Very heavy gale.
- April 1. Terrible heavy W.N.W. gale, ship under 2 lower topsails and drifting to the eastward, and my heart is broken with those heavy gales all the time.
- " 2. Same terrible gale.
- " 3. Terrible heavy W.S.W. gale and a terrible heavy cross sea. I never saw so much water on a ship's deck and I don't know how this ship ever kept up to it. But she is the very best ship that ever was built.
- " 4. More moderate. Got 6 topsails and foresail on. Quite a lot of sail for us nowadays.
- " 5. S.W. heavy gale till noon. Then the wind shifted to W.N.W. Terrible heavy gale, ship under 2 lower topsails. 2 A.M. lost main lower topsail, had 2 men badly hurt.
- " 6. Terrible heavy gale and terrible heavy sea. Lost inner jib washed off the boom.
- " 7. Heavy gale, ship under 2 lower topsails and drifting to the eastward and I am completely worn out from being on deck so much and to see this fine ship that I have done so much in, drift off helpless to the eastward day after day.
- " 8. More moderate but terrible heavy cross sea and very heavy snow squalls.
- " 9. W.S.W. strong to W.N.W., heavy gale. Ship under 2 lower topsails again.
- " 10. W.N.W., strong gale and heavy rain.
- " 11. Strong W.N.W. and terrible heavy gale. Ship under water all the time.
- " 12. Heavy W.N.W. gale till noon. Then moderate.
- " 13. Light W.N.W. to calm till 4 A.M. Then strong N.N.E. wind with heavy rain till noon. Then quick shift to S.W. heavy gale. All hands clew up and haul down till we got ship under 2 lower topsails again.

- 1914
- April 14. W.N.W. strong gale to S.W., terrible heavy gale with snow squall at hurricane force. Lost another inner jib.
- " 15. Very heavy gale to strong gale, then calm with heavy rain.
- " 16. Moderate S.W. gale to calm and terrible heavy sea. Heavy rain all the time. Have not seen the sun for 14 days and the moon is in her last quarter and we never saw her once in those 21 days. Nothing but lead color sky and heavy rain all the time. We make sail for every lull that comes, only to get it off again as fast as we can. We are 40 miles East of Cape Horn now, if I can figure dead reckoning.
- " 17. Calm to fresh N.E. wind till 11 A.M., then strong W.N.W. gale. At 6 A.M. passed Cape Horn. 36 days ago we passed it and at one time were 300 miles West of it and I thought our troubles were over, but got driven back again.
- " 18. N.W. to W. with heavy snow squalls. Mate got hurt and is laid up.
- " 19. W. to N., heavy rain. Got my hand jammed today and lost two more fingers. Makes three this trip.
- " 20. Nearly calm all day.
- " 21. Wind West to W.S.W., heavy snow squalls. But can carry 6 topsails and mainsail and am making good time. I have to stand the mate's watch now, which keeps me on deck about all the time.
- " 22. W.S.W. to N.W. heavy gale, under lower topsails again. Got one man hurt last night.
- " 23. N.W. heavy gale to S.W., fine weather. 2nd. mate got one rib fractured, is very bad. As the mate is still laid up I hardly know what to do. This P.M. signalized a New Zealand steamship, so will be reported in due time all well.
- " 24. S.W., fine weather, to West, strong gale and terrible heavy sea. Ship under 5 topsails and practically under water all the time.
- " 25. West strong gale to W.N.W. moderate.
- " 26. W.N.W. moderate to W.S.W. in heavy gale. Lost mizzen lower topgallant sail and split main topmast staysail.
- " 27. S.W. heavy gale till 6 A.M., then moderated but terrible heavy sea.
- " 28. Very heavy W.N.W. gale.
- " 29. Terrible heavy W.N.W. gale with terrible heavy sea and snow squalls at hurricane force. Ship under 2 lower topsails and at 10 A.M. the main lower topsail blew away, though it was a new sail bent for the first time. This gale lasted 42 hours and I have been on deck all that time and am getting very tired now. I only wish I knew how much longer this terrible westerly wind will last. It is terrible weather and the ship has got 5 inches of water in her, something new for this ship. But if she wasn't the best ship that was ever built she would never stand this terrible heavy sea breaking down on her all the time.
- " 30. 4 P.M., the gale moderated and we are back to Cape Horn again for the 3rd time. The old mate got on deck again today. I am very glad to see him now as I am nearly worn out.

1914	1914
May 1. May Day and fine weather. In 54 days I have worked 7 chronometer sights and got the Latitude 5 times, so you see the sun has not bothered us very much.	May 7. S.W. all day. Ship with all sail set and making fine time. Heavens what a change from that terrible heavy gale and heavy sea all the time.
" 2. Calm all day but terrible heavy sea. But glad to see it calm.	" 8. Wind S.W., fine weather. First time the ship's decks have been dry for 60 days and the first time the royals have been on her for 54 days.
" 3. 8 A.M. till 6 P.M., heavy W.N.W. gale and terrible heavy sea. 2nd. mate got on deck today and I am glad to see him up again as it will give some rest to my old broken fingers. Bosun has been in bed 46 days so far. I think he is afraid to get out.	" 9. Fine weather.
" 4. Heavy rain and calm all day.	" 10. Fine weather.
" 5. Same weather.	" 11. Fine weather.
" 6. Light W.S.W. to N.W., fine weather.	" 12. We crossed 50° S. in the Pacific and are around the Horn after 67 days of the worst weather that a ship could come through, and she is all right.

By the time the ordeal of rounding the Cape ended, two of the crew were down with scurvy, and the supply of stores was dwindling fast; so Captain Quick, in order to obtain fresh foods and water, headed for Honolulu. The *Edward Sewall* was reported as having a bottom "so foul that she was hard to handle," and the coal cargo was a constant cause of concern. Leaving Bahia Blanca, Quick had declared that grass a foot long was trailing from the ship's bottom and that "this is the worst place in the world for a ship fouling"; moreover, "the coal in No. 2 hatch has climbed to 135 degrees." Fortunately, fire did not develop, and possibly the cold weather around the Horn (late fall in the Southern Hemisphere) helped that situation. The *Edward Sewall* reached Honolulu safely on July 8, 1914, 132 days out from Bahia Blanca and 263 days out from Philadelphia. Fresh foods, water, and some other desired stores and supplies were quickly placed aboard, and in less than twenty-four hours after reporting, the vessel (on July 9) left Honolulu and was on her way to Seattle, where she arrived in 29 sailing days (on August 7) after a passage of 293 days from Philadelphia, 238 days of which had been spent at sea, 54 days at Bahia Blanca to repair the twice-broken steel bowsprit, and one day at Honolulu to take on fresh and additional needed supplies.

In the closing days of the sailing ship era, British iron or steel ships made many more long passages than short ones. The British "bald-headed 4-masted barque" *Pinmore* (a shipentine) made a slow passage of 245 days from San Francisco eastward around the Horn (the "downhill" way) to Liverpool while operating in the grain trade. The *Haddon Hall*, in 1909, was 243 days from Liverpool to Victoria, B. C.; the *Falls of Halladale* was 239 days from Liverpool to San Francisco in 1904. Among the many big British "modern metal ships" in the 1890's and 1900's that made westward Cape Horn runs of over 200 days can be mentioned the steel four-masted "barque" *Lord Templemore* of 3,045 tons, built in 1891, which in 1893 required 201 days at sea on a passage from Liverpool to San Francisco, and in 1920 this same vessel occupied 146 days to carry a cargo of coal from Newcastle, N.S.W., Australia, to Iquique, Chile (a contemporary passage under sail by the *Shandon* was made in 59 days).

In 1905 the British iron bark *Lalla Rookh* of 814 tons, hailing from Liverpool, required 199 days to make a passage from Brisbane, Australia, to Falmouth, England, via Cape Horn. During this passage, the bark was beset by a succession of gales and strong head winds, and as her stores ran out and she was unable to make either the Falklands or St. Helena, the crew had to live on grain from the cargo. When the signalman at the Scillies sighted the *Lalla Rookh*, the bark was posted as "missing," and insurance at the rate of 95 guineas had been refused. This long drawn-out and distressing passage was eclipsed in 1928, when the British steel "barque" *Favell* of 1,309 tons, built in 1895, operating as a school ship, took 205 days to sail from Geelong (near Melbourne), Australia, to Queenstown. The British full-rigged ship *Garthwray*, in 1923, made what has been described as "the record tardy pas-

sage between any ports," as she required 559 days to make a passage from the Firth of Forth to Iquique, Chile (20° S. Pacific); yet this ship, in 1911, was reported to have run from Liverpool to Talcahuano, Chile (36½° S. Pacific), in 80 days. The British ship *Denbigh Castle* made a very long passage in 1909, as she required 409 days to take a cargo of coal from Cardiff to Mollendo, Peru (17° S. Pacific). The *Young America*, at the end of 1872, covered this distance in much less than one-fifth of the time taken by the bigger British vessel and in 96 days ran all the way from Liverpool to San Francisco, pilot to pilot. The British steel ship *William Mitchell* of 2,035 tons was one of the last square-riggers to remain in regular service on the Seven Seas, but it was said: "Her last years were chiefly notable for causing anxiety to the underwriters." Sailing from Gulfport on October 6, 1921, for Buenos Aires, she put into Barbados on March 2, 1922, 147 days out, with her provisions, fresh water, and supplies practically exhausted. Sailing again on March 4, she did not reach her port of destination until June 29, the entire passage having occupied 266 days.

The *Hawaiian Isles*, built at Glasgow, Scotland, in 1892 (later the *Abraham Rydberg*), a steel shipentine of 2,345 gross tons (British register), on her maiden voyage from Swansea to San Francisco, tried in vain to round Cape Horn, and her commander, Capt. O. Kustel, finally turned and ran before westerly gales for the Cape of Good Hope, making a long passage to San Francisco of 188 days. The steel shipentine *Archibald Russell* of 2,354 tons, built in 1905 at Greenock, Scotland, was the last square-rigged sailing ship built in Britain for British owners. In 1920 she made such a long passage from Melbourne home that she was placed on the overdue list, following which she was laid up at Milford Haven. The British steel shipentine *Olivebank* (also named *Caledonia* from 1913 to 1924), built in 1892 at Glasgow, was of 2,795 gross tons. Because of her occasional long passages—being posted as overdue at least twice on passages from Australia to the British Isles and once when sailing from a Swedish port to Melbourne—this vessel became popularly known as "the ship which always turns up." In 1926 the *Olivebank* tried in vain to round Cape Leeuwin (south-west Australia) and had to turn tail to the wind and seas and work to Mahé, her destination, by the Pacific and the Torres Straits.

An Italian full-rigged ship, *Anita S.*, has been described as "more of a tortoise than a sailing ship" and "the bugbear of all underwriters." In 1900 the *Anita S.* set sail from Martinique for Nantes on the Loire River, France. She was considerably overdue and "posted" when she turned up at Tenerife (Canary Islands) 106 days out. The ship lay idle in port for 243 days before she put to sea again, but bad weather in the Bay of Biscay discouraged her skipper, and he returned to Tenerife, where he arrived 467 days out from Martinique, having spent 118 days in a futile attempt to reach Nantes. The crew of the *Anita S.* was paid off and evidently all attempts to reach Nantes abandoned.

XVII.

THE CALIFORNIA TRADE

General History

WAR WAS DECLARED between the United States and Mexico on May 13, 1846. On July 2, a force of seamen and marines was landed at Monterey, Calif., from a United States squadron and the district occupied; a week later, Commander Montgomery of the sloop-of-war U.S.S. *Portsmouth* took formal possession of the Bay of San Francisco and adjoining territory and on July 9, 1846, hoisted the Stars and Stripes at Yerba Buena, which village became known as San Francisco in 1847. On July 19, 1846, the British 80-gun battleship *Collingwood* (Admiral Seymour) arrived at Monterey and anchored in the bay, where four much smaller American warships were stationed. The British had been closely watching the Pacific Coast territory for many years and had intimate relations with Mexico. They wanted to seize the territory, but when the substantial United States force ashore was augmented on July 19 by Major John Charles Frémont and his company of engineers (consisting of 160 mounted riflemen, who placed themselves under the command of the United States naval force), the British admiral felt checkmated. On July 23, H.M.S. *Collingwood* sailed for the Sandwich Islands, and a war between Britain and the United States for the possession of California, which had been threatening and in the background of British minds for years, was fortunately averted. Peace between the United States and Mexico was made on February 2, 1848, when the discovery of gold at Coloma in January was not generally known and the "find" had not been taken seriously; it was not until April 1848 that the settlement of San Francisco became infected with the "gold bug."

By the Treaty of Guadalupe Hidalgo in 1848, Mexico ceded California to the United States (which had virtually taken it over in 1846), and as it became known that gold had been discovered at Sutter's Mill in the Sacramento Valley in early 1848, the newly acquired Pacific Coast region quickly became of great national importance. News of the gold find in California reached New York in September 1848. In the fall of that year and the winter of 1848-1849, the Gold Rush began from the eastern and mid-western states to California via the Isthmus of Panama. In the spring of 1849, a procession of prairie wagons with horses, mules, and men afoot commenced the long transcontinental trek across the plains, the Rockies, and the Sierras in the search for wealth and prosperity. During the same winter, there developed a great demand for floating tonnage not only to take "Gold Rushers" from eastern American ports down to Panama—where a congestion soon developed, with a natural shortage of ships to carry passengers and freight on the run up the Pacific Coast—but also to transport them and their belongings entirely by water around Cape Horn to San Francisco or any desired California port.

The discovery of gold in California was the biggest find in centuries; in the eastern states every class seemed to catch the gold fever, and large numbers set out in furious haste for "the great El Dorado." Three routes were possible: (1) overland, where the Indians were a menace, travel slow and hazardous, water supply uncertain, and privation great; (2) the Isthmus of Panama, which required a water journey on both the Atlantic and Pacific sides—for which tonnage was needed—and a journey through a difficult and unhealthy tropical jungle where the

congestion was great and the restricted, possible track soon became jammed; (3) around Cape Horn, the route which at first seemed long and tiresome, as well as dangerous, but soon proved to be the best. As the rush continued, more and more gold hunters chose this third path of travel or, because of difficulties that developed on the overland route and the terrific and unprecedented congestion at Panama, felt that they were compelled to take it if they were ever going to reach the Golden West. Even after the United States's definite interest and virtual occupation of California in 1846, its main port, now known as San Francisco, saw but few ships prior to the latter part of 1848, and during the twelve-month period ending April 1, 1848, only eleven seagoing vessels (two merchant ships and nine whalers) sailed in through the Golden Gate. Immediately prior to the discovery of gold in California and before "clipper" ships were built in quantity for that trade, it was generally felt among seafaring men that a passage around the Horn westbound was "a six to seven months' voyage," depending on the season of the year. One marine authority wrote at the time of the finding of gold in California:

Our ships can voyage from eastern ports (Chesapeake to Boston, Mass.) to California (Harbor of San Francisco) in from 150 to 220 days, and the time will depend on the size and lading of the ship and the season of the year when Cape Horn is rounded. An average time for the passage for an entire year with sailings of available vessels proceeding steadily as cargoes and the passenger trade de-

mand will probably be around 185 days, with some ships favored by weather, wind and sea making the run in 140 or 150 days and others less fortunate in their time of sailing—and encountering steady western gales off the Horn in what is our summer, but is their winter—taking 180 to 220 days to complete the passage.

This seems to have been an accurate statement and is generally substantiated by an examination of available sailing records. A study of the sailing performances in 1848 of nine reputedly fast vessels (three ships, four barks, and two brigs), recorded by Carl C. Cutler in *GREYHOUNDS OF THE SEA*, gives an average length of passage from our Atlantic ports to San Francisco of 156 days, but all these runs were late fall sailings from eastern United States ports and practically mid-summer roundings of Cape Horn. (The slowest run of these nine vessels was 175 days and the fastest, 139 days.) Sailings to California westbound of thirty-eight vessels in 1849 have been recorded by Cutler (eighteen ships, nine barks, seven brigs, and four schooners), but these sailings from North Atlantic ports were only from January 10 to April 18 and from October 30 to December 21. (Sailings for six and one-half months at the worst time of the year for a passage around the Horn are not recorded.) These thirty-eight passages of reputedly good ships gave an average length of run of about 185 days, the maximum being about 240 days (brig *Pauline*) and the minimum a run of 113 days net (via Valparaiso) claimed by the Philadelphia-owned *Grey Eagle*—a sharp single-deck Baltimore clipper of 478 tons (length 132½ ft., beam 27½ ft., depth 14¼ ft.) built in 1848. Even though the *Grey Eagle* rounded the Horn under what were evidently good conditions of wind and sea, the claim of a 113-day passage was generally treated with suspicion by the "knowing" shipping fraternity of the time, and there is doubt in regard to the actual sailing date from Philadelphia. At the time, the term "Baltimore clipper" was synonymous with speed. The public expected fast and record-making runs from fine-lined and heavily canvased Baltimore clippers, and the masters and owners of such craft doubtless attempted to capitalize on their emotional reputation in the public mind.

From January 13 to April 2, 1849 (prior to the sailing of the early clipper *Memnon* on April 11), thirty-one sailing vessels of all rigs, but of professedly good speed and seaworthiness, sailed from eastern United States ports for San Francisco and averaged 191 days on the run. Between September 1 and 16, 1849, twenty-four sailing vessels arrived at San Francisco from eastern ports in the average sailing time of 200 days. The average of the fastest four was 163 days and of the slowest four, 228 days. We are told that 775 vessels cleared from Atlantic ports for California in 1849, of which number 242 were full-rigged ships, 218 barks (a total of 460 three-masted square-riggers), 170 brigs (a total of 630 square-rigged vessels), 133 schooners, and 12 steamers. From New York, there sailed 214 of these vessels; from Boston, Mass., 151; New Bedford, Mass., 42; Baltimore, Md., 38; New Orleans, La., 32; Phila-

delphia, Pa., 31; and Salem, Mass., 23. In the state of Maine, Bath was evidently the most active building and shipping center even in those early days, for 19 vessels sailed from Bath, with 13 from Bangor and 10 from Eastport. New London, Conn., sent 17; Providence, R. I., 11; and Nantucket, Mass., 8. However, almost every seaport on the Atlantic coast line sent one or more vessels to California, and all carried passengers and personal belongings. Other records state that in 1849-1850 there were 760 sailing ships, carrying 27,367 passengers, which successfully rounded Cape Horn and arrived at the Golden Gate, San Francisco, Calif., from East Coast United States ports. Vessels sailed even from the Great Lakes, for it is reported that the schooner *Eureka*, carrying 53 passengers, sailed from Cleveland, Ohio, on September 28, 1849, bound for San Francisco via the St. Lawrence.

Any kind of vessel that could be considered as a sailing craft was put into the Gold Rush service and cleared some port in the East for Panama or California, and every conceivable type and size of floating tonnage was put in service on the Pacific side to carry passengers and freight from Panama to California. Vessels that were old, many in fact unseaworthy and most of them absolutely unfitted to round the Horn, were sent out by their owners, with high rates charged to passengers, who were crowded in very limited space, and exorbitant freight rates collected for their "belongings," stores, etc. Others of these old ships were purchased by syndicates of "Gold Rushers," who hired a captain and crew and "braved the perils of the deep." Naturally, many of these vessels never reached California. Some were known to be wrecked or lost at sea; others, disabled and in distress and unseaworthy, put into ports of refuge. Some just disappeared and evidently foundered, with no survivors to tell the tale. It has been said: "Wreckage marked every league of the long 17,000 miles around 'Cape Stiff,' and death and disease claimed the brave and thoughtless in every intervening port." This condition was not peculiar to the continent of South America and the around-the-Horn passage. We are told that the same conditions were evident and the same casualties occurred in the sea run on the North Atlantic and on the North Pacific sides for those who planned to cross—and for those who succeeded in crossing—the Isthmus of Panama; for in this service, outside of the larger steamers on the Atlantic side (and later on the Pacific also), the craft used were generally small and inferior and in quality, size, and seaworthiness much below the ships that set out to round the Horn. In the feverish rush of 1849 and the early fifties, "superannuated packets [general traders, whalers, transients, or sailing tramps] and all sorts of questionable floating tonnage were being reconditioned—generally with little but tar and paint—and brought into service to take the increasing hordes to the new El Dorado. No wonder that certain lines became known as 'death' lines and ships as 'coffins.'"

Historians tell us that by the end of 1849, 90,000 people from all over the world had reached San Francisco in some way or other, and Cutler says: "The closing days of the year saw more than 450 ships, roundly speaking, on their way to the land of gold, a goodly proportion of them deeply laden with merchandise that was unsaleable in the East." It was reported in the contemporary press that 57 good, sizable ships arrived at San Francisco from East Coast U.S.A. ports between June 26 and July 28, 1850. Of these vessels, 17 were from New York and averaged 157 days on the westward Cape Horn passage; 16 had sailed from Boston, and their average length of run out was 168½ days; and the 24 leaving other East Coast U.S.A. ports had averaged 190 days on their passages, the entire 57 vessels averaging 174 days on the westward Cape Horn run to San Francisco. It would seem that this published report by no means covered all the ships arriving at San Francisco; for it appears that throughout 1850 "a continuous procession of ships entered the Golden Gate," and the *PACIFIC NEWS*, issue of November 20, 1850, says: "The number of vessels entering our harbor is really a matter of wonder. Within the forty-eight hours ending on Sunday night, nearly sixty sail entered the Golden Gate. The history of the world presents no comparison. The arrivals yesterday [November 19, 1850] were between twenty and thirty sail." The fastest passage from an East Coast U.S.A. port to San Francisco about this time was that of the new 776-ton New York-

built clipper ship *Mandarin*, which arrived at the California port in late November 1850 and reported a 126-day run from New York.

The pages of history suggest that sailing ships had been overbuilt both in numbers and in tonnage during the period 1842-1847 and that high-pressure construction had produced a surplus. In 1848 not only was the California boom originated but also Texas had just been made "safe for democracy," and the end of the Mexican War had released a large amount of floating tonnage from the government surplus. We are told not only that all the shipyards in the eastern states were experiencing a business depression in 1848 but also that on January 1, 1848, only one sailing vessel was on the building ways of all of New York's many great shipyards and what construction was taking place in that area was in wood paddle-wheel steam vessels. When the news of the real El Dorado, the gold region of California, reached New York in September 1848, in addition to several other paddle-wheel steamers building was one named the *California*, which was approaching completion at the yard of W. H. Webb and being built to the order of Howland & Aspinwall for its newly organized Pacific Mail Steamship Company. Within three weeks of the receipt in New York of news of the gold find, this vessel sailed (October 6, 1848), not for Panama but for San Francisco, where she arrived February 28, 1849. The *California* was of 1,057 tons measurement, with registered dimensions of 200 ft. length, 33 ft. beam, and 20 ft. depth. Her voyage from New York to San Francisco via the Straits of Magellan (not around the Horn as often stated) was far from pleasant and occupied 145 days, port to port, including all port detentions en route, but she, nevertheless, completed the journey and was the first steamer to enter the Golden Gate.

The year 1848, which had started so badly for the building and operation of sailing craft in the United States, ended on the threshold of a boom that continued for a term of years. The discovery of gold and the demand for speed to send men and freight to California gave the first real impetus to the design, construction, and driving operation of large and powerful clipper ships; i.e., of size and substance suitable for the peculiarly severe sea and wind conditions associated with the rounding of Cape Horn, particularly on the westward passage. With the incorporation of California into the Union, the trade to the Golden State from eastern American ports had technically become coastwise trade, from which foreign ships were barred. This trade was not only exclusive to American ships but also supported by eager treasure seekers whose desire was to get out to "the land of promise" as quickly as possible. Moreover, with boom prices in effect in California, planning for profits depended upon the celerity with which a cargo could be delivered. The price of commodities in San Francisco had soared to unprecedented heights, but they might as quickly fall if supplies should become abundant. So speed became king! Speed was everything, and those ships that held the promise of a fast voyage and could deliver goods most promptly were in great demand. With passengers, money charged for transportation also became a matter of minor importance, and a heavy premium was willingly paid for power, clipper lines, and sail spread—which meant speed—and for size, which promised to a passenger more comfort in bad weather and better prospects of a completed and successful voyage, and this in good time.

The sizable fast clippers that most promptly delivered their cargoes and passengers at the Golden State port naturally earned the greatest profits for the owners and the shippers of freight. Ships that cost some seventy or eighty thousand dollars to build often paid for themselves on their first voyage. This is not surprising when we note that flour at one time during the boom sold in San Francisco at \$44.00 per barrel. The freight rates charged and paid for marine transportation between New York and San Francisco seem incredible today. These rates increased by leaps and bounds from \$14.00 per ton of 40 cubic feet, or 35 cents per cubic foot, to as high as \$60.00 per ton measurement, or \$1.50 per cubic foot. When in 1850 the fast but medium-sized clipper *Samuel Russell* carried about 1,200 tons of cargo at this figure, she collected in freights on the one outbound voyage more than her original cost, which, moreover, she had already paid back to her owners during the previous two and a half years in profits from earlier successful operations. As late as August 1852, four years after news of

the California gold find reached New York, the clipper *Sovereign of the Seas*, built "on spec" by Donald McKay, East Boston, Mass., and commanded by the builder's brother, Lauchlan McKay, sailed from New York for San Francisco with general freight for which she received \$84,000. At that time, the flour aboard, it was said, was sold upon arrival in San Francisco at \$44.00 per barrel (the previously referred to record high price). After discharging in "Frisco," the *Sovereign of the Seas* sailed to Honolulu and loaded whale oil for New York, which home port she reached after a fine 82-day record run and after a most successful and profitable voyage. At this time, the big clippers were truly riding (or sailing) "high, wide and handsome." Speed was paying a big return on the capital invested in ships; but the boom was not to last, and too many ships were being planned to be built in 1853 to participate in and maintain the big money-making trade.

As more fast and big ships were built and entered the trade, freight rates naturally declined; but for a considerable period after the peak of the boom had passed, freight rates held at \$40.00 per ton, or \$1.00 per cubic foot, after first being pegged for some time at \$50.00 per ton, or \$1.25 per cubic foot. During the financial depression of 1857, which was a disastrous year for American shipping and a setback from which the United States merchant marine never recovered, freight rates from East Coast ports to California fell to \$10.00 per ton. Years later they dropped to as low as seven to eight dollars per ton, charged, however, by the hundredweight.

That the news of the gold find in California prompted quick action in the East, both as to prospective settlers, miners, and adventurers, on the one hand, and the sending out of needed supplies (which could be sold at an unprecedented profit), on the other, is proven by records showing that "by the third week of February 1849, 141 ships had sailed from eastern ports for California via Cape Horn and 37 more from Chagres on the Panama Isthmus; these ships carried over eleven thousand passengers." We are also told, "The congestion on the Isthmus quickly blocked the traffic; an appalling percentage, struggling across the Isthmus or futilely waiting for a vessel to take them up the long 3,500-mile journey to San Francisco, perished from want or tropical scourges and exposure."

Statistics show that 60,000 tons of shipping were launched in New York in the year 1850, and 30,000 tons more were still under construction at the end of the year. Ten thousand workmen, it would appear, were kept busy at this work. The total tonnage built in the United States for that year was 306,034 tons.

In 1849, 91,405 passengers landed at San Francisco from various ports of the world, and although predominantly American—and from the eastern United States—they were of almost every nationality under the sun. These gold seekers had to be fed and clothed by the people, merchants, and shippers in the East, as they themselves did nothing but prospect for and work directly or indirectly in the getting out of gold. From the spring of 1847 to that of 1848, only three three-masted and one two-masted square-riggers had entered the Golden Gate from Atlantic ports, but as 1848 advanced San Francisco changed from a drowsy Mexican trading station to one of the liveliest seaports of the world. The first vessel to enter San Francisco during the Gold Rush and able to clear the port and resume her voyage was the ship *South Carolina*, which sailed from New York January 24, 1849, and returned to an eastern port in thirteen months' time. An overwhelming number of other ships making the passage west were not so fortunate. On the outbound run from an eastern port, sailors "begging to be taken on" were always on hand before any advertised sailing. It was easy and cheap to get double crews, and a big crew materially contributed to the maintenance of high speed throughout a passage. The gold fields were attracting men of every type (some sailors, but the majority not sailors, although strong and willing to learn and work), and the prospect of working a passage out to California without costs was an alluring one; thus crews were easily obtained. All the profits, however, were in the outward voyage from the eastern states around the Horn to California. Homeward, it became customary for the clippers to sail across the Pacific to China, generally

in ballast, and seek a cargo of tea for an eastern Atlantic United States port or (after mid-1850) for London, England.

It has been estimated that of the people who left the East for California during the Gold Rush, about one-half traveled overland and the balance by Panama or around the Horn. We are told that the vessels that entered the Golden Gate were with hardly an exception deserted by their crews and many even by their officers, "who hurried to the mines, crazed by the Gold Fever." It has been said:

In July, 1850, about five hundred sailing vessels lay in San Francisco, deserted by their sailors. Soldiers deserted wholesale, towns were depopulated as everybody flocked to the foothills, and in addition to Easterners and Midwesterners, an extraordinary flow of hopeful, adventurous—and in a great measure lawless—men landed from China and the Orient, and from South America, Australia, and the South Seas, etc. Many of the vessels deserted by their crews never left the harbor or again sailed the seas. A great deficiency of necessary building construction was in existence, with no mechanics avail-

able to engage in such prosaic work because of the lure of the gold mines, and over a hundred vessels were converted into store ships, others into hotels, hospitals, prisons, etc., and some, abandoned, unused and neglected, gradually perished by decay. During the Gold Fever the wages for seamen reached as high as \$200 per month, and many a ship that after an interminable delay finally succeeded in clearing for home or some other port did so with men taken out of jail, or drugged and shanghai'd, and but little consideration was given their seafaring experience.

Long after the big gold boom and the Gold Rush of the forty-niners had passed, California continued as a Mecca and El Dorado of promise to adventurers and to many seafaring men tired of the sea. Not only in the late fifties but also well into the sixties and at times even to the last days of sail, it was the easiest thing in the world to sign on a good crew for a voyage to San Francisco; but to clear the California port was a different matter, and often only "Kanakas" could be obtained to bring the ships back home. It was said that they "lie down and die if sail is kept crowded on."

Prior to and including 1849, there were about fifty-four clippers, reputed clippers, and outstanding fast deep-sea square-riggers built in the United States. The most famous vessels of this group (which covers only ships and barks built in 1844-1849 inclusive) were the *Oriental* of 1,003 tons, built by Jacob Bell, New York, in 1849—a speedy record-maker, an historical vessel, and the pioneer American-built China-Britain tea trader; the *Sea Witch* of 908 tons, built by Smith & Dimon, New York, in 1846 and believed by many authorities to have been, when new and in her prime, the fastest medium-sized clipper of all time (she made the first all-time sailing record, was the first ship to round the Horn under 100 days, and on her first passage from New York to San Francisco lowered the record between the ports twenty-three days, i.e., from 120 to 97 days); the *Rainbow* of 750 tons, built by Smith & Dimon, New York, in 1845, a remarkably fast sailer and record-breaker, whose command, Captain Land, after her run of 79 days from Macao to New York, declared, "The *Rainbow* is the fastest ship that ever sailed the seas, and the ship couldn't be built to beat her"; the *Samuel Russell* of 940 tons, built by Brown & Bell, New York, in 1847—a splendid China clipper and a fast, successful, and profitable trader on the Seven Seas; the *Memnon* of 1,068 tons, built by Smith & Dimon, New York, in 1848; and the *Houqua* of 583 tons, built by Brown & Bell, New York, in 1844, for A. A. Low & Bro., New York, and Capt. N. B. Palmer's first fast China clipper.

The first clipper ship to sail from the East Coast to California in 1849 was the "Baltimore clipper" *Grey Hound* of 536 tons, launched December 1848 (length 137.5 ft., beam 28.9 ft., depth 14.8 ft.) and owned in Baltimore. She is said to have left Baltimore January 10, 1849, and the Capes of Virginia January 12 and to have reached San Francisco June 3; i.e., 144 days out from Baltimore, but a passage of 116 days net was claimed (although 119 days was also stated as the number of sailing days at sea). Two other Baltimore clippers left U.S.A. Atlantic ports in January 1849, presumably for West Coast South American ports and California. The *Architect* of 520 tons (length 140 ft., beam 30 ft., depth 13½ ft.), launched August 1848 and Baltimore-owned, was reported to have sailed from New Orleans January 18 and reached San Francisco June 28, or 161 days later; but the command claimed a run of 127 days net—not

generally accepted. The ship put into Rio de Janeiro with cholera aboard, and some of the fifty-six passengers had died of it; sailing again on March 18, the *Architect* made slow time in the South Atlantic and rounding the Horn, put into Valparaiso for water and supplies, and reached San Francisco 101 days out from Rio de Janeiro. The third and last of the trio of fast new Baltimore clippers to sail from a United States port in early 1849 for the West Coast of South America and California was the *Grey Eagle* of 478 tons, also launched in December 1848 for Philadelphia owners. This ship is said to have left the Delaware Capes January 22, 1849, and reached San Francisco via Valparaiso on May 18. If these dates are correct, this was a very fast passage of 116 days, and the claim made of 113 days net and a record run would be substantiated. However, other reports give the passage as 117 days net, excluding port detention en route, and there seems to be a great deal of uncertainty in regard to the actual sailing records of these three Baltimore-built ships, which were undoubtedly very fast and the first clippers to appear in the Cape Horn run to California.

In 1851 the *Architect* made a passage from New York to San Francisco in 132 days, but it was claimed that the ship was at Talcahuano 13 days, which, if correct, would make the run 119 days at sea; the command claimed a passage of "116 days net." The *Architect* did some consistently good sailing later in the Pacific and in the China tea trade and was sold to the British at Hong Kong in 1854. The *Grey Hound* made a passage from New York to San Francisco of 129 days in 1852, reported as 125 days, and the following year left Baltimore June 13 and reached the Golden Gate November 9, 1853, completing a passage of 149 days, reported as 132 days. In 1852, it is said, the *Grey Eagle* made a run of 121 days from Baltimore to San Francisco, which cannot be verified. Returning, the *Grey Eagle* claimed the making of a record passage between Rio de Janeiro and Philadelphia (Delaware Quarantine) of 23 days, defeating the *Black Squall* in a race in which the *Grey Eagle* logged 3,194 miles in 15 days—an average of 213 miles a day and $8\frac{7}{8}$ knots per hour—which was very fast sailing for those waters.

Most of the reported faster Cape Horn passages from East Coast ports to San Francisco in 1849 contain an element of indefiniteness; for until the Gold Rush and associated boom developed, ships journeying to the newly opened-up land (which had only recently become part of the United States) could not obtain a sufficient cargo or number of passengers to make a direct passage pay, and the run was planned in conjunction with trading with West Coast South American ports. In addition to the doubt as to the actual times—both elapsed and sailing days, port to port—of the Baltimore clippers, vessels built and owned in other ports at times reported passages quite different from those suggested by official records. The Boston ship *Reindeer* of 800 tons (launched by Donald McKay on June 9, 1849, and at the time declared by him to be his first clipper) made a Cape Horn passage to California of 131 days, port to port, and claimed a run of 122 days net, and the big New York clipper ship *Memnon* of 1,068 tons, built in 1847 for the China trade (said to be the first clipper to round the Horn in the Gold Rush with a direct fast run to San Francisco in mind), made a passage in 139 days, but reported a record run of 122 days net. The *Reindeer*, sailing from Boston November 22, 1849, arrived at San Francisco April 2, 1850, and she had stopped at Valparaiso en route. Capt. John Land, a responsible master, claimed his passage was 122 days at sea and that his run of 36 days from Valparaiso was a record. The *Memnon* left New York April 11, 1849, and arrived at San Francisco August 28, and Captain Gordon reported having had to put into Montevideo May 26, when 45 days out, with a mutinous crew and that he had just completed a run of 122 days net (also recorded as 123 days). During the days of the Gold Rush, "speed was king"; speed meant money in higher freight and passenger rates, so both the owners and commands of ships talked speed and claimed speed, and the claims were often more for advertising and propaganda than solid truth. We get a good line on real average speed of vessels in the around-the-Horn westbound trade by Cutler's statement to the effect that during the first two weeks of September 1849 twenty-three ships arrived at the Golden Gate from eastern ports, and the average time of passage for this entire fleet was 200 days. On the basis

of a logged average distance of 16,000 nautical miles for the voyage (which is about three thousand miles more than a full-powered steamship would take), the average day's run would be only 80 miles and the average speed about $3\frac{1}{3}$ knots per hour.

The little brig *Eagle* of Gloucester, Mass., which, it is said, arrived inside the Golden Gate on March 18, 1850, after a reported passage of 106 days, was the first sailing vessel that claimed making the run around the South American continent under 110 days. The early medium clipper *Samuel Russell* of 957 tons (Captain Low; launched at New York August 14, 1847) arrived at San Francisco May 6, 1850, after a splendid run around the Horn from New York. Whereas this reliable fast sailing ship made a run three days slower than that claimed by the little *Eagle*, it is significant that the 109-day passage of the *Samuel Russell* was acknowledged as a record run from an East Coast port to California. During the same year (1850), the *Sea Witch* "rounded to" off the Golden Gate at 8:00 P.M. on July 23 and entered San Francisco Harbor the next day via Valparaiso (where she made a trading stop) in the record time of 97 sailing days from New York, she being the first ship to make the California around-the-Horn run in under 100 sailing days. The *Sea Witch* was not built nor deemed suitable for the California Cape Horn trade, and she had been hard driven for years and was not being kept in "apple pie order"; yet she made three successive voyages to San Francisco from eastern ports in three consecutive years, none of which was slower than 110 days. On December 30, 1850, the steam schooner *Ohio* dropped anchor at San Francisco after a passage from New York of 145 days, or forty-eight days longer than the record run of the clipper *Sea Witch* for the year.

In 1850 twenty-one "clipper" ships, two "clipper-type" barks, and a small fast seaworthy schooner made the run around the Horn westbound to California. The average length of passage reported was $126\frac{1}{2}$ days; maximum, 157 days, with the fastest two being (1) an amazingly fast run ending July 24 by the *Sea Witch* in 97 sailing days—the record up to that time (this was a 102-day passage, port to port, the ship having made a scheduled stop at Valparaiso en route) and (2) the $96\frac{5}{8}$ -day record passage of the new clipper *Surprise*, which terminated at San Francisco seven months twenty-five days following the great passage made by the *Sea Witch*. As the *Surprise* sailed from New York December 13, 1850, this passage is classified as an 1850 run, and other 1850 westward Cape Horn runs of prominence were negotiated by the *Fanny*, *Seaman*, *Race Horse*, and *Celestial* in addition to the *Samuel Russell*, *Sea Witch*, and *Surprise*. The *Fanny*, a Boston pilot boat of 84 tons (length 71 ft., beam 18 ft. 4 in., depth 7 ft. 2 in.) had been built by Daniel D. Kelly, East Boston, in 1850 and was commanded by Capt. William Kelly (a brother of the builder). She was reported as leaving Boston November 1, 1850, and arriving at San Francisco February 15, 1851, after a passage of 106 days. However, there is much uncertainty in regard to this run, and other records give the date of arrival as February 18 and the length of passage as 108 days. It is evident that the little pilot boat made a wonderful passage under unusually favorable conditions, and she saved much time, mileage, and possible grief by sailing through the Straits of Magellan and not rounding the Horn. The *Celestial* of 860 tons, the first clipper ship to be launched (June 10, 1850) especially for the California trade (but not originally designed for it by her builder, Webb, of New York), reached San Francisco October 31, 1850, after a passage from New York of 105 days and a brilliant run up the Pacific of only 38 days from 50° S. to the Golden Gate. The clipper bark *Race Horse* of 530 tons, built in 1850 by Hall, East Boston, arrived at San Francisco November 24, 1850, after a passage reported as 109 days, equaling the earlier run of the *Samuel Russell*. However, there is some doubt about the actual sailing performance of the *Race Horse*, as her commander, Captain Babcock, claimed the bark made a run of 94 days 14 hours from land to land, but the elapsed time of her clearance from Boston and her entry at San Francisco figures 112 days. The Baltimore-built clipper *Seaman* of 546 tons (launched September 7, 1850) sailed from New York November 23 for California and reached San Francisco March 10, 1851, after a fine passage of 107 days.

The clipper *Surprise* (1,261 tons; 183.3 ft. long, 38.8 ft. beam, 22 ft. deep), designed by Samuel H. Pook, of Boston, and built at East Boston, Mass. (launched October 5, 1850), for New York owners, on her maiden passage made a record run westbound from New York to San Francisco of 96 days 15 hours, beating the *Sea Witch's* record by part of a day in sailing days, but by some five days, port to port. On this voyage, which was of only 95 days according to recorded clearance and arrival dates (December 13-March 18), the *Surprise* traveled 16,308 nautical miles and averaged 169 miles per day and 7.1 knots per hour.

In 1851 the passages of clipper ships around the Horn to California commenced in real earnest, and of forty-five recorded completed westbound clipper passages that originated in East Coast U.S.A. ports in 1851, thirteen were made in 110 days or better. The wonderful run of the *Surprise* was overshadowed by the completion on August 31, 1851, of a passage from New York to San Francisco of 89 days 21½ hours by the new McKay clipper *Flying Cloud* (1,782 tons; 229 ft. length, 40.7 ft. beam, 21.5 ft. depth). On this her maiden voyage, the *Flying Cloud* covered 15,274 nautical miles and averaged 170 miles per day and 7.1 knots per hour, the same average speed per hour as the smaller *Surprise*, which had traveled over a longer course.

Some of the ships in the California trade in 1851 were far from being clippers, for Cutler says that "from July 2nd to 10th—13 arrivals from East Coast ports averaged 197 days," and among the long passages made to San Francisco in 1851 can be mentioned the following:

Name of Ship	From	Passage in Days	Name of Ship	From	Passage in Days	Name of Ship	From	Passage in Days
CAPITOL	Boston	300	ARTHUR	New York	200	AUSTERLITZ	Boston	185
HENRY ALLEN	New York	225	INCONIUM	Baltimore	190	FRANCONIA	Boston	180
CORNWALLIS	New York	204	BENGAL	Philadelphia	185	BARRINGTON	Boston	180

Among the fifty-four clipper ships (and barks) built in the United States during 1851 can be mentioned the following sixteen vessels, placed in the order of the date of their launching and selected not because they were necessarily the best or fastest clippers built during the year but because of the fact that they either were of peculiar historic interest or represented some meritorious feature of design and construction:

Name of Clipper	Tonnage	Launched 1851	Builder	Name of Clipper	Tonnage	Launched 1851	Builder
N. B. PALMER	1,399½	Feb. 5	Westervelt, New York	COMET	1,836	July 10	Webb, New York
TYPHOON	1,611	Feb. 18	Fernald & Pettigrew, Portsmouth, N. H.	GOLDEN GATE	1,341	July 12	Westervelt, New York
WITCH OF THE WAVE	1,498	Apr. 6	Raynes, Portsmouth, N. H.	INVINCIBLE	1,769	Aug. 6	Webb, New York
FLYING CLOUD	1,782½	Apr. 15	McKay, East Boston	TRADE WIND	2,045	Aug. 12	Bell, New York
CHALLENGE	2,006½	May 24	Webb, New York	FLYING FISH	1,505	Sept.	McKay, East Boston
NIGHTINGALE	1,066	June 16	Hanscomb, Portsmouth, N. H.	SWORDFISH	1,036	Sept. 20	Webb, New York
STAFFORDSHIRE	1,817	June 17	McKay, East Boston	NORTHERN LIGHT	1,021	Sept. 25	Briggs, South Boston
HORNET	1,427	June 20	Westervelt, New York	HURRICANE	1,608	Oct. 25	Smith, Hoboken, N. J.

It will be noted that half of the above-mentioned ships were launched during the first six months and half during the last six months of the year. Nine were built in the New York area, four in Boston and environs, and three at Portsmouth, N.H. W. H. Webb, of New York, built four of them; Donald McKay, of East Boston, three; and the Westervelt New

York yard launched three. All made California voyages, but the *N. B. Palmer* was built for the China trade and the *Swordfish* designed, dimensioned, and modeled more for that trade than for the California Cape Horn run. The *Nightingale* was built for a yacht-like cruise ship and was more suitable for Cape of Good Hope than Cape Horn service; while the *Staffordshire* and *Invincible* were planned as clipper packets for the transatlantic trade, but were diverted to the California run by the lure of greater profits. Of the ships listed, the *Flying Cloud* established a record for westbound passages to California in 1851 that held until beaten by a claimed 131½ hours by herself in 1854 and lowered a few hours more by the *Andrew Jackson* when she established the all-time record of 89 days 4 hours between an East Coast U.S.A. port (New York) and San Francisco in December 1859-March 1860. The *Comet* established the all-time eastward Cape Horn record from California (San Francisco) to an East Coast port (New York) in the winter of 1853-1854, and the *Northern Light*, in the spring of 1853, made the fastest passage ever sailed from California to Boston.

One clipper that participated in the 1851 Gold Rush passages to California proved a disappointment to her builders, command, and owners. She was the *Challenge* (2,007 tons; 203.5 ft. long, 43.2 ft. beam, and 26 ft. deep), built by William H. Webb in New York for N. L. & G. Griswold, and at the time of launching she was the largest ship ever built in New York and, in fact, the largest clipper afloat. Unfortunately, she was too extreme in design and too fine-lined; she had far too much deadrise for the California trade, with a weak midship section and hollow ends, and an enormous sail plan—reported as 12,780 yards of canvas. The *Challenge* was undoubtedly a big, handsome, well-built, and costly vessel (cost reported as \$150,000) and was painted black, with an impressive gold stripe and yacht-like finish. It is said that “when lying at the foot of Pine Street, her bowsprit reached over the roofs of the stores.” Under the capable command of Capt. Robert H. (“Bully”) Waterman, a smart run to San Francisco was freely predicted. Boasts were made that the record of the *Sea Witch* would be beaten by a week or more.

The *Challenge* sailed from Sandy Hook forty-three days after the *Flying Cloud*, but trouble promptly developed with the crew, and the passage took 108 days (106 days at sea—on the course) as against the 1850 record of 97 sailing days for the *Sea Witch* and runs of 96 days 15 hours for the *Surprise* and 89 days 21½ hours for the new *Flying Cloud* in June-August 1851. It is said that the *Challenge* went to sea with “a ruffraff, dirty ‘crimp’s trick’ crew of fifty-six men and eight boys, only six of whom knew anything of the sea and only four of whom could speak English.” The story of the voyage is a sea classic of cruel command and of a “no-good rabble for’ard.” The experiences on this passage and the notoriety resulting therefrom drove Captain Waterman from the sea and “black-eyed” a handsome, fast new clipper. Yet, by the testimony of passengers and the few experienced sailors from his own crew, Captain Waterman was completely exonerated by the court of the charges brought against him, and the fact remains that he had brought an oversparred, badly manned ship around Cape Horn to her destination without losing a spar or splitting a sail and made an outstandingly fast passage, considering the season of the year and the sailing conditions encountered. It has been said that the maiden passage of the *Challenge* to California has been beaten only once for a July sailing in the annals of sail. Whether or not this statement could be substantiated, the fact remains that the fast new clippers *Eagle* of 1,296 tons and *Telegraph* of 1,078 tons (which left New York on July 10 and July 11, respectively, or just before the *Challenge* cleared that port on July 13 and which were the only clippers to sail from an East Coast port besides the *Challenge*) made runs to San Francisco of 131 days and 127 days (reported as 125 days), respectively, or some nineteen to twenty-five days longer than the passage of the *Challenge*. Whereas Captain Waterman anchored his ship in San Francisco Harbor on October 29, 1851, the *Telegraph* (Captain Harlow) did not arrive until November 15 (i.e., seventeen days later) and the *Eagle* (Captain Farran) until November 18, or twenty days after the official arrival at destination of the *Challenge*. The next nearest clipper sailing was that of

the *Syren*, which left Boston June 30, 1851, and reached San Francisco on November 18 after a passage of 141 days.

Later, the *Challenge* made some fast runs and, in the China-Britain tea trade, beat decisively the British clipper *Challenger* and all other competitors in the tea run to London in late 1852. The *Challenge* was much admired by the British Admiralty, who "took off her lines" and measured her completely—hull, spars, etc.—when in a London dry dock. On a run out to China from England in 1853, she again led the fleet.

Whereas the *Challenge* was not a very fortunate or entirely satisfactory vessel, W. H. Webb built in the same year some very successful clippers, two of which won undying fame. The *Comet* of 1,836 tons (228 ft. long, 40.4 ft. beam, and 22 ft. deep), owned by Bucklin & Crane and commanded by Captain Gardner, was a great maker of new sailing records on the trade routes of the world, even though her performances on the westward run around the Horn from an Atlantic port to California were not outstanding. Her first passage in this trade was her best, and she arrived at San Francisco January 13, 1852, after a run of 103 days from New York. She made eight western around-the-Horn passages during a period of ten and one-third years (1851-1862) and averaged 121¾ days per passage. Notwithstanding her ordinary, average performances rounding the Horn westbound, the *Comet* was remarkable for speed, seaworthiness, and good fortune. In the California service, she made one round trip from New York to San Francisco and return in seven months and nine days, the eastward passage being made (November 1853-January 1854) in only 76 days—the shortest on record.

Another famous clipper ship launched by Webb, New York, in 1851 was the *Swordfish* of 1,036 tons (length 169.6 ft., beam 36.6 ft., depth 20 ft.), built for Barclay & Livingston, New York. In June-August 1851, Donald McKay's *Flying Cloud* had established a sailing record of 89 days 21½ hours from New York to San Francisco and seemed to be in a class by herself as a Cape Horner. In November of the same year, five months and four days after the *Flying Cloud* had sailed on her record-making passage, the Donald McKay-built extreme clipper *Flying Fish* sailed from Boston for San Francisco. Whereas the *Flying Cloud* had had no competition on her sailing of June 2, 1851, the *Flying Fish*, sailing on November 6, got into a real race with the Webb-built *Swordfish*, which sailed on November 11, or five days after her. This was a sailing contest between New York and Boston, Webb and McKay, and, it was said, "for large stakes, as well as glory and the prestige of rival builders, owners, and commanders." Although the *Swordfish* was handicapped on the Cape Horn course by her relatively small size (being 469 tons, or 31 per cent, less registered tonnage than her adversary), the New York ship won a brilliant victory and, but for an unkind fate near the end of the passage, would have beaten the 89-day 21½-hour record of the *Flying Cloud*. When 89 days out, the *Swordfish* was within 100 miles of San Francisco; whereas the big McKay clipper had been 240 miles from her destination at the end of 89 days. The *Swordfish* arrived at San Francisco on February 10, 1852, completing her passage from New York in 90 days 18 hours; while the *Flying Fish* anchored off the Bar (and not in the harbor) on February 14, 1852, after a run from Boston of 100 days 6 hours. The Webb clipper won this sailing contest by about ten days, but a comparative record of the complete around-the-world maiden voyages of these fast clippers is of interest:

Name of Clipper	Sections of Course			Total Days under Canvas
	Outward	Intermediate	Homeward	
SWORDFISH	New York to San Francisco, 91 days	San Francisco to Hong Kong, 46 days	Hong Kong to New York, 89 days	226
FLYING FISH	Boston to San Francisco, 101 days	San Francisco to Manila, 51 days	Manila to New York, 123 days	275

Capt. David S. Babcock said that the passage of the *Swordfish* to San Francisco was in better than 71 days to the Pacific equator and a record run to within a few miles of the Cali-

fornia coast. He wrote in 1853 as he was about to take command of the new and bigger *Young America*: "The time of the *Swordfish*, say 91 days to San Francisco, 46 days from thence to China and 89 days from China home (against the monsoon), has never been equalled, and if the size of the ship is taken into consideration, her passage [of 90 days 18 hours] to California is far ahead of any other." The *Flying Fish*, notwithstanding her defeat by the *Swordfish* on her maiden voyage, was one of the greatest and fastest extreme clippers ever built and during the fifties made a great record as a consistent and reliable fast sailer in the Cape Horn California trade, her record for the number and length of completed westward passages, port to port, being superior to that of McKay's Cape Horn "Greyhound," the *Flying Cloud*.

Among the seventy clippers built in the United States during 1852, the following twelve ships (placed chronologically, based on launching date) can be mentioned not because they were necessarily the best, fastest, or largest but because of their historic interest as to either type or performance:

Name of Clipper	Tonnage	Launched 1852	Builder	Name of Clipper	Tonnage	Launched 1852	Builder
TORNADO	1,801½	Jan.	Williamsburg, New York	CONTEST	1,099	Oct. 9	Westervelt, New York
SOVEREIGN OF THE SEAS	2,421	June	McKay, East Boston	RATTLER (N. Y.)	1,121	Oct. 15	Thomas, Rockland, Maine
GOLDEN CITY	810½	Aug. 4	Westervelt, New York	FLYING CHILDERS	1,125	Nov. 11	Hall, East Boston
JOHN GILPIN	1,089	Aug.	Hall, East Boston	JACOB BELL	1,381½	Nov. 12	Bell, New York
FLYING DUTCHMAN	1,257	Sept. 9	Webb, New York	BALD EAGLE	1,703½	Nov.	McKay, East Boston
WESTWARD HO	1,650	Sept. 24	McKay, East Boston	PHANTOM	1,174	Dec. 8	Medford, Mass.

It is strange that of the twelve selected ships, only one was launched in the first five months and two in the first seven months of the year. Five of the clippers mentioned were built in Boston, five in New York, and one each in Medford, Mass., and Rockland, Maine. Donald McKay built three of them and Samuel Hall two at their East Boston yards; while of the New York-built ships, the Westervelt yard launched two, Webb and Bell constructed one each, and Jabez Williams built the *Tornado* at his Long Island yard. Whereas all these clippers made passages in the California trade, the *Golden City* was too small for a Cape Horner and was of a type better fitted for the China and Cape of Good Hope trade (although she made five outward runs to San Francisco), and the *Sovereign of the Seas*, after making one satisfactory and profitable voyage in the California trade, was sent by her builder-owner abroad for sale.

Departures from East Coast U.S.A. ports for California during the three summer months (June, July, and August) of 1852 were at the high level of a sailing every 2.6 days. September and October sailings averaged eight per month and a drop of one-third from the previous high mark of twelve set in each of July and August. In November 1852, eleven clippers sailed from eastern United States ports for San Francisco. In December, fifteen vessels commenced a passage, and in January 1853, the high record was reached when the unprecedented number of nineteen fine, fast clipper ships left eastern ports for the voyage around the Horn. In February 1853, the sailings numbered seventeen, in March twelve, in April fourteen, and in May twelve. It has been said: "Thirty-five clippers, comprising some of the finest ships in the world, spread their wings for the Cape Horn route within an interval [January-February 1853] of forty-nine days. Nothing like it had ever occurred before, and the world has never to witness such a sight again." There were on an average about two clipper ship sailings per month from East Coast U.S.A. ports to California during the year 1850, 3¾ sailings per month in 1851, 9⅔ per month in 1852, and the all-time record was

reached in 1853 with an average of 12¼ sailings per month; by 1855, the average had dropped to ten per month. In 1857, it was down to about 5½ per month, and the average length of outward passage to San Francisco in 1857 was about six days more than in 1852. The winter of 1852-1853, which marked the peak of activity in the Cape Horn passages to California, saw what Lieutenant Maury described as the great "sweepstakes around Cape Horn and through both hemispheres" on what he referred to as "a great race course, upon which some of the most beautiful trials of speed the world ever saw have come off." Yet, the course is not an easy one, for Maury asserted: "The California [westward] passage is the longest and most tedious within the domains of commerce; many are the vicissitudes which attend it. It tries the patience of the navigator and taxes his energies to the very utmost."

Maury dramatized what he pleased to call a "race" between four new and modern clipper ships, "ably commanded and beautifully handled by their masters," as a sweepstakes, and he admits that "to win, both speed and wind were essential." He should have added "the smiles of Dame Fortune," for the four clippers that he selected to sail the Maury sweepstakes sailed from New York, according to his own version of the race, on October 12, October 29, November 1, and November 14, respectively. As the nominated four contestants commenced their passages during the long period of thirty-four days, it is but natural that whatever race there was in relation to these passages occurred between the clippers *John Gilpin* and *Flying Fish*, which cleared New York about three days apart at the end of October 1852, and as the *Wild Pigeon*, which had sailed twenty days before the *Flying Fish*, had encountered bad luck and very different sailing conditions from those that the ships sailing the end of October enjoyed, it is evident from the logs of the "*Fish*," "*Gilpin*," and "*Pigeon*" that they were all in about Lat. 23° S. Pacific on December 30, 1852, and within a comparatively few miles of each other. Although Maury was staging a thrilling race for them and wrote that "the race was now wing and wing, and had become exciting," outside of the fact that the "*Pigeon*" saw an unidentified clipper in the distance when running north in the Pacific (apparently the *Flying Fish*) and the *John Gilpin* and *Flying Fish* had signaled each other off the Horn, none of the ships evidently was aware that she had been made a contestant in the world's great Cape Horn sweepstakes. In the period of thirty-four days stated and set apart by Maury as the limits for the start of his imaginative race between four clippers (i.e., October 12-November 14, 1852), eleven clippers and not only the four mentioned by him (viz., *Wild Pigeon*, *John Gilpin*, *Flying Fish*, and *Trade Wind*) departed from East Coast U.S.A. ports westward bound around the Horn for California. Carl C. Cutler, in *GREYHOUNDS OF THE SEA*, suggests increasing the last period of departure limitation from November 14 to November 17, and this addition of three days increases the number of contestants in the great "Deep-Sea Derby" from eleven to sixteen vessels if we include the fast sailer *Tam O'Shanter* of 777 tons (built at Freeport, Maine, in 1849) among the clippers. Although not a true clipper, she was popularly rated as one. The following is a record of the clippers and reputed clippers that actually sailed from an East Coast U.S.A. port to California, with departures during the period of time set by Maury in his California sweepstakes and the extended period suggested by Cutler in his elaborated "Deep-Sea Derby" of 1852-1853:

Name of Clipper and Tonnage	Captain	Departure		Arrival at San Fran- cisco 1853	Length of Passage
		Port	Date 1852		
WILD PIGEON (996 tons)	Putnam	New York	Oct. 12	Feb. 7	118 days
FLYING DUTCHMAN (1,257 tons)	Hubbard	New York	Oct. 15	Jan. 27	103 days net via Rio de Janeiro
DAUNTLESS (791 tons)	Miller	Boston	Oct. 15	Feb. 12	117½ days net via Valparaiso
WESTWARD HO (1,650 tons)	Johnson	Boston	Oct. 16	Jan. 31	107 days (claimed 103 days)

Continued on next page.

Name of Clipper and Tonnage	Captain	Departure		Arrival at San Fran- cisco 1853	Length of Passage
		Port	Date 1852		
NORTHERN LIGHT (1,021 tons)	Hatch	Boston	Oct. 28	Feb. 23	118 days
JOHN GILPIN (1,089 tons)	Doane	New York	Oct. 29	Feb. 1	93 days 20 hours, port to pilot
FLYING FISH (1,505 tons)	Nickels	New York	Oct. 31	Jan. 31	92 days 4 hours, anchor to anchor
QUEEN OF THE SEAS (1,356 tons)	Knight	Boston	Nov. 1	Mar. 11	127 days net via Valparaiso
GREY FEATHER (610 tons)	McLaughlin	New York	Nov. 9	Mar. 15	126 days
WHIRLWIND (960½ tons)	Burgess	Boston	Nov. 12	Mar. 11	119 days
TRADE WIND (2,045 tons)	Webber	New York	Nov. 13	Feb. 24	102½ days
TAM O'SHANTER (777 tons)	Soule	Boston	Nov. 15	Mar. 26	130 days
TELEGRAPH (1,078 tons)	Pousland	Boston	Nov. 15	Mar. 10	114 days
CONTEST (1,098 tons)	Brewster	New York	Nov. 16	Feb. 24	100 days
GAME COCK (1,392 tons)	Hollis	New York	Nov. 16	Mar. 10	114 days (reported 112 days)
METEOR (1,067½ tons)	Pike	Boston	Nov. 17	Mar. 10	113 days (reported 110 days)

The spread of the sixteen sailings is thirty-six days and of arrivals thirty-one days. The average length of passage under sail was 112.2 days; there were three passages of 100 days or less, six under 110 days, and thirteen under 120 days. The *Flying Dutchman*, with a run of 103 days, made the best record of the first group of four clippers sailing during the five days October 12-16 inclusive. The *Flying Fish*, with a great passage of 92 days 4 hours, was the winner of the second group of clippers that sailed during the four-day period October 29-November 1 inclusive, but the *John Gilpin* finished a good close second. The *Contest*, with a 100-day run (erroneously referred to at times as a 97- or 98-day passage), made the best time of the eight clippers that sailed during the nine days November 9-17 inclusive; but the *Trade Wind*, handicapped by being on fire, won second honors with a good run of 102½ days, which was reported at about a day less.

The *Grey Feather* of 610 tons (only 138 ft. long) was outclassed and in the around-the-Horn service could not be expected to make a run the same as the larger and more powerful ships. The *Queen of the Seas* (1,356 tons) was overloaded and badly trimmed; with inadequate freeboard and a foot by the head, she was severely handicapped. The *Tam O'Shanter* of 777 tons, built at Freeport, Maine, in 1849, was not a real clipper but merely a good-lined, well-canvased fast sailer. Eliminating these three ships for ineligibility, the average time of passage of the remaining thirteen clippers in the 1852-1853 "Deep-Sea Derby" around the Horn was only 108.6 days—a world's all-time record for sailing.

The winner of the race, the *Flying Fish* (1,505 tons), lost two to three days' time off the Golden Gate because of calms and light airs and on her 88th day of passage was actually 156 miles nearer San Francisco than the *Flying Cloud* on her 1851 record passage of 89 days 21½ hours. The *Flying Fish* also lost three days beating around Cape St. Roque because of an error of judgment on the part of Capt. E. C. Nickels. If it had not been for an unusual adverse wind condition off the California coast and for a human error, the *Flying Fish* would have beaten the record held by the *Flying Cloud* and possibly have marked up an all-time record passage of some 88 or even 87 days.

On this run, the *Trade Wind* carried forty-six first-class passengers and 3,400 tons of measured cargo, the largest ever taken from New York. She lost two days around the Atlantic equator because of fire, the changing of the course to run before the wind to assist in extinguishing it, and the falling to leeward of Cape St. Roque as a result. The *Westward Ho* reported her passage as 103 days, and she was delayed at least three days off the California coast in fog and calms. The *Meteor*, *Game Cock*, and *Telegraph* arrived at San Francisco "bowsprit to taffrail" after an amazing three-cornered race and runs from their ports of departure of 113, 114, and 114 days, respectively. All three were greatly delayed by unseasonable adverse weather off the Horn. The *Whirlwind* also reported being held up eighteen days by extraordinary Cape Horn weather and by light airs and calms in the North Pacific, but she made her passage in 119 days.

During the record clipper shipbuilding year of 1853, when 120 vessels with sharp-lined clipper models carrying a wealth of canvas and lofty spars, or a so-called "clipper rig," were built in the United States (all intended for service in the American merchant marine), a large fleet of some 150,000 registered tons of high-class speedy shipping was constructed, and the following list of 16 clippers launched in 1853 is not intended to cover the best and fastest or even mention all of the most outstanding ships. The clippers, which are arranged chronologically according to date of launching, had each some peculiar quality of design or construction or had a sailing performance of historic interest.

Name of Clipper and Tonnage	Launched 1853	Builder	Name of Clipper and Tonnage	Launched 1853	Builder
GOLDEN STATE (1,363 tons)	Jan. 10	Westervelt, New York	DREADNOUGHT (1,413 tons)	Oct. 6	Newburyport, Mass.
NEPTUNE'S CAR (1,611 tons)	Apr. 16	Portsmouth, Va.	DAVID BROWN (1,715½ tons)	Oct. 8	Roosevelt & Joyce, New York
YOUNG AMERICA (1,961 tons)	Apr. 30	Webb, New York	PANAMA (1,139 tons)	Oct. 11	Collyer, New York
FLYING DRAGON (1,127 tons)	June	Bath, Maine	DAVID CROCKETT (1,679 tons)	Oct. 18	Mystic, Conn.
SWEEPSTAKES (1,735 tons)	June 21	Westervelt, New York	ROMANCE OF THE SEAS (1,782 tons)	Oct. 23	McKay, East Boston
DASHING WAVE (1,180 tons)	July 15	Portsmouth, N. H.	RED JACKET (2,305 tons)	Nov. 2	Thomas, Rockland, Maine
EAGLE WING (1,174 tons)	Oct. 4	Medford, Mass.	FLYING SCUD (1,713½ tons)	Nov. 2	Damariscotta, Maine
GREAT REPUBLIC (3,357 tons)	Oct. 4	McKay, East Boston	HERALD OF THE MORNING (1,294 tons)	Dec.	Medford, Mass.

Of the above sixteen representative clipper ships of quality, five were built in New York, three in Maine, two each in East Boston and Medford, Mass., and one each in Portsmouth, N.H., Newburyport, Mass., Mystic, Conn., and Portsmouth, Va. Of the most famous builders of the period, McKay, of East Boston, and the Westervelts, of New York, each constructed two of these clippers, and Webb, of New York, built one; but the Webb contribution (the *Young America*) and the *David Crockett*, built by Greenman & Company, Mystic, Conn., both in 1853, were destined to become the most famous and the greatest of all Cape Horners and to operate successfully in the California trade for some thirty years. The *Dreadnought* was a medium clipper built for the heavy weather, driving North Atlantic packet trade, in which she made a magnificent and unequalled record; she was over eleven years old before she made her first California passage, and her record in that trade is not impressive. The *David Crockett*, also built for the transatlantic trade, was far from being a *Dreadnought* in that packet service, but she "found herself" and made a great record as a Cape Horner in the California trade.

The year 1853 saw two important and close races over the Cape Horn westward-bound course from New York to San Francisco. The first was between the speedy Webb-built 1,036-ton New York clipper *Swordfish* (launched September 20, 1851) and the fast New York-owned clipper *Sea Serpent* of 1,337 tons (launched November 20, 1850, at Portsmouth, N.H.), which was sailed in February-June, and the second was an epic struggle waged in April-August between the champion record-holding *Flying Cloud* of 1,782 tons (launched by McKay at East Boston on April 15, 1851) and the *Hornet* of 1,426 tons (launched at New York on June 20, 1851, by Westervelt & Mackey), both of these ships being also owned by New Yorkers. A comparison of the sailing performance of the contestants in the *Swordfish-Sea Serpent* race is set forth herewith:

Name of Clipper	Captain	No. of Her California Voyage	Departure from New York 1853	Arrival at San Francisco 1853	Passage in Days
SWORDFISH	Collins	2	Feb. 12	May 30	107
SEA SERPENT	Howland	3	Feb. 12	June 1	109

Two other ships sailed for San Francisco on February 12; the *Reliance*, a reputedly fast vessel, sailed from New York and made a very slow passage of 180 days, arriving at San Francisco August 11, and the ill-fated *Golden Light*, a new medium clipper of 1,140½ tons, left Boston on her maiden voyage bound to California on Lincoln's birthday, but at midnight of Washington's birthday, when 10 days out, was struck by lightning, burned, and became a total loss. The *Sea Serpent* had much the best of the wind until she reached the North Pacific, where the *Swordfish* got a bit of the luck that had been denied her during the preceding part of the passage. The "*Serpent*," leaving Sandy Hook, made a good run to the line in 19 days 16 hours; whereas the "*Fish*" had poorer sailing chances, logged 4,135 miles, and was 22 days reaching the Atlantic equator. The "*Fish*" was surprisingly "becalmed 4 days off the Horn," and the "*Serpent*" made the best run to the Pacific equator, reaching it when 82 days out. Then her luck deserted her, and when in Lat. 20° N., she encountered twelve days of calms and head winds and was 27 days running from the line to the Golden Gate. The *Swordfish*, on a slightly different course, had better luck in the North Pacific, caught up with and passed her opponent, and reached San Francisco two days ahead of the *Sea Serpent*.

The race between the *Flying Cloud* and the *Hornet*, both at the time and since, has been very controversial. The result was very unpleasant to Captain Creesy and the owners of the *Flying Cloud*, who unhesitatingly distorted facts and used official figures of departure from New York and arrival at San Francisco to claim a victory for their clipper; whereas the race resulted in a pronounced upset for the champion Cape Horn "Greyhound" and record-holder over the course and a brilliant victory, as far as sailing at sea was concerned, for the *Hornet* and her commander, Captain Knapp. The statistics of the two passages are as follows:

Name of Clipper	Captain	No. of Her California Voyage	Clearance from New York	Commenced Deep-Sea Run in Company Well off the Hook	Arrival at San Francisco	Length of Passage in Days		
						New York to San Francisco from Clearance to Entry	Sea Run	From off the Hook to Port
FLYING CLOUD	Creesy	3	1853 Apr. 28	1853 Apr. 29	1853 Aug. 12	106	105	105
HORNET	Knapp	2	Apr. 26	Apr. 29	Aug. 12	108	104	105

When the *Hornet* actually left New York Harbor is unknown, and the two clippers were supposed to sail the same day. On the afternoon of April 28, Captain Knapp discharged pilot and tug off Sandy Hook, and the log of the *Hornet* reads: "Wind S. by E.

& calm for 2 days." The ship lay virtually becalmed, and the log entry of April 29 reads: "Lat 40.20 N Lon 70.10 W—At meridian clipper ship in sight to S.W. (presume to be the *Flying Cloud* which intended leaving same day with us). Later recognized the *Flying Cloud* bringing up the breeze." With an even start on the sea run from off the New York-New Jersey shore to the Golden Gate, the *Hornet* hove to off the San Francisco Heads at 8:00 P.M. on August 11 and at 9:00 A.M., August 12, took a pilot on the Bar. The *Hornet's* log shows that at 10:00 A.M. (an hour after the pilot came aboard and fourteen hours after she had hove to for the night) "saw the ship *Flying Cloud* coming up with fine breeze," and at 11:30 A.M. the *Hornet* anchored in the harbor of San Francisco forty minutes ahead of the *Flying Cloud*. The San Francisco HERALD of August 13, 1853, announced the arrival of both the clipper ships *Hornet* and *Flying Cloud* on August 12, 105 days from New York and stated: "The *Hornet* came in about forty minutes ahead of the *Flying Cloud*, having left New York on the same day, the *Hornet* several hours ahead. Outside the Heads at New York, she was becalmed until the *Flying Cloud* came up, when they started together, and have reached their destination almost simultaneously—an extraordinary coincidence." Captain Creesy said that the *Flying Cloud* had made the run from Sandy Hook to the Atlantic equator in 17 days, but he declined to comment on the passage other than to say that very evidently his ship had encountered much worse weather on the run out than had the *Hornet*. It is significant that Lieutenant Maury, in his official report printed in 1854, wrote:

Last summer there was a race between the *Flying Cloud* and the *Hornet*. For three months and more through fair winds and foul, in the storm and in the calm, these ships were neck and neck, seldom or never breaking tie throughout the entire length of that long race-course [the outward run to California]. I regret that the abstract log of the *Flying*

Cloud, which Capt. Creesy was under pledge to keep for this office, has not come to hand, that a description of this race might be given. It would no doubt serve to put some upon their mettle, and help to spur up others who are about to flag. Capt. Creesy returned his abstract as far as the equator in the Atlantic; since that, I have had nothing from him.

Captain Creesy was an able commander, a competent navigator, and a hard driver; he was also very much of a self-satisfied individualist, who became quite proud of his achievements with the *Flying Cloud* and, like some other captains of his day, did not like to have his statements checked up. Creesy was undoubtedly chagrined to find the *Hornet* ahead of him off the Golden Gate, and, therefore, whereas he had been proud of the ship's run from Sandy Hook to the Atlantic equator, he refused to make public a record of the balance of the passage of which he was not proud. If the *Hornet* had made a slower run to the line (which he had reason to believe), then that clipper would have given the *Flying Cloud* a decisive beating in the run from the Atlantic equator to the Golden Gate, and this fact Creesy was determined to keep "under cover" and out of the public print. For a commander with a brilliant record with the *Flying Cloud* and one who was unquestionably very lucky, Captain Creesy made some conspicuous mistakes in plotting the outward passage of his ship on her California voyages. It is said that after his splendid record-making maiden passage in the *Flying Cloud*, he became overconfident, and he seemingly ignored Maury's charts and suggested directions (which were based not on Maury's theories but on the recorded experiences of thousands of sailing ship passages) and often went off the track in cruising to find wind. The *Flying Cloud* left New York May 14, 1852, on her second voyage, the *Gazelle* sailed on May 18 (four days later), and the *N. B. Palmer* left on May 22, eight days after the *Flying Cloud*, all bound for San Francisco. The *Gazelle* caught up with the *Flying Cloud* before the equator was reached, and the log of the *N. B. Palmer* dated July 2, 1852, when 41 days out, reads: "Lat. 36-01 S., Long. 50-50 W. Moderate breeze. At 2 P.M. spoke the *Flying Cloud* after heaving to for two hours for her to come up." This indicates that the *N. B. Palmer* had sailed in 41 days as great a distance as the *Flying Cloud* had covered in 49 days. It was such experiences as these that Captain Creesy did not want to give publicity to and have Lieutenant Maury advertise to the world.

Indicative of the competitive feeling in the building and operation of clippers in and about 1853, the persistent boasts of the McKays, of Boston, that the big ship *Sovereign of*

the Seas, which they had for sale, was "the fastest ship afloat" and "a challenge to the world" so annoyed other builders that William H. Webb, of New York, on May 14, 1853, offered to race his new ship *Young America* (Capt. David S. Babcock—late of the *Swordfish*) against the McKay clipper *Sovereign of the Seas* for \$10,000 a side from New York to San Francisco. This was a plain case of "Put up or shut up." The McKays decided not to accept the challenge brought about by their exaggerated claims and not to send the ship out again to California (although she had made a wonderful profit on her 1852 voyage) but to send her to Europe for sale.

The *Flying Cloud* arrived at San Francisco during the night of April 30, 1854, about two years and eight months after making her famous 89-day passage of 1851 (actual reported time, 89 days 21½ hours), and Captain Creesy reported another 89-day passage and an actual sailing time of only 89 days 8 hours. It was announced that on this record-breaking run the famous vessel traveled 15,091 nautical miles, pilot to pilot, and averaged 169 miles per day and 7 knots per hour; however, there has always been a great deal of uncertainty in regard to the actual time of arrival and the length of the run. Captain Creesy was a notorious "pencil sharpener," and he refused at times to present records to substantiate the accuracy of such abstracts as he cared to give to the press. The 1854 passage of the *Flying Cloud* was generally accepted, however, as a record westward passage of 89 days 8 hours from an East Coast port to San Francisco, and this held for about six years.

In 1855, when America reached its zenith as an ocean carrier, San Francisco witnessed an event which has occurred but once in the history of seaports anywhere; i.e., the arrival of an unbroken procession of seven "extreme" clipper ships. It was on August 2, 1855, that the clippers *Coeur de Lion*, *Messenger*, *War Hawk*, *Queen of the Seas*, *Ellen Foster*, *Lookout*, and *Monsoon* sailed through the Golden Gate and up the bay before fresh westerly winds. Felix Riesenbergh, Jr., says, "In a sense that was a funeral cortege, as the great clipper ship era had ended for San Francisco port. Symbolic too was the sailing the following year of the clipper ship *Highflyer* (Captain Gordon B. Waterman) for Hong Kong. She was never heard from again."

The following record of the seven clippers and their sailing performances on their 1855 passage to California, which resulted in the arrival of the septet at San Francisco on the same day (August 2), is of interest:

Name of Clipper	Tonnage	Built		Departure from East Coast		Length of Passage in Days to San Francisco—Arriving Aug. 2, 1855
		Place	Year (launched)	Port	Date 1855	
COEUR DE LION	1,098	Portsmouth, N. H.	Jan. 1854	New York	Apr. 6	118
MESSENGER	1,351	New York	Apr. 1852	New York	Apr. 3	121
WAR HAWK	1,067	Newburyport, Mass.	Jan. 1855	Boston	Mar. 27	128
QUEEN OF THE SEAS	1,356	Medford, Mass.	Sept. 1852	Boston	Mar. 18	137
ELLEN FOSTER	996	Medford, Mass.	1852	Boston	Mar. 8	147
LOOKOUT	1,291	Warren, R. I.	Oct. 1853	New York	Mar. 1	154
MONSOON	773	Bath, Maine	1851	New York	Feb. 27	156

During the two years 1850-1851, 78 clippers or reputed clippers were built in the United States that engaged at some time or other in the around-the-Horn trade; of this number, 9 were barks. In the two years 1852-1853, 195 vessels of this type were built—183 ships and 12 barks; in the two years 1854-1855, 113 vessels—107 ships and 6 barks; and in what were really the last two years of American clipper ship construction, 1856-1857, only 50 vessels of this type (clippers or reputed clippers) were built that saw Cape Horn service, of which 4 were barks and one a barkentine. During the last two years of the fifties (1858-1859), only 9 reputed clippers were built, and the Civil War put a final stop to America's

triumphs on the Seven Seas and completed the disaster that had been brought about by the over-enthusiastic building of 1852-1854, the financial collapse and panic of 1857, and a politically divided country. The year 1853, with 120 clippers or reputed clippers built that at some time or other were practically all engaged in the California run, aggregating 149,504 tons (an average of 1,246 tons per ship), marked not only the peak of clipper ship construction but also the high tide of the American deep-sea merchant marine. At that time and for a few following years, Columbia and not Britannia ruled the waves as far as the superiority of floating tonnage and aggressive, profitable operation were concerned. In the early fifties, the United States had a fleet of sailing vessels equal in tonnage to that of Britain, and the American ships were both bigger and infinitely better in quality, speed, and money-making power.

The following is a record of the reported clipper ship passages to San Francisco around the Horn westbound that originated at an East Coast port in each of the eleven years 1850-1860 inclusive:

Year	Number of Voyages	Shortest Passage in Days	Longest Passage in Days	Average Length of Passages in Days
1850	24	97	157	126.4
1851	45	90	218	129.6
1852	116	92	213	128.4
1853	147	97	212	130.6
1854	109	90	311	128.3
1855	120	97	290	132.8
1856	98	92	343	133.3
1857	67	102	216	134.4
1858	97	101	197	137.8
1859	82	89	325	139.7
1860	66	103	165	129.9
For the eleven-year period	971	89	343	132.2

The following averages are for certain periods of the clipper ship decade 1850-1859 inclusive:

Period	Average Number of Voyages per Year	Average Length of Passages in Days
Two years 1850-1851 inclusive.....	34.5	128.5
Four years 1852-1855 inclusive.....	123	130.1
Four years 1856-1859 inclusive.....	86	136.4
Five years 1850-1854 inclusive.....	88.2	129.1
Five years 1855-1859 inclusive.....	92.8	135.4

The demand for speedy tonnage to California increased tremendously in competitive and emotional intensity throughout 1851-1853 and carried into 1854, but in 1853, as before stated, the peak was reached. After 1853 the business was less attractive, and the depression of 1857 laid up many prominent vessels, including the *Flying Cloud*. The depression and panic reduced the number of sailings to less than one-half of those of the banner year 1853 and brought economy conspicuously into the foreground. The sharp hollow-lined lean clipper models that carried but little cargo could not have their models filled out to permit them to carry more and be greater revenue-producers when freight rates fell, but the spars and canvas carried could be cut down to reduce the risk of accidents and the need of expensive and frequent repairs. Studding sails and lofty skysails (moonsails, angel's footstools, etc.) were removed and the crews cut down in number in an attempt to operate the clippers with reduced expense and make them pay. Spectacular, quick runs around the Horn decreased in number per year as the fifties advanced, but outrageously long passages due to accidents at

sea and detentions in ports en route for repairs also lessened; yet, surprising as it may be, 1859-1860 saw the record all-time run made around the Horn westbound by a medium clipper that, while an excellent sailer and good carrier, made no pretensions of possessing extreme spurt speed, but gained an unsurpassed reputation for fast passages between ports.

On March 23, 1860, the clipper *Andrew Jackson* (1,679 tons; 222 ft. long, 40.2 ft. beam, and 22.2 ft. deep), built by Irons & Grinnell, at Mystic, Conn., and launched in March 1855, made the third and last westward passage in history reported as under 90 days with a run of only 89 days and 4 hours from Sandy Hook to San Francisco pilot. This is the world's all-time sailing record from an East Coast U.S.A. or North Atlantic port to San Francisco or any U.S.A. Pacific Coast port. The *Andrew Jackson* has the finest record for fast and uniform sailing of any vessel that made five or more westbound passages during the clipper ship decade of the 1850's in the California service. Her average length of passage was 105.2 days; shortest, 89 days; longest, 128 days (her first, in 1855, before she was properly sparred and rigged). Her four voyages of 1856, 1857, 1858, and 1859 averaged only 99½ days, and the longest of these passages occupied only 103 days. The clipper's lifetime record on the westward California course (including her initial run when improperly sparred) was an average of 106.1 days for seven passages made during the years 1855-1862 inclusive—before she was "sold foreign" during the Civil War. The *Andrew Jackson*, unlike most of the McKay clippers, does not seem to have done much spectacular sailing for short runs, but her good time made on voyages, consistently under varying conditions of wind and sea, was marvelous. The vessel was evidently well commanded and most ably handled, and the short distances covered on some of her passages constituted records or near records in low mileage for sailing vessels.

The following is a synopsis of the three 89-day record runs made by clippers on the westward around-the-Horn run from New York to San Francisco:

Flying Cloud: Arrived San Francisco August 31, 1851; left New York June 2, 1851.

Time—anchor to anchor . . . 89 days 21½ hours.

Flying Cloud: Arrived San Francisco night of April 20, 1854 (not in sight of coast at sundown). Left anchorage off New York January 21, 1854, at noon.

Time stated 89 days 8 hours.

Andrew Jackson: Arrived at pilot ground, San Francisco, 4:00 P.M., March 23, 1860, 89 days 3 hours after taking departure from New York and dropping pilot.

Time—Sandy Hook to awaiting pilot off the Bar 89 days 4 hours.

With the splendid record passage of the *Andrew Jackson* from New York to San Francisco of 89 days 4 hours in 1860 (covering which the entire original log of Capt. John E. Williams has been preserved), the American clipper ship era was, in fact, ended; but during the period of 1850-1860 inclusive, there were three passages under 90 days (i.e., from 89 to 90 days) and, it has been said, seven under 95 days, nineteen under 100 days, fifty-one under 105 days, one hundred twelve under 110 days, and one hundred twenty-eight in 110 days or less.

The only westward passages to California with arrivals at San Francisco after March 1860 that were made in 100 days or better were runs, under extremely favorable conditions, by the somewhat fuller-bodied and moderately sparred "half clippers" *Seminole* (98 days), built at Mystic, Conn., in 1865, and *Glory of the Seas* (96 days), built at East Boston in 1869. The moderate clipper *Young America*, built by Webb, New York, in 1853 (which operated in the Cape Horn trade for thirty years), in the winter of 1872-1873 made a passage from Liverpool to San Francisco, pilot to pilot, in 96 days—but she was a very wonderful vessel for a clipper built in the early fifties.

The best Down Easters of the seventies and eighties, considering their fundamental economic design in regard to cargo capacity, revenue from freights, and low cost of operation, with small crews, repair bills, and maintenance charges, made some wonderfully fast passages, and the average length of their westward runs around the Horn to California, while

carrying good cargoes, was amazingly low. The *Henry B. Hyde*, built in 1884 at Bath, Maine, made three consecutive runs from New York to San Francisco in the early 1890's, averaging 107 days (best, 105 days; slowest, 108 days); returning east, she ran laden to New York in 88 days and on another voyage to Britain in 96 days. The *A. G. Ropes* made westward runs to San Francisco in 104 and 107 days and, returning, made a passage to New York in 93 days. Frederick C. Matthews, in *AMERICAN MERCHANT SHIPS*, has said that some of the later-day Down Easters approached the records of the fastest famous clippers in the average length of their westward Cape Horn runs from New York to San Francisco. Continuing, he says:

The seven passages made by Captain Wilbur in the *M. P. Grace* averaged 115 days and the five made by Captain Nichols in the *S. P. Hitchcock* in 111 days compare very favorably with the eight made by the [clippers] *Mary L. Sutton*, 118½ days, and by the *Ocean Telegraph*, 121 days. The sixteen passages made by the [Down Easters] *Jabez Howes* at an average of 124 days and the fourteen made by the *Henry B. Hyde* in the same time may be placed

against the 125-day average made by the [fast extreme clippers] *Sea Serpent* and *Herald of the Morning*, each making fourteen. The [half clipper] *Seminole's* twenty passages, made in an average of 126 days, are longer by only eight days than the same number made by the celebrated [clipper] *Young America* [which was built twelve years before her].

In relation to Matthews' remarks, it is of interest to note that both the medium clipper *Mary L. Sutton* and the *Seminole* (a half clipper) referred to by him were built at Mystic, Conn., the "*Sutton*" in early 1856 and the *Seminole* in 1865—at the close of the Civil War. The best of the Down Easters, such as the *Henry B. Hyde* and *A. G. Ropes*, were built at Bath, Maine, in 1884, twenty-nine years after the half clipper *Seminole* was built in Connecticut, and notwithstanding their fuller hulls, greater carrying capacity in both weight and volume, smaller crews, and much lower operating costs, these Down Easters showed more uniform fast sailing and lower average length of passage in westward California runs than any half clippers that had been built before them and than most of the medium clippers built in the late 1850's.

Many claims have been made by the designers and builders, the owners and the commands of clippers looking toward the general acknowledgment of one vessel as "the fastest clipper in the world." A ship that might be considered pre-eminent in the California Cape Horn service would not necessarily prove an outstanding leadership as to speed in some other service. It is, however, conceded that the around-the-Horn westward run from a North Atlantic port to San Francisco was the most severe and hazardous general trade run in the world. It was a service that demanded relatively big ships and vessels that were not only powerful but also modeled and sparred for hard driving in heavy seas and capable of giving a good account of themselves in severe gales and under the most adverse conditions of wind and sea. In the tea, oriental, Indian, and what is generally known as the Cape of Good Hope trades, the relatively small and finely modeled clippers were outstanding in their performances in the tropics, and speed records were made by light craft loftily sparred "with a great spread of flowing canvas" that could "ghost along" in practically no wind, when the larger clippers would act lifeless in the doldrums. Rounding Cape Horn and sailing in the Roaring Forties (in the California and Australia trades) was a different matter, and the world's records for speed for day's runs were made not by fast yacht-like and relatively small tea clippers or vessels of their general type but by large and powerful sailing craft built for service in the higher and lower latitudes that were driven in gales of wind (of a direction and with a sea favorable for fast sailing toward the desired goal) and whose model permitted such relentless pushing and whose spars, rigging and canvas could withstand the severe stresses to which they were subjected by the extreme urge "to make time."

The fastest big clippers had a splendid chance to demonstrate their speed and good seagoing qualities in the Australian trade when running east from South Atlantic to South Atlantic before favorable gales in the Roaring Forties. The California Cape Horn trade gave few opportunities for high speed and big day's runs, as the mileage covered in the

lower latitudes was relatively small and rounding the Horn on a westward passage required bucking and not sailing with the prevailing westerly and southwesterly gales. A few big day's runs were made by large and fortunate Cape Horners in the South Atlantic and South Pacific; the record day's run over the course was made by the 3,357-ton extreme clipper *Great Republic* in December 1856, when she recorded 413 miles in one day and 360 nautical miles in nineteen hours (a rate of 456 miles in twenty-four hours), but this was with favorable gales in the North Atlantic on her fifth day out from New York. The westward passage in the California Cape Horn trade was no run for weaklings, but on the other hand the finest and speediest clipper operated by the best of all commands could not be expected to make good time on such a passage unless favored by wind and sea (the elements) and general sailing conditions—and this not only during the dreaded rounding of the Horn but also generally throughout the voyage. The run from Lat. 50° in the South Atlantic down to about 57° S. in rounding "Cape Stiff" and up to Lat. 50° on the Pacific Ocean side might take less than two weeks or require a month or more for the best and fastest square-rigger, perfectly handled. At this point of the voyage, *Dame Luck* was undoubtedly in command. The passage around the Horn (designated as "from 50° to 50°") has been negotiated in 6 days, and it has taken 90 days for a good, fast clipper ship to make the rounding, or fifteen times as long. The spread between these figures is 84 days, or 2¾ months, on a hoped-for passage of from three to four months' total duration. The *Edward Sewall*, a big, burdensome and powerful Bath-built four-masted steel shipentine, which, early in the twentieth century, took 67 days to round the Horn "from 50° to 50°," had covered the distance and rounded the Cape on a previous voyage in 12 days. The ship and command can be considered the same; the difference of 55 days represents the element of luck.

Considering all the factors affecting the sailing performance of a vessel which was absolutely dependent on wind as a means of propulsion and the force and direction of the wind and condition of sea for speed between ports, it would seem that about fifty per cent of the result of her sailing record can be attributed to *Dame Luck*, about forty per cent to the design and construction of the ship, and if the Maury course and sailing directions were used, possibly about ten per cent to the judgment and quality of the command, with the thought in mind that all sailing ship skippers were believedly competent, experienced, and worthy. The "ten per cent" here stated covers not the importance of operation (which cannot be overstated) but the variability between different selected and acknowledged good sea captains in getting the most out of the ships, the weather, and the crews.

The fastest clipper ships in the California Cape Horn service were the *Andrew Jackson*, *Flying Fish*, *Westward Ho*, *Flying Cloud*, *Great Republic*, *Swordfish*, *Sweepstakes*, *Flying Dutchman*, *Herald of the Morning*, *Young America*, and *Comet*—not necessarily in the order as herein named, although one authority who has been a deep student of sailing records has so placed them. The *Flying Cloud's* record was spoiled by a 185-day passage. To offset this, she made two 89- to 90-day passages, and the spread of 95 days—with the ratio of maximum to minimum of over 2 to 1—merely proves what has here been written of the importance of luck and favorable sailing conditions if speed is to be attained by the fastest and best sailed ship.

High in the record of performances in the California Cape Horn run is that of the little clipper *Sea Witch*, built for the China trade and never intended for the severe around-the-Horn, East to West Coast service. Yet this little craft made one record run of 97 sailing days in April-July 1850 and, notwithstanding abuse and relentless driving when she was the acknowledged fastest ship in the world in the late forties, with a measure of deplorable neglect, negotiated all her three westward California passages in 110 days or better and with an all-time average of 105 days. Only the *Westward Ho* (with an average of 103.3 days for four passages) shows better than the *Sea Witch* in cold statistics; but the *Westward Ho*, with her best passages of 100 and 101 days (two of them), never equaled the 97-day record of the *Sea Witch*. The best average sailing performance next to that of the *Sea Witch*

for a clipper that made only three passages in the westward Cape Horn service to California is that of the *Romance of the Seas*, a big, fast clipper of 1,782 tons (about twice the size of the little *Sea Witch* and built seven years after her), which has an average of 105.3 days; but the "*Romance*" made one run of 113 days, whereas the "*Witch*" never took more than 110 days on her passages from Sandy Hook to the Golden Gate.

It is not surprising, therefore, that there are marine authorities who, as a result of their research, proclaim the *Sea Witch* as America's fastest clipper. For her inches and when in her prime, she may have been, but unfortunately the little ship was either not properly built or outrageously driven under conditions of wind and sea that her size, timbers and planking would not stand. Moreover, her hull seems to have been neglected, for it was said that each year the *Sea Witch* became "more waterlogged," heavier, and slower. In her prime, she was in a class by herself. The record of the *Sea Witch* from the standpoint of wear and tear, depreciation, and relatively short life was somewhat similar to that of many other "extreme," or "out-and-out," clippers, including many of the Donald McKay-built clippers of much larger size that were designed for heavy going and deep-sea work and intended for service in the Roaring Forties and the Australian run or the California Cape Horn trade.

The Civil War and the political and economic conditions that preceded and led to it, with events associated with the war and the general national attitude subsequent to it, seriously disturbed the American mercantile marine, American shipbuilding, shipping, "Yankee" enterprise, and foreign trade. The financial panic of 1857, with a severe national business depression during the latter part of the fifties, the four-year conflict between the northern and southern states, and, still later, adverse legislation, practically sounded the death knell of American shipping. In addition, whereas the United States persisted in the use of wood, Britain began to use iron in shipbuilding, developed the iron screw steamer with multiple-expansion engines, and enacted fostering legislation. All this gave Britain, in the sixties and seventies, a dominant position in ocean trade, the biggest merchant marine, and command of the seas. In the decade following 1850, the proportion of United States ocean freight carried by steam had risen from 14 per cent at the mid-century to 28 per cent in 1860—a gain for steam of 100 per cent. So far as was then known, the United States had no great deposits of iron and coal, and Americans believed that Britain, having been vastly favored in this respect, held a great national advantage over the United States (and generally over all other foreign powers) in the field of heavy metals and engineering.

Had it not been for the Civil War, it is possible—and even probable—that the United States would have adjusted itself to changed conditions; but the demoralizing war, with the associated necessity for concentration on the all-important present, a predominantly conservative national economy, and the demand for "carrying on" (to say nothing of the destructive activities of the British-built and encouraged *Alabama* and other southern commerce destroyers), drove the Stars and Stripes from the sea. These Confederate raiders destroyed many fine American ships, but they drove many times the number captured, burned, and sunk into the refuge of harbors throughout the world, where they remained idle until most of them were sold to foreigners—by far the largest part being given British registry. The Civil War gave Britain a chance to complete the destruction of the American merchant marine that started in the reaction to the excessive Gold Rush boom, the panic of 1857, and the depression and great need for money in the United States during the last part of the fifties, when a large number of America's finest ships had to be sold abroad. Britain was in sympathy with the South before, during, and after the Civil War and did not hesitate to use British resources along lines that tended to weaken the United States as a marine power and drive United States merchant vessels from the trade routes of the world.

During the unwarranted, tremendous boom following the California gold find, fast sailing "clippers" had captivated the imagination of the public, and almost every American with money to invest wanted to buy a fraction of a clipper ship. The depression and panic

that quickly followed taught most of these investors a sorrowful but vivid lesson. In 1857, following the temporary lengthening of the period of seeming prosperity brought about by the demand for fast ships in the trade routes of the world (to China, the Orient, India, etc.), the Australian discovery of gold with its "colonial boom," and the Crimean War with its demand for fast transport service, freight rates to California had dropped to one-sixth of what they were in 1850. Shipping tonnage fighting for cargoes was so greatly in excess of the world's need that fine and fast large American clippers lay idle for months in practically all the harbors of the world—Manila, Hong Kong, Foochow, Shanghai, Calcutta, San Francisco, etc.

For a while, the demand for shipping due to emigration and its needs following the discovery of gold in Australia and the opening up of a new continent, with its contiguous islands, Tasmania and New Zealand, had helped to keep an over-tonnaged American merchant marine fairly busy, as a number of the best and biggest ships were chartered to British operators. (R. W. Cameron ran a line from New York to Melbourne, Australia, which employed eight to ten fine, big American ships.) Gradually, however, such vessels were sold and continued their career under foreign flags—generally British. American investors, after the trade and financial debacle of 1857, were "ship shy." National internal progress and development of the West and Mountain States attracted more and more the attention of investors and occupied the minds of farsighted, shrewd, and capable businessmen of the country. Building railroads and prospecting for and developing national resources, domestic industry, and commerce became more appealing than building ships or fostering international trade. Intercommunication in a vast new country was made easier by the coming of the railroad and the telegraph, so that it became more profitable for Americans to engage in manufacturing and concentrate on internal distribution. The ocean-carrying trade fell into other hands, particularly into those of Britain, and toward the end of the sixties, following the close of the Civil War, the once unequalled American overseas merchant marine had practically disappeared from the oceans of the world. Many of the old foreign trade merchants had entered other and more profitable lines of business and distribution, and the few who remained in the shipping industry seemed content to use foreign bottoms.

The California trade was of vital importance to American merchant sail from mid-nineteenth century to the end of the era of sail and, to some degree, to the building of the Panama Canal. Throughout the 1850's and in a very marked degree until transcontinental railroads and a rapidly developing net of western railroads connected with the Middle West, South, and East, American ships were called upon to carry the produce of the relatively highly developed eastern states to the newly opened and undeveloped West. For many years, it was an exclusively one-way traffic, but later San Francisco became a great grain shipping port, and the Pacific Northwest also exported large quantities of excellent lumber, timber, and spars for ships, canned fish, etc. As California, Oregon, and Washington, bordering the Pacific Ocean, were part of the United States, ships trading from East Coast U.S.A. ports to California or any western state Pacific port were engaged in coastwise (domestic) trade and, therefore, were protected from foreign competition in the same way that ships were protected when sailing between, say, New York and New Orleans. This fact encouraged the building of good, fast ships in the early fifties for use in the Cape Horn route to California and kept good American ships in the California trade for decades after general miscellaneous cargoes were moving west by railroad and it became profitable to operate ships around the Horn to California only with bulk cargoes, such as case oil, coal, etc.

It is often said that Americans made the mistake of continuing to build wooden sailing vessels after the era of steam and iron had arrived. This is only part or "a mere fringe" of the underlying core of the truth. In much of the thirties and decidedly in the forties and early fifties, the United States led the world in designing, building, sailing, and operating ships. Following 1838, when a steam packet (using steam—as well as sail—for the entire passage) first crossed the Atlantic Ocean, American sail held the supremacy over both

British sail and steam for several years, but no steamer could pay in the transatlantic service without government help. Britain furnished the needed help by subsidies to the British steam packet lines, and the United States followed suit for a while in the early fifties and then, because of the political pressure of the South and West, abandoned a policy of protection, encouragement, and help through subsidies and threw American shipping into the jaws of the British Lion. Americans built the best, largest, and fastest wood steamers of their day, but without subsidies American steamers could not compete in an economic sense with foreign steam vessels, which could make money through substantial government aid even if they obtained no revenue from freight, etc. The United States Government itself killed the American foreign steamship trade by permitting other nations to drive its wood paddle-wheel steamers from the ocean and in doing nothing to develop industries to build iron ships and encourage the building of screw steamers and multiple-expansion engines—both American inventions. Afterwards, the United States shipping interests were but naturally only indirectly interested in foreign shipping as iron supplanted wood and the screw propeller the paddle wheel in ocean-going steamships, for foreign flags (principally the British) had supplanted the Stars and Stripes on the deep-sea carriers of the world.

American wood sail successfully competed with the iron sail of Britain and of any other nation almost as long as sail was in demand and had a chance to compete with steam; but British underwriters (Lloyd's) and insurance companies favored iron and steel over wood and so handicapped American wood ships in the cost of operation, competitive with iron or steel sailing craft, that in 1893 the United States was compelled to discontinue building wood ships. From 1894 to the end of deep-sea sail, steel was used exclusively in America for the construction of deep-sea square-riggers in order to obtain the same insurance rates—decreed by the British—that were granted the ships with which they were compelled to compete in the trade routes of the world, but the days of sail were practically over before the first American steel ship was launched. Three full-rigged iron sailing ships of about 2,000 tons register had been built on the Delaware in 1883-1884, but they could not compete in the California trade or any branch of foreign trade with the Yankee-built wood Down Easters, and this attempt to substitute American iron for Maine-built wood ships was a pronounced failure. In 1893, Arthur Sewall & Company, of Bath, Maine, changed over its old established wood yard to a steel shipbuilding yard and, during the years 1894-1903 inclusive, launched five four-masted steel shipentines to operate under its own management, three for the Standard Oil Company (a total of eight four-masted square-riggers of from 3,000 to 3,400 tons register), a three-masted steel bark of 1,570 tons for San Francisco-Honolulu interests, and a five-masted schooner of 2,128 tons of coasting type, which the Sewalls foolishly tried to operate in deep-sea Cape Horn work. The original Sewall steel shipentine, the *Dirigo* of about 3,000 tons register, was thoroughly British, and the imported features of design, which, together with an economy bent, materially influenced the building of all the Sewall steel sailing ships, resulted in their being merely big carriers and, as deep-sea square-riggers and Cape Horners, decidedly inferior to the best of the wood Down Easters built at Bath, Maine, in and around 1884—or ten years before the first American steel sailing ship was launched.

A British historian has credited "three British modern iron or steel ships with accomplishing the arduous Cape Horn passage to San Francisco in under 100 days." These ships—from Wales and Devonshire, but with a passage probably starting when clear of the English, Welsh, and Irish coasts—are supposed to have made their fast runs in 1894, 1897, and 1899, respectively, benefiting by strong northeast winds on their runs down to the Atlantic equator and the bulge of the South American Brazilian coast. The correctness of the claims for any westward around-the-Horn passage to San Francisco "under 100 days" is decidedly questioned for any loaded ship that was British or of any other nationality from any United States or British port during the 1890's or in any year following the runs of the American wood ships *Young America* in 1872-1873 from Liverpool and *Glory of the Seas* in 1873-1874

from New York. As against the British claim for three fast passages through the years around the Horn to California (which would be wonderful for the ships, if true), there are recorded here a few westward Cape Horn passages of over 200 days of British iron and steel ships making such runs from North Atlantic ports during the period 1893-1909. These passages have been noted "at random" and are by no means a record of the slowest voyages made, nor is the list of bad passages a complete one, as the records of many possibly far worse runs would undoubtedly come to light if any thorough survey of sailing performances were made.

Name of British Ship	Year of Passage	Ports	Sea Passage in Days	Name of British Ship	Year of Passage	Ports	Sea Passage in Days
HADDON HALL	1909	Liverpool to Victoria, B. C.	243	LOUISIANA	1894	New York to San Francisco	212
FALLS OF HALLADALE	1904	Liverpool to San Francisco	239	HAHNEMANN	1896	River Tyne to San Francisco	212
NATUNA	1896	London to San Francisco	224	RELIANCE	1900	Deal to San Francisco	203
CLAVERDON	1902	Cuxhaven to San Francisco	218	LORD TEMPLE-MORE	1893	Liverpool to San Francisco	201

The British "4-masted barque" *Pinmore* made one eastward Cape Horn passage from San Francisco to Liverpool in the grain trade that required 245 days from the Golden Gate to the Mersey.

Some "big and powerful late-built windjammers" gave up in despair attempting "to double the Horn" and reached their destination by way of the Cape of Good Hope and Australia. The *Hawaiian Isles* (later named the *Abraham Rydberg*), built at Glasgow in 1892 and described as "a fine fast sailer of 2,345 tons," on her maiden voyage from Swansea to San Francisco, failed to round Cape Horn and after many futile attempts "turned tail" to the westerly gales and sailed to the eastward in the Roaring Forties, making her final destination by way of the Cape of Good Hope. In 1906 the British-built *Kenilworth* (2,293 tons), then owned and operated by Arthur Sewall & Company, of Bath, Maine, sailed from Philadelphia on August 14 and arrived at San Francisco March 15, 1908, after a heartbreaking voyage of 579 days from port of departure to final port of disembarking, or over one year and seven months. During this voyage, the *Kenilworth* was at sea 423 days, or a year and fifty-eight days. She attempted to make the passage by Cape Horn and, when rebuffed, sailed to try the South African route, which she also gave up in despair. Making for Bahia Blanca in Argentina, she had to have her command changed before she finally succeeded in rounding Cape Horn. The *Kenilworth* arrived at San Francisco in a battered condition and with a bad list. In 1913 the American-built steel shipentine *Edward Sewall* (3,206 tons) of the Sewall fleet sailed from Philadelphia on October 18 and arrived at Seattle, Wash., on August 6, 1914, after a passage of 293 days. The *Edward Sewall* took 67 days to round the Horn (from Lat. 50° S. on the Atlantic side to Lat. 50° S. on the Pacific side), a part of the passage that had been negotiated on at least forty different occasions in 10 days or better (record, 6 days) by American wood sailing ships of the clipper type.

An English marine writer during comparatively recent times has said, "A shipmaster has apparently, throughout the years, been quite satisfied if he could make the passage from the United Kingdom, or New York, around the Horn to San Francisco in 130 days." This statement is generally correct, and the 130 days mentioned is incidentally the length of a good passage westward estimated after an exhaustive study of prevailing—average or expected—wind and sea conditions by one of the greatest of authorities, Lieutenant Maury. In the speed-crazy early fifties, however, a 130-day passage was considered very slow and disheartening. The 108-day voyage of the *Challenge* in 1851 was openly classed as "most discouraging," and only 100-day runs or better were for years considered fast by some people, although it is significant that real, well-balanced marine authorities have at all times accepted 110-day passages as "fast and gratifying." From 1850 to 1860, 128 such passages were made by American wooden sailing ships, and 26 of these voyages were made in 100 days or better.

*Record of Fast Outward Passages of Clipper Ships in 110 Days
or Better in the California Cape Horn Trade during
the Years 1850-1860 Inclusive*

The records of the performances of sailing ships are at times confusing and somewhat indefinite, for some passages are stated as from date of clearance from port of departure to date of entry at the destination port; other passages are figured as from "port to port" or the time from pilot to pilot or from anchor to anchor; other passages may be computed as from light to land, bar, or pilot ground, etc. At times, when a call was made at a port during the announced passage, the time was deducted from the total reported length of passage to cover the time spent at such intermediate port, and the days of the ship under sail constituted the length of the passage between the original ports of departure and destination; but some masters, in an effort to make a good showing, estimated the length of time that the ship was under sail "on the course" between the two ports, and the time taken by the ship in making a diversion from the original voyage track and getting back to it was deducted from the gross time from port of departure to port of final destination.

Considering a passage westbound around Cape Horn from an East Coast United States port to San Francisco of 110 days or less as a fast run, the following relatively speedy passages made with departures from the East during each of the years 1850-1860 are recorded. All were clipper ship runs with the exception of the amazingly fast passage reported in the winter of 1850-1851 by the small brig *Sussex* and the pilot boat *Fanny*, each of which vessels experienced unusually favorable weather throughout the course and especially so in the rounding of the South American continent under mid-summer conditions of the Southern Hemisphere. Incidentally, it has been claimed that on or about March 18, 1850, the small brig *Eagle* of Gloucester reached San Francisco after leaving Boston during the end of November 1849 and claimed a passage of 106 days, which, if correct (but it is decidedly questioned as are some of the figures reported for the *Sussex* and *Fanny*), would give the *Eagle* the honor of being the first vessel to make the run from an East Coast U.S.A. port to California in better than 110 days. (Several westward passages from an Atlantic port to California were made by small sailing vessels—also by steamers—via the Strait of Magellan and were not "around the Horn.")

Name of Ship	Ton- nage	Built	Departure		Arrival at San Francisco	Length of Passage in Days
			Port	Date		
1850						
SURPRISE	1,261	1850	New York	Dec. 13	Mar. 19, 1851	96 days 15 hours
SEA WITCH	908	1846	New York	Apr. 14	July 24, 1850	Via Valparaiso; 97 sailing days
CELESTIAL	860	1850	New York	July 17	Oct. 31, 1850	106 days elapsed; reported 105 days
SEAMAN	546	1850	New York	Nov. 23	Mar. 10, 1851	107 days
SUSSEX	Small brig		Boston	Dec. 19	Apr. 5, 1851	107 days; reported 106 days
FANNY	84	Pilot boat	Boston	Nov. 1	Feb. 18, 1851	108 days; reported 106 days
SAMUEL RUSSELL	957	1847	New York	Jan. 15	May 6, 1850	109 days to pilot; 111 days, clearance to entry
RACE HORSE (bark)	530	1850	Boston	Aug. 4	Nov. 24, 1850	109 days reported; 94 days, land to land; 112 days, clearance to entry

(Continued on next page)

Name of Ship	Ton- nage	Built	Departure		Arrival at San Francisco	Length of Passage in Days
			Port	Date		
1851						
FLYING CLOUD	1,782	1851	New York	June 2	Aug. 31, 1851	90 days; reported as 89 days 21½ hours
SWORDFISH	1,036	1851	New York	Nov. 11	Feb. 10, 1852	90 days 16 hours
FLYING FISH	1,505	1851	Boston	Nov. 6	Feb. 15, 1852	101 days elapsed; 100 days 6 hours to anchor off Bar
COMET	1,836	1851	New York	Oct. 1	Jan. 13, 1852	104 days elapsed; reported 103 days
JOHN BERTRAM	1,080	1850	Boston	Dec. 12	Mar. 26, 1852	105 days
RAVEN	711	1851	Boston	Aug. 5	Nov. 19, 1851	106 days
CHALLENGE	2,006	1851	New York	July 15	Oct. 29, 1851	106 days from anchor off Sandy Hook to port
WILD PIGEON	996	1851	New York	Oct. 13	Jan. 28, 1852	107 days
N. B. PALMER	1,399	1851	New York	May 6	Aug. 21, 1851	107 days elapsed; reported 106 days
CELESTIAL	860	1850	New York	Nov. 1	Feb. 17, 1852	108 days elapsed; reported 106 days
TYPHOON	1,611	1851	New York	Aug. 2	Nov. 18, 1851	108 days
WITCHCRAFT	1,310	1850	New York	Apr. 4	Aug. 11, 1851	Via Rio de Janeiro 21 days; 108 days net; reported 107 days
HURRICANE	1,608	1851	New York	Dec. 17	Apr. 15, 1852	At Rio de Janeiro 12 days; gross time 120 days; 108 days net
STAG HOUND	1,534	1850	New York	Feb. 1	May 25, 1852	Via Valparaiso 5 days; reported 108 days net
NORTHERN LIGHT	1,021	1851	Boston	Nov. 20	Mar. 8, 1852	109 days
SEA WITCH	908	1846	New York	Aug. 1	Nov. 20, 1851	110 days reported; elapsed 111 days
1852						
FLYING FISH	1,505	1851	New York	Oct. 31	Jan. 31, 1853	92 days 4 hours, anchor to anchor
JOHN GILPIN	1,089	1852	New York	Oct. 29	Feb. 1, 1853	93 days 20 hours, port to pilot; 95 days elapsed time
CONTEST	1,098	1852	New York	Nov. 16	Feb. 24, 1853	100 days; claim of 97-day pas- sage not substantiated
STAFFORDSHIRE	1,817	1851	Boston	May 3	Aug. 13, 1852	102 days
TRADE WIND	2,030	1851	New York	Nov. 13	Feb. 24, 1853	103 days elapsed; reported as 102 days
SOVEREIGN OF THE SEAS	2,421	1852	New York	Aug. 4	Nov. 15, 1852	103 days
FLYING DUTCHMAN	1,257	1852	New York	Oct. 15	Jan. 27, 1853	104 days
GOLDEN GATE	1,349	1851	New York	Dec. 6	Mar. 20, 1853	104 days
SHOOTING STAR	903	1851	Boston	May 3	Aug. 17, 1852	106 days elapsed; reported as 105 days
WESTWARD HO	1,650	1852	Boston	Oct. 16	Jan. 31, 1853	107 days elapsed; reported as 103 days, pilot to pilot
BALD EAGLE	1,705	1852	New York	Dec. 26	Apr. 11, 1853	107 days 10 hours
WINGED RACER	1,767	1852	New York	Dec. 12	Mar. 30, 1853	108 days
MERMAID (bark)	533	1851	New York	July 1	Oct. 18, 1852	Via Pernambuco 1 day; 108 sailing days
SEA WITCH	908	1846	New York	Aug. 22	Dec. 9, 1852	108 days; elapsed time 109 days
ECLIPSE	1,225	1850	New York	Jan. 3	Apr. 22, 1852	Via Valparaiso 1 day; reported as 108 days net
COURSER	1,024	1851	Boston	Jan. 10	Apr. 28, 1852	109 days elapsed; reported as 108 days
STORM (bark)	545	1852	New York	Dec. 21	Apr. 10, 1853	110 days
WHITE SQUALL	1,119	1850	New York	Apr. 10	July 29, 1852	110 days reported; elapsed time 111 days

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MERCHANT SAIL

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Name of Ship	Ton- nage	Built	Departure		Arrival at San Francisco	Length of Passage in Days
			Port	Date		
1853						
ROMANCE OF THE SEAS	1,782	1853	Boston	Dec. 16	Mar. 23, 1854	96 days 18 hours
DAVID BROWN	1,717	1853	New York	Dec. 13	Mar. 23, 1854	99 days 20 hours
ORIENTAL	1,003	1849	New York	Jan. 27	May 7, 1853	100 days
SPITFIRE	1,549	1853	Boston	Oct. 24	Feb. 20, 1854	At Rio de Janeiro 19 days; 119 days elapsed; net sailing days 100
PHANTOM	1,174	1852	Boston	Jan. 6	Apr. 20, 1853	104 days
EAGLE	1,296	1851	New York	Nov. 4	Feb. 16, 1854	104 days
POLYNESIA	1,084	1852	New York	Dec. 26	Apr. 10, 1854	104 days reported; elapsed time 105 days
WESTWARD HO	1,650	1852	New York	Nov. 14	Feb. 27, 1854	105 days
EAGLE WING	1,174	1853	Boston	Dec. 20	Apr. 5, 1854	105 days; elapsed time 106 days
FLYING DUTCHMAN	1,257	1852	New York	June 23	Oct. 7, 1853	106 days elapsed; 105 days to anchor off Bar; 104 days to pilot
HORNET	1,426	1851	New York	Apr. 28	Aug. 12, 1853	106 days Sandy Hook to port; 105 days to Bar
FLYING CLOUD	1,782	1851	New York	Apr. 28	Aug. 12, 1853	106 days Sandy Hook to port
SAN FRANCISCO	1,307	1853	New York	Oct. 25	Feb. 8, 1854	106 days (wrecked entering port); 105 days, pilot to pilot
SWORDFISH	1,036	1851	New York	Feb. 12	May 30, 1853	107 days
SAMUEL RUSSELL	957	1847	New York	Oct. 5	Jan. 20, 1854	107 days
PAMPERO	1,375	1853	New York	Oct. 9	Jan. 25, 1854	108 days elapsed; reported as 105 days
GOLDEN CITY	810	1852	New York	Oct. 23	Feb. 8, 1854	108 days
SEA SERPENT	1,337	1850	New York	Feb. 12	June 1, 1854	109 days
CONTEST	1,098	1852	New York	July 6	Oct. 24, 1853	110 days elapsed; reported as 108 days from Sandy Hook
TORNADO	1,802	1852	New York	Jan. 11	May 1, 1853	111 days elapsed; 109 days to Bar
MATCHLESS	1,053	1853	Boston	Oct. 21	Feb. 8, 1854	110 days elapsed; reported as 109 days
WITCHCRAFT	1,310	1850	New York	Mar. 19	July 7, 1853	110 days
RINGLEADER	1,154	1853	Boston	Oct. 21	Feb. 8, 1854	110 days
YOUNG AMERICA	1,961	1853	New York	June 10	Sept. 29, 1853	110 days reported; 111 days elapsed
INVINCIBLE	1,769	1851	New York	May 21	Sept. 9, 1853	110 days, pilot to pilot; 111 days elapsed
1854						
FLYING CLOUD	1,782	1851	New York	Jan. 19	Apr. 20, 1854	Reported 89 days 8 hours; elapsed 91 days
WITCHCRAFT	1,310	1850	New York	May 9	Aug. 15, 1854	98 days
HURRICANE	1,608	1851	New York	May 26	Sept. 4, 1854	99 days 16 hours
BOSTON LIGHT	1,154	1854	Boston	Dec. 30	Apr. 11, 1855	102 days
GOVERNOR MORTON	1,429	1851	New York	Dec. 17	Apr. 2, 1855	104 days reported; 106 days elapsed
ANCHOR	1,095	1852	New York	Jan. 12	Apr. 28, 1854	106 days
HERALD OF THE MORNING	1,294	1853	Boston	Jan. 21	May 7, 1854	106 days
DON QUIXOTE	1,429	1853	Boston	Dec. 12	Mar. 29, 1855	107 days
FLYING FISH	1,505	1851	Boston	Sept. 22	Jan. 10, 1855	109 days
FLYAWAY	1,274	1853	New York	Nov. 13	Mar. 2, 1855	109 days
TELEGRAPH	1,078	1851	Boston	Dec. 21	Apr. 9, 1855	109 days
SWORDFISH	1,036	1851	New York	Apr. 3	July 23, 1854	110 days
STAG HOUND	1,534	1850	New York	Apr. 26	Aug. 14, 1854	110 days
YOUNG AMERICA	1,961	1853	New York	July 2	Oct. 20, 1854	110 days
CLEOPATRA	1,562	1853	New York	Nov. 15	Mar. 4, 1855	110 days

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Name of Ship	Ton-nage	Built	Departure		Arrival at San Francisco	Length of Passage in Days
			Port	Date		
1855						
ANTELOPE	1,186	1852	New York	Dec. 8	Mar. 15, 1856	Reported 97 days 7 hours; elapsed 98 days
HERALD OF THE MORNING	1,294	1853	New York	Feb. 5	May 16, 1855	99 days 12 hours, pilot to pilot; 100 days 6 hours, anchor to anchor
WESTWARD HO	1,650	1852	Boston	Jan. 13	Apr. 24, 1855	100 days 18 hours
NEPTUNE'S CAR	1,616	1853	New York	Jan. 14	Apr. 25, 1855	Reported 100 days 23½ hours (101 days 2 hours to pilot)
FLYING FISH	1,505	1851	Boston	Sept. 13	Dec. 27, 1855	105 days
GOLDEN EAGLE	1,121	1852	New York	May 10	Aug. 24, 1855	106 days
ELECTRIC SPARK	1,216	1855	Boston	Dec. 24	Apr. 9, 1856	Reported 106 days; elapsed 107 days
FLYAWAY	1,274	1853	New York	Dec. 22	Apr. 8, 1856	Reported 106 days; elapsed 108 days
RINGLEADER	1,154	1853	Boston	Oct. 28	Feb. 12, 1856	107 days
REPORTER	1,474	1853	New York	Dec. 10	Mar. 27, 1856	107 days; 108 days elapsed
RED ROVER	1,021	1852	New York	Feb. 25	June 13, 1855	108 days
FLYING CLOUD	1,782	1851	New York	Feb. 15	June 6, 1855	111 days from clearance; probably 109 days; claimed 108 days
METEOR	1,068	1852	Boston	May 12	Aug. 30, 1855	110 days
TORNADO	1,802	1852	New York	Dec. 7	Mar. 27, 1856	Reported 110 days; elapsed 111 days
1856						
GREAT REPUBLIC	3,356	1853-1854	New York	Dec. 5	Mar. 9, 1857	92 days reported from pilot; 94 days elapsed
SWEEPSTAKES	1,735	1853	New York	Feb. 20	May 25, 1856	95 days, anchor to anchor; 94 days 19 hours, pilot to pilot
FLYING DRAGON	1,127	1853	New York	Nov. 27	Mar. 5, 1857	97 days 9 hours; 98 days elapsed
WESTWARD HO	1,650	1852	New York	Dec. 16	Mar. 26, 1857	100 days
MORNING STAR	1,105	1853	Boston	Dec. 4	Mar. 16, 1857	102 days
PHANTOM	1,174	1852	New York	Jan. 18	Apr. 29, 1856	102 days 9 hours
DAVID BROWN	1,717	1853	New York	Jan. 16	Apr. 28, 1856	103 days
ANDREW JACKSON	1,679	1855	New York	Nov. 15	Feb. 28, 1857	105 days elapsed; 102 days reported
FLYING FISH	1,505	1851	Boston	Oct. 4	Jan. 19, 1857	106 days reported; 107 days elapsed
YOUNG AMERICA	1,961	1853	New York	Mar. 28	July 14, 1856	108 days elapsed; 107 days reported
DON QUIXOTE	1,429	1853	Boston	Feb. 10	May 31, 1856	109 days reported; 110 days elapsed
NORTH WIND	1,041	1853	New York	Apr. 10	July 30, 1856	110 days reported; 111 days elapsed
MARY L. SUTTON	1,448	1856	New York	Apr. 5	July 26, 1856	110 days reported; 112 days elapsed
1857						
FLYING DUTCHMAN	1,257	1852	New York	May 31	Sept. 10, 1857	102 days
JOHN LAND	1,054	1853	Boston	Apr. 16	July 30, 1857	105 days
OCEAN TELEGRAPH	1,495	1854	New York	Nov. 26	Mar. 13, 1858	Reported 105 days 20 hours; 107 days elapsed
STAG HOUND	1,534	1850	Boston	Jan. 4	Apr. 22, 1857	108 days
DON QUIXOTE	1,429	1853	New York	Nov. 15	Mar. 4, 1858	109 days; reported 108 days 12 hours
VIKING	1,350	1853	New York	Dec. 10	Mar. 30, 1858	110 days elapsed; 108 days reported

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MERCHANT SAIL

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Name of Ship	Ton- nage	Built	Departure		Arrival at San Francisco	Length of Passage in Days
			Port	Date		
1858						
TWILIGHT	1,482	1857	New York	Jan. 5	Apr. 16, 1858	100 days 20 hours, pilot to Golden Gate
ANDREW JACKSON	1,679	1855	New York	Jan. 17	Apr. 27, 1858	99 days 18 hours; 101 days elapsed
ANDREW JACKSON	1,679	1855	New York	Dec. 23	Apr. 5, 1859	103 days
DASHING WAVE	1,180	1853	Boston	Jan. 1	Apr. 18, 1858	107 days
JOHN LAND	1,054	1853	Boston	Apr. 6	July 24, 1858	108 days reported; 109 days elapsed
ORACLE	1,196	1853	New York	Mar. 14	July 1, 1858	109 days
1859						
ANDREW JACKSON	1,679	1855	New York	Dec. 25	Mar. 24, 1860	89 days 4 hours—the record; 90 days elapsed
SIERRA NEVADA	1,942	1854	Boston	Dec. 24	Mar. 31, 1860	97 days reported; 98 days elapsed
SWEEPSTAKES	1,735	1853	New York	Jan. 23	May 8, 1859	105 days reported; 106 days elapsed
ROBIN HOOD	1,181	1854	New York	Dec. 8	Mar. 25, 1860	107 days reported; 108 days elapsed
LOOKOUT	1,291	1853	New York	Nov. 3	Feb. 20, 1860	108 days reported; 109 days elapsed
ARCHER	1,095	1852	New York	Nov. 29	Mar. 17, 1860	109 days; reported 108 days
OCEAN TELEGRAPH	1,495	1854	New York	Nov. 24	Mar. 12, 1860	109 days
GREAT REPUBLIC	3,356	1853- 1854	New York	Nov. 23	Mar. 12, 1860	110 days
1860						
MARY L. SUTTON	1,448	1856	New York	Jan. 28	May 12, 1860	103 days reported; 105 days elapsed
GREAT REPUBLIC	3,356	1853- 1854	New York	Oct. 24	Feb. 6, 1861	105 days
MORNING STAR	1,105	1853	Boston	Jan. 7	Apr. 22, 1860	106 days elapsed; 105 days reported
ROMANCE OF THE SEAS	1,782	1853	Boston	Dec. 28	Apr. 13, 1861	106 days elapsed; 105 days reported
HERALD OF THE MORNING	1,294	1853	Boston	Feb. 7	May 25, 1860	107 days
SPITFIRE	1,549	1853	Boston	Dec. 21	Apr. 8, 1861	108 days elapsed; 107 days reported
BLACK HAWK (II)	1,109	1857	New York	Dec. 21	Apr. 8, 1861	108 days elapsed; 107 days reported
MARY L. SUTTON	1,448	1856	New York	Nov. 22	Mar. 11, 1861	109 days elapsed; 106 days reported
WHITE SWALLOW	1,192	1853	Boston	Apr. 18	Aug. 7, 1860	110 days reported; 108 days to pilot; 111 days elapsed
GOLDEN EAGLE	1,121	1852	New York	Dec. 7	Mar. 28, 1861	110 days reported; 111 days elapsed

Year Voyages Commenced	Total Number of Completed Voyages Considered	Number of Voyages						Percentage of Passages of 110 Days or Less to Total Passages
		90 Days and Less	91 to 95 Days Incl.	96 to 100 Days Incl.	101 to 105 Days Incl.	106 to 110 Days Incl.	110 Days and Less	
1850	24	—	—	2	1	5	8	33.3
1851	45	2	—	1	2	11	16	35.5
1852	116	—	2	1	7	8	18	15.5
1853	147	—	—	4	7	14	25	17.0
1854	109	1	—	2	2	9	14	12.8
1855	120	—	—	4	1	9	14	11.7
1856	98	—	2	2	4	5	13	13.3
1857	67	—	—	—	3	3	6	9.0
1858	97	—	—	1	2	3	6	6.2
1859	82	1	—	1	1	5	8	9.7
1860	66	—	—	—	4	6	10	15.1
Total 1850-1860	971	4	4	18	34	77	138	14.2

The following is a list of the thirty-one fast clippers that made two or more westward Cape Horn passages to California of 110 days or better when sailing from an East Coast U.S.A. port during the years 1850-1860 inclusive. The fastest single passage and the average of the best two, three, four, or five fast passages are stated (if the ship made so many), but only runs of 110 days or better are considered in this analysis and comparison. All these passages deal with the net sailing time between ports and deduct the time of detention at an intermediate port en route, whether the stops were dictated by the needs of commerce or by the necessity of repairs, of obtaining supplies or water, etc. For purposes of comparison of the actual average sailing achievements of the various fast clippers between the ports of departure and of destination, a record of each ship has been added giving the total number of westbound Cape Horn California passages made with departure from an East Coast port during the years 1850-1860 inclusive and the average length of passage, port to port, of these runs, no deductions being made for time that may have been spent in port en route for repairs or because of any defect or shortcoming of the ship or her operators.

Name of Clipper and Tonnage	Date Launched	Fastest Passage in Days	Average of Best Passages— Net Sailing Days (110 Days or Less)				All Passages with Depart- ure 1850-1860 Inclusive	
			2	3	4	5	No.	Average, Port to Port, in Days
FLYING CLOUD (1,782 tons)	Apr. 1851	89	89½	95	99	—	6	115½
ANDREW JACKSON (1,679 tons)	Mar. 1855	89	94½	97	98½	—	5	105
FLYING FISH (1,505 tons)	Sept. 1851	92	96	99	101	104	7	105½
SWORDFISH (1,036 tons)	Sept. 1851	90	98½	102½	—	—	4	107
GREAT REPUBLIC (3,356 tons)	1853-1854	92	98½	102	—	—	4	107
SWEEPSTAKES (1,735 tons)	June 1853	95	100	—	—	—	4	111
WESTWARD HO (1,650 tons)	Sept. 1852	100	100½	101	102	—	4	103
ROMANCE OF THE SEAS (1,782 tons)	Oct. 1853	97	101	—	—	—	3	105
DAVID BROWN (1,717 tons)	Oct. 1853	100	101½	—	—	—	3	108
SEA WITCH (908 tons)	Dec. 1846	97	102½	105	—	—	3	105
WITCHCRAFT (1,310 tons)	Dec. 1850	98	102½	105	—	—	6	126½
FLYING DUTCHMAN (1,257 tons)	Sept. 1852	102	103	104	—	—	4	109
HERALD OF THE MORNING (1,294 tons)	Dec. 1853	99	102½	104	—	—	5	112
PHANTOM (1,174 tons)	Dec. 1852	102	103	—	—	—	4	113
SPITFIRE (1,549 tons)	Sept. 1853	100	103½	—	—	—	3	115
MORNING STAR (1,105 tons)	Oct. 1853	102	103½	—	—	—	6	123
CONTEST (1,098 tons)	Oct. 1852	100	104	—	—	—	3	111½
HURRICANE (1,608 tons)	Oct. 1851	100	104	—	—	—	4	121
MARY L. SUTTON (1,448 tons)	Feb. 1856	103	104½	—	—	—	5	116½
CELESTIAL (860 tons)	June 1850	105	105½	—	—	—	4	115

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Name of Clipper and Tonnage	Date Launched	Fastest Passage in Days	Average of Best Passages— Net Sailing Days (110 Days or Less)				All Passages with Departure 1850-1860 Inclusive	
			2	3	4	5	No.	Average, Port to Port, in Days
JOHN LAND (1,054 tons)	Mar. 1853	105	106½	—	—	—	5	184
SAMUEL RUSSELL (957 tons)	Aug. 1847	106	107½	—	—	—	4	112
FLYAWAY (1,274 tons)	May 1853	106	107½	—	—	—	3	115
ARCHER (1,095 tons)	Dec. 1852	106	107½	—	—	—	5	126
OCEAN TELEGRAPH (1,495 tons)	Mar. 1854	106	107½	—	—	—	7	123
STAG HOUND (1,534 tons)	Dec. 1850	108	108	109	—	—	6	117
DON QUIXOTE (1,429 tons)	Sept. 1853	107	108	108½	—	—	5	118
GOLDEN EAGLE (1,121 tons)	Nov. 1852	106	108	—	—	—	7	139½
RINGLEADER (1,154 tons)	Aug. 1853	107	108½	—	—	—	5	114
YOUNG AMERICA (1,961 tons)	Apr. 1853	107	108½	109	—	—	4	125
TORNADO (1,802 tons)	Jan. 1852	109	109½	—	—	—	4	122

The clipper ships that made four or more passages and showed fast runs of 110 days or better in fifty per cent or more of their total westward Cape Horn California passages originating at an East Coast U.S.A. port during the years 1850-1860 inclusive are as follows:

Name of Clipper	Passages		Per-centage under 110 Days	Name of Clipper	Passages		Per-centage under 110 Days	Name of Clipper	Passages		Per-centage under 110 Days
	Total	110 Days or Less			Total	110 Days or Less			Total	110 Days or Less	
WESTWARD HO	4	4	100	FLYING FISH	7	5	71	STAG HOUND	6	3	50
SEA WITCH	3	3	100	FLYING CLOUD	6	4	67	WITCH-CRAFT	6	3	50
ANDREW JACKSON	5	4	80	ROMANCE OF THE SEAS	3	2	67	SAMUEL RUSSELL	4	2	50
ANDREW JACKSON (after re-rigged)	4	4	100	DAVID BROWN	3	2	67	CELESTIAL	4	2	50
SWORDFISH	4	3	75	CONTEST	3	2	67	HURRICANE	4	2	50
GREAT REPUBLIC	4	3	75	FLYAWAY	3	2	67	SWEEP-STAKES	4	2	50
FLYING DUTCHMAN	4	3	75	HERALD OF THE MORNING	5	3	60	PHANTOM	4	2	50
YOUNG AMERICA	4	3	75	DON QUIXOTE	5	3	60	TORNADO	4	2	50

It is significant that the *Westward Ho* and *Andrew Jackson*, the two most uniform and reliable fast sailers completing four or more fast passages in the westward around-the-Horn to California trade and the two ships that, while undoubtedly well driven to make time, nevertheless, were never dismasted at sea and never had to make a port en route for repairs, do not qualify (as far as published claims are concerned) as record-makers or very fast spurt sailers during a short period between points or over certain sections of the course. Aside from the

Sea Witch, with a fine record for three Cape Horn passages, the only clipper ship to challenge the fine performances of the *Andrew Jackson* and *Westward Ho* was the *Flying Fish*, which, although only five of her seven westward Cape Horn passages were made in 110 days or better, never made a passage that was longer than 114 days and, in seven successive years, made seven voyages and reached San Francisco on all her passages west without being dismantled or having to make a port en route for repairs. The *Romance of the Seas* (1,782 tons; built by McKay in 1853 for George B. Upton, of Boston), with an admirable average record of 105 days for four completed westbound passages (best run, 97 days), also—like the *Andrew Jackson* and *Westward Ho*—does not appear as a claimant for speed honors over any of the sections, or laps, of the course.

It is evident that the fastest spurt or single-passage ships were not always the most reliable average sailers. The *Flying Cloud* beat the field for the average of two fast passages, but her average length of the six passages that she made was not brilliant because in 1856 she required 185 days to run from port to port (although of this time, only 141 days were spent at sea, and the command claimed that only 113 days were spent on the course). Even the reliable *Young America* had one of these long passages, for in 1859 she was 174 days because Captain Brown put into Rio de Janeiro with his main-topmast and mizzen-topgallantmast gone, and repairs, due to the dilatoriness of the Brazilians, occupied two months. If Captain Brown had known what was going to happen at Rio, he could, with improvised spars, have reached San Francisco and saved some 45 or 50 days. The average sailing record of the *Witchcraft* was handicapped by a 170-day passage due to being partially dismantled and going into Valparaiso for repairs. The *Golden Eagle* made a fast westbound passage to San Francisco of 106 days, another good run of 111 days, and fair runs of 124 and 128 days. However, of her seven Cape Horn passages to California, her first required 157 days and her sixth 215 days; so whereas this clipper averaged 108½ days for two of her westbound passages, her average for seven such runs was increased to 139½ days. The *John Land*, out of five voyages, made two very fast westbound passages of the Horn; one was fair, requiring 126 days, but the other two, because of major mishaps, caused the ship to be 311 and 270 days, respectively, to reach her destination (San Francisco).

The *Andrew Jackson*, having an average of 105 days for all her five westward Cape Horn passages with departures during the years 1850-1860 inclusive, has in reality a better record than these figures suggest. In the first place, she was not an extreme clipper—as were the speedsters built in 1851-1853 inclusive—but a fuller-bodied and better cargo-carrying "medium" clipper and was not launched until 1855 (or four years after the *Flying Cloud*). When first sent to sea, her spar plan was faulty, and following the completion of the maiden voyage, her masts were taken out, resteped in new positions, and the ship's entire spar and sail plans revamped, which made her an entirely different sailer. The newly rigged *Andrew Jackson* then proceeded to make four westward Cape Horn passages during the years 1856-1860 and averaged only 98½ days for these consecutive runs, which is a record; one of these passages is the all-time record over the course. Continuing into the sixties, the average length of all the seven Cape Horn runs that she made during her lifetime (including the first with a defective spar plan and the last ones with reduced spars, sails, and crews) was 106 days, and her last six of these runs gave an average length of passage of only 102½ days. Only the average of 105½ days for the seven passages made by the extreme clipper *Flying Fish* and the four made by the *Westward Ho*, which averaged 103 days, are comparable as high-class consistent sailing performances.

The *Archer* has a peculiar record. She was a clipper built for speed in 1852, and on her second voyage to California (in 1854) she made a fine passage out in 106 days. On her maiden voyage, she required 146 days and on her third voyage 144 days to make the runs out to California, the average of her first three passages from New York to San Francisco being 132 days—which is not clipper ship time. Her next passage in 1858 occupied 126 days, mak-

ing an average of her first four westward Cape Horn runs of 130½ days, and her last run during the 1850-1860 period was a good passage of 109 days (November 29, 1859-March 17, 1860), reported as 108 days. This made an average of 126 days for the length of her five westward runs to California originating at an East Coast port prior to the end of 1860, which is mediocre, although two of her five passages were made in fast time. The *Archer*, however, was a vessel of relatively long life (she foundered in the North Atlantic when slightly over twenty-seven years old), and during the years 1853-1872, she made eleven passages, all told, from New York or Boston to San Francisco, which apparently averaged about 119 days. If her two early long passages of 146 and 144 days are omitted, the average of the other nine runs becomes 113 days, which is a surprisingly good sailing performance. The best passages claimed for the *Archer* were two runs of 106 days, one of 108 days, and one of 112 days; her worst lifetime sailing performances registered over the course were on her first and third voyages in 1853 and 1856, respectively.

Some historians credit the clipper ship *Reporter* of 1,474 tons (launched in September 1853) with two fast westward Cape Horn runs of 107 days and 110 days in 1855 and 1856, respectively, and with a "wonderfully fast run of 103 days in 1861." This ship does not qualify, however, as having made two passages to California in 110 days or better, with a departure from an East Coast port during the years 1850-1860 inclusive. Her maiden passage over the course was a fast run of 107 days as reported (108 days elapsed) in 1855, but her second passage to California the following year occupied 113 days (some records show 114 days). The ship made two other westward Cape Horn runs leaving an East Coast U.S.A. port prior to the end of 1860, which occupied 134 days elapsed and 132 days reported in 1858 and 118 days elapsed and 116 days reported in 1859. The average length of her four runs to California in the 1850's appears to have been 117½ days. Captain Howes reported reaching San Francisco on her last California voyage on May 5, 1861, and with making the run out, pilot to pilot, in 103 days (elapsed time, port to port, evidently 105 days). The departure from New York on January 22, 1861, does not come within the period of 1850-1860 and cannot be considered in this comparison, but this run of 103 days as claimed, added to the ship's earlier passages, would make a lifetime performance for the *Reporter* of five westward California runs averaging 114½ days—which is a good record. The *Reporter*, on her next attempted passage to San Francisco, left New York June 3, 1862, and foundered off Cape Horn August 17, with a loss of thirty-two lives (out of a total of thirty-six aboard). The *Andrew Jackson* made a passage from New York to San Francisco of 103 days in 1861, and the runs of the *Andrew Jackson* and *Reporter* were the fastest passages over the Cape Horn course to California in that year.

The clipper *Meteor* is another ship that some historians have credited with two westbound California runs, each in 110 days or better, but this 1,068-ton clipper (launched in October 1852) never made a passage of 108 days, as has been stated, nor two passages averaging either 109 or 110 days. The *Meteor* made a run of 110 days in 1855, but her other four lifetime passages were made in 113, 123, 117, and 135 days, respectively, an average of 119½ days for her five California westbound runs. This ship's last arrival at San Francisco was on October 12, 1860; she then went east to England and, after making voyages under charter to India and China, was sold to the British because of conditions brought about by the Civil War.

The *Red Rover* has been credited at times with two westbound California passages of 110 days; but in 1855 this clipper made a 108-day reported run, and her next fastest passage was a 112-day run made later the same year, the departures being from New York on February 24 and December 17, respectively. The clipper's two passages to San Francisco originating at New York in 1855 averaged 110 days, but the *Red Rover* did not make two 110-day westward runs. This ship averaged 117 days for her five runs out to California, and on her maiden voyage she put into Juan Fernandez for a couple of days, presumably for water.

The Average Speed in Knots per Hour of Clippers on the Westward Cape Horn Run to California during the Years 1850-1860 Inclusive, with the Actual Mileage Logged and Average Speed of Several Individual Clipper Passages to San Francisco

The following table shows the average speed of clipper ships sailing westward in the Cape Horn California trade, between an East Coast U.S.A. port (generally New York or Boston) and San Francisco, with departures during each of the years 1850-1860 inclusive:

Year	Number of Voyages Recorded	Average Length of Passages in Days	Approximate Average Speed in Knots per Hour	Average Length of Six Fastest Passages in Days	Approximate Average Speed in Knots per Hour of These Six Fastest Passages	Average Length of Six Slowest Passages in Days	Approximate Average Speed in Knots per Hour of These Six Slowest Passages
1850	24	126	5.1	103	6.2	149	4.3
1851	45	130	4.9	99	6.4	156	4.1
1852	116	128	5.0	99	6.4	164	3.9
1853	147	131	4.9	101	6.3	183	3.5
1854	109	128	5.0	100	6.4	195	3.3
1855	120	133	4.8	102	6.3	171	3.7
1856	98	133	4.8	98	6.5	185	3.5
1857	67	134	4.7	106	6.0	166	3.9
1858	97	138	4.6	105	6.1	179	3.6
1859	82	140	4.5	103	6.2	203	3.1
1860	66	130	4.9	105	6.1	157	4.1
Total and averages	971	132	4.8	102	6.3	173	3.7

The approximate average speed in knots per hour has been obtained by considering the average distance per passage as 15,300 nautical miles, which is the average mileage estimated by Lieutenant Maury ("the Pathfinder of the Seas"). The average speed of sailing ships is not a definite comparable index of a canvas-propelled vessel to cover the fixed minimum geographical mileage between two ports as is that of a steamship or power-propelled vessel. However, Maury estimated that an average good sailing ship, properly navigated and experiencing year-round average conditions of sea, wind, and weather over the course which he defined and which was generally followed, would cover 15,300 nautical miles on the passage west. This distance is from two thousand to twenty-five hundred miles longer than a steamer passage, depending on the calls made for fueling during the passage and the use of the Strait of Magellan. (The early steamer *Mineola* logged 13,712 miles on her first voyage from New York to San Francisco and made the run in 62 days at sea exclusive of stops; the pioneer steamer *California*, making the passage in the winter of 1848-1849, required 144 $\frac{3}{4}$ days from New York to San Francisco, of which a scant 76 days were spent "under steam at sea.") The stated average speed of the clipper ships in the westbound Cape Horn run between New York (or Boston) and San Francisco, which figures as 4.83 knots per hour, would be further reduced to 4.16 knots per hour if a steamer mileage of, say, 13,250 nautical miles is considered as the distance between the ports.

The mileage of a great majority of the clippers in the Cape Horn California run during the clipper ship era was between 15,000 and 16,000 miles. The smallest reported mileage was that of the *Andrew Jackson*, which, on her all-time record passage of 89 days 4 hours (December 25, 1859-March 24, 1860), showed only 13,700 miles, or close to a steamer course,

and only about 154 miles per day. The *Romance of the Seas* and the *David Brown*, in their historic race in the winter of 1853-1854, each made "a two-figure passage" (under 100 days); but the "*Romance*" logged 15,154 miles (156 miles per day), whereas the "*Brown*" reported 16,167 miles (or 162 miles per day) and lost the race. The *Flying Cloud*, on her fastest passage (reported as 89 days 8 hours), covered 15,091 miles (169 miles per day). This same clipper, on her 1851 passage of 89 days 21½ hours, reported a run of 15,274 miles (about 170 miles a day and an average speed of 7.1 knots per hour). The half clipper *Glory of the Seas*, in the winter of 1873-1874, made a fast run out to San Francisco, pilot to pilot, of 96 days, but was at the Bar when 95 days out; her mileage of 15,344 miles is equivalent to 161½ miles per day and an average speed of 6¾ knots per hour. The *Golden Eagle*, on her 106-day passage in 1855, traveled 15,437 miles (an average of 145½ miles per day and slightly over 6 knots per hour), and the *Ocean Express*, that same year, covering 15,858 miles in 135 days, averaged only 117½ miles per day and only 4.9 knots per hour. The *Climax*, on her 115-day passage from Boston to San Francisco in 1853, logged 15,976 miles, and the *Sweepstakes*, on her fast 95-day passage in the spring of 1856, covered 16,062 miles (an average of 169 miles per day); while the *Surprise*, on her 96-day 15-hour record run in the winter of 1850-1851, traveled 16,308 miles and averaged 169 miles per day and a speed of 7.1 knots per hour, which is the same average speed that the *Flying Cloud* showed when, later in 1851, she lowered the record (with less mileage) by nearly seven days. However, these mileages are moderate compared with the 17,384 miles recorded by log by the *Hurricane* on her scant 100-day passage in the summer of 1854, although Captain Very asserted that whereas his ship "travelled 17,384 miles by log and averaged over 7 knots per hour, the total distance made in a straight line, from noon to noon, each day, was only 16,357 miles." The *Westward Ho*, on her passage of 100 days 18 hours from Boston to San Francisco in the spring of 1855 (January-April), covered 17,123 miles, but for high logged mileage the 1,802-ton New York clipper *Tornado* holds the record. On her maiden voyage (131 days elapsed; 127 days reported), the distance covered was stated as 17,575 miles; on her third Cape Horn voyage in the winter of 1854-1855 (135 days), she logged 18,156 miles; and on her fourth and last westbound passage to California, which was a run of 111 days (reported 110 days) made in the winter of 1855-1856 (December-March), she logged 16,869 miles—an average of 17,533 nautical miles for three passages made during the period February 1852-March 1856. When the *Contest* sailed eastbound around the Horn from San Francisco to New York in 1853 and reached Sandy Hook 80 days and 8 hours out from the Golden Gate, she had sailed 14,629 nautical miles (182 miles per day and over 7½ knots per hour). When the *Comet* ran east in 1853 to New York from San Francisco in 83 days 18 hours, she logged 15,541 miles and averaged 185½ miles per day. When the *Young America* raced the *Glory of the Seas* from San Francisco to Liverpool in 1874, made a passage of 102½ days, and beat her fifteen days on the run, the *Young America* covered 16,317 miles (an average of about 159 miles per day).

In comparing the results of passages of sailing ships, the average speed in knots per hour as logged is relatively unimportant, for it is the time taken to cover a course between two ports that determines the economic efficiency and ability of the navigator, when due consideration is given to sailing conditions and the ship's "chances." It is speed over sea bottom in the short-line direction of the port of destination that is desired and valued and not speed through the water, which may be high but which will move the ship slowly toward her goal. To log 500 miles at an average speed of 8 knots per hour in covering a short-lane sea distance of 250 miles is no better, as far as commercial results are concerned, than negotiating the short course direct at a speed of only 4 knots per hour. The general use of direct, short sea lanes is one of the outstanding advantages of steam over sail.

*Record of the Passages to California of Ninety-nine Clippers
That, Departing from an East Coast U.S.A. Port during the
Years 1850-1860 Inclusive, Made Four or More Westward
Cape Horn Runs to San Francisco*

After a thorough survey of available statistics and compilation of data bearing on the passage records of American clippers engaged in the westbound California around-the-Horn trade during the real "clipper ship era," i.e., with departure from East Coast ports during the years 1850-1860 inclusive (commencing with the real Gold Rush to California, but terminating prior to the Civil War and after the panic and the depression of the late fifties), the following statements have been prepared based on records that are deemed to be the most authentic and the sources the most reliable and trustworthy. Because of the large number of passages made, only those clippers that completed four or more passages in this coast-to-coast service are deemed to qualify in this analysis as real Cape Horners. The length of passages stated is from the port of departure in the East to the port of destination in California (which in every case, except one run of the *Stilwell S. Bishop* to San Diego, was San Francisco).

Name of Clipper	Westward Passages to California 1850-1860		Length of Each Passage between Ports in Days, with Departure from East Coast Port in Year Stated										
	No.	Average Length in Days	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860
WESTWARD HO	4	103.3	—	—	107	105	—	101	100	—	—	—	—
ANDREW JACKSON	5	105.2	—	—	—	—	—	128	105	101	—	89	—
								(before re-spar- ring)		103			
FLYING FISH	7	105.6	—	100	92	113	109	105	106	114	—	—	—
GREAT REPUBLIC	4	106.7	—	—	—	—	—	—	92	—	120	110	105
SWORDFISH	4	107	—	91	—	107	110	120	—	—	—	—	—
FLYING DUTCHMAN	4	109	—	—	104	106	—	—	124	102	—	—	—
SWEEPSTAKES	4	110.7	—	—	—	125	118	—	95	—	—	105	—
HERALD OF THE MORNING	5	112.2	—	—	—	—	106	100	—	131	116	—	108
SAMUEL RUSSELL	4	112.2	109	—	118	106	—	116	—	—	—	—	—
PHANTOM	4	112.7	—	—	—	104	120	—	102	—	125	—	—
RINGLEADER	5	114	—	—	—	110	—	107	—	124	114	—	115
BALD EAGLE	4	114.7	—	—	107	115	117	—	120	—	—	—	—
CELESTIAL	4	115.2	105	106	—	120	130	—	—	—	—	—	—
MARY L. SUTTON	5	115.4	—	—	—	—	—	—	110	140	116	—	103 108
FLYING CLOUD	6	115.7	—	90	115	106	89	109	185	—	—	—	—
RED ROVER	5	117	—	—	120	—	121	108 112	—	124	—	—	—
EAGLE	4	117.2	—	131	—	111	104	123	—	—	—	—	—
STAG HOUND	6	117.2	—	113	124	127	110	—	—	108	121	—	—
REPORTER	4	117.5	—	—	—	—	—	107	113	—	133	117	—
DON QUIXOTE	5	118.2	—	—	—	126	107	—	110	109	—	139	—
NORTHERN LIGHT	5	118.4	—	109	117	122	124	—	—	—	—	120	—
PAMPERO	4	118.7	—	—	—	108	125	—	123	—	—	—	119
COMET	7	119	—	103	112	128	—	123	—	142	112	—	113
GOLDEN FLEECE II	5	119	—	—	—	—	—	113	—	124	112	118	128
EAGLE WING	5	119.4	—	—	—	106	—	—	118	—	131	120	122
METEOR	5	119.6	—	—	113	—	123	110	—	—	—	117	135

(Continued on next page)

Name of Clipper	Westward Passages to California 1850-1860		Length of Each Passage between Ports in Days, with Departure from East Coast Port in Year Stated										
	No.	Average Length in Days	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860
VIKING	4	120	—	—	—	—	116	122	—	108	—	134	—
SIERRA NEVADA	4	120.3	—	—	—	—	—	—	128	140	—	97	116
NEPTUNE'S FAVORITE	4	120.5	—	—	—	—	115	—	113	—	117	—	137
STILWELL S. BISHOP	5	120.8	—	—	123	123	114	127	117	—	—	—	—
							(San Diego)						
FLYING DRAGON	5	120.8	—	—	—	148	—	114	97	—	126	119	—
HURRICANE	4	121	—	120	—	123	100	—	—	—	—	141	—
WILD PIGEON	4	121.2	—	107	118	126	134	—	—	—	—	—	—
FEARLESS	5	121.4	—	—	—	114	124	118	127	—	124	—	—
ROBIN HOOD	5	121.8	—	—	—	—	127	129	125	—	119	108	—
TORNADO	4	122	—	—	131	111	135	111	—	—	—	—	—
CHALLENGER	5	122	—	—	—	—	112	134	—	115	—	121	128
MORNING STAR	6	122.2	—	—	—	—	147	138	102	—	125	—	105
													116
DASHING WAVE	6	122.3	—	—	—	120	121	—	122	—	107	121	143
SHOOTING STAR I	4	122.5	—	145	106	123	—	116	—	—	—	—	—
OCEAN TELEGRAPH	7	123	—	—	—	—	125	120	150	107	125	109	125
DAVID CROCKETT	4	123	—	—	—	—	—	—	—	122	116	131	123
LOOKOUT	7	123.1	—	—	—	126	—	156	—	117	112	113	130
													108
TELEGRAPH (HENRY BRIGHAM)	6	123.2	—	125	114	135	109	—	—	—	131	125	—
GOLDEN CITY	5	123.4	—	—	118	108	134	—	113	—	144	—	—
SEA SERPENT	6	123.5	—	126	113	109	116	147	130	—	—	—	—
MESSENGER	4	124	—	—	124	126	125	121	—	—	—	—	—
ANTELOPE (N. Y.)	4	124	—	—	149	115	135	97	—	—	—	—	—
ADELAIDE	4	124.5	—	—	—	—	—	114	124	127	133	—	—
WINGED ARROW	6	124.7	—	—	113	126	115	126	118	—	—	—	150
YOUNG AMERICA	4	125.2	—	—	—	110	110	—	107	—	—	174	—
STARLIGHT	6	125.7	—	—	—	—	117	145	135	118	118	—	121
ARCHER	5	126	—	—	—	146	106	—	144	—	126	108	—
GAZELLE	4	126	—	135	136	119	114	—	—	—	—	—	—
WITCHCRAFT	6	126.6	—	129	—	110	98	122	—	—	170	—	131
COMPETITOR	5	126.8	—	—	—	115	122	140	139	—	118	—	—
MORNING LIGHT (Boston)	5	127.4	—	—	—	131	113	—	124	—	141	—	128
HORNET	6	127.8	—	154	—	106	130	114	—	—	—	128	135
ELIZABETH F. WILLETS	5	128.8	—	—	—	—	—	118	—	130	122	111	163
MIDNIGHT	5	129.4	—	—	—	—	117	144	142	—	124	—	120
GALATEA	5	129.4	—	—	—	—	115	135	119	—	144	—	134
NEPTUNE'S CAR	5	130.2	—	—	—	116	—	101	136	184	—	—	114
SEA NYMPH (New Bedford)	4	130.2	—	—	—	—	—	145	113	—	137	126	—
NOR'WESTER	4	131	—	—	—	—	122	—	132	—	—	131	139
WEBFOOT	4	131	—	—	—	—	—	—	118	120	—	152	134
MARY ROBINSON	4	131.2	—	—	—	—	140	—	—	122	—	143	120
WHITE SWALLOW	4	131.5	—	—	—	150	—	—	134	—	—	131	111
GRACE DARLING	4	131.5	—	—	—	—	143	129	—	—	125	—	129
SYREN	5	131.6	—	141	120	131	—	132	134	—	—	—	—
JOHN STUART	4	131.7	—	—	134	—	136	133	—	—	—	124	—
TALISMAN	4	132.2	—	—	—	—	—	—	—	140	135	142	112
WILD RANGER	4	132.5	—	—	—	125	126	134	—	—	—	—	145
POLYNESIA	7	132.8	—	—	140	104	—	125	132	139	152	—	138
RAVEN	4	133.5	—	106	121	119	188	—	—	—	—	—	—
STORM KING	5	133.8	—	—	—	135	—	—	125	123	138	—	148
COURSER	4	134	—	—	108	137	137	—	—	154	—	—	—
OCEAN EXPRESS	4	134.2	—	—	—	—	—	135	—	—	125	137	140
LOTUS	5	134.2	—	—	—	121	123	—	155	134	—	138	—
STAR OF THE UNION	4	134.5	—	—	—	124	124	166	—	—	124	—	—
THOMAS WATSON	6	134.7	114	118	131	155	142	148	—	—	—	—	—

(Continued on next page)

Name of Clipper	Westward Passages to California 1850-1860		Length of Each Passage between Ports in Days, with Departure from East Coast Port in Year Stated										
	No.	Average Length in Days	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860
MORNING LIGHT (Philadelphia)	4	135.2	—	—	—	136	—	121	144	—	—	—	140
SOUTHERN CROSS	9	135.5	—	136	156	145	119	120	—	138	140	134	132
WAR HAWK	4	135.5	—	—	—	—	—	128	128	—	142	144	—
FLEETWING	6	136.7	—	—	—	—	122	152	158	113	145	130	—
RADIANT	4	137.2	—	—	—	132	—	137	—	—	143	—	137
GAME COCK	4	138.7	—	185	113	112	—	145	—	—	—	—	—
EUREKA	4	138.7	—	174	138	123	—	—	120	—	—	—	—
GOLDEN EAGLE	7	139.4	—	—	157	—	124	106	128	—	135	215	111
WEST WIND	5	139.6	—	—	—	135	—	130	124	—	137	172	—
ANGLO-SAXON	5	140.4	—	—	—	150	—	120	—	—	164	140	128
FLYING EAGLE	7	140.7	—	—	—	169	132	120	118	—	132	153	161
OCEAN PEARL	4	141	—	—	—	135	—	—	158	—	139	—	132
AURORA	5	143.2	—	—	—	128	122	—	112	215	—	—	139
B. F. HOXIE	4	146.5	—	—	—	—	—	156	152	—	—	137	141
REINDEER	5	147	131	148	—	153	136	—	167	—	—	—	—
OSBORNE HOWES	5	147	—	—	—	—	151	124	—	147	136	—	177
ALBONI	4	148	—	—	130	—	147	165	—	—	150	—	—
VICTORY	4	152	—	—	132	134	189	153	—	—	—	—	—
JOHN LAND	5	184	—	—	—	126	311	—	—	105	108	270	—

Of the 99 clipper ships enumerated herein as making four or more westward Cape Horn passages to California, with the passages originating at an East Coast U.S.A. port prior to December 31, 1860, 47 of the ships made four passages each, 32 made five, 12 six, 7 seven, and one (the *Southern Cross*) holds the record for the period with nine. The clippers making six or more westward passages to California leaving an East Coast port during the years 1850-1860 inclusive are as follows:

Name of Clipper and Tonnage	Year Built	No. of Passages 1850-1860	Average Length of Passages in Days	Name of Clipper and Tonnage	Year Built	No. of Passages 1850-1860	Average Length of Passages in Days
SOUTHERN CROSS (938 tons)	1851	9	135.5	MORNING STAR (1,105 tons)	1853	6	122.2
FLYING FISH (1,505 tons)	1851	7	105.6	DASHING WAVE (1,180 tons)	1853	6	122.3
COMET (1,836 tons)	1851	7	119	TELEGRAPH (HENRY BRIGHAM; 1,078 tons)	1851	6	123.2
OCEAN TELEGRAPH (1,495 tons)	1854	7	123	SEA SERPENT (1,337 tons)	1850	6	123.5
LOOKOUT (1,291 tons)	1853	7	123.1	WINGED ARROW (1,052 tons)	1852	6	124.7
POLYNESIA (1,084 tons)	1852	7	132.8	STARLIGHT (1,153 tons)	1854	6	125.7
GOLDEN EAGLE (1,121 tons)	1852	7	139.4	WITCHCRAFT (1,310 tons)	1850	6	126.6
FLYING EAGLE (1,094 tons)	1852	7	140.6	HORNET (1,426 tons)	1851	6	128.8
FLYING CLOUD (1,782 tons)	1851	6	115.7	THOMAS WATTSON (349 tons)	1848	6	134.7
STAG HOUND (1,534 tons)	1850	6	117.2	FLEETWING (896 tons)	1854	6	136.7

Of the 99 clippers listed that each made four or more completed westbound Cape Horn passages to California, with the runs originating at an East Coast U.S.A. port during the years 1850-1860 inclusive, the following data are presented of the 24 of these ships that show the best average port-to-port records for length of passages. No time for detention in port is deducted from the length of passage of ships that made stops in South American ports when en route to California for repairs, refitting, supplies, or for any other purpose, as the impor-

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tant criterion of relative efficiency of carriers is the time of voyages between the ports of departure and destination. Neither, in the following statement, has any attempt been made to differentiate between the number of passages made by a clipper other than that each made four or more westward runs within the period stated. Twelve of the clippers appearing in the following list made four passages each, 8 made five, 2 six, and 2 seven. The analysis deals with 23 ships of from 860 to 3,356 tons, built during the years 1847-1856 inclusive, that made 114 westward Cape Horn passages originating at an East Coast U.S.A. port during the years 1850-1860 inclusive.

Name of Clipper and Tonnage	Date Launched and Builder	Westward Passages to California				End of Last Westbound Cape Horn Passage	End of Clipper and Years of Life
		No.	Length in Days				
			Average	Shortest	Longest		
WESTWARD HO (1,650 tons)	Sept. 1852 McKay, East Boston	4	103.3	100	107	Mar. 1857	Burned Feb. 1864; 11½ yrs.
ANDREW JACKSON (1,679 tons)	Mar. 1855 Irons & Grinnell, Mystic, Conn.	5	105.2	89	128	Summer 1862	Wrecked Dec. 1868; 13¾ yrs.
ANDREW JACKSON (as finally sparred; 1,679 tons)	Re-sparred summer 1856 Capt. John E. Williams, New York	4	99.5	89	105	(Generally accepted as 98½-day average.)	
FLYING FISH (1,505 tons)	Sept. 1851 McKay, East Boston	7	105.6	92	114	Jan. 1858	Wrecked Nov. 1858 and condemned; 7 yrs.
GREAT REPUBLIC (3,356 tons)	Oct. 1853 (burned Dec. 1853; rebuilt 1854) McKay, East Boston; Sneeden & Whitlock, New York	4	106.7	92	120	Feb. 1865	Foundered Mar. 1872; 17 yrs.
SWORDFISH (1,036 tons)	Sept. 1851 Webb, New York	4	107	91	120	Sept. 1861	Wrecked July 1862; 10 yrs. 10 mos.
FLYING DUTCHMAN (1,257 tons)	Sept. 1852 Webb, New York	4	109	104	124	Sept. 1857	Wrecked Feb. 1858; 5½ yrs.
SWEEPSTAKES (1,735 tons)	June 1853 Westervelt, New York	4	111	95	125	May 1859	Grounded and con- demned, May 1862; 9 yrs.
HERALD OF THE MORNING (1,294 tons)	Dec. 1853 Hayden & Cudworth, Medford, Mass.	5	112.2	100	131	Nov. 1874	Under British flag 1890, when 37 yrs. old.
SAMUEL RUSSELL (957 tons)	1847 Brown & Bell, New York	4	112.2	106	118	June 1855	Wrecked Nov. 1870; 23 yrs.
PHANTOM (1,174 tons)	Dec. 1852 Lapham, Medford, Mass.	4	112.7	102	125	Aug. 1861	Wrecked July 1862; 9½ yrs.
RINGLEADER (1,154 tons)	Aug. 1853 Hayden & Cudworth, Medford, Mass.	5	114	107	124	Feb. 1862	Wrecked May 1863; 9¾ yrs.
BALD EAGLE (1,705 tons)	Nov. 1852 McKay, East Boston	4	114.7	107	120	Nov. 1856	Foundered Nov. 1861; 9 yrs.
CELESTIAL (860 tons)	June 1850 Webb, New York	4	115.2	105	130	Dec. 1854	Sold to Spanish in 1858.
MARY L. SUTTON (1,448 tons)	Feb. 1856 Mallory, Mystic, Conn.	5	115.4	103	140	Aug. 1864	Wrecked Nov. 1864; 8¾ yrs.
FLYING CLOUD (1,782 tons)	Apr. 1851 McKay, East Boston	6	115.7	89	185	Sept. 1856	Wrecked 1874; 23 yrs.
EAGLE (1,296 tons)	May 1851 Williamsburg, Long Island, N. Y.	4	116.7	104	131	July 1855	Sold at Calcutta in 1863.
RED ROVER (1,021 tons)	Nov. 1852 Portsmouth, N. H.	5	117	108	124	July 1857	Sold to British in 1861.
STAG HOUND (1,534 tons)	Dec. 1850 McKay, East Boston	6	117.2	108	127	June 1858	Burned Oct. 1861; 10¾ yrs.

(Continued on next page)

Name of Clipper and Tonnage	Date Launched and Builder	Westward Passages to California			End of Last Westbound Cape Horn Passage	End of Clipper and Years of Life
		No.	Length in Days			
			Average	Shortest	Longest	
REPORTER (1,474 tons)	Sept. 1853 Curtis, East Boston	4	117.5	107	133	May 1861 Foundered Aug. 1862; 9 yrs.
DON QUIXOTE (1,429 tons)	Sept. 1853 Lapham, Medford, Mass.	5	118.2	107	139	Early 1863 Sold foreign in 1864.
NORTHERN LIGHT (1,021 tons)	Sept. 1851 Briggs, South Boston	5	118.4	109	124	Spring 1861 Sunk after collision, Jan. 1862; 10¼ yrs.
PAMPERO (1,375 tons)	Aug. 1853 Mallory, Mystic, Conn.	4	118.7	108	125	July 1860 Sold to U. S. Navy during Civil War.
COMET (1,836 tons)	July 1851 Webb, New York	7	119	103	142	Feb. 1862 Sold to British in 1863.
GOLDEN FLEECE II (1,535 tons)	Nov. 1855 Curtis, East Boston	5	119	112	128	1876 Grounded and con- demned, Nov. 1877; 22 yrs.

The first seven clippers in the before-stated table of westward Cape Horn runs showing an average length of passage for four or more runs of less than 111 days, port to port, are outstanding, but this does not necessarily indicate that they were the seven fastest regular Cape Horn clippers that engaged in the California trade during the stated period (1850-1860). They were, however, the fastest reliable ships in making port-to-port passages with sailings from East Coast U.S.A. ports during the years 1850-1860 inclusive. All of these seven clippers that lead in a low average of length of passage, port to port, were extreme clippers (i.e., with very sharp models, lofty masts, big yards, and a wealth of canvas) except the *Andrew Jackson*, which was a medium clipper of fuller model and relatively greater cargo-carrying capacity fitted with moderate spars and canvas and designed to be economic and profitable in operation during an era of reduced freight rates. At least one other ship should be considered in conjunction with the first seven, and that is the extreme clipper *Flying Cloud*, which, prior to her unfortunate long passage (185 days) of 1856, held a record of an average of 101.8 days for her first five westward runs from New York to San Francisco. The lifetime length of time that the *Flying Cloud* saw service in making Cape Horn runs was relatively short—as was that of each of the leading seven clippers—as is shown by the following data of westward passages:

Name of Clipper and Tonnage	No. of Westward Passages	First Departure		Date of Last Arrival at San Francisco of Passages Originating Prior to End of 1860	Gross Elapsed Time on Course from First Departure to Last Arrival of These Stated Passages in Years, Months, and Days
		Port	Date		
WESTWARD HO (1,650 tons)	4	Boston	Oct. 16, 1852	Mar. 26, 1857	4- 5-10
ANDREW JACKSON (1,679 tons)	5	New York	July 15, 1855	Mar. 24, 1860	4- 8- 9
FLYING FISH (1,505 tons)	7	Boston	Nov. 6, 1851	Jan. 20, 1858	6- 2-14
GREAT REPUBLIC (3,356 tons)	4	New York	Dec. 7, 1856	Feb. 6, 1861	4- 1-30
SWORDFISH (1,036 tons)	4	New York	Nov. 9, 1851	July 21, 1855	3- 8-12
FLYING DUTCHMAN (1,257 tons)	4	New York	Oct. 15, 1852	Sept. 10, 1857	4-10-26
SWEEPSTAKES (1,735 tons)	4	New York	Sept. 3, 1853	May 8, 1859	5- 8- 5
FLYING CLOUD (1,782 tons)	6	New York	June 2, 1851	Sept. 14, 1856	5- 3-12

Of the above eight Cape Horners that lead in the records of fast westbound passages originating at East Coast ports during the years 1850-1860 inclusive, five made no further passages, but the other three made additional westbound California runs under the United States flag as follows:

Name of Clipper	Sailings during 1850-1860 Inclusive		Additional Passages in the 1860's		Lifetime Record	
	No. of Passages	Average Length of Passages in Days	Length in Days and Year		No. of Passages	Average Length of Passages in Days
ANDREW JACKSON	5	105.2	103 (1861)	114 (1862)	7	106.1
GREAT REPUBLIC	4	106.7	102 (1862-1863)	114 (1864-1865)	6	107.2
SWORDFISH	4	107.0	136 (1861)	—	5	112.8

The *Andrew Jackson's* seven passages were also reported to average 105.7 days, and the last six of them (after the ship's spar plan had been changed by Capt. John E. Williams and her owner, John Brower & Company, of New York) averaged 102.5 days (also reported as 102 days). However, the four passages made by the *Andrew Jackson* under the command of Captain Williams after he changed the builder's spar plan, following her maiden voyage, averaged only 99.5 days (and according to some records, 99 days). The *Andrew Jackson* made four eastbound Cape Horn passages from San Francisco to New York in 88, 101, 87, and 101 days, respectively—an average of 94.2 days for all these passages. She was in the California trade on westbound runs about seven years and under the U.S.A. flag at sea about seven and three-fourths years (July 15, 1855-April 11, 1863). The clipper was sold to the British in 1863 because of conditions brought about by the Civil War; she struck a reef and was wrecked in the Gaspar Straits December 4, 1868, when thirteen and three-fourths years old.

The *Great Republic* has not the clean-cut record for speed, reliability, and uniform sailing possessed by the *Andrew Jackson* and *Westward Ho*. On her third passage west, leaving New York November 23, 1859, she sailed one day ahead of the *Ocean Telegraph* of 1,495 tons (only 44 per cent the size of the big McKay clipper), and both reached San Francisco on March 12, 1860, the smaller Medford-built clipper beating the *Great Republic* one day on the run. On February 10, 1859, the Maine-built medium clipper *Talisman* of 1,237 tons sailed from San Francisco for New York in company with the much-vaunted *Great Republic* and arrived at Sandy Hook May 17, beating her big antagonist four days on the run to both pilot and anchorage in New York Harbor (passage for *Talisman*, 96 days; *Great Republic*, 100 days). Running east around the Horn, the *Great Republic* was badly damaged on the return passage of her first California voyage; she was carrying guano from Callao to London, had to put into the Falklands for repairs, and was over nine months in making the passage. Other records of westward Cape Horn passages give the lifetime average for the six passages of the *Great Republic* as 108 days. The ship was unprofitable and was sold foreign in 1866 after a year's lay-up. She foundered in the North Atlantic in March 1872.

The *Swordfish* was an extremely fast ship, sharp in model and lofty in rig, but she was not designed for the California trade. On her maiden voyage, she ran out to San Francisco from New York in 90 days 18 hours, or 20½ hours more than the time recorded by Captain Creesy for the *Flying Cloud*, which made her 1851 record of 89 days 21½ hours. Captain Babcock, in the *Swordfish*, at the end of 89 days was within 100 miles of San Francisco, or 140 miles nearer his port of destination than was the *Flying Cloud* on her record-breaking passage made about five months earlier. However, the *Flying Cloud* had

more luck than the *Swordfish* in getting wind to cover the last few miles to the Golden Gate. Donald McKay said that the *Flying Fish* was a faster clipper than the *Flying Cloud*, and both were the product of his own yard. Yet on this maiden run, the *Swordfish* beat the *Flying Fish* two days to 50° S. Pacific, six days to the Pacific equator, and nine and a half days to San Francisco. The *Swordfish* was too small for a Cape Horner and was only 69 per cent the tonnage of the *Flying Fish* and 58 per cent of that of the *Flying Cloud*; but on her maiden voyage, the little *Swordfish* made sailing history, as she continued around the world sailing westward, crossing the Pacific from San Francisco to Hong Kong in 46 days, and then ran from Hong Kong home to New York against the monsoon in 89 days (70 days from Anjer). Later, the *Swordfish* was to establish all-time sailing records of 32 days between San Francisco and Shanghai, 10 days from Shanghai to Anjer, and 81 days from Shanghai to New York. In the California trade and as a Cape Horner, however, each one of the four westward passages of the *Swordfish* was longer than the previous one, increasing from less than 91 days in 1851 to 120 days in 1855. Yet the first three Cape Horn passages of the *Flying Fish* totaled 305 days as against 308 days for the *Swordfish*, and the *Flying Cloud's* first three westward Cape Horn runs totaled 311 days, which was more than either of them. The *Swordfish* left the California trade in 1855, and when, after six years' absence, she made her fifth and final westward Cape Horn run (arriving at San Francisco September 21, 1861, from New York), she experienced a very stormy passage of 136 days, during which the first mate was swept overboard; however, the sharp-lined little clipper's lifetime average, port to port, of 112.8 days for five passages rates high in the records of Cape Horn clippers. Following this last run of the *Swordfish* in the California trade, the clipper did some splendid sailing in the Pacific (36½ days from Hong Kong to San Francisco), but on July 9, 1862, she went ashore on the Yangtze and was wrecked when somewhat less than eleven years old.

The *Westward Ho* had a brief career in the California trade, but she was a Cape Horner as long as she was under the American flag. This fast clipper was sold to the Peruvians at a good price in 1857, during the trade depression, and her days came to an end when she was burned in February 1864. The *Flying Dutchman* was wrecked on the New Jersey coast in early February 1858 as the ship was completing the return passage of her fourth California voyage. She was a total loss and had been only five years and five months in the water when her end came. The *Sweepstakes*, following her fourth California passage, went out to Australia and was sold at Batavia after grounding and sustaining serious damage.

The *Flying Fish* has the best record of any of the clippers over the Cape Horn California course during the period 1850-1860. She made more as well as faster westbound passages leaving an East Coast port during the years 1850-1857 inclusive than any other ship and, moreover, throughout her career never lost spars at sea or suffered damage causing her to call at any port en route for repairs. The clipper had her rudderhead twisted off on her fourth westward passage when 57 days out, in heavy weather, in the vicinity of Cape Horn, but steering tackles were rigged to complete the passage, which was made in 109 days. On her fifth voyage, running home from Padang, the rudderpost broke, off South Africa, but she made Boston without calling at any port for repairs. Soon after leaving San Francisco February 5, 1857, for Manila, the *Flying Fish* lost her rudder entirely, but being just off port, Captain Nickels rigged up a temporary one and beat back to San Francisco in the face of strong northerly winds so that she could be fitted with a new one for the long run home across the Pacific, Indian Ocean, around the Cape of Good Hope, and up the Atlantic. The rudder was the only weakness shown on the *Flying Fish*, and this never caused her to make any intermediate stops on any of her voyages or resulted in any return to port or lengthening of her passages, port to port, when engaged in westward Cape Horn runs to California.

On her maiden voyage in 1851-1852, the *Flying Fish* was badly beaten by the new Webb-built clipper *Swordfish* on the passage to San Francisco, the times reported being 100 days

6 hours and 90 days 18 hours, respectively. On her record passage over the course (1852-1853), the *Flying Fish* made the fastest run of any ship and won what has been described as a great "Deep-Sea Derby" over all real or imaginary contestants. There were fifteen clipper ships sailing—eight from New York and seven from Boston—during the period October 11-November 17, 1852, and Maury wrote a vivid description of the sailing performance of four of the participants in the "race." Of the fifteen passages, which ranged from the 92-day run of the *Flying Fish* (1,505 tons), sailing October 31, to the 131-day run (127½ sailing days via Valparaiso) of the *Queen of the Seas* (1,356 tons), the real contest was between the *Flying Fish* and the *John Gilpin* (1,089 tons), which sailed October 29. The "*Fish*," leaving New York two days after the "*Gilpin*" sailed from that same port, arrived at San Francisco one day ahead of her rival, the official times for the length of the passages being stated, however, as *Flying Fish* 92 days 4 hours, anchor to anchor, and *John Gilpin* 93 days 20 hours from port to pilot. On her third westward California run in 1853-1854, the *Flying Fish* beat her nearest competitor, the *Skylark* (1,209 tons), which was making her maiden passage, by four days, and on the remaining four Cape Horn runs to San Francisco the *Flying Fish* beat her competitors as follows:

Voyage No.	Year	FLYING FISH	Length of Passages	
			Nearest Clipper Competition	
4	1854-1855	109 days	WILD RANGER (1,044 tons) 126 days	WILD PIGEON (996 tons) 134 days
5	1855	105 days	FLYING EAGLE (1,094 tons) 120 days	FLORA TEMPLE (1,915 tons) 160 days
6	1856-1857	106 days	GALATEA (1,041 tons) 119 days	EDWIN FORREST (1,141 tons) 132 days
7	1857-1858	114 days	SANTA CLAUS (1,256 tons) 128 days	KIT CARSON (1,016 tons) 147 days

Capt. Edward C. Nickels is as closely identified with the fine sailing record of the *Flying Fish* as is Capt. Josiah Perkins Creesy with that of the *Flying Cloud*, and Nickels commanded the "*Fish*" on all her voyages throughout her career as an American ship (1851-1858 inclusive) except the one outward run to California in 1854-1855, when Capt. George W. Adams was in charge. Capt. "Ed" Nickels was an old packet commander and an able navigator and shipmaster, and it was his boast that the *Flying Fish* had never been "crawled up to" or passed under canvas at sea by any sailing vessel. Outside of the whipping given her by the *Swordfish* on the maiden voyages of these two fast clippers (when New York derived great satisfaction in decisively beating Boston), there is no record of any clipper's outsailing the *Flying Fish* on the westward Cape Horn run. The all-time sailing record of the *Flying Fish* on the course from an East Coast port (Boston or New York) to San Francisco can be briefly summarized (covering her seven westbound passages) as follows:

Course	Time over Course in Days		
	Average	Minimum	Maximum
Complete passage, port to port	105.6	92	114
Port to Atlantic equator	26.4	19	33
Port to pitch of Cape (Atlantic run—south)	54.7	49	60
Pitch of Cape to San Francisco (Pacific run—north)	49.7	41	61
Port to Pacific equator	85.8	74	92
Atlantic equator to Pacific equator	59.4	52½	64
Pacific equator to San Francisco	19.7	16	23

The *Flying Cloud*, which was amazingly lucky under the command of Captain Creesy, had an average passage of only 21.6 days on her five runs from the Pacific equator to destination; but the *Flying Fish*, over this very erratic last section of the course, was even luckier

than her bigger sister, for her average time running from the line to the Golden Gate was about two days less than that of the *Flying Cloud*. In the North Atlantic, the *Flying Fish* was less fortunate as to weather, for her average time from port to the Atlantic equator of 26.4 days is almost six days more than the 20.5-day lifetime record of the *Flying Cloud* (six passages to San Francisco) over that part of the course. It was the boast of the owners and skipper of the *Flying Fish*, however, that their ship was not "spotted" as far as sailing schedules were concerned to give her a good chance to make fast passages, and it was said that the "*Fish*" made her fine runs between ports "notwithstanding that on all her outward as well as homeward passages she left port during seasons unfavorable for fast runs." The *Flying Fish* went ashore and was wrecked in the River Min on November 23, 1858, when leaving Foochow laden with tea. Her end as an American ship occurred about seven years after she first put to sea. The ship was condemned and sold, but she was bought and repaired by Spaniards and was used by them for many years trading between Spain and the Philippines.

In the record of California voyages, it is conspicuously noticeable that a clipper ship made about one outward Cape Horn passage a year, whether she continued sailing to the westward after reaching San Francisco and picked up a return cargo in China, India, or the Philippines or returned home with an eastward rounding of Cape Horn either in ballast or carrying the only available cargo, such as guano, that could be loaded at a West Coast South American port. Obviously, it was many years before California could supply any freight for shipping to the eastern states or for export. Of the ninety-nine clipper Cape Horners enumerated that made four or more westward passages to California and are credited with 478 such runs originating at an East Coast U.S.A. port during the years 1850-1860, only five of the clippers made more than one departure from an East Coast port in any one calendar year. These clippers and their time of sailings and length of passages were as follows:

Name of Clipper	Year of Departure	First Departure			Second Departure			Time between First and Second Departure—Months and Days
		Port	Date	Length of Passage in Days	Port	Date	Length of Passage in Days	
ADELAIDE	1855	New York	Jan. 27	114	New York	Dec. 27	124	11- 0
RED ROVER	1855	New York	Feb. 24	108	New York	Dec. 17	112	9-23
ANDREW JACKSON	1858	New York	Jan. 16	101	New York	Dec. 23	103	11- 7
LOOKOUT	1859	New York	Jan. 24	113	New York	Nov. 3	108	9-10
MORNING STAR	1860	Boston	Jan. 7	105	New York	Dec. 22	116	11-15
MARY L. SUTTON	1860	New York	Jan. 29	103	New York	Nov. 23	108	9-25

In 1868 the clipper *Young America* made two departures from New York for San Francisco in the calendar year, sailing on January 9 and October 23—a spread of 9 months 14 days, which compares favorably with the best turn-around of the clippers in the fifties.

The *Red Rover*, with sailings 296 days apart, ran out to San Francisco in 108 days and returned on a direct eastward Cape Horn passage in 98 days, being 206 days at sea for the round voyage. As she reached New York October 21, 1855, she was absent from the home port 239 days, or 7 months 25 days. The *Mary L. Sutton*, in 1860, returned from San Francisco direct to New York in 100 days after a port detention of 32 days, and her round voyage from January 29 to September 21 occupied 236 days, or 7 months 23 days.

The record for a round voyage from an East Coast port to San Francisco and return is held by the New York clipper *Contest*, which, sailing on November 16, 1852, went out in 100 days, was in port only 15 days discharging, and returned home in ballast, making a fine run of 80 days and arriving at New York May 30, 1853, after an absence of 6 months and 14 days (195 days). Another New York clipper, the *Flying Dutchman*, almost equaled this

record; for, leaving New York October 15, 1852, she made a run out of 104 days, a return of 85 days, and, with a quick turn-about at San Francisco of 16 days, was back in New York on May 8, 1853, after an absence of 6 months and 24 days (205 days). The *Contest* made calls at San Francisco only 8 months apart on her first two voyages, and the *Flying Dutchman* approached this with an interval of only 8 months and 10 days; but neither clipper made two sailings from an East Coast port in a calendar year as the following record shows:

	CONTEST	FLYING DUTCHMAN
Voyage No. 1	Sailed from New York.....	Oct. 15, 1852
	Arrived San Francisco.....	Jan. 27, 1853
Voyage No. 2	Sailed from New York.....	June 23, 1853
	Arrived San Francisco.....	Oct. 7, 1853
Voyage No. 3	Sailed from New York.....	Sept. 15, 1854
	Arrived San Francisco.....	(Went to Melbourne and next sailed for San Francisco May 18, 1856.)
	(Then traded with Far East.)	

The Boston-San Francisco-Boston round-voyage record made by the *Northern Light* was much slower than the performance of either the clipper *Contest* or *Flying Dutchman* in the New York-San Francisco trade. Whereas the *Contest* made a round voyage in 195 days and the *Flying Dutchman* in 205 days, the Boston record-holder *Northern Light* took 213 days (7 months and 1 day) for her best round voyage (October 28, 1852-May 29, 1853), with a port detention of 18 days at San Francisco, which was three days longer than the *Contest* and two days longer than the *Flying Dutchman*. The *Northern Light* did not make two departures from Boston bound for San Francisco in any one calendar year, as she sailed from Boston November 21, 1851, October 28, 1852, August 15, 1853, and May 13, 1854, respectively, on her first four and only consecutive passages to California.

The most regular Cape Horner and the one that made the most passages to California during the clipper ship decade was the *Southern Cross*, which, during the period May 8, 1851, to November 15, 1860 (9 years 6 months 7 days), made nine consecutive Cape Horn passages to San Francisco and eight and a half complete voyages around the world; for on all these voyages the *Southern Cross*, after discharging at San Francisco, crossed the Pacific and picked up a cargo at China, India, or Manila to carry home via the Cape of Good Hope. The lifetime record of the *Southern Cross* is a wonderful one for sailing consistency, reliability, and uniformity in her performance at sea. After making nine California Cape Horn voyages with departures from a U.S.A. East Coast port during the ten-year period 1851-1860 inclusive, she made her tenth voyage out to San Francisco in 1862, arriving at San Francisco June 27 after a passage of 128 days. She then crossed the Pacific and returned to San Francisco after making nine consecutive voyages around the world. The Civil War was on; she loaded dyewoods at Buena Vista and made her first eastward rounding of the Horn. On June 6, 1863, she was unlucky enough to be captured and burned by the Confederate raider *Florida* just south of the Atlantic equator. The *Southern Cross* made ten westward Cape Horn passages to California, with no port detention en route except the 25 days at Montevideo in September 1852 caused by her cargo's being on fire. This ship was a medium clipper built not for speed but to carry well and make good passages. She averaged for her ten passages to California, port to port, 134.8 days gross and 132.3 days net sailing days between ports of departure and destination. She made two successive westward Cape Horn runs in 119 and 120 days, respectively, and in 1856 rounded the Horn in 12 days. The ship encountered an average amount of heavy weather and was frequently handicapped on her passages by persistent light winds and calms.

*Record of the Passages of Sixty-one Clippers That Made Only Three
Outward Runs to California from East Coast U.S.A. Ports
during the Years 1850-1860 Inclusive*

The following statement shows the sailing performances of sixty-one clippers on the westward Cape Horn run to California that made only three passages leaving an East Coast U.S.A. port during the years 1850-1860 inclusive. The runs are from port of departure to San Francisco except in the case of the *Sea Witch*, which left New York April 13, 1850, bound for Valparaiso (with cargo) and San Francisco, and in this case the 97 days under canvas are considered as the length of the passage, as the ship cleared New York for Valparaiso and did not put into that port for repairs, supplies, etc. The sailing performance of the 1,782-ton clipper *Romance of the Seas* is outstanding, and this ship, designed by George B. Upton, a prominent shipowner of Boston, and built by McKay at East Boston, completed her run in the Cape Horn trade by making a 106-day passage from New York to San Francisco in early 1862 (February 7-May 24), which, in reality, was about a 102-day run, as the ship was held off the entrance to the Golden Gate for four days. Considering this 106-day passage, the lifetime record of westward runs of the *Romance of the Seas* in the Cape Horn California trade is four passages averaging 105.5 days. (Deducting the time lost off the California coast because of calms, light airs, and fogs, the "*Romance*," with a measure of luck, would have averaged only about 102 to 103 days on her four westward passages to California, but such consideration would also lower the averages of such top-flight clippers as the *Westward Ho*, *Flying Fish*, etc.)

Name of Clipper	Tonnage	Launched	Average Length of Passages in Days	Length in Days of Each Passage and Year Leaving Port of Departure		
				First	Second	Third
SEA WITCH	908	Dec. 1846	105	97 (1850)	110 (1851)	108 (1852)
ROMANCE OF THE SEAS	1,782	Oct. 1853	105.3	96-18 (1853)	113 (1856)	106 (1860)
DAVID BROWN	1,717	Oct. 1853	108	99-20 (1853)	103 (1856)	121 (1860)
SURPRISE	1,261	Oct. 1850	110.3	96-15 (1850)	116 (1853)	118 (1854)
CONTEST	1,098	Oct. 1852	111.3	100 (1852)	108 (1853)	126 (1854)
CHALLENGE	2,006	May 1851	113.3	106 (1851)	118 (1854)	116 (1858)
GOLDEN GATE	1,349	July 1851	114.7	115 (1851)	104 (1852)	125 (1854)
SPITFIRE	1,549	Sept. 1853	114.7	119 (1853)	118 (1855)	107 (1860)
FLYING CHILDERS	1,125	Nov. 1852	115	113 (1852)	117 (1859)	115 (1860)
FLYAWAY	1,274	May 1853	115	109 (1854)	108 (1855)	128 (1857)
WINGED RACER	1,767	Nov. 1852	115.3	108 (1852)	118 (1854)	120 (1855)
JOHN GILPIN	1,089	Aug. 1852	115.7	93-20 (1852)	114 (1854)	139 (1856)
PANAMA	1,139	Oct. 1853	116.3	112 (1855)	117 (1857)	120 (1860)

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Name of Clipper	Tonnage	Launched	Average Length of Passages in Days	Length in Days of Each Passage and Year Leaving Port of Departure		
				First	Second	Third
TRADE WIND	2,045	Aug. 1851	116.3	121 (1851)	103 (1852)	125 (1853)
GOVERNOR MORTON	1,429	Nov. 1851	117.7	125 (1852)	124 (1853)	104 (1854)
WHITE SQUALL	1,119	July 1850	118	125 (1850)	110 (1852)	119 (1853)
ECLIPSE	1,225	Nov. 1850	118.3	124 (1851)	110 (1852)	121 (1853)
N. B. PALMER	1,399	Feb. 1851	119.3	107 (1851)	130 (1852)	121 (1853)
WITCH OF THE WAVE	1,498	Apr. 1851	119.7	123 (1851)	119 (1852)	117 (1853)
EMPRESS OF THE SEAS	2,197	Jan. 1853	120	121 (1853)	115 (1856)	124 (1857)
JACOB BELL	1,381	Nov. 1852	120.3	123 (1852)	122 (1853)	116 (1860)
JOHN BERTRAM	1,080	Dec. 1850	121	143 (Jan. 1851)	105 (Dec. 1851)	115 (1853)
MANDARIN	776	June 1850	122	127 (1850)	115 (1852)	123 (1853)
ELECTRIC SPARK	1,216	Nov. 1855	122	106 (1855)	118 (1857)	142 (1860)
KINGFISHER	1,286	Aug. 1853	122.3	114 (1853)	123 (1855)	130 (1858)
EUTERPE	1,985	Dec. 1854	122.3	114 (1856)	135 (1858)	118 (1860)
BLACK HAWK (N. Y.)	1,109	Feb. 1857	122.3	119 (1857)	141 (1859)	107 (1860)
WHIRLWIND	960	Sept. 1852	122.7	119 (1852)	129 (1854)	120 (1859)
CHARGER	1,136	Oct. 1856	123	124 (1857)	121 (1858)	124 (1859)
JOHN WADE	638	July 1851	123	131 (1851)	117 (1852)	121 (1853)
CYCLONE	1,109	Aug. 1853	125.3	114 (1853)	140 (1856)	122 (1859)
COEUR DE LION	1,098	Jan. 1854	127.3	133 (1854)	119 (1855)	130 (1856)
ENDEAVOR	1,137	Feb. 1856	128.7	128 (1856)	122 (1858)	136 (1859)
CHARIOT OF FAME	2,050	Apr. 1853	128.7	126 (1858)	117 (1859)	143 (1860)
MALAY	868	Aug. 1852	130.7	117 (1852)	149 (1859)	126 (1860)
DARING	1,094	Oct. 1855	130.7	112 (1855)	132 (1857)	148 (1859)
WILD DUCK	860	Apr. 1853	131	134 (1853)	128 (1854)	131 (1855)
ATALANTA	1,289	Feb. 1852	131.3	142 (1852)	126 (1853)	125 (1855)
GREY FEATHER	610	1850	131.7	137 (1851)	128 (1852)	130 (1858)
CHARMER	1,055	Oct. 1854	132.3	118 (1854)	143 (1855)	136 (1857)
RATTLER (N. Y.)	1,121	Oct. 1852	133	121 (1853)	116 (1858)	162 (1859)
GOLDEN RACER	838	Oct. 1852	133	131 (1853)	151 (1854)	117 (1855)
ASA ELDRIDGE	1,324	Oct. 1856	134.3	123 (1857)	147 (1858)	133 (1859)
REYNARD	1,051	June 1856	134.3	140 (1856)	133 (1858)	130 (1859)

(Continued on next page)

Name of Clipper	Tonnage	Launched	Average Length of Passages in Days	Length in Days of Each Passage and Year Leaving Port of Departure		
				First	Second	Third
MONSOON	773	1851	135	130 (1852)	120 (1854)	155 (1855)
HARRIET HOXIE	678	Dec. 1851	135.7	132 (1852)	148 (1853)	127 (1855)
QUEEN OF THE SEAS	1,356	Sept. 1852	135.7	131 (1852)	137 (1855)	139 (1858)
GOLDEN STATE	1,363	Jan. 1853	135.7	154 (1853)	125 (1854)	128 (1860)
DERBY	1,062	Nov. 1855	136.3	120 (1856)	134 (1859)	155 (1860)
WIZARD	1,601	Feb. 1853	136.7	148 (1853)	118 (1856)	144 (1859)
HARVEY BIRCH	1,482	Nov. 1854	140	122 (1855)	138 (1856)	160 (1858)
FAIR WIND	1,299	Oct. 1855	144	138 (1855)	161 (1857)	133 (1860)
ONWARD	874	July 1852	144.3	125 (1852)	150 (1853)	158 (1856)
DEFENDER	1,413	July 1855	145	135 (1855)	148 (1856)	152 (1858)
CORINGA	777	Aug. 1851	145.3	133 (1852)	153 (1853)	150 (1855)
ORPHEUS	1,272	Mar. 1856	146	180 (1856)	114 (1859)	144 (1860)
WILD ROVER	1,100	1853	146.7	136 (1855)	126 (1856)	178 (1859)
GOLDEN WEST	1,441	Nov. 1852	148.7	124 (1852)	145 (1854)	177 (1855)
MAMELUKE	1,303	Aug. 1855	151.7	139 (1855)	173 (1857)	143 (1860)
BLACK PRINCE	1,061	Apr. 1856	155	150 (1856)	168 (1858)	147 (1860)
CARRIER DOVE	1,694	Aug. 1855	163.3	206 (1855)	158 (1858)	126 (1860)

Of the above-stated clippers, the *Black Hawk* and *Governor Morton* in the sixties and seventies became real and successful Cape Horners. The *Black Hawk*, during the period 1857-1880, made twenty westward Cape Horn passages, eighteen of them originating at New York and two at Liverpool, and the average length of these runs was about 124½ days. Eight passages were made from New York in under 120 days, the best being 107, 110, and 113 days, respectively, and the average of the eight 115 days. The two runs from Liverpool were made in 118 and 134 days, respectively, an average for the two of 126 days. Returning east direct around the Horn to a North Atlantic port, the *Black Hawk* sailed well, her best runs from San Francisco being 97 days to Boston, 95, 100, 101, and 102 days to New York, and 101 and 104 days to Liverpool. In 1880 this clipper was sold to the Germans and was operated by them for many years in the north transatlantic trade.

The *Governor Morton*, a medium clipper originally intended for the Atlantic trade, spent about nineteen of her twenty-five years of sea life as a Cape Horner, but during the years 1856-1861, she was withdrawn from the California trade, her last passage made in the fifties being a fine 104-day run from New York to San Francisco, where she arrived April 2, 1856. The "*Morton*" made thirteen westward Cape Horn passages between New York and San Francisco. On nine of them, she averaged 121⅔ days, ranging from 104 days in 1855 to 133 days in 1873. In 1874 she ran out in 118 days; in 1870, 119 days; and in 1867, 123 days. Two of her passages were long, being made under very adverse sailing conditions; the slowest was her last—a 175-day westward Cape Horn passage in 1875. On her other two westward

Cape Horn runs, the "*Morton*" was in trouble and had to put into a South American port for repairs. In 1868, because of damage sustained fighting westerly gales off the Horn, she put back to Rio de Janeiro for repairs, which held her at that port 28 days. In 1862 she made her longest and most expensive passage, which occupied 279 days from New York to San Francisco, as she put into Montevideo leaking badly and had to discharge her cargo and undergo thorough repairs. Following this, she was 104 days on the run from Montevideo to San Francisco and had a tough time of it off the Horn, which necessitated another big repair bill (\$27,500) upon arrival at California. In July 1877, while loaded principally with cotton and anchored at the mouth of the Mississippi, the *Governor Morton* was struck by lightning, took fire, was scuttled in 20 feet of water, and burned to the water's edge.

The medium clipper *Orpheus* of 1,272 tons, built at Chelsea, Mass., in 1855-1856, on her maiden passage in 1856 from Boston to San Francisco, had a long drawn-out, distressing run of 180 days, and this passage was not extended by calling at any South American port en route for repairs. The ship made a slow run to the line, fell to leeward of Cape St. Roque, and "in beating around she was 40 days on soundings." Cape Horn was not reached until 98 days out, and when the *Orpheus* got into the Pacific, she experienced head winds instead of the customary favorable trades and was 82 days running from the Cape to the Golden Gate. After a good passage of 114 days in 1859, the *Orpheus* was 144 days making the run in 1860 (40 days to the line and 26 days rounding Cape Horn in heavy weather) and, therefore, averaged the high figure of 146 days for her three sailings leaving an East Coast port prior to the end of 1860. Of the ship's other eight westward Cape Horn runs to San Francisco, the 1865 passage of 146 days was her second longest run due entirely to bad weather off the Cape and in the South Pacific. Her last (and eleventh) westward Cape Horn passage of 139 days, moreover, was not from a U.S.A. East Coast port but originated at Ardrossan, Scotland. On the only six passages made during the years 1862-1873, the *Orpheus* averaged 126.3 days (fastest, 112 days in 1868; longest, 135 days in 1862), but her total of eight passages originating during the years 1862-1875 averaged 130.4 days, and her lifetime average of eleven passages is 134.6 days. When she had a chance, the *Orpheus* did some good sailing during her career. In 1868 she ran from 50° S. Pacific to the Golden Gate in 35 days, which equals the fast run of the *Flying Cloud* on her record passage of 89 days 8 hours in 1854 and can be compared with the 82 days that the *Orpheus* required to run from the Cape to the Golden Gate during her maiden voyage. The end of the *Orpheus* was tragic. Running from San Francisco to Puget Sound, she was in collision with the S.S. *Pacific* during the night of November 4, 1875. The steamer sank, with the loss of 273 lives, and the *Orpheus*, with the loss of some spars and all her starboard rigging, after making temporary repairs, stood in for the shore, mistook a light, and became a total wreck, although the crew was landed safely.

The medium clipper *Asa Eldridge*, which made three passages to California in the years 1857-1859 and averaged 134.3 days on the runs, made ten such passages in her lifetime, nine originating in New York and one in Boston; the average of these runs was 140½ days. Her first Cape Horn passage made in 1857 was her fastest, and her last such run made in 1872 was her slowest, the time being 123 and 157 days, respectively. The medium clipper *Endeavor*, which averaged 128.7 days for her 1856, 1858, and 1859 passages, made eight such runs in all during the years 1856-1869 and averaged 133 days. Her last passage in 1869 occupied 128 days, and her shortest and longest runs were 122 and 146 days, respectively. This ship was destroyed by fire at Japan in 1875, when nineteen years old.

The *Derby* made seven westward Cape Horn passages during the years 1861-1871, making her fastest run of 117 days from New York to San Francisco in 1870, and her slowest run in the sixties was a 150-day passage from Boston in 1862-1863. Her last run was 132 days from New York in 1871, and the average of her seven Cape Horn passages during 1861-1871 was 135.1 days, making her lifetime average for ten passages to California 135.5 days. This ship was sold to the Germans in 1876.

The medium clippers *Charger* and *Electric Spark* continued as Cape Horners during most of the sixties. The *Charger* left Boston to commence her first passage to California on January 4, 1857, and she completed her ninth westward Cape Horn run with an arrival at San Francisco on November 21, 1869. This clipper's sailing was quite uniform, for her average for all nine passages was 123.7 days; whereas the average for the first three set forth in the preceding table was 123 days. The shortest passage was a run of 108 days in 1864, and in the following year she made her longest passage of 133 days, experiencing severely bad weather and suffering injuries, with the loss of three seamen. The *Charger* was wrecked in the Philippines in December 1873, when about seventeen years old. The *Electric Spark* commenced her maiden voyage by sailing from Boston on December 24, 1855, bound for California, and she came to her end by stranding on the Irish coast when in charge of a pilot on September 26, 1869, when bound from Liverpool to San Francisco and commencing her ninth westward Cape Horn run. Her eight completed passages to California (seven from Boston and one from New York) averaged 134.6 days; whereas her first three runs (1855-1860) averaged only 122 days, and her last five passages (1862-1869) averaged 142.2 days (maximum, 155 days; minimum, 128 days). The ship's last two departures from San Francisco were with grain for Liverpool, and she made these eastward Cape Horn passages in 119 and 144 days, respectively.

The *Rattler*, which does not show up well in the average length of her three westward Cape Horn passages originating during the period 1850-1860, was an extreme clipper, "as sharp as a razor," and a very fast ship. When twenty-six years old, this Maine-built clipper made an all-time record run of 28 days from Callao to San Francisco. In 1862 the *Rattler* made a passage from New York to San Francisco in 138 days, followed the next year by a run from Boston to the California port in 119 days and three more runs from New York in 1864, 1866, and 1868 in 130, 114, and 133 days, respectively. Her lifetime average of all her eight westward passages over the course is 129.1 days (fastest, 114 days in 1866; slowest, 162 days in 1859).

The *Kingfisher*, with an average of 122.3 days for her three westbound California passages with departures from the East prior to the close of 1860, had a lifetime record of six such passages (four from Boston and two from New York), which averaged about 126½ days, the fastest being her first (1853) run of 114 days and the slowest her last (1869) run of 135 days. The *Kingfisher* left New York for San Francisco June 20, 1871, but put into Montevideo in distress leaking badly; she was condemned and sold when about eighteen years old, but was bought, repaired, and operated by the Uruguayans for some twenty more years.

The *Panama*, with an average passage of 116.3 days for her first three westbound California passages, has a fine lifetime record of six such passages (from U.S.A. ports) of only 111½ days, her three last runs being 103 days in 1864, 111 days in 1865, and 108 days in 1866. This clipper made one run from Liverpool to San Francisco that occupied 116 days (112 days from "off the Scilly Islands"), making her average for all seven westward Cape Horn runs from North Atlantic ports to San Francisco 112½ days. The *Panama* made a splendid record passage of 86 days 17 hours from San Francisco (October 27, 1860) to Liverpool (January 21, 1861), reaching the British port 7 months and 19 days after leaving New York. The *Panama* was condemned and sold at Bahia in August 1867, when about fourteen years old; she was bought and repaired by Argentineans, who used her in Atlantic trade for many years.

The big Baltimore medium clipper *Carrier Dove*, of which much was expected, started out badly by being dismasted and having to put into Rio de Janeiro for repairs, which occupied about seven weeks; but at her best this ship was no *Panama* as far as sailing was concerned. The *Carrier Dove* made a slow run from New York to San Francisco of 158 days in 1861, but in 1873 and 1875 made similar passages of 125 and 129 days, respectively, evidently doing her fastest sailing over this course in her late years. During her lifetime, the *Carrier Dove* made six westward Cape Horn California passages that averaged 150.3 days,

port to port, and 142 sailing days—a performance that would be considered slow for a much fuller-bodied and less publicized Down Easter of the 1870's and 1880's.

The *Cyclone*, with an average of 125.3 days for her three passages before mentioned, made two more California voyages before being sold because of the Civil War to the British in 1863; these westward passages were 147 days in 1861 and 123 days in 1862, making an average of 129.2 days for all her five runs out to California. The *Euterpe*, which had made three California passages sailing from the East during 1856-1860 and averaged 122.3 days for the runs, made one more in 1861—a passage of 132 days—before she was bought by the U.S. Government as an army hospital ship. The lifetime record of the *Euterpe* is, therefore, an average length of passages of 124.7 days for four westbound Cape Horn runs. The *Contest*, after making her three California voyages in 1852, 1853, and 1854, with an average of her westward passages of only 111.3 days, was put in the trade between New York and the Far East until early 1861, when she made an unfortunate slow and involved passage from New York (March 1) to San Francisco (November 4), with 248 days' elapsed time, during which she put into St. Thomas leaking badly and during heavy gales had to jettison 200 tons of her cargo. Here she discharged her cargo, made temporary repairs, and then sailed back to New York in ballast for permanent attention, following which she returned to St. Thomas, reloaded her cargo, and proceeded to San Francisco. On November 11, 1863, the *Contest* was captured and burned by the Confederate commerce raider *Alabama* near the Straits of Sunda.

The *Winged Racer*, having made three westward Cape Horn California passages in 1852-1855 (which averaged 115.3 days), was absent from that trade for several years, but in 1861 she made a fourth and last run out in 127 days, making a lifetime average of 118.2 days. Each passage took longer than the preceding one, and the clipper became increasingly unlucky with the years. The *Winged Racer* was also captured by the *Alabama* in the Straits of Sunda on November 10 and was burned the next day, at which time the *Contest* fell prey to the Confederate raider.

The extreme clipper ship *Golden State* was a fast but unlucky ship. On her first passage in 1853, after covering 327 miles in a day, she was practically dismasted and put into Rio de Janeiro for repairs. In 1861 and 1863, this ship made runs from New York to San Francisco in 120 and 121 days, respectively, and her lifetime record is five passages over the westward Cape Horn California course averaging 129.6 days, port to port, and 125.4 sailing days. The ship was sold at Rio de Janeiro in 1883, when rigged as a bark and thirty-one years old, and was operated in the Atlantic trade by Canadians until she was wrecked on Cape Elizabeth, Maine, in December 1886, when thirty-six years old.

In 1863 the *Malay* made a passage from New York to San Francisco in 148 days and in 1872 made another and her last run over the course in 150 days. During her lifetime, this clipper made five westward Cape Horn passages (three from New York; two from Boston) and averaged 137.8 days. Her best passage was her first (117 days), and the slowest (150 days) was her last, but her passages of 149 days in 1859 and 148 days in 1863 are almost equally poor. The *Daring*, which made three westward Cape Horn California passages in the years 1855-1859 inclusive, averaging 130.7 days, made two more 129-day runs over the course in 1863 and 1864, respectively, and has a lifetime record of five such passages totaling 650 days—an average of 130 days per passage. The *Wild Rover*, a medium clipper, with an average of 146.7 days for three westward passages during the years 1855-1859, made a 121-day run out from Boston in 1862-1863 and a 132-day run from New York in 1868 and has a lifetime record of five passages occupying 693 days—an average of 138.6 days for each of her Cape Horn passages to San Francisco. The *Wild Rover* was wrecked on Long Island in 1871, while returning from Manila, when about eighteen years old.

The *White Squall*, a fast extreme clipper of 1,119 tons, made three California westward passages in 1850-1853, which averaged 118 days, port to port (and a claimed 115 sailing days). In late 1851, she made the fastest passage in the British China tea trade. Lying at her pier in New York, she caught fire the night of December 26, 1853, from sparks from the conflagration

that burned to the water's edge the loaded *Great Republic* (when scuttled), a fate that befell the *White Squall* after she got clear of the pier and drifted aground. This clipper was repaired and rebuilt, but she was an entirely different vessel, and her glory had departed. With only one deck, a tonnage reduced to 896 tons, and bark-rigged, she sailed from New York on her attempted fourth passage to San Francisco, but never reached her destination. After returning to New York twice for repairs and conditioning, the bark finally put into Montevideo in distress in September 1856 and was sold to the French. The patched-up *White Squall*, which no longer could make a passage in the Cape Horn California trade, was bought by the French and, as the *Splendide*, saw sea service until 1877, when she stranded near Gibraltar.

The *Flying Childers* made her fourth and last westward California passage in 1861 and was 131 days running out to San Francisco from Boston. Her lifetime average for Cape Horn runs, therefore, is 119 days, as the clipper was sold to the British in January 1863 because of conditions brought about by the Civil War and became the *Golden South*, a Liverpool-Australia clipper packet. The *Spitfire*, after her fine westward Cape Horn run of 107 days with a sailing from Boston December 21, 1860, made her last run out and arrived at San Francisco June 3, 1862, in 127 days from New York. This clipper was sold at London in April 1863, and the average of her four lifetime Cape Horn westbound passages is 117.7 days.

The *Charmer* made a fourth and last westward California passage in 1861-1862 from New York to San Francisco in 131 days, making her lifetime record in the trade four passages averaging 132 days; she was sold to the British because of the Civil War in 1863. The *Fair Wind* also made a fourth Cape Horn westbound passage following her run of 1860, and this passage of 137 days from New York to San Francisco made in 1864-1865 makes her lifetime record four passages averaging 142.2 days; this Boston-built medium clipper was sold to the British in 1866.

A Discussion of the Variable Reported Lengths of Passages, with Stops en Route, of Clippers Making the Westward Run to California and Leaving an East Coast U.S.A. Port during the Years 1850-1860 Inclusive

The true length of any passage is from port of departure to port of final destination. The lengths of passages stated herein are from port to port or at least seek to express in as near a comparative way as is possible the gross time occupied from the time of departure under canvas to the time of arrival in the harbor or at anchorage off the port of destination. The result is that many of the speediest clippers in the California run do not show up as well in this performance record as they would if the length of passage was based on sailing days between ports and the time that a ship was in some port en route undergoing repairs was subtracted from the total elapsed time between the ports of departure and destination. In an economic sense, the only length of passage of importance to shippers of freight, passengers, and owners is that between ports, and fundamentally it was of no consequence and of only academic interest to them if a ship should sail at a relatively high speed for a day, a week, or between points en route if the total length of the passage was made in poor or mediocre time. The spars and canvas are as important a part in a sailing ship's design as is the machinery in a steamship, and the operation of the driving mechanism in a wind-propelled vessel requires fully as much care and attention as that in a steam or motor ship. The only true criterion of a sailing ship's performance is the average length of her passages from pilot to pilot between the ports of departure and destination, and to compare strictly the sailing ability of deep-sea

vessels, the time made behind a tug working in or out of port and under command of a pilot should be eliminated.

The average length of all passages stated as the gross time from port of departure to the port of destination has never been popular with historians, shipmasters, and builders in the relative rating of the sailing performances of ships in a given trade or over a certain course. It has been the practice in giving average length of passages to subtract the time spent in ports undergoing repairs en route and even to eliminate from consideration any unusually long passage due to extreme and severe weather. The *John Land*, which in the herein stated record has the worst average of all the clipper ships listed (her five westward passages from an East Coast port to San Francisco required on an average 184 days to complete), was, in fact, a fast ship; for she made two runs in 105 and 108 days, respectively, and the average of all her three direct passages from Boston to San Francisco was 113 days. On her second and fifth passages, the ship was forced en route to put into ports in distress and was 311 and 270 days, respectively, in reaching her destination.

The *Flying Cloud*, which in the before-stated comparative record is given an average of 115.7 days for her six westbound California passages and appears as No. 14 in the list, is popularly credited with being "the Greyhound" of the Cape Horn trade and the fastest clipper ship to sail over that course. If that ship's 1856 voyage was ignored, the claims made for the vessel's speed would be substantiated; for the average of her first five passages (as herein recorded) is a record low of 101.8 days (with an average of clearance to entry of 102.6 days and an average of commander's claims of 101.2 days). These five voyages were the only ones (outward passages) that the ship made under the command of Capt. Josiah Perkins Creesy; therefore, that master's record in the *Flying Cloud* is an admirable and truly amazing one. Creesy drove his ship hard and schemed to make his runs in a suitable season for making a good sailing performance. He was a "pencil sharpener" when computing the length of his passages, and both ship and master were extremely fortunate. Under Creesy, the luck of the *Flying Cloud* was proverbial, but Creesy's persistently hard driving for record runs wore out the ship and failed to make money for the owners as soon as freight rates commenced to drop; for she did not carry enough cargo to pay, and her operating expenses, with a big crew, were high. Captain Creesy left the *Flying Cloud* in December 1855 after being in her somewhat over four and a half years, during which she had made five complete voyages. Captain Reynard took the ship out in March 1856 on her sixth voyage, with a sprung bowsprit, and in the South Atlantic suffered such damage to spars and hull that she had to be taken to Rio de Janeiro for repairs. The total length of passage from New York to San Francisco occupied 185 days, and this was the last westward-bound run of the ship over the course. Upon arrival in California, the clipper was laid up for some six months, after which she was taken East, where she was idle for two years and eight months. Later, she was sold and went under British registry.

As a Cape Horner, the *Flying Cloud's* days ended before she was six years old; so although this ship made a wonderful sailing record under Captain Creesy, with two passages of about 90 days (claimed as 89-day runs), her last days in the trade and withdrawal from it were not glorious. Whereas the *Andrew Jackson*, a fuller-bodied and more conservatively sparred and canvased ship (crossing only one skysail yard on the main and having no flying kites, etc.), operated with an "economic crew," holds the all-time record between New York and San Francisco, pilot to pilot, the *Flying Cloud* is generally credited with the fastest run between the ports, anchor to anchor. On her disastrous sixth westbound Cape Horn passage, the *Flying Cloud* was at Rio de Janeiro 44 days undergoing repairs. Therefore, her net sailing days on this run were 141 days, and the average of all her six passages was 108.3 sailing days; but the claim was made that the ship was at the parallel of Rio de Janeiro when only 31 days out and that she went from Rio to San Francisco in 82 days; thus her "sailing days on the course" were only 113 days, and the average of her six westward Cape Horn passages was only 103.7 sailing days on the course.

That the *Flying Cloud* was an extremely fast clipper is beyond question, but that she was unbeatable when under the command of Captain Creesy is untrue. The combination of ship and master was very lucky; however, on her third voyage, the *Flying Cloud* and the *Hornet* were together on April 29, 1853, soon after leaving Sandy Hook, and the *Hornet* anchored in San Francisco Harbor on August 12, forty minutes ahead of the *Flying Cloud*, and had reached the Bar fully half a day before her antagonist, where the *Hornet* had been held up by fog. The *Flying Cloud*, on her second voyage, left New York May 14, 1852, and the *Gazelle* and *N. B. Palmer* cleared the same port on May 18 and May 22, or four and eight days, respectively, after "the Greyhound," which then held the record stated as 89 days 21½ hours over the Cape Horn course to San Francisco. These three ships were together off the coast of Montevideo in the South Atlantic on July 1, or forty-eight days after the *Flying Cloud* had sailed from New York, the *N. B. Palmer* having gained twelve days on "the Greyhound" in that time.

In 1851, with the craze for speed reaching new heights and builders, owners, masters, and the public striving or clamoring for fast passages to the gold fields, clippers were sent to sea too loftily sparred, heavily canvased, and hastily rigged, and they were driven too hard by their skippers. Among the big new clippers making their maiden voyages, the following vessels had to make port for repairs:

Name of Clipper and Tonnage	Builder	Passage to San Francisco in Days—1851 Sailings	Made Port en Route for Repairs		
			Port	Detention Days	Sailing Days
GAME COCK (1,392 tons)	Hall, East Boston	185	Rio de Janeiro	57	128
WITCHCRAFT (1,310 tons)	Curtis, Chelsea, Mass.	129	Rio de Janeiro	21	108
EUREKA (1,041 tons)	Westervelt, New York	174	Valparaiso	Not reported by Captain Auchincloss	
JOHN BERTRAM (1,080 tons)	Elwell & Jackson, East Boston	143	Valparaiso	17	126
HURRICANE (1,608 tons)	Smith, N. Y. Harbor	120	Rio de Janeiro	12	108
SHOOTING STAR (903 tons)	Curtis, Medford, Mass.	144	Rio de Janeiro	20	124
SEA SERPENT (1,337 tons)	Raynes, Portsmouth, N. H.	126	Valparaiso	8	118
STAG HOUND (1,534 tons)	McKay, East Boston	113	Valparaiso	5	108
SEAMAN'S BRIDE (668 tons)	Bell, Baltimore	160	Valparaiso	33	127 (claimed 119)
MERMAID (bark; 533 tons)	Hall, East Boston	159	Pernambuco	Ran to San Francisco in 91 days after re- pairs, but detention at Pernambuco un- stated.	

The *Reindeer* of 800 tons (Donald McKay's first attempt to build a clipper—launched at East Boston on June 9, 1849) in 1851 was 148 days from Richmond, Va., to San Francisco, stopping at Valparaiso en route, but whether this stop at the Chilean port was for trade or repairs is unstated. The *Invincible* of 1,769 tons, built by Webb, New York, as a transatlantic clipper packet, made a fast run of 115 days' elapsed time in the winter of 1851-1852 between New York and San Francisco, but stopped at Rio de Janeiro January 26, 1852, when 37 days out, not for repairs to spars or hull but because of a leaky water tank and shortage of water; her detention in port was evidently two days, but Capt. H. W. Johnson reported that "putting into Rio lost 8 days."

The *Hornet* of 1,426 tons, built by Westervelt & Mackey, New York (which beat the *Flying Cloud* with a 106-day passage to California on her second Cape Horn run in 1853),

had a long passage of 155 days over the course on her maiden voyage in 1851; but there is no mention of the ship's either being partially dismasted en route or having to put into any port for repairs. Apparently, this long passage for an extreme clipper—and by far the longest of the ten passages that she made over the course during her lifetime—was due to adverse sailing conditions; she experienced calms and head winds and was 73 days to Cape Horn and 17 days off the Horn, followed by a poor sailing chance running north in the Pacific. She was destroyed by fire at sea in 1866.

The *Joshua Bates* of 620 tons, a reputedly fast sailing packet built by Donald McKay at Newburyport in 1844 for Train's Boston-Liverpool line, reported a 156-day passage to California in 1851. This ship sailed from New York on March 12 and was recorded as reaching San Francisco October 16, which would make a 218-day passage from the port of departure to her destination. No records are at the moment available explaining the cause of the difference of 62 days between the reported and elapsed length of passage or the port or ports at which she stopped en route. The medium clipper *Ellen Foster* of 996 tons, on her maiden voyage, went from Boston to San Francisco in 1852 (June 3-October 31) in 150 days, but she put into Rio de Janeiro for repairs en route, and the passage was reported as "a run of 140 days."

The epidemic of dismastings and detention at ports en route to California continued into 1852, but died down as the uneconomic phase of the poor sparring, hasty rigging, and overdriving of the clippers was impressed on the shipowners, masters, builders, and patrons of the vessels. The *Hoogly* of 1,264 tons (built by Hall, East Boston), sailing from Boston January 18, 1852, on her maiden voyage, carried away her fore- and main-topmasts when three days out and put into Rio de Janeiro to refit, where she remained only three to four days, as she was at San Francisco May 28 and reported a passage of 127 sailing days, her elapsed time between the ports of departure and destination being 131 days.

The *Queen of the East* of 1,275 tons (built at Damariscotta, Maine, in 1852) left New York for California April 7, 1852, on her maiden voyage and reached San Francisco September 8 after a passage of 154 days, having had to put into Callao en route. The *Harriet Hoxie* of 678 tons (built at Mystic, Conn., in 1851), on her first of three voyages in the California trade, left New York March 24, 1852, put into Valparaiso under jury rig June 2, sailed from there after repairs June 14, and reached San Francisco August 3 after a passage of 132 days, of which 120 days were spent at sea. The *Empire* of 1,272 tons (built at Thomaston, Maine), on her maiden voyage, left New York for California March 29, 1852, and sailed into San Francisco Harbor August 13 under jury rig, having been partially dismasted; the length of the passage was reported as 128 days, but the elapsed time from recorded departure to arrival was 137 days. The *Defiance* of 1,900 tons, a fast clipper built by Thomas at Rockland, Maine, on her maiden voyage in 1852, made her only run out to California and was 160 days between New York and San Francisco (June 2-December 2). She was partially dismasted in the Atlantic and had put into Rio de Janeiro for repairs. Captain McCerren reported 23 days' port detention and 136 days under canvas, pilot to pilot. The *Josephine* of 947 tons (built on the Piscataqua in 1852 by the constructor of the famous *Nightingale*), on her maiden voyage, reached San Francisco October 19, 1852, after a passage of 147 days from New York, having called at Valparaiso en route for repairs. The fast New York clipper *Ino* (895 tons), on her second run to California, upon arrival at San Francisco on July 12, 1852, after a passage of 116 days, reported "111 sailing days," as she had spent 5 days at Rio de Janeiro undergoing repairs, which call had prolonged her passage, it was claimed, "a full 7 days." The *Peerless* of 633 tons (built at Richmond, Maine, in 1852), on her maiden voyage, cleared New York December 19, 1852, but did not reach San Francisco until July 20, or 213 days later (reported as 210 days, port to port). The ship was partially dismasted, suffered injuries, and had put into Valparaiso en route, but the length of her passage in sailing days is unknown. The clipper bark *Storm* of 545 tons, on her maiden voyage, made a fast run

of 110 days from New York (clearing December 20, 1852) to San Francisco and, upon reaching her destination, reported that she had been sixteen days without topgallant masts.

The *Golden Eagle* (1,121 tons), on her maiden voyage from Boston to San Francisco in 1852, when being driven very hard and making a record run, shipped a tremendous sea forward when in Lat. 38° S. and only 36 days out, and the damage sustained was so great that the ship had to proceed leisurely to Rio de Janeiro for repairs. The clipper finally reached San Francisco 157 days out from Boston, of which 128 days were spent at sea (51 days from New York to Rio; 78 days from Rio to San Francisco) and 29 days in port, but Captain Fabens claimed a sea run "on the course" of 110 days. The medium clipper ship *Raduga* of 587 tons (built by Currier & Townsend at Newburyport, Mass., in 1848) left Boston June 30, 1852. In the South Atlantic, she was in collision with the ship *Crusader* and sustained such damage that Captain Cook put about and sailed for Rio de Janeiro, where the ship was detained about a month for needed repairs. Resuming the voyage, the *Raduga* was 95 days from Rio to San Francisco, which she reached January 3, 1853, 187 days from New York and, it is estimated, after about 157 days at sea.

The long detention in a South American port to make repairs to a United States vessel caused American shipowners and underwriters to criticize the time taken and the cost of repairs, and the masters were urged to make all possible repairs at sea to reduce both cost and the total time of the passage, port to port. From the early days of the speed craze and the driving of clippers to California, some of the masters had taken pride in making all needed repairs to their ships' spars at sea. The *Southern Cross* of 938 tons (built by Briggs, East Boston), on her maiden voyage to California in 1851, lost her three topgallant masts when 7 days out of Boston and again when off the Plate, but she did not put into any port for repairs. This clipper rounded Cape Horn without topgallant sails and did not set such canvas again until she was in the Pacific; she reached San Francisco on September 22, 1851, 136 days out from Boston. The *Sovereign of the Seas* of 2,421 tons (launched by McKay in East Boston in June 1852 and built by him "on spec"), while still on the builder's hands and in charge of his brother Capt. Lauchlan McKay, a master shipwright, on her first and only outward run to California, lost her main-topmast, fore-topsail yard, mizzen-topgallant mast, and all the canvas on the foremast during a gale in the latitude of Valparaiso on October 12, 1852; but all the spars were salvaged, the ship kept on her course, and in the evening of the day after the partial dismasting she was making 12 knots an hour. In twelve days, we are told, "the ship was as well rigged as when she left Sandy Hook," and she reached San Francisco November 15, 1852, after a passage of 103 days from New York. The underwriters of New York and Boston presented Capt. Lauchlan McKay with suitable tokens of their appreciation for having saved them money by making the needed extensive repairs at sea instead of taking the ship into Valparaiso.

Many of the clippers in the California Gold Rush of the early fifties made ports of call on the westward run because of the need of water. In addition to the *Invincible*, which had to stop at Rio de Janeiro January 26, 1852, because of a leaky water tank, the *Flying Dutchman*, on her fine maiden passage of 104 days, evidently called at Rio for a few hours to put some more water on board. The *Eclipse* is said to have called at Valparaiso on her second voyage in early 1852 for similar reasons. The *Samuel Appleton*, from Boston March 3, 1852, touched at Valparaiso for water May 31 and was detained at that port three days, sailing June 3 and reaching San Francisco July 21 after a passage of 140 days, port to port, and a run of 137 days at sea. The *Queen of the Seas* (1,356 tons), on her maiden passage from Boston to California, reached San Francisco March 11, 1853, and reported a call at Valparaiso for water and supplies and a detention there of three and a half days, her time between ports being 131 days, of which 127½ days were spent at sea. The ship *North America*, with 471 passengers aboard, on her 151-day passage from New York to California, arrived at San Francisco September 1, 1852, completing a passage during which

she had been obliged to stop en route at both Rio de Janeiro (three days) and Valparaiso (five days) to obtain needed water and supplies. The clipper ship *Red Rover* of 1,021 tons (built at Portsmouth, N.H.) cleared New York for California December 18, 1852, on her maiden voyage and in the North Atlantic lost her main-topmast and two topgallant masts, with all yards attached. Repairs were made aboard under the direction of Captain Putnam; the ship was 19 days off the Horn in heavy weather, and she put into Juan Fernandez when 79 days out, not for repairs but for water. The *Red Rover* arrived at San Francisco April 19, 1853, after an elapsed passage, clearance to entry, of 122 days and a reported passage of 117 days. She was two days at Juan Fernandez getting water aboard and was three days off the Golden Gate in heavy weather, but the length of this passage, port to port, including detention at Juan Fernandez, was recorded as 120 days.

In 1853 the *Stag Hound* arrived at San Francisco July 1, 127 days from New York, and reported a passage of 122 sailing days, having put into Juan Fernandez for water en route. The *Mystery*, reaching San Francisco shortly before (June 25, 1853), had reported calling at Valparaiso for water, and this passage of 139 days from Boston to San Francisco was reported as one of 135 days net (i.e., of 135 sailing days). Later, the *Sancho Panza*, on her maiden passage in 1855-1856, was 147 days, port to port; but she had called at Juan Fernandez for water and was there for four days. The *Queen of the Pacific*, on her run out to California in 1858, when 10 days out of New York, found that the cargo had chafed holes in the ship's large iron water tank, and all hands were put on an allowance of one pint of water per day until the ship reached Pernambuco, when 37 days out, and arrangements could be made to replenish the supply. The passage of 132 days from New York to San Francisco was reported as 126 sailing days.

The medium clipper *Southern Cross*, which proved as the years went by to be a good Cape Horner, made her three longest runs out to California on her first three voyages. As before stated, on her maiden passage, the ship was partially dismasted twice, experiencing very heavy weather, and made a run to San Francisco in 136 days. On her third passage, sailing conditions were reversed, and with light winds predominating practically all the way, she required 145 days for the run between the ports. Sandwiched between these two passages, the *Southern Cross* sailed from Boston for California on June 25, 1852, and put into Montevideo on August 31, with her cargo on fire. Here she was subjected to a detention of 25 days, while the fire was extinguished and certain cargo removed. The clipper arrived at San Francisco November 28, 1852, after a passage, port to port, of 156 days, of which 131 days were spent at sea.

But there were occasionally other causes besides (1) damage to spars and hull, (2) shortage of water (and supplies), and (3) fire that caused the Cape Horners to make for a South American port when on a passage from an East Coast U.S.A. port to California. The *N. B. Palmer* (1,399 tons), on her second run to California in 1852, leaving New York May 22, had sailed 390 nautical miles in the North Atlantic and had badly beaten the *Flying Cloud* in a run from Sandy Hook to Lat. 36° S. Later, she ran into a prolonged spell of bad weather, had a rough time of it rounding the Horn, and had gales, high seas, snow, ice, and rain for thirty-five days—until the ship was well into the Pacific. For eighteen days near the Horn, Captain Low was without any assistance from his officers because of his turbulent and mutinous crew and was required to keep the deck continuously. The chief officer had been shot by a member of the crew, and others had beaten the second and third officers with hand spikes. Two ringleaders of the mutinous and belligerent crew were flogged and put in irons, and as the men refused to work Captain Low was compelled to make for Valparaiso, where the ship arrived August 11 after a run of 85 days from New York. Upon arrival in port, after the two men who had attempted to murder their officers were turned over to the authorities, most of the crew deserted. However, Captain Low was able to secure some new hands, and after only four days of actual detention at Valparaiso the

N. B. Palmer resumed her passage and reached San Francisco in 130 days from New York, port to port, of which 126 days were spent at sea.

The Salem-owned clipper *Aurora* of 1,396 tons left Boston December 3, 1853, on her maiden voyage, bound for California and put into Rio de Janeiro January 25, 1854, being forced to make port because of mutiny in the crew. The belligerent ringleaders were promptly put ashore and new men obtained to fill their places, for in three days' time the ship sailed again. Whereas it had taken her 53 days to go from Boston to Rio, she went from Rio around the Horn to San Francisco in 72 days, making a voyage of 125 sailing days and 128 days, port to port. The medium clipper *Black Prince* (1,061 tons) sailed from Boston January 19, 1858, and when 39 days out was forced to put into Rio de Janeiro because of mutiny of the crew. A port detention of ten days, a poor crew, and unfavorable sailing conditions, with a 119-day run from Rio to San Francisco, caused this passage to occupy 168 days, port to port. The New York extreme clipper *Hurricane* of 1,608 tons (launched at Hoboken, N. J., in October 1851), on her second voyage to California and under the command of Capt. Samuel Very, had trouble with a mutinous crew, and the revenue brig *Washington* came alongside the ship when she was at anchor off quarantine and took off the leading mutineers in irons. The clipper ship *Neptune's Car* (1,616 tons), on her last Cape Horn passage to San Francisco in 1861, put into Callao after a turbulent rounding of Cape Horn, with the crew in mutiny and refusing to pump the leaking ship all the way to her destination.

The clipper ship *Flying Arrow* of 1,092 tons sailed from Boston for San Francisco, with passengers and freight, on her maiden voyage January 20, 1853. When four days out, she was totally dismasted and everything above deck carried away or damaged, including the boats, which were either lost or crushed, so that they were useless. The ship, in danger of foundering and leaking badly, was picked up by the steamship *Great Western* and towed into St. Thomas, arriving there February 16, where the cargo was discharged and masts and spars were built. Yellow fever broke out, nearly all on board being stricken, and the fatalities among both passengers and crew were large. The *Flying Arrow* arrived back in New York under her own canvas, but with an incompetent makeshift crew. The ship again sailed for California on August 10, with cargo, some of her original passengers, and a new crew. Captain Clark displaced Captain Treadwell, and she put to sea from New York instead of Boston after a delay caused by the disaster of January 24 of 202 days. The *Flying Arrow* had bad weather off the Horn, where the main-topmast was sprung and the main topgallant mast carried away, but she reached San Francisco December 31, 1853, after a passage from New York of 143 days. The total time taken from Boston, the original port of departure, to the port of destination was 345 days.

The *Corinne*, a reputed medium clipper, on her first voyage to California, left New York under the command of Captain Joyce on February 17, 1853, but being partially dismasted by heavy gales in the North Atlantic, she returned to port for repairs. She sailed again on April 28, with a change of skippers and Captain Stickney in command, and reached San Francisco October 13 after a slow run made under adverse sailing conditions. This passage, reported as 168 days, was in reality a passage of 238 days gross length, port to port, from the date of the original sailing. The *Coringa* (777 tons) sailed from Boston August 17, 1852, bound for California and was in collision with and sank a schooner 40 miles off Cape Ann. The *Coringa* returned to Boston to report on the accident and have her damage, which was slight, surveyed. The ship again put to sea on August 22 after a delay caused by the accident of five days. Captain Mason replaced Captain Potter in command, and the *Coringa* reached San Francisco January 2, 1853, after a passage of 133 days, which was a run of 138 days from the time of the first sailing (or official departure) to the arrival at the port of destination.

The *Polynesia* left Boston September 9, 1858, for California. After getting to sea, she was found to be leaking badly, so Captain Morse turned around and headed back to port,

where she arrived September 21. The ship was recaulked and a new foremast stepped, some damaged freight changed, and she sailed again October 24 after a delay of 45 days. The *Polynesia* arrived at San Francisco March 25, 1859, after a passage of 152 days from Boston, but the gross length of the passage dated from her first sailing would be 197 days. The *Challenger* sailed from New York January 26, 1859, for California, ran into heavy weather, was partially dismasted and damaged, and was back in New York February 16 for repairs. After 59 days in port, she made a second departure on April 16 and reached San Francisco August 15 after a passage of 121 days (reported as 120 days), but the total time occupied from her first sailing on this voyage to her arrival at destination was 201 days. The medium clipper ship *Reynard* (1,051 tons) sailed from New York for California September 30, 1859. When six days out, in a hurricane, she was partly dismasted and otherwise damaged and was towed into Boston (the nearest port) for repairs. After a detention in port of 18 days, the ship sailed again on November 4 (this time from Boston—a different port of departure) and arrived at San Francisco March 13, 1860, after a run of 130 days, which is the reported length of passage. The time from the first sailing to the arrival at port of destination, however, was 165 days.

The *Radiant* (1,318 tons) left Boston October 20, 1860, bound for California, and when well out to sea, for some unexplained reason, turned back to port and sailed again, arriving at San Francisco March 12, 1861, after a passage recorded as of 137 days; whereas the elapsed time from her original sailing, port to port, was 143 days. The clipper ship *Nor'wester* sailed from New York for California July 6, 1864, and after meeting heavy weather put into Portland, Maine, leaking badly. Repairs were effected, and the ship left Portland August 6 after 31 days' port detention. She reached San Francisco January 17, 1865, after a passage of 164 days from Portland, Maine, but 195 days from New York, the original port of departure. The clipper *Archer*, in 1866, also made departures from two different East Coast U.S.A. ports on this one voyage of hers to San Francisco. Leaving New York October 14, 1866, and promptly encountering heavy gales and high seas that wrenched the ship and caused bad leaks, she put into Boston, the nearest "getatable" port, October 27 for repairs. The *Archer* made a second departure, this time from Boston, on December 10 after a port detention of 44 days and a delay in final sailing of 57 days. The damage to ship and cargo was stated at \$12,000.

Occasionally, a ship in the California trade made a South American port because of sickness aboard. An instance was that of the *Grecian* (Captain Ilsley), which cleared New York for California March 2, 1852, and put into Rio de Janeiro with smallpox aboard. The sick persons were removed, and the ship quarantined. However, the detention could not have been of long duration, for the *Grecian* reached San Francisco August 11, 1852, concluding a passage, clearance to entry, of 162 days, and reported a run from Rio de Janeiro of 115 days; other records give a total length of passage of 150 days at sea. The clipper *Fair Wind*, sailing from Boston April 1, 1857, for California, put into Rio de Janeiro when 56 days out (on May 27) "to obtain medical aid for Capt. Stroot." She remained at Rio until June 10 (a detention of 14 days) and then made a run of 91 days to San Francisco. The total length of passage, port to port, was 161 days, of which 147 days were spent at sea.

Two fine and fast new clippers sailed from East Coast ports for California and never completed their maiden passages. The *Golden Light* of 1,141 tons (launched at the Briggs yard, South Boston, January 8, 1853) sailed from Boston on Lincoln's Birthday (February 12), 1853, and on Washington's Birthday, ten days later, was struck by lightning in the North Atlantic and destroyed by fire. The *San Francisco* of 1,307 tons (launched by A. C. Bell, New York, August 25, 1853) left New York October 25 and, after a splendid passage, took a pilot aboard off the Farallones on February 7, 1854, when 105 days out. She was doomed, however, not to complete her passage, for on entering the Golden Gate the next day, with the pilot in charge, the ship went on the rocks and became a total loss, although about one-twentieth of the cargo was salvaged before the ship broke up. She was valued

at \$105,000, cargo at \$400,000, and freight money \$50,000. Twelve lawless wreckers lost their lives by drowning in this catastrophe. A tragic end generally similar to that of the *San Francisco* befell the new Bath-built medium clipper *Carrier Pigeon* of 844 tons, launched October 18, 1852. She sailed from Boston on January 28, 1853, on her maiden voyage bound for California and, as she neared the Californian coast, ran into dense fogs. On the night of June 6, 1853, when 129 days out and believed to be between the Farallones and the Golden Gate, she piled up on the coast at Point Año Nuevo and became a total loss, but all hands were saved. This point of land is now known as Pigeon Point and has a lighthouse and fog signal station.

The *Noonday* of 1,189 tons, a medium clipper built at Portsmouth, N.H., in 1855, approaching the entrance to San Francisco Harbor on January 1, 1863, and being 139 days out from Boston in clear weather under all sail to main skysail and topgallant studding sails and making 10 knots an hour, sailed merrily to her doom. She struck a submerged rock eight miles west of the north Farallon and sank in 40 fathoms of water, with a loss of some \$450,000. The pilot boat *Relief* picked up all hands, who, with Captain Henry, had time to save only a portion of their belongings. The fatal rock, 18 ft. under water, is now well charted and is known as Noonday Rock. Probably the most tragic disaster that befell an American clipper in the California trade, considering the nature and place where the catastrophe happened, put an end to the career of the Boston-built *John Gilpin* of 1,089 tons when that ship (which had made a maiden run out in 93 days 20 hours) was making her fourth passage to San Francisco. In the vicinity of Cape Horn, at 2:30 A.M., January 29, 1858, the clipper struck the submerged part of an iceberg and, with 15 ft. of water in the hold, had to be abandoned the next day when she was on fire.

The season of the year had much to do with the length of the westward passage to California, for a mid-winter rounding of Cape Horn was apt to be turbulent and long against westerly gales and high seas, but the prevailing weather in both the Northern and Southern Hemispheres and in both the Atlantic and the Pacific has to be considered. The *Golden Eagle*, leaving New York May 23, 1859, experienced adverse weather in the Atlantic, but when she arrived in the region of the Horn in August (which was winter in the southern latitudes), she encountered persistently heavy head gales and mountainous seas and was 90 days before she could get into the Pacific, making her passage to San Francisco a long and fearful one of 215 days. (She put into Talcahuano for water and with a sick crew and was there six days.) The luck of the *Flying Cloud* was conspicuously evident on her maiden passage to San Francisco. Sailing from New York June 2, she was at Lat. 50° in the South Atlantic on July 19 and, making a mid-winter rounding of the Horn, experienced favorable winds and seas and ran to the 50° parallel in the South Pacific in only 7 days, or only one day longer than the all-time record of 6 days held by the *Young America*. On her fourth and record passage, which Captain Creesy reported as 89 days 8 hours (although the exact time and place of ending of this passage are indefinite and unverified), the *Flying Cloud* cleared New York January 19, 1854, but Creesy reported sailing January 21 and in the Straits of Le Maire March 9, a fall season in the winter hemisphere, which might or might not be good for a rounding of the Horn. Dame Fortune smiled on the *Flying Cloud*, and she sailed between the two 50's in 12 days and then, with favorable trades, ran up the Pacific to the Golden Gate in 35 days. On her last westward rounding of the Horn under Captain Creesy in April 1855, the *Flying Cloud* encountered no westerly gales but only light favoring winds and calms. This ship, on her five passages to California under Captain Creesy, experienced no bad weather off the Horn at any time, but made excellent roundings under fortuitous conditions. On three of his roundings of the Horn, Creesy, with the *Flying Cloud*, averaged only a little over 9 days. This is only one-tenth of the time spent by the clipper *Golden Eagle* (90 days) off the Horn in 1859. That this ship was capable of speed, if given a chance, is proven by the fact that she ran from New

York to San Francisco, port to port, in 1855 in 106 days after rounding the Horn in 13 days (of which five days were spent in very heavy weather), and she was further handicapped by light winds and calms in the North Pacific. The *Flying Cloud*, on her last westward passage of Cape Horn, under Captain Reynard, in July 1855, had a dose of the usual mid-winter weather off that point, and she reported seven days of heavy gales, which required the rigging of "an addition to the rudder in order to properly steer the ship." After five lucky roundings of Cape Horn, the good fortune of the *Flying Cloud* deserted her with a change of masters, and on her sixth passage, she required 82 days to run from Rio de Janeiro to San Francisco, which was twenty days more than the *Witchcraft* occupied in June-August 1851, even though Captain Reynard claimed that under his brief command the *Flying Cloud* covered 402 nautical miles in one day, or some 28 miles better than her record for a day's run under Captain Creesy.

There are several outstanding features about the admirable average performance of the *Flying Fish* on her westward Cape Horn passages to California, and one of these is the fact that her lifetime average of 105.6 days on seven passages made in seven consecutive years (all of which runs were the first leg of voyages around the world) was made on passages that originated during seasons generally considered unfavorable for fast runs from an East Coast port to California. Another is the number (seven) and the clock-like regularity and uniformity of her runs, and coupled with this is the low average passage time of 105.6 days, with the shortest passage 92 days (1852) and her longest 114 days. Only the *Westward Ho* had a maximum passage as low as that of the *Flying Fish*, and she made only four westward Cape Horn passages, whereas the *Flying Fish* made seven. The *Andrew Jackson*, as she left her Mystic builders, was badly sparred, and her first passage occupied 128 days; but after this medium clipper had her masts re-stepped and was re-rigged, she made four more consecutive Cape Horn runs, with the longest passage only 105 days. None of the clippers with their reputations for speed, other than the *Westward Ho* and *Andrew Jackson*, have a record for low maximum length of westward California passages that can compete with the *Flying Fish*. The *Flying Cloud's* second westward passage, with Captain Creesy in command, occupied one day more than the seventh and longest lifetime Cape Horn passage of the *Flying Fish*. It would seem that the *Flying Fish* was a better and more reliable fast sailer than the *Flying Cloud*. She did not have the luck of the "Cape Horn Greyhound," but she was a better money-maker.

Fog, light airs, calms, or adverse winds experienced during the last several hundred miles of the passage from an East Coast port to San Francisco kept many a fast clipper that was knocking on the door from making an 89-day or better run to the Golden City during the early and mid-fifties, but Dame Fortune declined to smile upon their efforts. The *Alboni*, a clipper ship of 917 tons built at Mystic, Conn., in 1852, was particularly unlucky in weather encountered as she approached the Golden Gate. On her maiden voyage from New York to San Francisco, she was within 300 miles of the Golden Gate when 113 days out, but was 17 days covering this short distance in calms, light airs, and fogs, and during the last 7 days was off the coast in a dense fog. On her second voyage in 1854, this ship had a hard time of it rounding the Horn against terrific head gales, but when she got into the Pacific, she experienced only light winds and light airs and calms as she approached her destination. On her next voyage to California, the *Alboni* ran into heavy gales in the South Pacific, which damaged her spars, and several men were lost overboard and many others incapacitated, but in the North Pacific the usual light and unfavorable winds were experienced. Of the passage reported as 165 days, 38 days were in the North Pacific, and in October 1855 the ship was within 500 miles of the Golden Gate for 19 days. Dame Fortune frowned on the *Alboni* in the North Pacific to the end, for on her fourth and last California voyage in 1858, she was 36 days "in light winds and calms" from the Pacific equator to the Golden Gate. Among the many fast clippers deprived of making fast passages by running into light airs, calms, and fogs as they approached the Golden Gate can be mentioned the following:

Name of Clipper	Date	End of Passage Approaching the Golden Gate	Name of Clipper	Date	End of Passage Approaching the Golden Gate
FLYING EAGLE	Apr. 1861	900 miles in 20 days	TORNADO	Apr.-May 1853	300 miles in 7 days
REPORTER	Apr. 1857	700 miles in 17 days	HERALD OF THE MORNING	May 1854	180 miles in 6 days
DASHING WAVE	Apr. 1858	800 miles in 17 days	ANGLO-SAXON	Aug. 1862	700 miles in 18 days
DASHING WAVE	July-Aug. 1859	500 miles in 18 days	POLYNESIA	July 1855	600 miles in 18 days
WILD DUCK	Dec. 1854	600 miles in 15 days	WILD RANGER	Oct. 1853	300 miles in 12 days
BLACK WARRIOR	Jan. 1856	280 miles in 10 days	WHITE SWALLOW	1864	500 miles in 14 days

As a passage from an East Coast port to San Francisco covered a distance usually of from 15,000 to 16,000 miles and averaged about 130 miles per day (and as high as 170 miles), these mileage coverages mentioned above, which average only 37 miles per day (and as low as 28 miles), clearly indicate the handicap and the uncertainty of the approach to the Golden Gate in the sailing performance, port to port, of clippers in the California trade. Some of the clippers were becalmed or in fog for days practically at the threshold of the Golden Gate, and in April 1861 the *Flying Eagle* was "becalmed for 4 days off the Heads." The *Winged Arrow*, in early February 1855, was "becalmed 7 days within one day of port," and a month later the *Electric* was in a fog off the Golden Gate for three days. The *Challenge*, at the close of 1854 and early in January 1855, was held for "a full four days outside San Francisco by a dense fog," and the *Ocean Telegraph*, in November 1854, was delayed six days by calms and fog off the Golden Gate. The *Witchcraft*, on her splendid 98-day passage in 1854, was held off the Heads two days by fog and was within 700 miles of the Golden Gate for nine days. The *Mameluke*, in February 1856, was ten days in calms and fog in the Pacific off San Francisco, and in August 1860 the *White Swallow* was held off the Heads by fog for six days. The *Golden City*, in early January 1853, was detained five days in fog between the Farallones and the Golden Gate, and at the same time the *Typhoon* was prevented from entering the harbor for four days by fog. The *Sweepstakes* reached San Francisco from New York on January 6, 1854, but she had been in sight of the Heads for four days in light airs and calms and could not get wind enough to enter the harbor. The *John Wade*, on her maiden passage to California, did some fast sailing on the last section of the course after crossing the Pacific equator; but after sixteen days of good work under canvas, she was held off the Golden Gate for three days by calms and fog. The *Flying Fish*, when she made her record run of 92 days from anchor to anchor in the winter of 1852-1853, was on her way to beat the 89-day 21½-hour record of the *Flying Cloud* and, on her 88th day, was 156 miles nearer San Francisco than was the "Cloud" on her record passage. However, the fates willed otherwise, and the "Fish" was held off the Heads, "cooling her heels," for three days in calms and light adverse airs. It certainly required a good measure of luck for a sailing ship dependent upon the wind to make a speed record. The *Swordfish*, on the maiden voyage, ran to the Pacific equator in better than 71 days, and if she had been favored with the luck that the *Flying Cloud* enjoyed in the North Pacific when she made her fastest passage and had a 15-day run from the line to the Golden Gate, the *Swordfish* would have made an 86-day passage. At least fifteen clippers ran from the Pacific equator to San Francisco in from 12 to 16 days, and if the *Swordfish* had had a sailing chance in the North Pacific equal to that of any of these ships, she would have made an all-time record from an East Coast port to San Francisco of from 83 to 87 days as against the 89 days and odd hours for the *Andrew Jackson* and *Flying Cloud* and her own best run of 90 days and 16 hours.

Of the sailings for California of the clippers (and reputed clippers) that with four or more passages during the years 1850-1860 qualify as "Cape Horners," five made long runs to San Francisco of 150 days or over in their passages leaving East Coast ports in 1853, but only one, the *Flying Eagle* (1,094 tons), had to put into port en route for repairs. Sailing from Boston on her maiden voyage February 22, 1853, this clipper lost her main-topmast with yard and all three topgallant masts when 5 days out and put into Rio de Janeiro forty-two days later for repairs. Her passage, Boston to San Francisco, occupied 169 days, but 25 days were spent at Rio, and her days at sea totaled 144, of which 47 were to Rio and 97 spent on the run from Rio to the Golden Gate. The *Thomas Watson* (492 tons), with 155 days, the *Reindeer* (800 tons), with 153 days (155 days elapsed, clearance to entry), the *White Swallow* (1,192 tons) and the *Anglo-Saxon* (868 tons), each with 150 days, made merely long passages under unfavorable sailing conditions, although apparently the *Reindeer* made a West Coast South American call—presumably in trade—as she reported a passage of 132 sailing days. The *White Swallow* experienced bad weather in the North Atlantic and was 51 days reaching the line. She was 80 days in the Northern Hemisphere, 35 days in the South Atlantic, 16 days rounding the Horn, and 19 days in the South Pacific. The *Anglo-Saxon* had bad weather off the Plate, lost her deck load, and suffered damage. She was 26 days off the Horn in gales and high seas, losing her jib boom, and did not clear the Cape until 98 days out, following which she experienced light winds for 52 days to destination. The clipper *Highblyer* (launched at Newburyport, Mass., January 13, 1853), on her maiden voyage to California, left New York April 7, 1853, sprung a leak in the North Atlantic, and put into Rio de Janeiro June 7 with defective pumps. The ship reached San Francisco September 3, 1853, and reported as 82 days from Rio and 148 days from New York (elapsed time, 149 days), which would make the detention at Rio for repairs about six days. The *Storm King* (1,289 tons), on her maiden voyage, sailed from Boston March 14, 1853, had bad weather rounding the Horn, and put into Callao June 16 for repairs. Sailing June 21, she was off the California coast July 23 in fog and light airs, but she did not reach San Francisco until July 27, completing a passage of 135 days, port to port, and 130 sailing days. Captain Collier reported a run of 127 sailing days, claiming 5 days' port detention, and a delay off the Golden Gate of "3 days by fog."

In 1854 three of the clippers here classified as regular "Cape Horners" that cleared East Coast U.S.A. ports for California did not reach their destination until well over 150 days had passed, and a fourth, after three futile attempts to make the passage, gave up the attempt and never reached her destination. The *Victory* of 670 tons (built at Newburyport in 1851), making her third passage to California, left New York June 17, 1854, and reached San Francisco December 23 after a passage from port of departure to destination of 189 days. The ship was in trouble and put into Valparaiso en route, presumably for repairs, but details are not available; the date of arrival at Valparaiso is unknown, but the *Victory* left that port November 9 and ran to San Francisco in 44 days. The *Raven*, an extreme clipper of 711 tons, with a reputation for speed, after having made three westward Cape Horn passages in 106, 121, and 119 days, respectively, cleared New York August 17, 1854, and did not arrive at San Francisco until February 23, 1855, or 190 days later. This clipper is credited with a passage of 188 days, port to port; but this westward run of the *Raven*, her last completed passage to California, is permeated with mystery. That she put into Rio de Janeiro is definitely known, for upon her arrival at San Francisco, Captain Hanson reported "84 days from Rio." A claim was made of 124 sailing days from New York, and at times it was reported that the ship ran from New York to San Francisco via Rio in 118 days net, which probably is an estimate of the time that the ship was "on the course" between the two ports and indicates that she was forced into Rio for repairs. To confuse matters further is the statement that "the *Raven* cleared New York August 17, 1854, for Rio de Janeiro." From this date of clearance to her arrival at San Francisco, it is definite, however, that 190 days elapsed. In early 1863, the *Raven* made one more attempt to make the Cape Horn run to California, but she put into Rio leaking

and badly damaged. The ship was condemned, although after being sold and repaired, she saw sea service as a Portuguese bark until the late seventies.

The *John Land* of 1,054 tons, a medium clipper that was undoubtedly a fast sailer, but that holds the unenviable record of making the two longest clipper ship westward Cape Horn passages to California in the fifties, made the supremely long drawn-out passage of 311 days to San Francisco. Commencing this voyage at Boston July 6, 1854, she put into Valparaiso November 2, when 119 days out, leaking badly, but after repairs, her real troubles commenced in the North Pacific, part of her cargo was transferred to the whaler *D. M. Hall*, and the ship went to Nukahiva and thence to Tahiti for repairs. She finally reached San Francisco May 13, 1855, 311 days from Boston. Salvage payments in excess of \$63,000 were awarded and paid the owners, captain, officers, and crew of the whaler *D. M. Hall*.

In addition to the departure from Boston in 1854 of the vessel that made the longest all-time clipper passage to California, the year is memorable for a departure of the fast extreme clipper *White Squall* (1,119 tons) from New York on December 31, which was not wrecked nor reported as missing, but which was never able to reach her destination. Two days after sailing, the vessel shipped a heavy sea which stove in the bulwarks and cabin, did great damage on deck, and injured the captain and three men. The clipper returned to New York for repairs and sailed again on February 17, 1855, bound for California. She lost all her three topmasts in a severe gale when 4 days out and put into Rio de Janeiro in distress on March 25, when 36 days out. The captain gave up his command, and the *White Squall*, rigged as a bark, returned to New York in February 1856. After repairs, she was again sent to sea bound for California; but in September 1856, she was at Montevideo in distress, and twenty-one months after the passage to San Francisco first originated in New York, the voyage was abandoned, the clipper having got no farther on her way than Montevideo. The *White Squall* was sold foreign and became the *Splendide* of Marseilles, being in the registry as late as 1877.

Of the Cape Horn clippers before mentioned making four or more westbound passages to California during the years 1850-1860, five made passages of 150 days or over, with sailings from an East Coast port in 1855. All experienced bad weather, two suffered damage to masts and spars, but only one of them, the *Star of the Union* (1,057 tons; built at Medford, Mass., in 1852), made a port while en route for repairs. This ship left New York November 26, was in distress sixty-seven days later off the Cape, had her rudderhead twisted off, "turned tail" to the westerly gales, and went back to the Falkland Islands for repairs. She arrived at Port Stanley February 12, 1856, when 78 days out, and was reported to have returned to the scene of her accident after suffering a detention (or delay) of 47 days resulting therefrom. The clipper sailed through the Golden Gate May 10, 1856, after a passage, port to port, of 166 days. Captain Stahl reported the passage as being made in 113 sailing days on the course, which does not check with other reports; for 166 days less 47 days stated delay is 119 days. Possibly, the statement that the ship "was held off port [San Francisco] eight days in a dense fog" accounts for the apparent discrepancy.

The *Alboni* (917 tons; built at Mystic, Conn., in 1852) made a 165-day passage from New York to San Francisco (169 days from clearance on May 5 to entry on October 21). She was becalmed 17 days in the North Atlantic and then got into heavy weather, the foremast was sprung, and for 53 days the ship was without a fore-topgallant mast. The *Alboni* was off the Horn 18 days and experienced calms in the North Pacific, requiring 19 days to cover the last 500 miles of the passage—an average speed for this period of about one knot per hour. The *B. F. Hoxie* (1,387 tons), with 156 days (161 days elapsed, clearance to entry), the *Victory* (670 tons), with 153 days, and the *Fleetwing* (896 tons), with 152 days, all reported adverse sailing conditions, the first two of the three being dull sailers. The *Fleetwing*, while capable of good speed under favorable conditions (she made two westward runs of 113 days during her lifetime), was generally unlucky as to weather and the seasons in which she made her passages.

The *Eagle*, an extreme clipper of 1,296 tons (launched at New York May 3, 1851), cleared New York March 13, 1855, and arrived at San Francisco July 15, 124 days later, after calling at Rio de Janeiro (for repairs) en route. Captain Farren reported the passage as "115 days net," but other records suggest that the run was made in 117 sailing days. Possibly, the fact that the *Eagle* made land July 13 and anchored one and a half miles from shore (about 30 miles south of the Golden Gate) is responsible for the difference in statements covering this passage, and there is uncertainty in regard to the exact time of sailing and the number of days of detention at Rio (one report says six days).

The small medium clipper ship *Sparkling Wave* (655 tons) reached San Francisco April 14, 1855. She had cleared Philadelphia December 6, 1854, and the elapsed time for the passage was, therefore, 129 days; but the ship had stopped at Montevideo en route for repairs, and Captain Hubbard reported a passage of "122 days from Philadelphia and a record run of 61 days from Montevideo." The period of detention at the Uruguayan port is unknown, but the run from Montevideo is an amazing one. The little clipper must have experienced unusually favorable weather in the South Atlantic and rounding the Horn, for she reported being at 50° S. Pacific when only 20 days out from Montevideo, and she ran up the Pacific from 50° S. to the Golden Gate in 41 days. The *Sparkling Wave* made only two westbound California passages, and she had to put into a port en route during each of them. Her second and last passage (made in 1859-1860) was in pronounced contrast to her first run to San Francisco, as this little ship, when six years old, required 324 days to make a passage from New York to San Francisco, port to port, and she had to put into both Rio de Janeiro and Valparaiso en route for repairs. The last leg of the passage, which was a slow 56 days from Valparaiso to the Golden Gate, is in marked contrast to the brilliant run of 61 days from Montevideo to San Francisco made in February-April 1855.

In 1856 the *Flying Cloud* made her long 185-day westward passage to California, before mentioned, putting into Rio de Janeiro for repairs after being partially dismasted. The *Fleetwing* made her longest westward rounding of the Horn with a run to San Francisco of 158 days. The *Lotus* (660 tons), arriving at San Francisco July 5, 1856, in company with the *White Swallow*, cleared New York February 1, which gives an elapsed time, clearance to entry, of 155 days; but the length of her passage has been stated at both 146 and 155 days. However, her runs over the five prime sections of the course given by Howe and Matthews in AMERICAN CLIPPER SHIPS total 156 days, the elapsed time from departure to arrival figures 142 days, and the statement is made that the ship reached port "146 days out." An analysis of the passage indicates a rough time in the Atlantic and rounding the Horn, 50° S. Pacific being reached when 93 days out, with light winds experienced in a 62-day run up the Pacific, the run "from the line to the Golden Gate taking 38 days." The *Reindeer* (800 tons), making her last passage around the Horn to California, showed 169 days of elapsed time from New York to San Francisco, but the passage was reported as 162 days, and whether a stop was made at a South American port for trade, which was the ship's custom, is unknown. The length of this passage herein stated as 167 days is apparently correct from departure from Sandy Hook to arrival at the Golden Gate. This was the ship's last westbound Cape Horn California run, and she was wrecked in the Philippines in February 1859.

The *B. F. Hoxie*, with a 152-day passage, sailed over the course under particularly adverse conditions (her passage from clearance to entry figures 154 days), but it was reported that the ship made a 149-day run as against the *Western Continent's* 176 days via Valparaiso and the *Rapid's* 224 days via Rio (elapsed time, port to port). The *Rapid* sailed from New York only a few days before the *B. F. Hoxie*. It is of interest to note that the *Western Continent*, which made only two Cape Horn voyages, was a medium clipper of 1,272 tons, built at Pembroke, Maine, in 1853, which in the winter of 1854-1855 made a run of 120 days from New York to San Francisco, but in 1856 was partially dismasted and damaged after rounding the Horn and had to put into Valparaiso for repairs. The *Rapid*, a New York-built clipper ship of 1,115 tons, an "out-and-out" clipper, made only two west-

ward California passages; the first in 1854 occupied 136 days (reported 135 days), but the second and last was a disastrous experience. Clearing New York May 26, 1856, the clipper worked to a position well south and slightly west of Cape Horn in terrific weather. On August 18, when 84 days out, with hull damaged by seas and ice and leaking, ten men lost and ten others disabled, and with only a handful of men left to work the ship, Captain Winsor felt obliged to stop bucking the mid-winter gales and seas and run before the wind. He worked the ship back to Rio de Janeiro, where she arrived September 25 (122 days out). The *Rapid* was repaired and, continuing her voyage, had 11 days of heavy gales off the Cape, but while suffering more damage reached San Francisco on January 5, 1857, after a passage of 224 days of elapsed time, clearance to entry, from New York (reported as 222 days and again as 220 days from Sandy Hook to the Golden Gate, but the time in sailing days was not stated). The *Ocean Telegraph*, an extreme clipper ship of 1,495 tons, made a 150-day passage from New York to San Francisco in 1856, which was due to adverse sailing conditions, as she was 46 days in the North Atlantic and 40 days off the Horn, during 12 days of which "she did not make one mile."

Three regular Cape Horn clippers credited with four or more westbound passages to California originating at an East Coast port during 1850-1860 made passages in 1857 in excess of 150 days; all experienced bad weather, and two of them were required to make for Rio de Janeiro for repairs. The *Aurora* (1,396 tons), on her fourth passage to California, cleared New York April 4 and reached San Francisco November 6 after an elapsed period of 216 days—here reported as a 215-day passage, port to port. When near the Falkland Islands, the rudderhead was carried away in heavy weather, and the ship put back to Rio for repairs, where she arrived June 14, when 70 days out. After a port detention of 40 days, the *Aurora* sailed July 24 and was 105 days to San Francisco, making her passage 215 days gross and 175 net sailing days. The *Neptune's Car*, a clipper ship of 1,616 tons, which made a fast 101-day passage to California in 1855, was in bad luck in 1857. Although she made a passage of 184 days from New York to San Francisco, which figured 187 days from clearance to entry (August 29, 1857-March 4, 1858), yet her commander, Captain Bearse, reported the run as of 125 sailing days. The *Neptune's Car*, with a badly sprung foremast, put into Rio de Janeiro November 8, 1857, when 68 days out, and after 34 days' detention, during which repairs were made, sailed December 12 and was 82 days to San Francisco, with 25 days spent in rounding the Horn; this makes a passage from Sandy Hook to the Golden Gate of 184 days and of 150 sailing days, so Captain Bearse's statement of 125 sailing days was obviously his estimate of time spent in the run "on the course." On her last westward California passage made in 1861, the *Neptune's Car* again experienced bad luck. Leaving Sandy Hook April 25, she encountered terrific gales off the Horn and was partly dismasted, the decks were swept by mountainous seas, and bad leaks developed. The crew mutinied, refusing to man the pumps, and the leaders were put in irons. On entering the Pacific, Captain Sprague steered for Callao to put the mutineers ashore and have some temporary repairs made, and the ship did not reach San Francisco until October 28 to complete a passage of 186 days from New York, port to port. It is said that Captain Sprague would not have called at Callao, but would have continued on the course up the Pacific after clearing the Horn if the crew had not rebelled, refused to work the pumps incessantly on the run to San Francisco, and demanded that the ship be taken to the Chilean port for repairs.

The *Courser*, a medium clipper of 1,024 tons, in 1852 made a westbound run to California in 108 days, but on her fourth and last passage as a Cape Horner in 1857 she left New York January 30 and on July 4, or 155 days later, entered at San Francisco, completing a passage reported as 154 days. The sailing conditions encountered were unfavorable. The fast *Comet*, which sailed from New York the day after the *Courser*, made a run of 142 days, which was the slowest of her seven passages between the ports, and the *Mameluke* (1,303 tons), which arrived at San Francisco the day after the *Courser*, had required 173 days to make the run.

In 1858 the extreme clipper *Witchcraft*, credited with a westward Cape Horn passage of 98 days in 1854, made a run with head winds almost all the way in the Atlantic and heavy weather from the Plate to the Pacific. On June 9, off the Cape, when 88 days out, the ship lost her fore-topmast and bowsprit and on June 21, when 110 days out, put into Valparaiso for repairs, which occupied 20 days. The *Witchcraft* reached San Francisco August 31, 170 days of elapsed time and 150 sailing days from New York.

The *Raduga*, a ship of medium clipper type built at Newburyport, Mass., in 1848 for the China trade, was not designed for a Cape Horner, but she made three westward passages to San Francisco in the 1850's. The first two of these, made in the boom years of 1851 and 1852, are understandable, and her second passage of 187 days, port to port, from Boston to San Francisco via Rio de Janeiro has been previously referred to. In 1858 this little 587-ton ship, after a Cape Horn run to Honolulu, made a third westward run to California and had a bad time of it. Leaving Boston February 23, she finally reached San Francisco August 16, completing a passage of 174 days via Rio de Janeiro, and the last lap of the journey was a run to destination of 85 days from Rio. The *Raduga* made a Cape Horn passage from Boston to Honolulu in 1859 and, as an American ship, engaged in trade with the Hawaiian Islands, her return cargoes being usually whaling products for New Bedford. The little clipper's last passage to California was a 152-day run from Boston to San Francisco in 1861. The *Raduga* was sold and went under the Hawaiian flag in 1863 and actually continued in the Cape Horn trade (Boston-Hawaii-New Bedford) until the early seventies, when she was again sold for service in less turbulent waters. As the bark *Modesta* of Barbados, the old *Raduga* continued an active sea life until 1890, when she was lost as a result of a collision when forty-two years old. This little clipper must have been well built as well as a good carrier, and she probably holds the record for years of service in the Cape Horn trade for a ship of her size.

The *Anglo-Saxon*, which left New York April 10 and reached San Francisco September 21, 1858, was 164 days over the course; she was 41 days rounding the Horn in heavy weather, but had light winds and could not make time during the balance of the passage. The *Alboni*, with a run of 150 days (June 10-November 8), passed Cape Horn on the 70th day and then encountered heavy westerly gales for 15 days; she crossed the Pacific equator 114 days out and then had 36 days of light winds and calms to port. In this record of Cape Horn passages, the length of the runs is figured from the time that a clipper finally left an East Coast U.S.A. port to make her voyage, as occasionally a ship sailed, put back for repairs, and again left port bound for California. The medium clipper *Polynesia* of 1,084 tons (built by Samuel Hall, East Boston, in 1852) left Boston September 9, 1858, for California. After getting well out to sea, it was found that the ship was leaking badly and was taking in more water than the pumps could handle, so she turned back and was in Boston Harbor again on September 21. After being recaulked and having a new foremast stepped and damaged freight removed, with new merchantable goods substituted, the *Polynesia* again proceeded to sea and quickly got into a cyclone. The topgallant masts were cut away to save the ship, and she was 40 days to the Atlantic equator and finally reached San Francisco on March 25, 1859, after a run of 152 days from Boston, which would be considered a 197-day passage if the date of the first departure was considered as the commencement of the voyage.

The clipper *Reynard* (1,051 tons; built at Newburyport in 1856), on her third and last California voyage, sailed from New York September 30, 1859, and in a hurricane, when 6 days out, lost everything on the mainmast except the lower mast and had her mizzen-topgallant mast and almost an entire suit of sails carried away. The ship was towed into Boston for repairs, reaching that port October 17 (17 days out). She resumed her voyage November 4 after a port detention of 18 days and reached San Francisco on March 13, 1860, after a passage of 130 days from Boston, but 165 days after she first set sail from New York to make this Cape Horn run. The extreme clipper ship *Challenger*, built by Jackson at East Boston in late 1853, left New York January 26, 1859, for California. She ran into heavy gales in the North Atlantic and, being partially dismasted, was back in New York February 16. After

being repaired, the clipper sailed again April 16 and reached San Francisco August 15 after a run of 121 days. The total time consumed from the first sailing to the arrival of the ship at the port of destination was, however, not 121 but actually 201 days.

There were six of the forty-five sailings of the regular Cape Horn clippers (credited with four or more passages to California with departures from an East Coast port during 1850-1860) leaving during the calendar year 1859 that made runs, port to port, of over 150 days. These were the passages of the *John Land*, 270 days; *Golden Eagle*, 215 days; *Young America*, 174 days; *West Wind*, 172 days; *Flying Eagle*, 153 days; and *Webfoot*, 152 days. The *John Land* (1,054 tons), after her awful experience in 1854-1855 with a 311-day passage, made two fast runs to California in 1857 and 1858 in 105 and 108 days, respectively; but the structural defects of the South Boston-built ship reasserted themselves on her fifth and last westward run to California, which originated at Boston November 25, 1859. On February 1, 1860, off Cape Horn and when 68 days out, after eighteen days of heavy weather, the leaking of the ship became very serious. A course was set for Valparaiso, and when she reached that port on February 23, 1860 (90 days out), with pumps working to the limit, she had four feet of water in the hold. The cargo had to be discharged, part of it sold, and the ship thoroughly repaired. She finally reached San Francisco August 21, 1860, 270 days from New York and 51 days from Valparaiso, completing a passage in which she had been at sea 141 days and in port for repairs 129 days. The 215-day passage of the *Golden Eagle* (1,121 tons), before referred to, was a record bad weather run (New York, May 23-San Francisco, December 24, 1859), when adverse weather in the Atlantic caused this fast ship to be 85 days to the Horn, and then she had 90 days of heavy gales and mountainous seas before reaching the Pacific. On November 12, when 173 days out, with fifteen of her crew sick and only ten seamen fit for duty, she put into Talcahuano for water, fresh supplies, and medicines and was in port six days, following which she ran to San Francisco in 36 days, her total time at sea on this 215-day passage being 209 days.

The well-built and extremely reliable fast clipper *Young America* (1,961 tons), with an all-time record for some thirty years as a Cape Horner, after averaging 109 days on her first three westbound passages to California, on her fourth had a most annoying experience, which disgusted her owners. Leaving New York January 30, 1859, she lost her main-topmast and mizzen-topgallant mast in terrific gales encountered in the Atlantic. Captain Brown took the ship into Rio de Janeiro for repairs, which he assumed would occupy about a couple of weeks, but the dilatory Brazilians kept the ship in Rio two months. Even though she made a magnificent run of only 69 days from Rio to San Francisco, where she arrived July 24, the voyage had occupied 174 days, port to port, although the time spent at sea on the course was less than 110 days. On her previous westward rounding of Cape Horn, the *Young America* had lost her jib boom and had her bulwarks stove in by heavy seas, but under Captain Babcock she had made a fine passage of 107 days to San Francisco. After 1859, the *Young America* kept away from making any port en route for repairs, and she took care of herself and by so doing saved much time. In 1868, off the Plate, the ship was dismasted by a violent whirlwind, but Captain Cumming, under jury rig, rounded the Horn and took the vessel into San Francisco only 117 days out of New York. The *West Wind* (1,071 tons), after four mediocre passages for a clipper, which averaged 131½ days, on her fifth Cape Horn westward run, clearing New York August 20, 1859, occupied 172 days, with an arrival of February 10, 1860, at San Francisco (174 days of elapsed time, clearance to entry). Capt. Allen Baxter reported the run as 170 days, being 46 days to the Atlantic equator and 37 days in rounding the Horn. Evidently, adverse sailing conditions were entirely responsible for the long passage, and the same comment applies to the 153-day run of the *Flying Eagle* (1,094 tons)—which had some trouble with her spars in a pampero off the Plate and in gales off the Horn—and the 152-day run of the *Webfoot* (1,091 tons), which was 33 days off the Horn in very heavy weather.

Forty-one westward passages of qualified "regular" Cape Horn clippers are shown in the table set forth with departures from an East Coast U.S.A. port in 1860, and of these, three reported passages of 150 days or over; but while two suffered severe damages to spars, only one made a port en route for repairs. The *Flying Eagle* (1,094 tons), which had experienced a rough passage of 153 days in 1859, was 160 days going between the ports in 1860. Clearing New York November 7, 1860, she was damaged by a heavy pampero when 48 days out and put into Montevideo for repairs to hull and the fitting of a new bowsprit. Her port detention was 23 days, and 137 days were spent at sea, 53 days from New York to Montevideo, and 84 days from Montevideo to San Francisco, the passage being of 162 days, clearance to entry, and 160 days from Sandy Hook to the Golden Gate. The *Elizabeth F. Willets* (825 tons) made a run of 163 days from New York to San Francisco (April 20-September 30) in heavy weather, and the *Winged Arrow* (1,052 tons) sailed through the Golden Gate on November 16, 1860, with a jury mizzenmast, after a turbulent passage of 150 days from Boston; on August 4, near the Plate, she had lost her mizzenmast, main topgallant mast, and main yard, but had re-rigged herself as a bark with a jury mizzenmast, following which she was 26 days rounding the Horn in heavy weather.

The *Ocean Express* of 1,697 tons, a medium clipper launched at Medford, Mass., in July 1854, left New York June 8, 1862, bound for California. Off the Horn in heavy weather, she developed bad leaks, put about, and headed for Rio de Janeiro for repairs. The ship finally reached San Francisco January 2, 1863, completing a passage of 208 days from New York, port to port, with the last lap of the journey a 75-day run from Rio. The medium clipper *Minnehaha* of 1,698 tons (launched by Donald McKay at East Boston on March 22, 1857) left New York July 21, 1862, with a cargo of coal for San Francisco and did not reach her destination until February 17, 1863, after a passage of 211 days, port to port. The clipper developed bad leaks in the South Atlantic and put into Rio de Janeiro for repairs on September 29, when 70 days out from Sandy Hook. She left Rio November 6 and had a long run of 103 days to San Francisco, the entire passage consisting of 173 sailing days, a day's delay leaving New York, and 37 days' detention at Rio de Janeiro, although some records state that the ship was at Rio "35 days making repairs." The *Swallow*, a clipper ship of 1,435 tons (launched by Robert E. Jackson, East Boston, April 4, 1854) was a fast sailer and a successful vessel that made no Cape Horn passages until she was purchased by Thatcher Magoun, of Boston, in 1862; but between that time and 1873, the ship made nine California voyages and on the outward passage of two of them had to put into South American ports for repairs. On her first run to San Francisco, the *Swallow* put into St. Catharine, Brazil, in August 1862 leaking and on May 31, 1867, reached Montevideo. She had been badly mauled by severe gales and heavy seas in the South Atlantic in late April, which sprung the mainmast, carried away much canvas, including all three topsails, twisted the rudderhead, and did much damage on deck. After repairs were made, the *Swallow* ran from Montevideo to San Francisco in 80 days. Possibly, an all-time record for a long passage for a clipper completing a run in the California trade was made by the *War Hawk*, a medium clipper of 1,067 tons, built at Newburyport and launched into the Merrimac January 3, 1855. Sailing from Liverpool June 20, 1870, for California, this ship (when about fifteen and a half years old) put into Rio de Janeiro October 27, when 129 days out, and was held at that port about six months undergoing repairs. She finally arrived at San Francisco on September 2, 1871, completing a passage that had occupied 439 days, port to port.

Following is a supplementary list of clippers that, leaving an East Coast U.S.A. port during the fifties bound for California, put into a South American port en route for repairs, attention, or help. Of the nineteen passages mentioned below, two were by clippers that because of their number of westward California runs leaving the East during the years 1850-1860 qualified as Cape Horners; these clippers are the *Telegraph* and the *Sea Serpent*, each of which made six westward passages during the period mentioned and averaged a little over 123 days per passage from the port of departure to San Francisco. (They are included here,

as the passages are not mentioned in the preceding text; both the runs, including port detention, were made in better than 150 days.) Of the seventeen passages made by clippers that do not qualify as Cape Horners because of their limited service over the route, five of the ships made only a single westward passage, six made two runs, and six made three passages to California leaving an East Coast port prior to the end of 1860. Of these nineteen clippers that made a foreign port en route to San Francisco, eleven called at Rio de Janeiro, seven at Valparaiso, and two at Montevideo (the *Sparkling Wave* stopped at both Rio de Janeiro and Valparaiso); ten ships put into Rio de Janeiro with the damage mostly to masts and spars and one because of bad leaks; four put into Valparaiso primarily because of being partially dismasted or with spar trouble, one because of bad leaks, and two in need of water after a long, turbulent rounding of the Horn; and two put into Montevideo, one with the cargo on fire and the other in distress as a result of being badly strained and partially dismasted off the Plate.

Name of Clipper and Tonnage	Departure		Arrival at San Francisco	Passage in Days Port to Port	Detention in Port en Route		Net Sailing Days
	Port	Date			Port	Days	
WINGS OF THE MORNING (915 tons)	New York	Jan. 21, 1853	July 23, 1853 Damaged off the Plate.	183	Rio de Janeiro	15	168
QUEEN OF THE PACIFIC (1,356 tons)	Boston	Jan. 26, 1853	Aug. 9, 1853 Damaged off the Horn and leaking.	194	Valparaiso	10	184
GOLDEN STATE (1,363 tons)	New York	Feb. 8, 1853	July 12, 1853 Partially dismasted in Atlantic.	153	Rio de Janeiro	21	132
MISCHIEF (548 tons)	New York	May 20, 1853	Nov. 9, 1853 Damaged off the Horn.	173	Valparaiso	40	133
WIZARD (1,601 tons)	New York	July 24, 1853	Dec. 19, 1853 Damaged in Atlantic.	148	Rio de Janeiro	23	125
SPITFIRE (1,549 tons)	Boston	Oct. 24, 1853	Feb. 20, 1854 Damaged in Atlantic.	119	Rio de Janeiro	19	100
TELEGRAPH (1,078 tons)	Boston	Dec. 1, 1853	Apr. 16, 1854 Damaged off the Horn.	135	Valparaiso	15	120
MOUNTAIN WAVE (708 tons)	Boston	Nov. 24, 1854	May 13, 1855 Damaged in Atlantic.	170	Rio de Janeiro	16	154
SEA SERPENT (1,337 tons)	New York	Apr. 11, 1855	Sept. 5, 1855 Damaged off the Plate.	147	Rio de Janeiro	14	133
GOLDEN WEST (1,441 tons)	New York	June 28, 1855	Dec. 22, 1855 Damaged off the Horn.	177	Valparaiso	26	151
RED GAUNTLET (1,038 tons)	New York	Aug. 20, 1855	Mar. 1, 1856 Damaged off the Horn.	194	Valparaiso	25	169
CARRIER DOVE (1,694 tons)	New York	Oct. 5, 1855	Apr. 28, 1856 Severely damaged in North Atlantic hurricane.	206	Rio de Janeiro	53	153
STAR OF HOPE (1,097 tons)	New York	Feb. 10, 1856	Dec. 7, 1856 Fire in Atlantic; discharged cargo.	301	Montevideo	157?	144?
SNOW SQUALL (742 tons)	New York	July 9, 1856	Jan. 30, 1857 Partly dismasted off the Plate and in distress.	205	Montevideo	71	134
HOUND (714 tons)	New York	Sept. 17, 1856	Aug. 27, 1857 Partly dismasted in Atlantic and in distress.	343	Rio de Janeiro	?	120 from Rio
RADUGA (587 tons)	Boston	Feb. 24, 1858	Aug. 17, 1858 Damaged in Atlantic.	173	Rio de Janeiro	?	85 from Rio
NORTHERN EAGLE (665 tons)	New York	Jan. 25, 1859	Aug. 1, 1859 Damaged in Atlantic.	188	Rio de Janeiro	?	?
SPARKLING WAVE (655 tons)	New York	Mar. 19, 1859	Feb. 6, 1860 Forced into Rio with bad leaks and had to discharge cargo; 60 days off the Horn.	324	Rio de Janeiro and Valparaiso	?	163 from Rio; 56 from Val- paraiso
CHERUBIM (1,796 tons)	New York	May 9, 1859	Nov. 19, 1859 Off Horn 56 days and went to Valparaiso for water.	193	Valparaiso	7	186

*A Record of All the Westward Cape Horn Passages of Clippers That
during Their Lifetime Made Five or More Outward Runs to
California from East Coast or North Atlantic Ports*

Whereas special consideration should rightly be given the sailing records of clippers during the clipper ship era, which really commenced to boom in 1850 following the discovery of gold in California and virtually ended in 1860 (just prior to the Civil War), nevertheless, many clippers carried on into the seventies and a very few, such as the *Young America*, *David Crockett*, *Syren*, and *Black Hawk*, into the early eighties. The U.S.A. California trade was peculiarly favorable to American shipping, as it was coastwise protected trade in which foreign ships could not engage; but transcontinental railroads finally doomed the Cape Horn sailing route, which had survived the competition of the Panama railroad, and ultimately the Panama Canal and steamships—in addition to transcontinental railroads—sounded the death knell of deep-sea square-rigged shipping after heroic attempts were made in the early years of the twentieth century to revive it with big full-bodied steel four-masters. The record of American clippers in the California trade should not be limited to passages originating at an East Coast U.S.A. port during the years 1850-1860; nevertheless, this period of time is the logical one during which to consider both the operation and the building of clippers. Moreover, this term of years could be subdivided into the boom years of 1850-1853, the commercial depression and liquidation of 1854-1856, followed by the panic of 1857-1858 and the causes that led to the Civil War. The last great years for California voyages were 1859 and 1860; but the last year for the building of American-owned extreme clippers was 1853, and clippers built for American shipowners in 1854 and throughout the balance of the decade were either of a more moderate clipper model fullness and canvas spread or classified as medium clipper (i.e., somewhere between the fullness of model and the spar plan of a pre-boom American sailing ship and the sharpness and lofty spars and extensive sail plan of a clipper of the early fifties).

By the middle of the fifties, the extreme clippers engaged in trade were having a hard time of it "to make both ends meet" in a battle for business by reason of overconstruction, lessened demand for goods (because of a period of satiation following the boom), and lowering freight rates. The spars and canvas were cut and number of the crews reduced in the interest of economy. The shortened masts and yards, the use of double instead of single topsails, and the reduction or elimination of light and auxiliary canvas materially cut down operating expense, but also had an effect on a ship's speed in light winds. However, owners went further than this and rather radically reduced maintenance expenses, postponed and lessened needed repairs, etc.—all in an attempt to make some money out of the operation of ships that a few years before had been showing previously unheard of profits. The owners could not make their sharp extreme clippers, which were racing machines built at the time when "speed was king," any fuller of model, so that they could carry more cargo and thereby attempt to keep up the revenue from cargo as the freight rates lowered; so they either had deliberately to take an extreme clipper's characteristics from her or lay her up. It can be said that many a clipper built during the years 1850-1853 (and particularly in the three years 1851-1853 inclusive), operating after the depression and panic and during and after the Civil War, was the same as the vessel turned out by her builder only in unchangeable model form and in name; everything that could be modified in the interest of economy had been changed, and these facts should be borne in mind in comparing the sailing performances of clippers during the years 1851-1854 with those of subsequent years. The economic conditions of the latter half of the fifties and the conditions that led to civil strife also greatly affected the maintenance and life of the clippers, and during the Civil War a large part of the

American merchant marine was either laid up or "sold foreign." Because of all these conditions, the life history and the record of the all-time sailing performance of American clippers are not of much technical interest for purposes of comparison; but prior to the building and expansion of the transcontinental rail system, the California trade, being a protected one, coupled with the growth and development of the Pacific Coast states, did give American merchant sail an opportunity to work under competent management with a fair degree of profit and satisfaction for many years.

A lifetime record of the westward Cape Horn passages of American clippers engaged in the California trade has been prepared from the best available data. The number and average length of passages from port of departure to San Francisco are set forth for eighty-two clippers of various types as far as sharpness of model, spars, spread of canvas, and number of crew are concerned, with the ships placed in order according to the number of completed westward passages to San Francisco. These clippers made, in the aggregate, 707 outward passages to San Francisco (an average of some 8.7 westward runs each). Four clippers made 25, 24, 20, and 16 passages each, respectively, but only those to California (i.e., San Francisco) have been considered in this analysis. Two made 15, four 14, three 13, two 12, four 11, six 10, eight 9, ten 8, six 7, fifteen 6, and seventeen 5 westward passages to San Francisco each. The average lengths of passages do not, of themselves, furnish a criterion of speed but of reliability of transport coupled with a ship's capabilities of speed and the (1) measure of luck enjoyed by the clipper with respect to weather (wind and sea, etc.); (2) season of the year in which the passages were made; (3) capability of command, with quality and number of crew; (4) physical condition of ship—age, depreciation, and maintenance; (5) degree that economic policy throughout the years had been permitted to affect the ship as a reliable and speedy carrier; and (6) quality of shore management—planning of voyages, lading, etc. If speed alone in traveling through the water propelled by sail was considered the criterion by which the performance of the clippers was to be compared, then obviously the total length of time taken by the ships from the port of departure to the port of destination is a faulty index of relative performance, but neither would a comparison of the number of sailing days on the voyages give any worth-while relative figures. Some ships making a South American port for repairs were relatively near that port when an accident occurred; whereas others were far away and had to sail great distances back over the course. Several clippers made passages during which port calls en route resulted in only a very short port detention, and the time of the passage, port to port, was increased only a few days; but with others, the spread between the gross length of passage and the number of sailing days was very great. A ship turning tail to westerly gales after spending weeks in futilely attempting to round Cape Horn and sailing with the wind back into the Atlantic and then running all the way up to Rio de Janeiro for repairs naturally spent a lot of time under canvas that was not productive as far as sailing toward the port of destination was concerned, and such sailing days, traveling away from the ultimate goal and desired destination with the necessity of "retracing one's steps," should not be included in figures of length of passage considered an index of relative speed efficiency of merchant sail.

The *Young America*, with a passage of 174 days in 1859 due to a call at Rio de Janeiro following partial dismasting in the Atlantic, is credited with making the passage in 117 sailing days, or 57 days less than the gross time, port to port; but the *Lookout*, in 1870-1871, required 292 days to make a run from New York to San Francisco, of which 178 days were under canvas and 114 days spent at Port Stanley in the Falklands undergoing repairs. The *Golden Fleece II*, in 1873, returned to Rio de Janeiro from the Straits of Le Maire, reaching there 93 days out from New York; work on repairs detained the ship in port 31 days, and she was 108 days running from Rio to San Francisco. The passage of the *Golden Fleece* was 232 days, port to port; but the time spent under canvas in making this run was 201 days. The *Dashing Wave*, on her 1869-1870 passage from New York to San Francisco, was required to make stops at both Rio de Janeiro and Valparaiso en route; the result was a 341-day

passage, port to port, with 216 days spent at sea and 125 days in port undergoing repairs. This is not an all-time record for a long passage to California for the clippers, as the *War Hawk*, running from Liverpool to San Francisco in 1870-1871, occupied 439 days, port to port, and was detained at Rio de Janeiro about six months en route undergoing repairs.

The *Flying Cloud*, on her fifth and last westward run to California, required 185 days to make the passage, port to port, because of being partly dismasted and sustaining damages in the South Atlantic and putting into Rio de Janeiro for repairs. The time spent at sea by the *Flying Cloud* in making the complete passage was 141 days and the port detention 44 days, but the master of the *Flying Cloud*, when reporting on the passage, said that it was actually a run of 113 days, on the course, from New York to San Francisco. Some skippers argued that a ship's sailing performance should be judged by the time that she spent "on the course between ports." On this basis, the *Flying Cloud's* long passage of 185 days becomes not even a run of 141 days under canvas but "an actual passage of 113 sailing days on the course between the ports," and the loss of 72 or more days (so important to the shippers and receivers of freight—and particularly to passengers when they are carried—and to the owners who pay the bills, insurance companies, etc.), it has been well said, by such a process of figuring and reasoning "is merely laughed off." Captain Reynard boasted of a record day's run of 402 miles for the *Flying Cloud* and an "actual passage of 113 sailing days" from New York to Rio de Janeiro notwithstanding the fact that this unfortunate passage ended the *Flying Cloud's* career as a Cape Horner when she was only some five years old. Evidently, the captain's criterion of the sailing performance of the ship in competitive trade was not the correct one, and economic law considers only the date of departure and the date of arrival of a ship carrying merchandise and passengers (or mail, etc.) between ports. The following further comparison between the record long passages of the *Flying Cloud* and *Young America* is of interest:

Name of Clipper	Departure from New York	Rio de Janeiro			Arrival at San Francisco	Length of Passage in Days			
		Arrival	Departure	Detention in Days		New York to Rio	Rio to San Francisco	Total Sailing Time	Port to Port
FLYING CLOUD	Mar. 13, 1856	May 10, 1856	June 23, 1856	44	Sept. 14, 1856	58	83	141	185
YOUNG AMERICA	Jan. 30, 1859	Mar. 19, 1859	May 15, 1859	57	July 23, 1859	48	69	117	174

It is significant that the *Young America*, after being repaired, ran from Rio de Janeiro in only 69 days; whereas the *Flying Cloud* required 14 days more to make the run between the ports. Henceforth the *Young America*, after her experience at Rio de Janeiro, where it took 57 days (almost two months) to replace a main-topmast and a mizzen-topgallant mast, made all future repairs necessitated by partial dismasting with her own officers and crew at sea, and this for economic reasons (1) to reduce expenses and (2) to shorten the gross length of the passage. By doing so, the owners and command of the *Young America* and a host of other American clippers and later of Down Easters gave substantial acknowledgment to the fact that it was a ship's time between ports that counted in the end, and her speed in carrying and delivering merchandise in good shape from the port of departure to final destination was what counted and not high spurt speeds between points or big day's runs or high recorded speed by log over a long course between ports. A sailing ship logging 6 knots per hour that made port ahead of one that had averaged by log 7 knots per hour was the faster merchant vessel, and a ship making a passage from New York to San Francisco in 130 days, port to port, was, in a commercial sense, faster than a far speedier clipper that could have made the run in 100 days if she had not been dismasted and either limped into port with a jury rig in 140 days or arrived in 160 days or so after a call at a South American port for repairs.

In addition to the practice of using sailing days and even "days on course under sail" in determining the average sailing performances of merchant ships, many shipmasters, owners, and builders gave publicity to averages of certain passages dealing only with "direct passages" and eliminating those passages where the ship made ports en route and suffered detention. This custom of comparing the sailing performances of ships is apt to be very deceiving. For instance, the clipper ship *John Land*, which is recorded in statistics here as the slowest of all the clipper ships of the 1850's in service between East Coast U.S.A. ports and San Francisco, can be credited with two passages averaging only 106.5 days and three that averaged 113 days; but her other two passages, which required 270 and 311 days, respectively, to complete her runs from the ports of departure to the ports of destination, raise her lifetime average to 184 days for her five passages. Another very common practice that developed through the years was to consider only a ship's good runs when stating the average length of her passages and consider that the long runs were made under adverse conditions, with the long time taken to complete the passage not the fault of the ship. Some historians have selected short passages for consideration and merely group long passages as "runs made under unfavorable conditions." However, a good ship through the years invariably shows a good average length of passage over the westward Cape Horn California course the same as over any other trade route in the world, and vessels such as the clippers *Young America* and *David Crockett* made an outstanding record over the course, year after year, until for economic reasons they were withdrawn from the service in 1883, when they were about thirty years old. During the closing years of the nineteenth century, however, excellently designed and built fuller-modeled Down Easters (such as the Bath-built *Henry B. Hyde* and *A. G. Ropes*) carried on over the turbulent Cape Horn course to California. These big-carrying but speedy seaworthy ships made consistent records for speed that an extreme clipper of the fifties would have been proud of, and this quartet of ships (the clippers *Young America* and *David Crockett* of the early 1850's and the Down Easters *Henry B. Hyde* and *A. G. Ropes* of the 1880's) as well as several others made no apologies for their performances under sail at any time and did not offer "unfavorable conditions" as an excuse for a long passage, but year after year made good passages that definitely do them honor.

The following is a record of the westward Cape Horn passages to California (San Francisco) from North Atlantic ports of clipper ships that made five or more such runs in their lifetime and whose service in the California trade was not terminated by westward passages with departures from East Coast U.S.A. ports made prior to the close of 1860:

Name of Clipper and Tonnage	Type	Sailings—1850-1860		Sailings after 1860		Total		
		No. of Passages	Average Length in Days	No. of Passages	Average Length in Days	No. of Passages	Average Length in Days	Years
DAVID CROCKETT (1,679 tons)	Medium	4	123	21	118.2	25	118.9	1857-1883
YOUNG AMERICA (1,961 tons)	Clipper	4	125.2 (111 s.d.)	20	119.3	24	120.3 (117.9 s.d.)	1853-1882
The YOUNG AMERICA'S 25th westward passage was to Portland, Ore., and not to San Francisco.								
BLACK HAWK II (1,109 tons)	Medium	3	122.3	17	125	20	124.5	1857-1880
LOOKOUT (1,291 tons)	Clipper	7	123.1	9	145.3 (132.7 s.d.)	16	135.6 (128.2 s.d.)	1853-1870
HERALD OF THE MORNING (1,294 tons)	Clipper	5	112.2	10	131.3	15	124.9	1854-1873

The HERALD OF THE MORNING made a 16th passage to San Francisco, taking coal from New York out to Acapulco, Mexico, and then continuing up the West Coast to San Francisco. This clipper also made two other westward roundings of Cape Horn, her port of destination being Callao.

(Continued on next page)

MERCHANT SAIL

1977

Name of Clipper and Tonnage	Type	Sailings—1850-1860		Sailings after 1860		Total		
		No. of Passages	Average Length in Days	No. of Passages	Average Length in Days	No. of Passages	Average Length in Days	Years
GOLDEN FLEECE II (1,535 tons)	Medium	5	119	10	136.4 (133.3 s.d.)	15	130.6 (128.5 s.d.)	1855-1877
SEA SERPENT (1,337 tons)	Extreme	6	123.5	8	121.2	14	122.2	1851-1872
FLEETWING (896 tons)	Medium	6	136.7	8	130.9	14	133.5	1854-1873
PRIMA DONNA (1,529 tons)	Medium	2	122.5	12	140.2	14	137.7	1858-1877
THATCHER MAGOUN (1,248 tons)	Medium	2	123	12	129.7	14	128.7	1856-1873
GALATEA (1,041 tons)	Medium	5	129.4	8	130.4	13	130	1854-1871
SYREN (1,064 tons)	Clipper	5	131.6	8	145	13	139.8	1851-1885
GOVERNOR MORTON (1,429 tons)	Medium	3	117.7	10	154.5 (av. of 6, 123.6)	13	146 (av. of 9, 121.7)	1852-1875
ROBIN HOOD (1,181 tons)	Extreme	5	121.8	7	127.3	12	125	1854-1868
FLYING EAGLE (1,094 tons)	Clipper	7	140.7	5	135.8	12	138.7	1853-1870
FEARLESS (1,184 tons)	Extreme	5	121.4	6	134.3	11	128.4	1853-1869
DASHING WAVE (1,180 tons)	Medium	6	122.3	5	175.4 (150 s.d.)	11	146.4 (135.1 s.d.)	1853-1870
ARCHER (1,095 tons)	Clipper	5	126	6	111.3	11	118	1853-1872
ORPHEUS (1,272 tons)	Medium	3	146	8	130.4	11	134.6	1856-1875
HORNET (1,426 tons)	Extreme	6	127.8	4	121.7	10	125.4	1851-1866
OCEAN EXPRESS (1,697 tons)	Medium	4	134.2	6	147.3 (135.2 for 5)	10	142.1 (134.8 for 9)	1855-1871
SOUTHERN CROSS (938 tons)	Medium	9	135.5	1	128	10	134.8	1851-1862
WAR HAWK (1,067 tons)	Medium	4	135.5	6	133.3	10	134.2	1855-1869

The WAR HAWK made a long drawn-out passage from Liverpool to San Francisco via Rio (where she remained about six months) in 1870-1871, which occupied 440 days and was her last voyage as a general trader and her 11th passage to San Francisco via Cape Horn. This run is not included in these averages.

DERBY (1,062 tons)	Medium	3	136.3	7	135.1	10	135.5	1856-1871
ASA ELDRIDGE (1,324 tons)	Medium	3	134.3	7	143.1	10	140.5	1857-1872
MESSENGER (1,351 tons)	Extreme	4	124	5	129.4	9	127	1852-1873
WINGED ARROW (1,052 tons)	Medium	6	124.7	3	127.5	9	125.6	1852-1868
STARLIGHT (1,153 tons)	Medium	6	125.7	3	126.7	9	126	1854-1864
MIDNIGHT (962 tons)	Clipper	5	129.4	4	133.7	9	131.3	1854-1866

(Continued on next page)

MERCHANT SAIL

Name of Clipper and Tonnage	Type	Sailings—1850-1860		Sailings after 1860		Total		
		No. of Passages	Average Length in Days	No. of Passages	Average Length in Days	No. of Passages	Average Length in Days	Years
WHITE SWALLOW (1,192 tons)	Extreme	4	131.5	5	129.7	9	130.5	1853-1868
GRACE DARLING (1,197 tons)	Medium	4	131.5	5	135	9	133.5	1854-1868
CHARGER (1,136 tons)	Medium	3	123	6	124	9	123.7	1857-1869
SWALLOW (1,435 tons)	Clipper	—	—	9	127.1 for 7 direct	9	127.1 for 7 direct	1862-1873
MARY L. SUTTON (1,448 tons)	Medium	5	115.2	3	124.3	8	118.6	1856-1864
COMET (1,836 tons)	Extreme	7	119	1	141	8	121.7	1851-1862
OCEAN TELEGRAPH (1,495 tons)	Extreme	7	123	1	112	8	121.6	1854-1862
TELEGRAPH (HENRY BRIGHAM; 1,078 tons)	Extreme	6	123.2	2	154.5	8	131	1851-1865
POLYNESIA (1,084 tons)	Medium	7	132.8	1	140	8	133.7	1852-1862
GOLDEN EAGLE (1,121 tons)	Extreme	7	139.4	1	117	8	136.6	1852-1862
STAR OF THE UNION (1,057 tons)	Extreme	4	134.5	4	133.7	8	134.1	1853-1866
ELECTRIC SPARK (1,216 tons)	Medium	3	122	5	142.2	8	134.6	1855-1869
RATTLER (1,121 tons)	Extreme	3	133	5	126.8	8	129.1	1853-1868
ENDEAVOR (1,137 tons)	Medium	3	128.7	5	135.6	8	133	1856-1869
ANDREW JACKSON (1,679 tons)	Medium	5	105.2	2	108.5	7	106.1	1855-1862
DON QUIXOTE (1,429 tons)	Medium	5	118.2	2	129	7	121.3	1853-1862
EAGLE WING (1,174 tons)	Clipper	5	119.4	2	129.5	7	122.3	1853-1864
CHALLENGER (1,334 tons)	Extreme	5	122	2	125.5	7	123	1854-1863
PANAMA (1,139 tons)	Extreme	3	116.3	4	109.5	7	112.4	1855-1866
PANTHER (1,278 tons)	Medium	2	141	5	151.2	7	148.3	1857-1871
GREAT REPUBLIC (3,357 tons)	Extreme	4	106.7	2	108.5	6	107.3	1856-1865
RINGLEADER (1,154 tons)	Clipper	5	114	1	130	6	116.6	1853-1862
NORTHERN LIGHT (1,021 tons)	Clipper	5	118.4	1	134	6	121	1851-1861
VIKING (1,350 tons)	Clipper	4	120	2	126.5	6	122.2	1854-1863
FLYING DRAGON (1,127 tons)	Clipper	5	120.8	1	116	6	120	1853-1861
MORNING LIGHT (Boston; 1,713 tons)	Clipper	5	127.4	1	125 s.d.	6	about 131	1853-1862
NEPTUNE'S CAR (1,616 tons)	Clipper	5	130.2	1	186	6	139.5	1853-1861

(Continued on next page)

MERCHANT SAIL

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Name of Clipper and Tonnage	Type	Sailings—1850-1860		Sailings after 1860		Total		
		No. of Passages	Average Length in Days	No. of Passages	Average Length in Days	No. of Passages	Average Length in Days	Years
MARY ROBINSON (1,371 tons)	Medium	4	131.2	2	120	6	127.5	1854-1864
STORM KING (1,289 tons)	Medium	5	133.8	1	118	6	131.6	1853-1862
WEST WIND (1,071 tons)	Medium	5	139.6	1	133	6	138.5	1853-1862
ANGLO-SAXON (868 tons)	Medium	5	140.4	1	171	6	145.5	1853-1862
AURORA (1,396 tons)	Clipper	5	143.2	1	131	6	141.2	1853-1862
KINGFISHER (1,286 tons)	Extreme	3	122.3	3	130.7	6	126.5	1853-1869
CARRIER DOVE (1,694 tons)	Medium	3	163.3	3	137.3	6	150.3 (142 s.d.)	1855-1875
TWILIGHT (1,482 tons)	Medium	2	107.5	4	120.5	6	116.2	1858-1865
INVINCIBLE (1,769 tons)	Extreme	2	113	4	120.2	6	117.8	1851-1866
PHANTOM (1,174 tons)	Clipper	4	112.7	1	137	5	117.6	1853-1861
REPORTER (1,474 tons)	Medium	4	117.5	1	103	5	114.6	1855-1861
SIERRA NEVADA (1,942 tons)	Clipper	4	120.3	1	105	5	117.2	1856-1862
NEPTUNE'S FAVORITE (1,347 tons)	Medium	4	120.5	1	146	5	125.6	1854-1862
WILD PIGEON (996 tons)	Extreme	4	121.2	1	130	5	123	1851-1862
SEA NYMPH (New Bedford; 1,215 tons)	Medium	4	130.2	1	121 (wrecked)	5	128.4	1855-1861
NOR'WESTER (1,267 tons)	Medium	4	131	1	164	5	137.6	1854-1865
WEBFOOT (1,091 tons)	Medium	4	131	1	146	5	134	1856-1862
TALISMAN (1,237 tons)	Medium	4	132.2	1	115	5	128.8	1857-1862
OSBORNE HOWES (1,100 tons)	Medium	5	147	5th from Liver- pool, 177 days in 1860		5	147	1854-1860
OCEAN PEARL (847 tons)	Medium	4	141	1	155 (Cape Henry)	5	143.8	1853-1863
RADIANT (1,318 tons)	Medium	4	137.2	1	111	5	132	1853-1862
CYCLONE (1,109 tons)	Clipper	3	125.3	2	135	5	129.2	1853-1862
GOLDEN STATE (1,363 tons)	Extreme	3	135.7	2	120.5	5	129.6	1853-1863
MALAY (868 tons)	Medium	3	130.7	2	149	5	137.8	1852-1872
DARING (1,094 tons)	Medium	3	130.7	2	129	5	130	1855-1864
WILD ROVER (1,100 tons)	Medium	3	146.7	2	126.5	5	138.6	1855-1868

*Sailing Records in the California Trade of the Clippers That Made the
Most Westward Cape Horn Passages from East Coast U.S.A. or
North Atlantic Ports during Their Lifetime*

Of all the clippers and ships of any type or period that engaged in the California trade, the record of the *Young America* (a clipper) and of the *David Crockett* (a medium clipper) heads the list for the number of westward Cape Horn passages made and the average length of such passages. Each of these ships, during the years 1853-1883 inclusive, rounded the Horn twenty-five times bound for a Pacific Coast U.S.A. port and averaged better than 120 days on the runs. Each of these clippers made only four westward California passages originating in an East Coast port during the years 1850-1860 inclusive, the *Young America* making such runs in 1853, 1854, 1856, and 1859, respectively. The *David Crockett*, built as a transatlantic clipper packet, made her first run in the Cape Horn trade (where she rightly belonged) in 1857 and commenced this voyage when about three and a half years old. These two outstandingly successful Cape Horners, which conspicuously lead the field both (1) in sailing performance coupled with reliability as carriers over the course and (2) as money-makers, are dealt with under a special heading later.

Surprisingly, it is the rather full-modeled and moderately canvased medium clipper *Black Hawk (II)* that, with 1,109 tons register, carried, it was said, "1,600 tons deadweight" and that holds third place lifetime honors as a Cape Horner. She commenced only three westward passages during the years 1850-1860, her third voyage starting with a sailing from New York on December 21, 1860. This ship, built by W. H. Webb at New York in 1857, was not a "beau-ideal clipper," but in the California trade, in which she made twenty of her twenty-one voyages, she was a fast, successful, and popular ship. She even ran to San Francisco on her twenty-first, which was a New York-Melbourne-Hong Kong-San Francisco run out. Only three of the *Black Hawk's* twenty westward roundings of Cape Horn were on passages originating in East Coast U.S.A. ports prior to the end of 1860, and the other seventeen runs to San Francisco were made during the period 1861-1880. The *Black Hawk* was a consistently fast sailer as well as a reliable carrier and good sea boat. She ran from San Francisco to Honolulu in early 1859 in 9 days 9 hours, has a 107-day outbound and 95-day homebound passage to her credit in the New York-San Francisco run, and in 1869 went from the Golden Gate to the Atlantic equator in 69 days and to within 900 miles of New York (on a 15,500-mile passage) in 84 days.

Another ship that has not been given any prominence by publicists but that jointly with the beautiful Pook-designed *Herald of the Morning* holds fourth place in all-time records as a successful Cape Horner, considering the total number of voyages made in the California trade, was the *Lookout* of 1,291 tons, launched at Warren, R. I., October 4, 1853. This ship, classified as a "clipper," was possibly more of a "medium clipper" and was actually designed and built for the Australian trade, but she never appeared in that service. The *Lookout* commenced seven of her westward Cape Horn passages during the years 1853-1860, and her average of 123.1 days for that decade is not outstanding. She was not a particularly lucky ship as to weather, but outside of two long outward runs, her second (153 days) and fifteenth (147 days), both due to terrific gales off Cape Horn and light winds in the Pacific, the average of thirteen of her first sixteen outward Cape Horn passages is only 121 days, with 108 days as her best run. Running eastbound around the Horn, the *Lookout* made, all told, nine direct passages from San Francisco to New York (eight) and Boston (one), which averaged only 100.5 days, the best being 90 days; but in 1856 she put into Rio de Janeiro for repairs 71 days out from San Francisco and was at the Brazilian port several weeks. The *Lookout* evi-

dently made one voyage too many in the California trade for a good lifetime average for length of passages, for following her slow run of 147 days in 1869, she left New York July 21, 1870, and off Cape Horn in October was partly dismasted and so severely pounded that she was "both crippled and leaking badly." The clipper made for the Falklands, where temporary repairs were made during a port detention of 83 days, and the ship finally reached San Francisco May 9, 1871, 292 days out from New York. Upon arrival at that port, she was sold for use in the Pacific lumber and coal trade. In August 1866, the *Lookout* left San Francisco bound for Boston and a month later was back at the California port leaking badly, with much cargo damaged. The ship was detained at San Francisco about two months discharging cargo, making repairs, and reloading, and the stated total cost of damage and repairs was \$48,000. The ship ended her days when twenty-five years old by being wrecked on a reef during a typhoon in the North Pacific in September 1878, when bound from Shanghai to Puget Sound.

The *Herald of the Morning*, classified as a clipper, was more of a medium clipper as far as block coefficient (model fullness) is concerned, for on a registered tonnage of 1,294 tons she is reported to have carried 1,585 tons deadweight. This ship, built by Hayden & Cudworth, Medford, Mass., from designs by Samuel H. Pook, of Boston, and launched in December 1853, was considered by many competent authorities as "the most beautiful ship" afloat and one of the most successful attempts by a naval architect to combine speed with durability and cargo-carrying capacity. She was described as "a perfect gem in hull and rigging" and was admired at all ports that she visited as long as she sailed the seas. Although the *Herald of the Morning* made only five Cape Horn westward passages originating at East Coast ports during the years 1850-1860 and is here credited with fifteen passages to San Francisco, she actually made eighteen westward roundings of Cape Horn in her career of twenty years under the American flag; one was a passage from New York to Acapulco, Mexico, with coal for the Pacific Mail S.S. Company, following the delivery of which she proceeded up the coast to San Francisco, thus making the total westward runs to San Francisco sixteen instead of fifteen. Two other westward roundings of the Horn were on passages where Callao, Peru, was the port of destination; one was from Boston in 1856 and the other from London in 1862. The length of passages of the fifteen runs of the *Herald of the Morning* made direct around the Horn to San Francisco was as follows:

Year of Departure	Port of Departure	Passage in Days Port to Port	Year of Departure	Port of Departure	Passage in Days Port to Port	Year of Departure	Port of Departure	Passage in Days Port to Port
1854	Boston	106	1861	New York	146	1868	New York	118
1855	New York	100	1863	Boston	127	1869	Boston	128
1857	New York	132	1864	Boston	124	1870	New York	147
1858	Boston	116	1866	Boston	134	1872	Gibraltar	124
1860	Boston	108	1867	New York	124		(Marseilles)	
						1873	New York	141

The *Herald of the Morning* was a reliable, fast ship. On none of her Cape Horn runs did she have to put into a port en route for repairs, and all of her long passages were due to adverse sailing conditions. In 1855 she reached San Francisco in 99 days 12 hours, pilot to pilot, and 100 days 6 hours, anchor to anchor. In 1861 the ship experienced very heavy weather in the South Atlantic and violent gales off the Horn, with high seas, which sprung the bowsprit, stove in the bulwarks, damaged the forward deckhouse, and damaged some between decks cargo. In 1870, during which she made her slowest passage, the progress of the ship suffered from lack of wind, and it was said that "for 48 days she was unable to steer her course and for 44 consecutive days the skysails were taken in only once." In 1875 the *Herald of the Morning* was sold for Atlantic trade. In 1879 she went under the Norwegian flag and was re-rigged as a bark, and in 1890, when thirty-seven years old, she was acquired by the British.

Another clipper that made only five Cape Horn California westward passages with sailings from East Coast U.S.A. ports during 1850-1860 but that made fifteen such passages in her lifetime was the *Golden Fleece II* of 1,535 tons, a medium clipper of rather full model launched November 20, 1855, from the Paul Curtis yard at East Boston. This ship was a good, practical Cape Horner. She took the name of the *Golden Fleece*, a smaller top-heavy ship of 968 tons, built by the same builder in 1852 for the same owner, which ship, after making two runs to California in 140 and 128 days, respectively, drifted on the rocks and was lost April 21, 1854, when leaving San Francisco for Manila. The *Golden Fleece II* commenced her sea life and her career as a Cape Horner when she sailed from Boston for San Francisco December 17, 1855, and thereafter all but one of her sixteen departures from East Coast U.S.A. ports were commencing passages to San Francisco. The voyage that did not have California as its destination was an unfortunate one, as the ship, sailing from Boston July 1, 1871, for Bombay with 1,902 tons of ice, actually caught fire in the sawdust and shavings used for packing. Notwithstanding the nature of the cargo, the fire could not be extinguished, so the ship was put into Halifax, where she was scuttled, pumped out, and taken back to Boston for repairs. She had been away from the port twenty-three days, but it required over three months to make the ship fit to receive cargo again. Of the fifteen passages of the *Golden Fleece II* to San Francisco, fourteen were direct runs (eleven from New York and three from Boston) and averaged 123.3 days. Her fastest runs out were made in 111, 112, and 113 days, respectively, and her longest direct passages occupied 143 days and two of 130 days each. Her fine lifetime record of average length of passages was spoiled by her experience in 1873. Leaving New York March 3, the clipper ran into terrible weather from 37° S. and, when off Staten Island, had suffered so much damage to spars and rigging and lost so much canvas that she was forced to put about and make for Rio de Janeiro for repairs, where she arrived June 4, 93 days out. After a detention of 31 days, the *Golden Fleece II* sailed again July 5 and reached San Francisco October 21, 1873, 232 days out from New York (201 sailing days) and 108 days from Rio. Eastbound, the clipper has to her credit a run of 95 days from San Francisco to New York and one of 98 days to Boston, and the average of her four direct passages to U.S.A. ports is 102 days and of six passages to British ports, 116 days. In 1877 the *Golden Fleece II* attempted a sixteenth Cape Horn passage, but grounded off the Rio de la Plata on November 19, put into Montevideo for survey and repairs, and the ship was condemned and sold.

The *Sea Serpent*, an extreme clipper of 1,337 tons launched at Portsmouth, N.H., November 20, 1850, was a fast, able ship that made westward Cape Horn passages for over twenty years, with departures from New York extending from January 1851 to late 1871. Her last outward passage to San Francisco (108 days in 1871-1872) was eighteen days shorter than her maiden voyage (126 days in 1851 via Valparaiso—118 sailing days). The *Sea Serpent* made six westward runs to California with sailings from East Coast ports during the six years 1851-1856 inclusive, which averaged 123.5 days, and eight runs over the same course with departures during the eleven years 1861-1871 inclusive averaged 121.2 days, the clipper's entire fourteen passages to San Francisco averaging 122.2 days. The following is a synopsis of the ship's outward California voyages:

Departure from New York	1851	1852	1853	1854	1855	1856	1861
Length of passage in days	126	113	109	116	147	130	120
	via Valparaiso				via Rio		
Departure from New York	1862	1865	1866	1867	1868	1870	1871
Length of passage in days	119	101	115	126	146	135	108

On her maiden voyage, the *Sea Serpent* lost a number of spars and much canvas and put into Valparaiso for repairs, being detained at that port eight days, which made her first passage to San Francisco 118 sailing days, but Captain Howland reported the run as "125 days,

port to port, and 117 sailing days." The second passage was also reported by Captain Howland as "a run of 112 days." On her fifth outward passage, Capt. J. D. Whitmore was in command, and after bucking head winds in the North Atlantic the ship lost her main-topmast and much canvas and was sufficiently damaged in the South Atlantic to warrant the skipper's putting about for Rio de Janeiro, where she arrived June 2, 1855, 52 days out from New York. She was in port fourteen days, sailing June 16 and reaching San Francisco after a run of 81 days, thus making the 147-day passage, port to port, a run of 133 days at sea. All the other California outward passages were direct, and the average for the fourteen runs is 120.6 sailing days. The only long passages of 146 days in 1868, 135 days in 1870, and 130 days in 1856 were due to particularly adverse sailing conditions. On the "tedious passage" of 146 days, it was reported that the ship had head winds on 126 of them, and on the 135-day passage in 1870 she experienced "very light and baffling winds" throughout practically all the run. The clipper's 101-day westward passage to San Francisco in the winter of 1865-1866, it was claimed at the time, was "the fastest run out to California in five years," being a few hours better than the passage of the *Panama*, which reached the Farallones on May 13, 1864, 101 days out from New York, and much faster than the best performance during the period of any other ship. It is interesting to note that on her fast 101-day passage, the *Sea Serpent* crossed the Pacific equator when 79 days out, and the *Panama*, on her 101-day run, took 81 days to the line. The *Andrew Jackson*, on her all-time record run of 89 days 4 hours, reached San Francisco March 24, 1860, and this medium clipper in 1861 made a run out in 103 days, port to port. Captain Howes of the *Reporter* claimed a 103-day passage for his ship that same year. The fast 98-day passage of the Mystic-built half clipper *Seminole* commenced with a departure from New York December 3, 1865, or only twenty-eight days after the *Sea Serpent* left that port when making her fast 101-day passage, so the extreme clipper did not long enjoy the honors associated with her fast run. On these runs, the *Sea Serpent* beat the time of the *Seminole* (as she did that of the *Panama*) by two days from New York to the Pacific equator. The *Sea Serpent* was sold to the Norwegians in 1874, when twenty-three and a half years old, and she was still in service when over forty years old.

The *Fleetwing*, with a record of six westward passages averaging 136.7 days with sailings during the years 1850-1860, made eight more such Cape Horn runs during her lifetime and is credited with fourteen passages from New York or Boston during the years 1854-1873 averaging 133.5 days. This clipper's westward runs to California from East Coast U.S.A. ports have been classified as seven made in "a fair to good season," which averaged 120 days (fastest, 113 days; slowest, 128 days), and seven made in an "unfavorable season," which averaged 147 days, the longest run being 158 days in 1856. In 1864 the *Fleetwing* made another westward rounding of Cape Horn, bringing the total number of her passages to San Francisco up to fifteen, but on this run she loaded her cargo at Rio de Janeiro (the cargo of the condemned ship *Undaunted*) and made a passage from that Brazilian port to San Francisco in 85 days. The best eastward Cape Horn passage of the *Fleetwing* was a 103-day run from San Francisco to New York. This American clipper was sold to the British in 1876, when twenty-two years old, for service in carrying lumber from British Columbia to Australian ports, and she operated in this trade for some nine years.

Two other clippers are credited with making fourteen westward Cape Horn California passages, but each made twelve of her runs following 1860 and only two leaving East Coast U.S.A. ports during the years 1850-1860 inclusive. The Medford-built medium clipper *Thatcher Magoun* made five passages out to San Francisco from Boston (fastest, 113 days; longest, 152 days), seven from New York (fastest, 117 days; longest, 149 days), and two from Liverpool in 115 and 150 days, respectively (and forty-five days of this last run were spent in the North Pacific). The average of these fourteen runs was 128.7 days. Eastbound, the *Thatcher Magoun* in 1869 ran around the Horn from San Francisco to Sandy Hook in 96 days, and in 1861 she was 97 days to Fire Island and was then fog-bound, so she did not reach New York for seven days. In 1864 the ship rounded the Horn, making the run between

the two 50's in only 61½ days, which is the second fastest Cape Horn passage on record. In 1874 the *Thatcher Magoun*, then eighteen years old, was sold to the Norwegians for the transatlantic trade and rechristened *Hercules*. The medium clipper *Prima Donna* was built in 1858 by Greenman & Company, Mystic, Conn., builder of the famous *David Crockett*. Between 1858 and 1877, this ship made fourteen westward passages to San Francisco that averaged 137.7 days (fastest, 118 days on her maiden voyage from New York; longest, 155 days). Her fastest eastbound Cape Horn run was made in 100 days to New York in 1862, on which she ran to the Pacific equator in only 15 days and was at the Horn 41 days out. After trading with the Far East during the years 1878-1883, the *Prima Donna* was sold to the Austrians when about twenty-six years old, and her hailing port became Trieste.

Two clippers that each made five westward California passages sailing from East Coast U.S.A. ports during the period 1850-1860 each made thirteen such passages during their sea life. These were the medium clipper *Galatea* and the clipper *Syren*. The *Galatea's* passages were very uniform; for the five originating in 1854-1860 averaged 129.4 days, and the eight with sailings in 1861-1870 averaged 130.4 days, the lifetime average for the thirteen runs being 130 days. The ship's first passage over the course (1854) was made in 115 days and her last (1870) in 120 days. She was sold in July 1882, when some eighteen years old, to go under the Norwegian flag and engage in transatlantic trade. The *Syren's* westward Cape Horn passages were numerous, for with the exception of a creditable Boston-Calcutta voyage in 1857 (99 days out; 97 days home), all of her outward voyages were apparently around the Horn. Originally owned in Salem and later in Boston, she was bought by Charles Brewer & Company, of Honolulu, and during the last nine years of her life she was owned by Capt. William H. Besse, of New Bedford, and associates. In 1858-1860, the *Syren* was engaged in trade between Boston, Honolulu, and New Bedford, and she ran again in this trade in 1866-1876, making Cape Horn westward passages to Honolulu during this combined period of some thirteen years. In 1877 she commenced a series of voyages to San Francisco, running out from New Bedford, Mass., intermingled with passages to Honolulu and the Far East. On most of these voyages of the late seventies and eighties, she returned home with whalers' catch from Honolulu or Alaska, although in May 1882 she reached Victoria, B.C., from Hong Kong, loaded a cargo of spars at Seattle, Wash., and delivered them at Bath, Maine, December 5, 1882. The ship also participated in the North Pacific coal trade for a while and was laid up in California due to the lack of paying freights in the winter of 1883-1884. The *Syren's* westward California (San Francisco) passages can be divided into three groups as follows:

Group	Number of Passages	Period of Years	Ports of Departure	Length of Passages in Days		
				Average	Shortest	Longest
A	5	1851-1856	Boston and New York	131.6	120	141
B	4	1861-1866	Boston and New York	138.5	127	152
C	4	1877-1885	New Bedford, Mass.	151.5	127	168
Total	13	1851-1885	East Coast U.S.A. ports	139.8	120	168

The last westward Cape Horn passage of the *Syren* as an American ship originated at Baltimore on April 12, 1888, when she sailed loaded with coal for San Francisco. The clipper, then over thirty-seven years old, had been neglected for many years, and she was forced to put into Rio de Janeiro June 25, when 74 days out, leaking badly and in distress because of heavy gales and seas in the South Atlantic. The cargo was discharged, and after survey the *Syren* was condemned and sold. At this time, although her credited westward runs to California were thirteen, she had actually made many more westward roundings of Cape Horn than any other vessel afloat. The *Syren's* entire record makes her an historic vessel in regard to both the Cape Horn trade and her entire work on the Seven Seas as a sailing vessel. After being condemned at Rio de Janeiro in 1888, she was bought by the

Argentineans, repaired and rigged as a bark, and thirty-two years later, when sixty-nine years old, she was listed at Lloyd's (1920) as the bark *Margarida* of Buenos Aires. The *Syren* has the distinction of having been the longest lived of the great American clipper fleet, and her entire known career at sea was spent as a square-rigged sailing vessel moving under her own canvas, with no part of it as a tow barge. It is known that the old clipper *Dashing Wave*, when sixty-seven years old, was surveyed in dry dock at Seattle and her hull from stem to stern and keel to deck declared "in first-class condition"; but at this time the *Dashing Wave* had been a tow barge for nineteen years, and shortly after this survey, through no fault of her own, the old clipper, when under tow, stranded and became a total loss. A comparison of the longevity record of the old Cape Horn clippers *Dashing Wave* and *Syren* is of interest:

Name of Vessel	Built	Launched	Tonnage*		Last Westward Cape Horn Passage to San Francisco	Last Record of Survey and Fitness	End
			Old	New			
DASHING WAVE	Portsmouth, N. H.	July 15, 1853	1,180	1,054	1870-1871	Mar. 1, 1920	Stranded in tow and lost 1920; 67 years old.
SYREN	Medford, Mass.	May 1, 1851	1,064	876	1885	Listed at Lloyd's in 1920	Unknown.

*The difference between the old and new tonnage measurement is an index of a clipper's fineness of model. The DASHING WAVE was a fuller-modeled as well as beamier ship than the SYREN.

A fourth clipper, the *Governor Morton*, is also credited with thirteen westward Cape Horn passages to San Francisco, but only three of these passages originated during the years 1850-1860. A record of this ship's sailing performance in the California trade is given elsewhere.

The *Robin Hood*, an extreme clipper of 1,181 tons, built at Medford, Mass., in 1854, made five passages to San Francisco with departures from East Coast U.S.A. ports during 1850-1860 inclusive averaging 121.8 days and seven more during the years 1861-1868 inclusive averaging 127.3 days—a total of twelve westward Cape Horn runs averaging 125 days. The shortest passages were made in 107 and 108 days, and the two longest occupied 140 and 134 days. The ship made five eastward Cape Horn passages direct to New York, which averaged 107.4 days, the best being a splendid 88-day run in 1862, and the longest were two runs of 117 days each. In 1863 the clipper ran from San Francisco to Liverpool in 112 days. The *Robin Hood*, when fifteen years old, was destroyed by fire on August 20, 1869, at Baker's Island when loading guano for Hampton Roads. Apparently, the fire was of incendiary origin, and some of the crew were later jailed at Honolulu and charged with being the cause of the disaster, which occurred at a time that the captain was ashore.

The *Flying Eagle*, a rather full-bodied "clipper" that could better be classified as a "medium clipper," made seven Cape Horn California passages leaving East Coast ports during the years 1853-1860 inclusive and twelve all told during the years 1853-1870 that she engaged in the trade. Half of these passages originated in Boston and half in New York, and on her maiden voyage (1853) and the 1860-1861 run, she had to put into port en route for repairs, which resulted in long passages of 169 and 161 days, respectively. The clipper was also partially dismasted during three of her other passages in the fifties, and repairs were made at sea; but on five of her seven runs to San Francisco, with sailings during the years 1853-1860 inclusive, the passages were lengthened by partial dismasting at sea. The *Flying Eagle's* best westward passage was a run from New York of 112 days in 1869-1870 made on her last journey over the course; her next best runs were 118 days (1856) and 120 days (1855), and her longest passages, in addition to two already mentioned via South American ports (for repairs), were 159 days in 1862, 153 days in 1859, and 141 days in 1866-1867. In July 1858, the *Flying Eagle* made a run from San Francisco to Honolulu in only 9 days

22 hours, carrying mail that had left New York June 21 by steamer via Panama and putting it ashore at Honolulu on July 19, or twenty-eight days later—a record at the time. In 1864 she ran from San Francisco to Boston in 97 days and in 1868-1869 from San Francisco to Cork in 102 days. The *Flying Eagle* was condemned and sold at Mauritius in the late summer of 1879, when approaching twenty-seven years of age.

There were four clippers that during their sea life made eleven westward Cape Horn passages to California. These were the *Dashing Wave*, which made six departures from East Coast U.S.A. ports during the period 1850-1860; the *Fearless* and *Archer*, which each made five; and the *Orpheus*, referred to elsewhere, which made three such runs. The *Dashing Wave*, earlier mentioned in a comparison with the *Syren* regarding longevity, made nine passages direct from Boston or New York to San Francisco. Her first was from Boston (October 4, 1853) via Philadelphia (November 27) and Valparaiso (February 16, 1854), but is figured in the records as a run originating at Philadelphia, and the ship arrived at and departed from Valparaiso the same day, with the length of passage from the Delaware to San Francisco (March 28, 1854) reported as 118 days and herein considered as a 120-day run. The *Dashing Wave's* eleventh and last Cape Horn westward passage was a disastrous one that occupied 341 days. Leaving New York March 11, 1869, the ship made a good run of 42 days to 50° S. Atlantic and then ran into a succession of head gales in which she lost spars and canvas and took a terrific pounding from heavy seas that started bad leaks. Captain Mayhew was ill, and the ship was put back to Rio, where she arrived July 6—117 days out from New York. Part of the cargo had to be discharged, and the loss resulting therefrom, with the cost of repairs, totaled \$37,000. The ship was detained in port 97 days, as she did not resume her voyage until October 11. Off Cape Horn, the *Dashing Wave* again encountered heavy gales and once more became leaky. Captain Mayhew became too sick to attend to his duties, and with First Mate Morton in charge and the crew mutinous after the Pacific was reached, the ship steered for Valparaiso, where she arrived December 5, 55 days out from Rio and 269 days from New York. Captain Mayhew was taken ashore at the Chilean port and died December 10. After further repairs, the ship sailed from Valparaiso January 2, 1870, after a port detention of 28 days and reached San Francisco February 15 after a run of 44 days from Valparaiso and completing a disastrous passage of 341 days from New York, of which 216 days had been spent at sea and 125 days in port undergoing repairs. The *Dashing Wave's* first five westward Cape Horn passages, with sailings during the years 1853-1858, averaged 118.2 days. In 1860 her long passage of 143 days was due to a slow run in the North Atlantic, gales off the Horn (22 days), and adverse weather in the South Pacific, as she was 42 days running to the Pacific equator. The ship's longest direct passage was a run of 155 days in 1863, on which she had bad weather in the Atlantic, was 79 days to the Horn, and fought furious gales for 42 days in the vicinity of the Cape, being twice driven back through the Straits of Le Maire into the Atlantic. The average length of the *Dashing Wave's* eight more normal passages was 122 days (fastest, 107 days in 1858; longest, 133 days in 1868), and the average of all the ten direct passages was 127.4 days.

The *Dashing Wave's* disastrous outward passage to California in 1869-1870 was probably caused by severe stresses that the ship received by two groundings in earlier years. After leaving Calcutta June 1, 1857, the ship went aground, was badly strained, and when refloated had four feet of water in the hold, which necessitated the removal of cargo, repairs, and a port detention of two months as a result of the accident. During the night of February 8, 1867, the clipper went aground on the shoals off Barnegat as she was completing an eastward Cape Horn run to New York grain laden from San Francisco and at the time was 99 days out. She got off with the rising tide, but leaked badly beyond the capacity of the pumps to handle. After being in charge of a pilot and in tow of a tug, the *Dashing Wave* sank off Sandy Hook and remained under water over seven months—until she was raised, patched up, and towed to New York for repairs on September 12, 1867. Notwithstanding

these two groundings and injuries sustained in the South China Seas necessitating repairs at Singapore (December 1864-April 1865), the *Dashing Wave*, while considered too badly strained in the hull for further westward Cape Horn passages following her 341-day port-to-port passage of 1869-1870, nevertheless, did excellent work for many years as a lumber drogher on the Pacific and gained the reputation of being the fastest ship in the fleet. In March 1872, she ran across the Pacific eastbound from a position opposite Yokohama to San Francisco in 21 days and from the 180° meridian (International Date Line) to port (122½° Long. W.) in only 11 days. The ship is credited with making records handling lumber cargoes in the San Francisco-Puget Sound trade, and her run of 54 hours covering the 676 miles from San Francisco to Cape Flattery (which shows an average speed of 12½ knots per hour for 2¼ days) is believed to be the record for a sailing vessel over the course. In 1901 the *Dashing Wave* was converted into a barge, and after a career of forty-eight years under canvas and over eighteen years as a deep-sea tow barge, this old clipper was pronounced sound and seaworthy when surveyed 66 years 7½ months following the date of her launching.

The *Fearless* was an extreme clipper and a fast ship. She was a beautiful vessel designed by Samuel H. Pook and had sharp lines, but she was not loftily sparred and carried nothing above the royals. She averaged 121.4 days on her first five westward Cape Horn California passages (fastest, 114 days; longest, 127 days) and showed a very uniform sailing performance under conditions that were by no means favorable. The ship's average for all of her eleven passages of 128.4 days was raised materially by her slow last passage of 163 days in 1868-1869, which was made in such bad weather in the Atlantic that the run to the equator occupied 43 days, and the vessel was off the Horn for 35 days in strong westerly gales. Eliminating this passage, which was unquestionably made under most adverse sailing conditions, the average length of the clipper's other ten westward Cape Horn runs was 125 days (fastest, 114 days; longest, 139 days). The *Fearless* was sold to the Norwegians in October 1878 for the North Atlantic timber trade, and she continued in that service as the bark *Johanne* for many years.

The *Archer*, a clipper ship of 1,096 tons, built by James M. Hood, Somerset, Mass., and launched December 29, 1852, has one of the best speed records of clippers making eight or more westward passages in the California trade. Her average sailing performance of 118 days for eleven passages made during the years 1853-1869 is outstanding when it is noted that bad luck as to weather on two of her first three passages resulted in an average of 132 days for these runs and an average of 145 days for two of them, a fast passage of 106 days being sandwiched between her two longest runs of 146 days (1853) and 144 days (1856). The *Archer* was very fortunate generally in the weather that she encountered in the North Pacific and ran from the line to port on various passages in 15, 16, 17, 18, and 19 days, respectively; but on her maiden voyage, 38 days of her 146-day passage were spent in light airs and calms in the North Pacific while the ship "prayed for wind." On her 144-day passage, she battled westerly gales for 30 days off the Horn. The terrific hammering of heavy head seas started her bows and "loosened everything forward, so that no head sails could be carried for 15 days." The *Archer*, with an average of 126 days for her first five passages with departures from an East Coast port during 1853-1859, averaged only 111.3 days for her six passages with departures in the sixties and early seventies, and her lifetime record of an average of 118 days for all her eleven runs is only 113 days for nine passages if her bad weather passages of 146 days and 144 days made early in her career are eliminated. The clipper is credited with two passages of 106 days, one of 108 days, and one of 112 days (on which she made land when only 108 days out, but was delayed getting into port). The *Archer* had her share of accidents. In 1865 a Chinese pilot put her on a sand bar in the River Min and caused damages necessitating dry-docking. Earlier in that same year, she had lost her jib boom, sprung the foremast, and been struck by lightning when off Cape Horn, and during the next year (1866), she had two bad experiences in the North Atlantic. Coming home from China

in March, she was struck by a violent gale off Hatteras, thrown on her beam ends, and damaged, and when she sailed from New York in October, she ran into a hurricane that strained her hull to such an extent that she had to make for Boston to salvage damaged cargo and make necessary repairs, all of which delayed the actual sailing 57 days. The *Archer*, then bark-rigged and engaged in transatlantic trade, foundered in the North Atlantic February 12, 1880, when somewhat over twenty-seven years old.

The clippers *Hornet*, *Ocean Express*, *Southern Cross*, *War Hawk*, *Derby*, and *Asa Eldridge*, during their sea lives, each made ten westbound passages from East Coast U.S.A. ports to California, and the sailing performances of the *Derby* and *Asa Eldridge*, each of which made only three departures from an eastern American port during the period 1850-1860 inclusive, are set forth elsewhere. The *Hornet* was one of the best modeled of the extreme clippers of the early fifties and was launched by Westervelt & Mackey, New York, on June 20, 1851. The record of the ship over the Cape Horn course does not average as good as the clipper warrants, and she got off to a bad start by poor management, bad lading, a sick captain, with dissension aboard, and general ill-luck on her maiden passage, with the result that the run occupied 154 days (also stated as 155 days). The ship reached port with an incapacitated master, the mate and steward under arrest, and a log showing extremes of wind—either gales or light winds and calms. The *Hornet* was sent to sea deeply laden and with boilers, smokestacks, etc., lashed on deck for the steamer *Senator*; the deck load was sacrificed during a severe gale, during which the ship labored hard, but the overloading and bad trim were not as easy to correct as cutting the steam boilers, stacks, etc., adrift. On one of the days of this unfortunate maiden passage, when she made the longest run of her career, the *Hornet* covered 318 miles, or over 13 knots per hour. On her second passage, the clipper left New York and had bad luck at the start, as she was lying practically becalmed not far from Sandy Hook when the lucky *Flying Cloud*, which had left port after her, came up and brought the wind. From that time on, there was a race, and the *Hornet* beat the *Flying Cloud* to the Bar off the Golden Gate by a day and anchored in San Francisco Harbor a short time ahead of her antagonist, which sailed straight into port without being detained outside the harbor by lack of wind. The *Hornet* made this California run in 106 days, and her next fastest passage was a run of 111 days on her tenth and last completed passage in 1865. The clipper averaged 127.8 days for her six passages with departures during the years 1851-1860 inclusive, but her lifetime average length of westward runs to San Francisco was 125.4 days, and the average of her last nine passages 122.2 days. The longest were 135 days in 1860, 131 days in 1861, and 130 days in 1854, which run was also reported as 126 days from the Delaware to the Golden Gate.

On January 11, 1866, the *Hornet* sailed from New York for San Francisco with a full cargo, which included "45 barrels and 2,000 cases of oil, 6,195 boxes of candles." After she crossed the line in the Pacific, the cargo caught fire, and soon the entire ship was in flames and had to be abandoned May 3, 1866. Only the largest one of the ship's three boats made land (the Hawaiis) forty-three days later, and this contained Captain Mitchell, two passengers, the third mate, and eleven men; the other boats, containing sixteen officers and men, were never heard of after the boats separated after keeping together for nineteen days.

The *Ocean Express* was a much heralded but, nevertheless, rather disappointing big medium clipper, which had beauty and carried well, but never showed much speed. When this ship was launched July 10, 1854, her builder, J. O. Curtis, Medford, Mass., proudly referred to her as: "First in speed, first in beauty and first in the world of waters." Whereas she had good lines, her record as a sailer does not justify the boast. The ship's first voyage was a Cape Horn run to Callao and return eastward to Liverpool and thence to New York. She commenced her first California voyage leaving New York November 11, 1855, and ran out to San Francisco in 135 days. Thereafter, her westward Cape Horn passages to California were as follows:

Year	Port of Departure	Passage in Days	Year	Port of Departure	Passage in Days	Year	Port of Departure	Passage in Days
1858	New York	125	1862	New York	208	1868	Liverpool	129
1859	New York	137	1864	London	129	1869	New York	133
1860	New York	140	1867	New York	148	1871	Boston	137

It will be noted that of the *Ocean Express's* ten passages to California, seven originated in New York, one in Boston, and two in England (one each in London and Liverpool), and the length of the London passage is obviously taken from some point in the Channel. The 1862 passage was not a direct run between the points. Leaving New York June 8, 1862, the *Ocean Express* sprung a leak off Cape Horn and put back to Rio de Janeiro for repairs; she finally reached San Francisco January 2, 1863, after a run of 75 days from Rio and 208 days from New York. The average length of all the ship's ten westward Cape Horn runs to San Francisco was 142.1 days and of the nine direct runs, 134.8 days. The *Ocean Express* had many mishaps in her career under the American flag, but the one that drove her into Rio on her 1862 passage was the only one that materially affected the California westward runs mentioned above. In 1870, however, she left Bahia in ballast for San Francisco and, in September, put into Montevideo in distress leaking badly. After temporary repairs were made, she was sent home to Boston to be rebuilt. In June 1861, on an eastward Cape Horn passage, guano laden, the ship put into Rio de Janeiro leaking and spent a month undergoing repairs at the Brazilian port. In leaving San Francisco in September 1859, the vessel grounded when under canvas, but apparently received only slight damage. In December 1861, she went ashore off New York, and for a while it was feared that she would become a wreck, but fortunately she was refloated without serious knowable damage. The *Ocean Express* was sold to the Peruvians in the winter of 1871-1872, when the ship was about seventeen and a half years old.

The *Southern Cross*, a relatively small medium clipper for a successful Cape Horner, which holds the record for the number of westward runs to California made by any ship with sailings during the years 1850-1860 inclusive, was not a fast sailer, but proved to be a reliable and consistent one. This vessel made nine westward Cape Horn California runs with sailings prior to the close of 1860, but made only one thereafter, and her lifetime record is an average of 134.8 days for ten passages during the years 1851-1862 (fastest, 119 and 120 days) as against an average of 135.5 days for the nine passages made during the years 1851-1860 (longest, 140 days). In 1852 the ship had to put into Montevideo on fire. Eliminating the 156-day passage, port to port, the clipper's nine direct passages to San Francisco averaged 132.4 days. The *Southern Cross* came to an untimely end when a little over twelve years old, for she was captured and burned near the Atlantic equator on June 6, 1863, by the Confederate commerce raider *Florida*.

The Newburyport-built medium clipper *War Hawk*, launched January 3, 1855, was of greater model fullness than the average medium clipper, as is proven by the fact that there was but little difference between the original tonnage measurement, old and new, the former being 1,067 tons and the latter 1,015 tons. This ship made four westward runs in the California trade originating in East Coast ports prior to the end of 1860 and six thereafter, ignoring her last westward Cape Horn passage, which was a long drawn-out affair from Liverpool via Rio de Janeiro in 1870-1871. The ten passages from East Coast U.S.A. ports to San Francisco (all of them direct), seven from New York and three from Boston, averaged 134.2 days, with the six runs made in the sixties averaging 133.3 days, which was less than the 135.5-day average of the four similar runs made in the fifties. The vessel's best time over the course was 121 days, and her slowest run was 156 days. On her last voyage as a general trader, the *War Hawk* left Liverpool bound for San Francisco on June 20, 1870, and on October 27, when 129 days out, put into Rio de Janeiro in distress. Repairs took about six months, and the ship finally reached San Francisco on September 2, 1871, 439 days out

from Liverpool. She was sold in San Francisco and then commenced a very successful career as a Pacific lumber drogher, which lasted from December 1871 until she was destroyed by fire in April 1883, some eleven and one-third years later. The *War Hawk* is said to have "paid for herself ten times over" when employed as a Pacific lumber drogher, and she was a worthy rival of the clipper *Dashing Wave* in the making of quick, successful runs in that trade. The *War Hawk* was twenty-eight and one-quarter years old when her days ended by fire and was sixteen and two-thirds years when taken from the Cape Horn run and from general trading on the Seven Seas.

There were eight clippers that each made nine California westward passages, and of these, six made four or more of such runs leaving East Coast ports during the years 1850-1860 inclusive. One (the *Charger*) made three such passages in the fifties and six during the period 1861-1869, and her sailing performance is referred to elsewhere. The remaining one of the eight "nine westward passage Cape Horners" is the 1,435-ton clipper ship *Swallow*, launched by Robert E. Jackson at his East Boston yard on April 4, 1854. This ship is of particular interest, as she is the only clipper that qualifies as far as lifetime experience is concerned as a "Cape Horner" that made no passage to California with a sailing prior to the end of 1860. The *Swallow*, which had a career of over thirty-one years of sea service, was engaged in trade with the Far East (including Australia and India), and most of her voyages originated in England until she was bought by Thatcher Magoun, of Boston, in 1862 and placed in the Cape Horn California trade, in which she operated some eleven years, making nine westward passages during the years 1862-1873. On two of her runs to California, the *Swallow* was forced to make ports en route for repairs. In August 1862, she put into St. Catharine, Brazil, leaking, and in May 1867 she called at Montevideo after being badly battered by a hurricane with heavy seas, which twisted the rudderhead and split the rudderpost, sprung the mainmast, and carried away all three topsails, etc. Complete records of these two passages are not available, but the average length of passage of the seven direct runs (five from New York and two from Boston) was 127.1 days (fastest, 109 days; longest, 159 days). The *Swallow's* best run over the course was made from New York in 1870, and on the 98th day out she was within 600 miles of the Golden Gate, with good prospects of making a run from port to port in 102 days or better; but as the clipper approached the California coast, calms and light winds lengthened the passage about a week. It is strange that the *Swallow* was luckier as to weather on her New York than on her Boston sailings. The average length of her passages on five New York departures was 120 days; whereas her two runs from Boston averaged 145 days (131 and 159 days). The *Swallow* made seven direct eastward Cape Horn passages, two to New York in 98 and 101 days and five to European ports, which averaged 111.8 days (fastest, 107 days; longest, 116 days). In 1885, on a passage from Liverpool to Sydney, the *Swallow* sprang a leak, and as the pumps became choked, the ship was abandoned at sea in a sinking condition.

The *Winged Arrow* and *Starlight* were clippers that made nine westward California passages, and each made six of these runs with departures from East Coast ports prior to the end of 1860 and the remaining three passages in the sixties. The *Winged Arrow* was a medium clipper of 1,052 tons, built at South Boston in 1852. The record of her westward Cape Horn passages is as follows:

Year	Port of Departure	Passage in Days	Year	Port of Departure	Passage in Days	Year	Port of Departure	Passage in Days
1852	Boston	113	1855	Boston	126	1864	Boston	141
1853	Boston	126	1856	Boston	118	1866	New York	122
1854	Boston	115	1860	Boston	150	1867	Boston	119½

The *Winged Arrow's* first five runs to San Francisco averaged 119.6 days and her last two 120.7 days, the average length of all nine passages being 125.6 days. The ship was particularly lucky with winds in the Pacific. On her maiden voyage, she ran from 50° S.

Pacific to pilot off the Farallones in 38 days, and her average time over this part of the course on six passages was only 43 days. In 1854 she ran from 50° S. Pacific to a point 300 miles from the Golden Gate in 34 days, and on her last passage as an American ship in February 1868, she ran from the Pacific equator to the San Francisco Bar in 13 days. In 1860 the long 150-day passage of the *Winged Arrow* was a highly complimentary performance and reflects much credit on her commander, Captain Berry. Off the Plate, the ship, in a sudden violent gale, lost her mizzenmast and main topgallant mast, with all attached, and the main yard. Instead of putting into the nearby port of Montevideo, Captain Berry set up a jury mizzenmast, rigged the vessel as a bark, and continued on his voyage. Off the Cape, the *Winged Arrow* had bad weather and was 26 days between the 50's; in the Pacific the ship's luck deserted her, and instead of good trades she had only light winds all the way to port. On her next passage to San Francisco, the ship "limped into port" on July 16, 1864, under jury rig, completing a passage of 141 days. She had been partially dismasted when hove to during a violent gale 22 days out. The mainmast was broken off close to the eyes of the rigging, and the spars on the main carried overboard with them the fore and mizzen-topgallant masts, with all attached, and none of the spars, sails or rigging swept away could be recovered. In the spring of 1868, the *Winged Arrow*, after making a last passage of 119½ days westward in the California trade, was sold foreign, being acquired by the Russo-American Fur Company, of St. Petersburg. The *Starlight*, a medium clipper of 1,153 tons, launched at the Briggs yard, South Boston, in February 1854, averaged 125.7 days for her six Cape Horn westward passages, with sailings during the years 1854-1860, and 126.7 days for the three similar passages made during 1861-1864. The average of all nine passages was 126 days, the fastest being 117, 118, and 118 days and the longest 145 and 135 days. The *Starlight* was sold at San Francisco in December 1864 to the Peruvians for use in transporting coolies from China to work on guano deposits.

The clipper ship *Midnight* of 962 tons, built at Portsmouth, N.H., in 1854, made five westward California runs with sailings from East Coast U.S.A. ports during the years 1854-1860 inclusive, which averaged 129.4 days, and four more during the years 1862-1866 inclusive, which averaged 133.7 days—a total of nine passages averaging 131.3 days. The ship's first run over the course was her fastest—a 117-day passage in 1854; her next best run was her last over the course—a 119-day passage in 1866. The following is a record of her nine westward runs around the Horn, all to San Francisco:

Year	Port of Departure	Passage in Days	Year	Port of Departure	Passage in Days	Year	Port of Departure	Passage in Days
1854	Boston	117	1858	Boston	124	1863	Boston	132
1855	New York	144	1860	Boston	120	1865	New York	142
1856	New York	142	1862	New York	142	1866	New York	119

On her last westward passage, the *Midnight* rounded the Horn, sailing from 50° S. Atlantic to 50° S. Pacific, in only 7 days. This entire run was made in 117 sailing days, and the ship was standing off the coast ten days in a fog, was at the pilot grounds over three days, and was at anchor some time off the Heads before she could be taken through the Golden Gate. The ship continued in deep-sea work on the Seven Seas for eleven years after her last Cape Horn California voyage, but was condemned, given up to the underwriters, and sold in 1878, when a scant twenty-four years old.

The extreme clippers *Messenger* and *White Swallow* and the medium clipper *Grace Darling* each made four westward Cape Horn California passages with sailings from East Coast ports prior to the end of 1860, with five additional passages thereafter. The *Messenger* was a fast ship, but she was more conspicuous for the uniformity in the length of her four passages in the 1850's (before her spars were cut down and sail spread lessened) than for any short run. Built by Jacob Bell, New York, and launched April 22, 1852, this clipper had a model so sharp that it is surprising that she was able to compete in the California

trade with better carriers for twenty-one years, or until 1873. Apparently, she was operated successfully on the Seven Seas under the Stars and Stripes until condemned and sold at Mauritius in 1879, when twenty-seven years old, even though she could not carry deadweight in short tons to equal her original tonnage measurement (1,351 tons). (The "new measurement" tonnage of 1865, because of the low block coefficient of the ship, reduced the registered tonnage to 1,026 tons.) After her condemnation, the *Messenger*, with New Zealand owners, sailed as a bark to Newcastle, N.S.W., and when she ended her days, she did not founder, but was wrecked through either faulty handling or incompetent navigation. The following is a record of the nine outward runs to San Francisco (seven from New York and two from Philadelphia):

Departure	1852	1853	1854	1855		1862	1863	1866	1867	1873
Length of passage in days	124	126	125	121		137	127	109	138	136

The average length of the first four passages (the only ones made in the fifties) was 124 days (fastest, 121 days; longest, 126 days), and this uniformity is amazing. The last five passages averaged 129.4 days, and in 1866 the *Messenger* made her fastest run of 109 days, followed the next year by her longest passage of 138 days. The average of all her nine passages covering the period of 1852-1873 was 127 days. The clipper is credited with making 1,032 nautical miles in three consecutive days—an average of 344 miles a day and an average speed of about $14\frac{3}{4}$ knots per hour—which is extremely fast sailing over the California course. In the winter of 1853-1854, the *Messenger* made an all-time record run on an eastward Cape Horn passage to the Delaware when she arrived at the Capes on January 23, 1854, 82 days from San Francisco (three days later she was at Philadelphia). In 1863 the clipper ran from San Francisco to New York in 100 days.

The extreme clipper *White Swallow* and the medium clipper *Grace Darling* each made five of their nine westward Cape Horn passages to California during the years 1861-1868. On these runs in the sixties, the *White Swallow* made much better time than the *Grace Darling*, although the two clippers had an identical average length of passage for their first four runs to San Francisco. The *White Swallow* was of 1,192 tons and was launched at Medford, Mass., in March 1853. On her maiden voyage, she made the longest passage of her lifetime over the course to San Francisco, taking 150 days on the run, most of it in the Atlantic. With a May 27, 1853, departure from Boston, she was 51 days to the Atlantic equator, 86 days to 50° S. Atlantic, and 16 days rounding the Horn, making the run up the Pacific in 48 days, which included "loafing for a week off the California coast." The ship's fastest passage was a 111-day run made in 1860 (reported as 110 days), when she made land well south of the Golden Gate when 104 days out, but was 7 days in fog, calms, and light airs getting into the harbor to her final anchorage. Whereas the *White Swallow* required 51 days to run to the Atlantic equator from Boston in May-July 1853, she made the run from New York in about one-third the time (17 days 13½ hours) in February-March 1856, when commencing her second California voyage; on this passage, which occupied 134 days, the ship had a rough time of it off the Horn, having her bowsprit sprung and some spars carried away, and later she was handicapped by light winds and calms in the North Pacific. The 1865 outward run of the *White Swallow* from New York to San Francisco was a passage of historic interest, not because of the length of it (136 days) or the weather (generally unfavorable but not particularly bad) but because of the treatment of the crew by Capt. Elijah E. Knowles and his officers, which was so rough and brutal that it led to rebellion and a successful mutiny. The thoroughly aroused crew seized and imprisoned the captain and two mates and secured all arms aboard the ship, but did no physical harm to the officers and permitted the captain to navigate the ship and give orders for sailing her, which the crew obeyed. Upon arrival in San Francisco, six of the crew of the *White Swallow* were arrested and prosecuted with vigor, but the record of the captain and his officers was a bad one, and their own admissions under clever cross examination, coupled with the unbiased

testimony of passengers and the physical evidence on the part of the crew of the cruelty and inhumanity of the officers, resulted in a decision in favor of the crew. This "*White Swallow* case," which became known all over the world, had a great effect upon the operation of sailing ships and the practice of brutal beatings of members of the crew with brass knuckles, belaying pins, etc., and the putting of men on unnecessarily hazardous work. (Two men were lost overboard during the eventful passage of the *White Swallow* in 1865.) The *White Swallow* averaged 130.5 days for her nine westward California passages (six from New York and three from Boston), and the last five runs made during the period 1861-1868 averaged 129.7 days. Her sailing performances were quite uniform during the period of some fifteen years that she engaged in the California trade. On June 17, 1871, when 19 days out from Boston and laden with ice, the *White Swallow* was abandoned at sea off the Azores in a sinking condition; she was then a little over eighteen years old.

The *Grace Darling* was of 1,197 tons and was built at the Briggs yard at South Boston in 1854. She was not considered a fast ship, but on the other hand had the reputation for being a good, reliable carrier and was apparently a popular vessel with shippers. The following is a record of all the nine westward passages made by this medium clipper in the California trade:

Year	Port of Departure	Passage in Days	Year	Port of Departure	Passage in Days	Year	Port of Departure	Passage in Days
1854	Boston	143	1860	Boston	129	1865	Boston	130
1855	Boston	129	1863	Liverpool	132	1866	Boston	134
1858	Boston	125	1864	Boston	144	1867	Boston	135

The best passages occupied 125 and 129 days, and the longest were of 144 and 143 days, respectively. The first four runs, with sailings during 1854-1860, averaged 131.5 days, and the last five passages, with sailings during 1863-1867, averaged 135 days; but the ship's first three runs averaged 132.3 days and her last three passages 133 days. This is very uniform sailing—but not fast. Claims were very occasionally made for speed, but they were not substantiated and had too many "ifs and buts" about them. Although the *Grace Darling* could have made some faster passages if she had not been held up by calms and light winds in the North Pacific, the same can be said about practically every ship engaged in the Cape Horn California trade. All in all, the *Grace Darling* was a fortunate ship, and she was far more lucky than unlucky over the entire course in all her California voyages. In 1868 the ship was sold to Adams, Blinn & Company, lumber manufacturers on the Pacific Coast, and she was used in the offshore Pacific lumber and coal business until April 1875. Following this, she carried coal from British Columbia to San Francisco until January 1878, at which time she "went missing" when about twenty-three and a half years old.

There were nine clippers that each made eight westward passages in the California trade during their lifetimes, and three of these, the *Electric Spark*, *Rattler*, and *Endeavor*, each of which made three passages with departures from East Coast U.S.A. ports during the years 1850-1860 and five during the balance of the sixties, are referred to elsewhere. The *Comet*, *Ocean Telegraph*, and *Polynesia* each made seven passages with sailings during the years 1850-1860 inclusive and an eighth passage in 1861-1862. The *Telegraph* (in her last years named *Henry Brigham*) made six passages with sailings prior to the end of 1860 and two further California westward runs in the early sixties. The *Mary L. Sutton* made five sailings from East Coast ports during the years 1856-1860 inclusive and three in the years 1862-1864. The *Star of the Union* made half of her eight Cape Horn passages to San Francisco with sailings during 1853-1858 and the other half during the years 1861-1866.

The *Comet*, an extreme clipper ship of 1,836 tons, one of the fastest ships that ever sailed the seas, was built by W. H. Webb, of New York, and launched July 10, 1851. Although not as large as the 2,006-ton clipper *Challenge*, launched at the same yard forty-

seven days before her, she was the second largest American clipper when she entered the water, and although not particularly lucky in regard to weather she was, it was said, "as speedy as she is handsome and well built." At one time, she was described as "the greatest sprinter on the Seven Seas," and in the year 1854 she made at least six all-time speed records as follows:

Course	Date	Length of Passage	Course	Date	Length of Passage
San Francisco to New York	Dec. 1853- Mar. 1854	76 days	Atlantic equator to New York	Mar. 1854	15 days
San Francisco to Cape Horn	Dec. 1853- Jan. 1854	35 days 7 hours	Liverpool to Hong Kong	June- Sept. 1854	84 days
Cape Horn to Atlantic equator	Feb. 1854	26 days	Hong Kong to Batavia	Dec. 1854	7 days

In February 1853, the *Comet* established an all-time record by running from San Francisco to the Pacific equator in 12 days and from pilot to the line in 11½ days, and in February 1856 she made the record run of 12 days from the Pacific equator to the Golden Gate and San Francisco. Completing the California voyage of 1857 following her longest outward passage of 142 days, with the luck persistently against her as to winds and sailing chances, the *Comet* returned to New York via Elide Island (Southern California), where she loaded guano, and made the run from San Francisco to New York in 98 sailing days. She covered the last section of the course from the Atlantic equator to destination in only 14 days and lowered by a day the record that she had previously made in the North Atlantic part of the track in 1854. With all this definitely demonstrated speed, the *Comet* was generally not lucky in the weather and sailing conditions encountered on her passages, and she was positively not persistently smiled on by Dame Fortune as was the *Flying Cloud* in the Cape Horn trade; yet during the time that the *Comet* sailed under the American flag (until March 1863, when she was sold in London because of the Civil War) and up to the time of her loss by fire in the British-Australian packet trade in April 1865, she was rated as a very strong and successful ship and a money-maker, something that could not be said of the "Cape Horn Greyhound" *Flying Cloud*, which had to be laid up in 1856 and later "sold foreign," as her operating losses were too great for her New York owners to stand.

The average of the *Comet's* eight westward Cape Horn passages from New York to San Francisco was 121.7 days; but four of the runs were made under unfavorable conditions and occupied 123 to 142 days (three were in 128, 141, and 142 days, respectively), and the other four, when the ship had only a "fair to medium chance," were made in 103, 112, 112, and 113 days, respectively. Traveling eastbound around the Horn, the *Comet* had better luck and, as a result, hung up an all-time record over all parts of the course. Her 76-day run would have been bettered if the wind had not swung around and become dead ahead for the last 220 miles of the journey. The year before this all-time record-breaking eastward Cape Horn passage, the *Comet* had raced the fast *Flying Dutchman* over the same course and beaten her by some one and a half days, as she made the record up to that time of 83 days 18 hours and logged on an average 185½ miles a day over the entire distance of 15,541 miles. The *Comet*, on her maiden voyage, made a run out to San Francisco in 103 days and decisively beat all competition, but the only good sailing chances that she enjoyed were from the Atlantic equator to 50° S. Pacific and from the line to San Francisco; conditions in the North Atlantic and the South Pacific were bad. On her second passage out (in 1852-1853), the *Comet* again outclassed all other clippers that sailed anywhere near her; but, with a run of 112 days, she made a passage well described as "remarkably short considering the very large amount of severe weather she encountered." She was partly dismayed during vicious gales in the North Atlantic and was 33 days to the line; yet she ran from the Atlantic equator to San Francisco in only 79 days. On her third westward Cape Horn passage, which occupied 128 days, the *Comet* passed the *North Wind*, *Wizard*, *Flying Dragon*, *Wisconsin*, and *Arab*, which had sailed from eight to twenty-nine days before her, but her run, while even with that

of the *Trade Wind*, is reported as longer than the passages of two or three crack clippers that sailed soon after her and had better sailing chances. On this run, no ship came up on the *Comet* and passed her, and every ship that she contacted, she outsailed.

In 1855-1856, the *Comet* made a run out of 123 days (reported as 122 days) and was "outlucked" as to course taken and wind encountered by the much slower clipper *Ringleader*, but all other clipper competition sailing about that time had passages of from 131 to 155 days. The *Comet's* fifth run to California (her slowest—142 days), made in 1857, was a queer passage. She encountered adverse sailing conditions throughout that were evidently sandwiched in between periods of fair to good sailing chances, for some clippers sailing two or three weeks before her and ten days or more after her made satisfactory average runs. The only clipper sailing from New York within ten days of the *Comet* was the *Courser*, which left New York the same day, but was twelve days longer on the run to San Francisco. The clipper *Mameluke*, which left New York seventeen days before the *Comet*, reached San Francisco fourteen days after her and reported strong head winds in the North Atlantic and heavy westerly gales off the Cape. In 1858-1859, the *Comet* made an outward California passage in 112 days, her second best run over the course, reaching port at the same time as the *Nonpareil*, which had sailed four days before her. On this passage, however, one clipper made a better run than the *Comet*, but that was the newer *Andrew Jackson* (destined to be the all-time record-holder over the course), which cleared New York eight days after the *Comet* and, steering a different and straighter course, did not pass the *Comet*, but sailed through the Golden Gate two days before her.

There is some uncertainty in regard to the *Comet's* seventh westward Cape Horn passage made in 1860, which is here tabulated as occupying 113 days. The clipper is known to have had a stormy rounding of Cape Horn and of having her mainmast sprung, with the loss of much canvas, during an unusual hurricane experienced in the Pacific north of the line. The clipper is credited with a departure from New York on March 9 and an arrival in San Francisco on June 30, 1860, which gives a passage of 113 days, although some records state an arrival at destination on July 26, 1860, and a passage of 139 days. On her last and eighth passage to California from New York and the first lap of her last voyage around the world, the *Comet* reached San Francisco February 20, 1862, after a passage of 141 days made under very unfavorable sailing conditions. She was 26 days rounding Cape Horn, and in bucking westerly gales and heavy seas the bowsprit sprung so badly that for the balance of the passage the ship could carry but little head sail.

The *Comet* had been cut down in spars, sail spread, and crew and been operated economically for years. Upon her arrival at New York in December 1862 from China, conditions brought about by the Civil War made most American shipowners pessimistic in regard to both the present and future of American shipping and particularly of extreme clippers, so in March 1863 the *Comet* was sent across the Atlantic for sale. The ship made a fast run of 19 days to London, and shortly after her arrival at that port, she was sold for £8,100 for the British-Australian packet trade. On the return passage of her second voyage in this service, the *Comet*, which had been renamed *Fiery Star*, caught fire in her cargo, and when it could not be got under control, orders were given to abandon ship. The vessel was being operated by the British with inadequate small-boat capacity, even for a homeward run (not to mention an outward run, when the ship carried about 600 passengers of all classes). Only about 80 of the passengers and crew could be put into the three boats carried, so the first mate and 17 of the crew were left behind on the burning ship. The men who stayed on the burning *Fiery Star* proved to be the lucky ones, for they were rescued by the bark *Dauntless*, and none of the small boats nor any occupant of them was ever heard from again. The *Comet* was about fourteen years old when destroyed by fire.

The extreme clipper *Ocean Telegraph* of 1,495 tons, launched by J. O. Curtis at Medford, Mass., March 29, 1854, made all her voyages while operated under the American flag in the California trade, and all of the eight outward passages were from New York to San Fran-

cisco. The ship was generally fairly lucky as to weather, as she ran into sailing conditions only once that forced her to make a long passage, and that was on her third voyage (1856), when she required 150 days on the run due primarily to bad weather in the North Atlantic and when rounding the Horn; she was 46 days running from New York to the Atlantic equator, was 40 days off the Horn in westerly gales, and for 12 days was unable to advance a single mile on her course. These eight westward Cape Horn passages of the *Ocean Telegraph* can be briefly summarized comparatively as follows:

Year	Passage in Days	Year	Passage in Days	Year	Passage in Days	Year	Passage in Days
1854	125	1856	150	1858	125	1860	125
1855	120	1857	107	1859	109	1861	112

The average of the seven passages with sailings in 1860 and prior years was 123 days and of the entire eight runs made during the ship's lifetime, 121.6 days. The three fastest passages were made in 107, 109, and 112 days, respectively; the longest passage, as before stated, occupied 150 days, but the other four runs consisted of one of 120 days and three of 125 days each. The fourth outward passage of the *Ocean Telegraph*, set forth as 107 days, was reported as "a run of 105 days 20 hours," the 120-day passage of 1855 as 118 days, and the maiden voyage of 125 days as 124 days. On most of these passages, the clipper was delayed by calms and light winds off the California coast, and Captain Willis, her commander, was evidently a "pencil sharpener" in computing and reporting the length of passages when his ship was "on the doorstep of her destination" for many days. The *Ocean Telegraph* made four direct eastward Cape Horn passages from San Francisco to New York in 98, 98, 106, and 90 days, respectively, an average of 98 days, and completing her second voyage, she made a run from Callao to New York, partially loaded, in 58 days (April-June 1855), which is a record. In 1863 the *Ocean Telegraph* (like the *Comet*) was sold in London because of the Civil War. She was bought for £7,060 by James Baines & Company for its Liverpool Australian Black Ball Line and renamed *Light Brigade*. The ship later saw service in the North Atlantic timber and lumber trade and in the 1890's, when forty years old, was a coal barge at Gibraltar.

The *Polynesia*, a medium clipper ship of 1,084 tons, launched from the yard of Samuel Hall, East Boston, July 2, 1852, made seven westward Cape Horn runs to California during the years 1852-1860, which averaged 132.8 days, and one run in 1861-1862, which occupied 140 days—the average for all her eight passages being 133.7 days. The *Polynesia* was said to be a sister ship to the *John Gilpin* of 1,089 tons, and they were built at the same yard during the same year within two or three months of each other. Whereas the *John Gilpin* came to a tragic end by colliding with an iceberg and then being destroyed by fire when about five and a half years old, she had shown good speed on the California run prior to that time, including a 93-day 20-hour passage on her maiden voyage. The *Polynesia*, although undoubtedly a fast and capable ship, was a very unlucky one. She made only one good passage out of eight attempts (and even on that run she was partly dismasted, her bulwarks stove in, and the binnacle swept overboard) and had "a continued series of adversities, mishaps and accidents" from her maiden voyage to her end, which came by fire. A record of the eight westward Cape Horn California passages of the *Polynesia* is set forth herewith:

Departure Year and Port	Passage in Days	Departure Year and Port	Passage in Days	Departure Year and Port	Passage in Days	Departure Year and Port	Passage in Days
1852 (Boston)	140	1855 (Boston)	125	1857 (Boston)	139	1860 (New York)	138
1853 (New York)	104	1856 (New York)	132	1858 (Boston)	152	1861 (New York)	140

On her 1858 passage, the *Polynesia* (on her second departure from Boston) was partly dismasted and had a terrific experience in a southern hurricane a few days out from Boston. In June 1860, the *Polynesia*, approaching San Francisco, was in collision at night with the bark *Ork* and lost her bowsprit and all head gear and suffered damages to the hull. On March 3, 1862, the *Polynesia* was evidently destroyed by fire by her crew in San Francisco Harbor as the ship was about to sail. She was about ten years old when her career came to an end at the hands of some of the crew who had deserted to go to the Cariboo mines and been brought back to the ship by the police.

The *Golden Eagle*, built at Medford and launched November 9, 1852, was a sharp-lined extreme clipper of 1,121 tons and capable of much higher speed than her performance records in the California trade would suggest. The following is a comparative record of her eight Cape Horn passages to San Francisco:

Departure	Boston	New York	New York	New York	New York	New York	New York	New York
	1852	1854	1855	1856	1858	1859	1860	1862
Length of passage in days.....	157 (via Rio)	124	106	128	135	215	111 (reported 110)	117

Whereas the average of all the eight westward California passages, port to port, is 136.6 days, the average of the six direct runs is 120.2 days. On her maiden voyage, the *Golden Eagle* put into Rio de Janeiro for repairs after suffering severe damage to her hull by heavy seas in the South Atlantic. She was at the Brazilian port 29 days, making the passage one of 128 sailing days; but Captain Fabens reported the passage as a run of 110 days "on the course." The passage of 1859 (May 23-December 24) was a momentous one, as the clipper was off Cape Horn for 90 days in heavy gales and mountainous seas, which is a longer time than the *Andrew Jackson* and *Flying Cloud* required to sail all the way from New York to San Francisco on their 89-day passages. The clipper, after this ordeal, had to put into Talcahuano for water; this port detention of 6 days (November 12-18) was not necessary for repairs, but it reduces the passage of 215 days, port to port, to 209 sailing days and gives the ship a record of an average run of 132.2 sailing days on her eight outward passages to San Francisco. The *Golden Eagle* was captured and burned by the Confederate raider *Alabama* on February 21, 1863, in the North Atlantic, and this episode can be said to have started a somewhat hysterical "flight from the flag" and the selling of American clippers to foreign owners.

The *Telegraph* was a well-designed extreme clipper of 1,078 tons, built in 1851 at Medford from the model and drawings supplied by Samuel H. Pook, of Boston. She was an unfortunate ship, but as originally built she was fast when she had a sailing chance. As the *Telegraph*, this vessel made only four westward Cape Horn runs in the years 1851-1854 inclusive. On her maiden voyage, the *Telegraph* went from New York to Boston in 125 days, which included five days of dead calms and, it was said, "otherwise mostly head winds and only two days of the entire run with a good chance to show speed." On one of these two days, the clipper logged 325 miles and showed a spurt speed of 16 knots per hour. On her second westward Cape Horn run (which was from Boston), a passage of 114 days was made, but for the last nine days she was within 600 miles of her destination "praying for wind." Returning home in 1853, the clipper ran from Valparaiso (June 20) to Boston (August 20) in the record time of 58 days. The third run to San Francisco was a particularly unlucky one, for the ship ran into bad weather in the Straits of Le Maire and, rounding the Horn, lost her bowsprit and head sails, sprung the yards on the mainmast, and put into Valparaiso for repairs, where she was detained 15 days. The total length of the passage was 135 days, but it was reported as 119 sailing days, with a record run of 34 days from Valparaiso to Point

Reyes and 38 days from port to port. On her fourth Cape Horn westward passage, the *Telegraph* left Boston December 21, 1854, and was in collision when three days out and partially dismasted. Instead of returning to port for repairs, the clipper proceeded on her passage, making repairs at sea, and made a fast run of 109 days, port to port. Returning east, the clipper went to New York from San Francisco in 106 days, being, it is said, "the first ship to take a cargo of merchandise eastward over that course."

During the depression, the *Telegraph* was sent to England and Russia, and upon returning to Boston, she was sold and, without proper conditioning, was loaded for Australia. She put into Savannah leaking, was repaired, and, when about to sail, took fire January 26, 1857 (apparently started by the crew), was scuttled and turned over to the underwriters. Sold for \$6,200, the *Telegraph*, less than six years old, was raised and repaired, and the second part of the ship's history commences with her name changed to *Henry Brigham*. When ready for sea, she dragged her anchors and went ashore, which resulted in more trouble, but the ship made Cape Horn westward passages of 131 days in 1858, 125 days in 1859-1860 (both from New York), and 141 days in 1861 from Liverpool. The *Henry Brigham* (formerly *Telegraph*) got into trouble with U.S.A. authorities in San Francisco in 1861 because of "rebel ownership" and was sold by the U. S. Marshal for \$15,250 on August 5, 1862. After making voyages to China and returning east via South America and the Horn, she made her last run as a Cape Horn and her last voyage as an American ship in 1865. This was a very slow passage of 168 days from New York to San Francisco, with adverse winds all the way. The average length of the entire eight California passages made by the *Telegraph* under both of her names during the years 1851-1865 was 131 days. The average length of the six passages with sailings during the years 1850-1860 inclusive was 123.2 days, but the average length of the four San Francisco passages made by the original *Telegraph* before being burned, repaired, and renamed was 120.7 days, and the average of the *Henry Brigham's* four passages was 141.2 days. However, the *Telegraph* evidently made her four westward Cape Horn runs to California in an average of 116.7 sailing days, and the claim was made by her owners and command that the ship made these four passages in an average of only 113 days at sea moving through the water under canvas. The *Henry Brigham* (formerly *Telegraph*) was sold in San Francisco in September 1865, when the ship was fourteen and one-third years old, to the Peruvians for use in the Chinese coolie trade, and in 1868 she was reported as destroyed at sea by fire.

The *Mary L. Sutton*, a medium clipper of 1,448 tons, built by Mallory at Mystic, Conn., was a well-designed and built fast ship that carried well and was an outstanding vessel of her type and period. The following is a record of her eight passages from New York to San Francisco:

Departure from New York	Arrival at San Francisco	Length of Passage in Days	Departure from New York	Arrival at San Francisco	Length of Passage in Days
Apr. 6, 1856	July 26, 1856	110	Nov. 23, 1860	Mar. 1861	108
Apr. 1, 1857	Aug. 19, 1857	140	Feb. 20, 1862	June 15, 1862	115
May 31, 1858	Sept. 24, 1858	116	Feb. 21, 1863	June 15, 1863	114
Jan. 30, 1860	May 12, 1860	103	Mar. 14, 1864	Aug. 5, 1864	144

The average for the eight passages to San Francisco is 118.7 days; the average of six of the passages is 111 days (fastest, 103 days; longest, 115 days) and of the two long runs, 142 days. The "*Sutton*" did consistently fast sailing on her six eastward Cape Horn runs, of which five were direct and averaged 96.4 days (fastest, 94 days; longest, 100 days). On the return passage of her maiden voyage, which is recorded as one of 95 days, she actually made landfall 85 days out. On her second eastward Cape Horn run, the ship called at Rio de Janeiro, but made the passage in 110 days, including port detention and the time lost making for and leaving Rio. The *Mary L. Sutton* did some fast sailing in the California trade. She

rounded the Horn (from 50° S. Atlantic to 50° S. Pacific) in 8 and again in 9 days and ran from 57° S. Pacific to the line in 17 days (the record) in 1856. In 1863 she ran from 50° S. Pacific to the equator in 17 days and in 1862 from the Atlantic equator to New York in 16 days. The "*Sutton*" was lost in a gale by being blown from her mooring and wrecked on a reef while loading guano at Baker's Island on November 20, 1864, and this splendid ship was only eight and a half years old when her career came to a tragic end.

The *Star of the Union*, an extreme clipper ship of 1,057 tons, launched at Medford in December 1852, had a model and was sparred for high speed; yet for a vessel that was pre-eminently a speed merchant, the performance of the clipper at sea was disappointing, and the ship made no noteworthy passage. Her four westward runs to California with departures during the years 1853-1858 averaged 134.5 days; three of the passages were in 124 days, and the fourth via Port Stanley of the Falklands, where she put in for repairs, was of 166 days, although 119 sailing days were claimed. The four runs with departures after 1860 averaged 133.7 days and were made in 121, 141, 148, and 125 days, respectively, the average for all of the clipper's eight westward California passages being 134.1 days (fastest, 121 days in 1864; longest, 166 days in 1855). After her last Cape Horn passage to San Francisco (125 days) in 1866, the *Star of the Union* loaded guano for New York, collided with the British bark *Simon Habley* and sank her off the Horn, put into Rio de Janeiro in distress, and was evidently condemned and sold when about fourteen years old.

The clipper *Rattler* of New York, which at times did some fast sailing in both the Atlantic and Pacific during a period of some thirty years and in 1878 made the record of 28 days in a run from Callao to San Francisco, made three westward runs to California in the fifties that averaged 133 days (reported as 132 days; the fastest, 115 days). An additional five passages in the sixties (1862-1869) averaged 126.8 days (fastest, 114 days in 1866-1867), and the average of all her eight westbound Cape Horn passages to San Francisco was 129.1 days (reported as 128¾ days).

There were six clippers that, in their lifetime, each made seven westward Cape Horn California passages. These were the *Andrew Jackson*, *Don Quixote*, *Eagle Wing*, and *Challenger*, which each made five sailings from East Coast U.S.A. ports during the years 1850-1860 inclusive and two more in the early sixties; the *Panther*, which made two passages with sailings prior to the close of 1860 and five thereafter (one from Liverpool); and the *Panama*, referred to elsewhere, which made three sailings prior to the end of 1860 and four more during the period 1861-1866.

The *Andrew Jackson*, the record-holder in the California trade with a westward Cape Horn passage of 89 days 4 hours from New York to San Francisco (December 25, 1859-March 24, 1860), referred to elsewhere, was one of the marvelous, fast sailers that carried well and made money and were built during the 1850's and 1860's at Mystic, Conn. The *Andrew Jackson* was a medium clipper of 1,679 tons and was launched in March 1855, seventeen months after the *David Crockett*, which was also destined to become famous in the California trade. These Mystic-built medium (and later "half") clippers did not have enthusiastic publicists to boost them as did the clipper ships built at Boston (particularly the Donald McKay ships) and New York, and the prejudice of Massachusetts historians indicative of local pride has operated not only to ignore demonstrated quality but also to detract from the splendid achievement of Mystic-built craft that, although designed and built to make money, surprised the world by their consistently fast passages. The medium clipper *Andrew Jackson* was not built to challenge the *Flying Cloud*, "the Greyhound" of the Cape Horners, which had been designed primarily as "a speed merchant," and it was simply unthinkable to certain Massachusetts enthusiasts that the *Andrew Jackson* could and did; but she and other Mystic-built fuller-modeled and less canvased ships made fast passages, carried good cargoes, and made money after the extreme clippers (such as the *Flying Cloud*) had been worn out by hard driving and driven from the trade by competition and the working of the inex-

orable economic law of the survival of the fittest. The *Andrew Jackson*, on her seven westward Cape Horn passages to San Francisco, averaged 106.1 days according to departure and arrival dates; but only the last six of these runs were made by the real "Jackson" (after original mistakes in sparring the vessel had been corrected). The average length of these six passages was 102.5 days, and the average length of these runs as reported by the command of the ship was only 101.8 days. Like so many of America's fine big clippers, the *Andrew Jackson* was "sold British" in 1863 because of conditions brought about by the Civil War, the activity of Confederate raiders, and the stupid policy of the North in regard to the protection of its shipping. The ship, hailing from Glasgow, was wrecked on a reef in Gaspar Straits on December 4, 1868, and became a total loss when thirteen and three-quarters years old.

The *Don Quixote*, a medium clipper of 1,429 tons, launched at Medford, Mass., in September 1853, has to her credit one of the best sailing performances of any clipper over the course to California considering her model fullness (and carrying capacity), uniformity of speed shown, and her sailing chances. On her five passages made with East Coast departures prior to 1860, she averaged 118.2 days, and for the middle three of these runs made in 1854-1857, she averaged 108.7 days (fastest, 107 days; longest, 110 days). In 1861-1862, she made two runs averaging 129 days, and her total lifetime record is seven passages averaging 121.3 days (fastest, 107 days in 1854; longest, 139 days in both 1859 and 1862). The clipper was sold to the French in 1864, and she sailed less than eleven years under the American flag. On her maiden passage, the *Don Quixote* made the run in 126 days, with head winds prevailing throughout most of the course. On her second and best run (1854) of 107 days, she was within 300 miles of her destination for ten days and covered 98 per cent of the mileage of the entire passage in 90.7 per cent of the recorded time, port to port. On her third westward run, made in 110 days in 1856, thirty days were spent in the North Pacific between the line and destination, mostly in light winds and calms. On her fourth passage (1857), the ship encountered severe gales and lost much canvas soon after leaving port. She was also unfortunate in falling to leeward of Cape St. Roque, but when only 102 days out, she was fog-bound close to the San Francisco Heads, and it required seven more days to complete the run. With a little luck, the *Don Quixote* would have made each of her second, third, and fourth passages (Boston to San Francisco) in about 100 days or less. The fifth California passage, made in 1859-1860, was sailed under very unfavorable conditions; but the ship made a better run than all the other clippers that cleared an eastern port within a period of a month before and a month after her, and she beat the *West Wind*, which sailed just after her, by thirty-three days. In 1861 the *Don Quixote* was sent to sea too deeply laden, and she encountered very severe weather; her performance of making a 119-day run under the conditions was considered "most satisfactory." However, when attention is given to the fact that the ship, when 104 days out, had covered 94 per cent of the mileage of the course, averaging about 140 miles per day, and during the last 15 days was held down to an average of only 60 miles per day by light winds and calms, the performance was quite remarkable, particularly when we note that Captain Ellery protested the lading of the ship and at times during the severe weather encountered "feared for her safety." The last westward passage of the *Don Quixote* was a long one because of bad weather in the Atlantic, which persisted from the time that she sailed until she reached the Pacific, where at times her performance suffered from a lack of the usual winds, and she ran into calms and light airs as she approached the California coast. On this run of 139 days in 1862, it required 41 days for the ship to reach the Atlantic equator, but sixteen days before she completed the passage, the *Don Quixote* was only 300 miles from the Golden Gate.

The clipper ship *Eagle Wing* of 1,174 tons, built at Medford and launched October 4, 1853, has been rated as a medium clipper at times; but she was too sharp for such a classification and while not in the "extreme" category, she was, nevertheless, a "clipper" and not a "medium clipper." The *Eagle Wing*, during her career, did some very fast sailing over various trade routes of the Seven Seas. Her five westward passages to San Francisco

from East Coast ports with departures during the years 1853-1860 inclusive were in 106, 118, 131, 120, and 122 days, respectively, and averaged 119.4 days. In 1862 she ran out in 119 days and in 1864 in 140 days, making her lifetime average of seven passages 122.3 days; the fastest run (106 days) was her first, and the slowest passage made (140 days) was her last. The *Eagle Wing's* maiden passage to San Francisco was reported as 105 days, and Captain Linnell, when in the North Pacific well on the way toward his destination, was expecting to make a 97-day passage; but the wind did not hold as it had for the *Romance of the Seas* and *David Brown*, which had sailed some four to seven days before him and made 97- and 100-day passages. On the *Eagle Wing's* last westward Cape Horn passage, Capt. Eben H. Linnell met his death aboard the ship, during a sudden heavy squall off the Plate, when he was thrown against the wheel as the spanker boom swept across the quarter-deck. First Mate Morrison took the ship into San Francisco, but the man was not of skipper caliber, and soon after arrival in port he was discharged for dishonesty and general incompetence. Eastbound, the *Eagle Wing* ran from San Francisco to New York in 90 days in 1860 and to Boston in 98 days in 1864. She left Boston for Bombay on February 11, 1865, and "went missing" when about eleven and a half years old. This clipper was fast and was a rather consistently good sailer, for she averaged 119.3 days on her first six westward runs to San Francisco. However, she was not a well-designed ship, as she lacked initial stability, and this may have been the cause of her loss. When light, the *Eagle Wing* acted like a narrow British tea clipper; she would not stand up straight without either cargo or ballast in her lower holds, and it is said that "as much as 600 tons of ballast was required to keep the ship upright when anchored in the stream without cargo."

The *Challenger*, an extreme clipper of 1,334 tons, launched by Jackson at East Boston on December 19, 1853, was designed by Samuel H. Pook and was a very beautiful, fast ship, but not very fortunate in regard to weather, lading, and sailing chances. The ship's seven westward runs to San Francisco were made in 112, 134, 115, 121, 128, 118, and 133 (reported as 128) days, respectively, an average of 123 days (shortest, 112 days, her first; longest, 134 days, her second). The average length of her first five passages with departures from East Coast ports during 1854-1860 was 122 days. On her first passage out to California, the ship's holds were full, but the cargo was mostly light and bulky and badly stowed, so that Captain Hill, although making a good run of 112 days, "was unable to carry a press of sail." On her second run out, the long passage of 134 days was due to either head winds or calms practically all the way. The third passage of the *Challenger* to San Francisco of 115 days in 1857-1858 would have been much shorter if the ship had experienced the usual trades in the Pacific, but light winds generally prevailed, and the ship was 59 days running from the Horn to port. The next run of the ship out to California was an unfortunate one, as soon after leaving New York, she was partially dismasted by gales in the North Atlantic (January 1859) and returned to port for repairs. Resuming her voyage, the ship went to San Francisco in 121 days (reported as 120 days), and she encountered 14 days of heavy storms off Cape Horn. In 1860 the *Challenger* ran out in 128 days, but 31 days were spent in the North Atlantic running to the line and 31 days in the North Pacific running from the Pacific equator to port; therefore, 62 days of sailing were in the Northern Hemisphere and 66 days (which included rounding the Horn) in the Southern Hemisphere. On this run, the *Challenger* passed the clipper *Neptune's Favorite*, which had sailed before her, in the North Atlantic, led her into port by eight days, and beat her by over nine days on the passage. The last California run of the *Challenger*, made in 1863, was a passage of 133 days according to elapsed time (clearance to arrival), but was reported by Captain Winsor as a 128-day run made under adverse sailing conditions. In July 1863, the *Challenger*, then only nine and a half years old, because of conditions brought about by the Civil War, was sold at San Francisco to the Peruvians to be used in the transport of coolies from China to the guano deposits.

The *Panther*, a medium clipper of 1,278 tons, launched in January 1854 from the Paul Curtis yard at Medford, Mass., should have been a fast ship; but she was very unlucky as to weather and sailing chances when put on the California course. Her record for speed in that trade is a poor one, as her average for all the seven westward passages made to San Francisco was 148.3 days, these runs being summarized as follows:

Departure	Boston 1857	Boston 1859	New York 1862	New York 1864	New York 1867	New York 1868	Liverpool 1871
Arrival at San Francisco.....	Nov. 30, 1857	Feb. 3, 1860	May 10, 1863	May 1, 1865	Nov. 19, 1867	Dec. 23, 1868	Aug. 31, 1871
Length of passage in days.....	143	139	140	170	165	142	139

The *Panther*, during her passages in the California trade, never had a chance to make a run such as a ship of her speed potentialities would be expected to make, and occasionally she was beaten rather badly by much slower ships that were fortunate in escaping the adverse weather encountered by the *Panther*. In the winter of 1868-1869, the *Panther* was sold for the Puget Sound lumber trade and operated therein with satisfaction for years. She made good transpacific and coastwise runs and in 1870 was dispatched to Liverpool, making the run out in 117 days from San Francisco. Returning, she made her last and seventh westward rounding of Cape Horn and passed through the Golden Gate August 31, 1871, completing her last California outward passage in 139 days, which equaled the time of her previous best run made from Boston to San Francisco in the winter of 1859-1860. The *Panther*, engaged as a square-rigger in general Pacific trade, was wrecked by stranding in January 1874, when over twenty-one years old, while in tow of a tug when leaving Nanaimo, B. C., laden with coal bound for San Francisco.

There were sixteen clipper ships that have a lifetime record of making six westward California passages. Nine of these made five passages with sailings during the years 1850-1860 inclusive, two made four such runs during this period, two made three, and three commenced two passages prior to the end of 1860. The clippers of this group making five passages with East Coast departures during 1850-1860 were:

Name of Clipper	Average Length of Passages in Days		Name of Clipper	Average Length of Passages in Days		Name of Clipper	Average Length of Passages in Days	
	First Five	All Six		First Five	All Six		First Five	All Six
RINGLEADER	114.0	116.6	MORNING LIGHT (of Boston)	127.4	131 (about)	NEPTUNE'S CAR	130.2	139.5
FLYING DRAGON	120.8	120.0	STORM KING	133.8	131.6	AURORA	143.2	141.2
NORTHERN LIGHT	118.4	121.0	WEST WIND	139.6	138.5	ANGLO- SAXON	140.4	145.5

Notwithstanding the long passage averages of the last four of the above-stated nine clippers, all were capable of good speed; but force of circumstances, accidents, and sailing conditions prevented some of them from showing an average length of passage more in harmony with their potentialities.

The *Ringleader* was a fast clipper of 1,154 tons, built at Medford, Mass., which has a fine record as a Cape Horner notwithstanding that on her outward runs she encountered a great deal of light winds that did not permit of fast passages. The following is a comparative statement of her six passages to San Francisco:

Departure		Arrival at San Francisco	Length of Passage in Days		Departure		Arrival at San Francisco	Length of Passage in Days	
Port	Date		Actual Port	If Calms and Light Airs Not Encountered off California Coast	Port	Date		Actual Port	If Calms and Light Airs Not Encountered off California Coast
Boston	Oct. 21, 1853	Feb. 8, 1854	110	103	New York	Apr. 3, 1858	July 26, 1858	114	104
Boston	Oct. 28, 1855	Feb. 12, 1856	107	107	Boston	Sept. 10, 1860	Jan. 3, 1861	115	115
Boston	Feb. 17, 1857	June 21, 1857	124	106	Boston	Oct. 10, 1861	Feb. 17, 1862	130	125

The *Ringleader* was wrecked on the Formosa Banks in the China Seas May 9, 1863, when 6 days out from Hong Kong bound for San Francisco, with some white cabin passengers and several hundred Chinese coolies. The wrecked ship was immediately pillaged by Chinese pirates, and the coolies were driven ashore, but in the melee two American seamen were drowned when taking to the boats. When lost, the *Ringleader* was less than ten years old.

The *Flying Dragon*, a clipper ship of 1,127 tons, built by Trufant & Drummond, Bath, Maine, and launched in June 1853, was one of the very few ships built at Bath that was sufficiently sharp-lined to be rated as a clipper (or even a "medium clipper"). The *Flying Dragon* was undoubtedly a fast ship and a well-designed vessel. Her six westward runs in the California trade were made in 148, 114, 97, 126, 119, and 116 days, respectively, and her third passage of 97 days, leaving New York November 27, 1856, and reaching San Francisco March 5, 1857, is one of the really great clipper ship runs made over the course. Considering sailing conditions experienced and her "chances," this passage has been said to have been beaten only by the *Andrew Jackson* since the 95-day run of the *Sweepstakes* (February 20-May 25, 1856) notwithstanding that the mammoth *Great Republic*, which left New York December 5 (or eight days after the *Flying Dragon* sailed), reached San Francisco March 9 (four days after the relatively little "*Dragon*") and, with an elapsed time of 94 days between the ports, reported a passage of 92 days from Sandy Hook and a run of 15 days 18 hours from the Hook to the line, with 413 miles covered in one day. The strong favorable winds that benefited the *Great Republic* did not similarly affect the passage of the *Flying Dragon*, as she was 21 days to the Atlantic equator, but ran from there to San Francisco in 75 days; whereas the *Great Republic* reported covering this part of the course in somewhat over 76 days. On this passage, the *Great Republic* rounded the Horn (from 50° S. Atlantic to 50° S. Pacific) in 9 days. She had wonderful luck passing Cape Horn, with favorable winds and skysails set; but the *Flying Dragon* was not so fortunate, and she was 17 days running between the 50's, or eight days longer than the big "*Republic*" in covering this part of the course. In the Pacific and in the South Atlantic, the world's largest clipper, on this her fastest passage, was outsailed by the *Flying Dragon*. During the night of January 29, 1862, when entering San Francisco Harbor in charge of a pilot at the completion of a fast run from Newcastle, N. S. W., the *Flying Dragon* struck on Arch Rock and became a total loss; she was only about eight and a half years old when wrecked through no fault of her own or of her regular command.

The *Northern Light*, a clipper of 1,021 tons, built by Briggs, South Boston, in 1851 (launched September 25) from designs by Samuel H. Pook, was—like all the Pook clippers—not only a beautiful, well-modeled and sparred ship but also a veritable "aristocrat of the seas." The *Northern Light's* six passages were made in 109, 117, 122, 124, 120, and 134 days, respectively. Her fourth run out was reported as 123 days, and her fifth, made in 1859 after an absence from the California trade (during which she made four voyages between Boston and India, Manila, and the East Indies), was reported as a run of 116 days from Boston to San Francisco. All the *Northern Light's* voyages originated in Boston. The ship was

honored in her home port, as in 1853 this clipper made the all-time record eastward passage from San Francisco to Boston of 76 days 8 hours (also reported as 76 days 6 hours) and in 1856 made the record run of 89 days from Boston to Manila. On her first three voyages, the *Northern Light* ran from Boston to San Francisco and returned direct to her home port, the eastward runs being made in 100, 76, and 91 days, respectively. The round voyages were negotiated in 209, 193, and 213 total days under canvas, respectively, an average of 116 days out, 89 days home, and a total out and home of 205 days, which is good and uniform sailing. The only other voyage where the clipper made direct runs between an East Coast port and San Francisco was her last Cape Horn voyage in 1861, when she made a slow run out from Boston in 134 days under adverse sailing conditions and returned to New York in 106 days. At this time, the ship was being economically operated, the spars, sails, and number of crew had been cut down, and necessary repairs neglected or "postponed." On the night of January 2, 1862, when bound from Havre to New York in ballast, she was in collision with a French brig, which promptly foundered. The *Northern Light* saved the crew of the French vessel, but she herself was so badly damaged by the accident that later she had to be abandoned. All members of the crews of the two ships were picked up by other ships and landed at Falmouth and Cowes. The *Northern Light* was about ten and one-quarter years old when she came to her tragic end.

The *Morning Light* of Boston was a big clipper (but not an extreme clipper as generally stated) of 1,713 tons, which was launched at Portsmouth, N.H., August 25, 1853, for Boston owners. This clipper was a beamy (43-ft.) three-decked vessel, with 27 ft. depth of hold. The *Morning Light*, generally referred to as *Morning Light* (1) to distinguish her from another ship of the same name built and owned in Philadelphia generally termed *Morning Light* (2), has no right to priority of designation, as Cramp, of Philadelphia, launched his ship August 15, 1853; whereas the firm of Tobey & Littlefield gave the same name to a clipper that it launched into the Piscataqua ten days after the Philadelphia craft had entered the Delaware. The *Morning Light* of Boston was somewhat of a disappointment in speed, and it would seem that she was more impressive looking than fast, although—like many other clippers in the California trade—she seemed seldom to have opportunities to make good passages. The ship made five direct passages (the first four from Boston and the last from New York) to San Francisco in 131, 113 (reported 112), 124, 141, and 128 days, respectively. On her fourth and longest passage, she was 32 days off Cape Horn. The last voyage of the *Morning Light* under the American flag and her last westward rounding of Cape Horn consisted of a run out from Cardiff, Wales (August 21, 1861), to Valparaiso in the slow time of 88 days and hence a very fast run of 37 days from Valparaiso to San Francisco—a total of 125 days at sea and actually 122 sailing days, as the ship lay becalmed three days off Valparaiso. Her reported actual sailing time of 34 days from the Chilean port to San Francisco would constitute an all-time record. The *Morning Light* was sold at London in April 1863 to James Baines & Company, which renamed her *Queen of the South* and used her in the British-Australian trade.

The *Storm King*, a medium clipper of 1,289 tons, built by Taylor at Chelsea in 1853, was a good sailer, but unfortunate as to weather. Her six westward Cape Horn passages to San Francisco, the first and last from Boston and the middle four from New York, were made in 135, 125, 123, 138, 148, and 118 days, respectively, an average of 131.6 days, the best one being her last and made in 1861. In 1863 the *Storm King*, because of the Civil War, was sold at Hong Kong to go under British colors. The *West Wind*, a medium clipper of 1,071 tons, was launched at Medford, Mass., in March 1853. Her record of length of passages in the California Cape Horn trade does not suggest a fast sailer; her six westward runs to California were made in 135, 130 (reported 129), 124 (reported 122), 137, 172 (reported 170), and 133 days, respectively, the last passage being made in 1861-1862. All the passages were direct runs, and the reason for the long 172-day passage was primarily bad weather in the North Atlantic and off Cape Horn, as she was 46 days from Sandy Hook to the line and 37

days rounding the Horn. The clipper was sold in New York in May 1863 to go under the British flag.

The *Neptune's Car*, the only clipper ship built in Virginia, was launched at Portsmouth, Va., April 16, 1853. She was of 1,616 tons and copied a model and drawings supplied by W. H. Webb, of New York. The six westward passages to San Francisco can be summarized briefly as follows:

Departure	New York 1853	New York 1855	New York 1856	New York 1857	New York 1860	New York 1861
Passage in days, port to port.....	116	101	136	184 via Rio	114	186 via Callao
Passage as reported.....	115	101	134	125 sailing days	114	?

The poor average of the *Neptune's Car's* six outward passages in the California trade here stated at 139.5 days, port to port, is due to the unfortunate runs of 1857-1858 and 1861, when the clipper made port en route for repairs. The four direct passages averaged 116.7 days and, as reported, an even 116 days. On her fourth passage, the claimed run of "125 sailing days" cannot be correct unless this is an estimated run on the course; for the ship put into Rio de Janeiro on November 8, 1857, 68 days out from New York, and after 34 days of port detention for repairs, she required 82 days to run from Rio to San Francisco, the passage being, therefore, 184 days from port to port and 150 days at sea (or actual sailing days during the run). The last westward California passage of the *Neptune's Car*, with a sailing from New York April 5, 1861, and an arrival at San Francisco October 28, occupied 186 days and was an eventful trip via Callao. The ship experienced frightful weather off the Horn. She was partially dismasted, decks swept, and she sustained damages and became leaky. The crew mutinied, refusing to pump, with the result that the ringleaders of the revolt were put in irons, and Captain Sprague, when he finally succeeded in getting the ship around the Horn and into the Pacific, headed for Callao for repairs and to deal with his mutinous crew. Upon arrival at San Francisco, the ship was seized by the United States authorities on the ground that she was partially owned by southerners; but after three months in port, the clipper sailed back to New York in 98 days, making a fast run of 13 days from the Golden Gate to the line and 41 days from pilot to the pitch of the Cape. On this passage, she was only 33 days sailing in the Northern Hemisphere. Because of conditions resulting from the Civil War, the *Neptune's Car* was sold at auction at Liverpool in February 1863. She was knocked down for £8,000 and went under the British flag when 9 years 10 months old.

This clipper was in the public prints following her arrival at San Francisco November 15, 1856, completing a passage of 136 days from New York, during which she had combated fierce westerly gales for 18 days off the Horn and, later, had been held close to the San Francisco Heads for 10 days in calms and light airs. When the *Neptune's Car* made her fight with the elements off the Horn, Capt. Joshua A. Patten, one of the youngest and most able masters in the American merchant marine, lay sick in his cabin, deaf, blind and virtually insensible, suffering with brain fever. The first mate was under arrest for insubordination, and the heavily sparred fast clipper was under the command of the captain's nineteen-year-old wife, who was a most competent navigator, and this young woman fought her ship to the westward while the clipper *Rapid* turned tail to the elements and ran to Rio de Janeiro to "lick her wounds" and refit. Mrs. Patten handled the ship like a veteran, took entire responsibility for the big vessel, and completed the passage in masterly fashion while she nursed her sick and helpless husband. Mrs. Patten received public and financial acknowledgment for her courageous, resourceful, and brilliant work and was proclaimed "the Florence Nightingale of

the seas." Her unfortunate husband never recovered and died at Boston in July 1857 at the age of thirty years.

The clipper ship *Aurora*, launched by Taylor at Chelsea, Mass., November 5, 1853, was a sharp-lined and a much faster vessel than her sailing record for complete passages would suggest. She was unlucky as to weather and sailing conditions encountered during her passages. Calms and light and contrary winds kept her from making the runs of which she was capable if granted a reasonable measure of luck. Her six westward Cape Horn passages to San Francisco sailing from East Coast ports during the years 1853-1862 were made in 128, 122, 112, 215, 139, and 131 days, respectively, port to port, and it is apparent that her unfortunate long passage of 215 days in 1857, when she put back to Rio de Janeiro from the vicinity of the Falklands to repair a broken rudderhead, materially affected her record, making her lifetime average 141.2 days for six westward runs to San Francisco, port to port. Even the average length of the ship's passages expressed in sailing days is high, being about 134 days. On her longest passage, the *Aurora* left New York April 5, 1857, put into Rio de Janeiro June 14, sailed from Rio July 24, and reached San Francisco November 6, the passage, port to port, of 215 days being made up of 175 days at sea and 40 days in port. On her first passage, the *Aurora*, leaving Boston December 3, 1853, put into Rio de Janeiro on January 25, 1854, when 53 days out, because of a mutiny. The length of her port detention was three days, so the ship made a very fine run from Rio to San Francisco (72 days), as she arrived at San Francisco April 10, 1854. The four direct passages of the *Aurora* out to California averaged 126 days. The clipper was "sold British" in the spring of 1863, at the time that so many fine American clippers made "the flight from the flag" because of the Civil War, the activity of British-encouraged Confederate commerce raiders, and trade depression.

The *Anglo-Saxon* was a small medium clipper of 868 tons built by Rhodes at Rockland, Maine, in 1853. She made six westward passages to San Francisco in 150, 120, 164, 140, 128, and 171 days, respectively, an average of 145.5 days, which does not suggest the performance of a clipper or even of any ship having any pretensions for speed, especially as none of these runs was lengthened by calling at South American ports en route for repairs. The *Anglo-Saxon* seemed to be continually handicapped in making her California westward passages by light winds generally, but she always encountered heavy weather when rounding the Horn. On her last passage in 1862, she was 39 days in getting round the Horn in fierce south to southwesterly gales that made it almost impossible for the ship to get sufficient southing to clear the land. The Cape was not cleared until the ship was 109 days out, and then she had only light winds in the Pacific, did not get the benefit of the usual trades, and at the end of the passage was 18 days covering the last 700 miles, averaging only 1.6 knots per hour because of calms and light baffling winds. On her maiden voyage (150 days), the *Anglo-Saxon* had very heavy weather off the Plate, where she lost her deck load and suffered damages. Following this, she had gales off the Horn for 26 days, losing her jib boom and much canvas, and then, clearing the Cape, was 52 days to destination in light winds. On her 164-day passage in 1858, the *Anglo-Saxon* combated southwesterly gales off the Horn for 41 days and had light winds generally throughout the balance of the run in both the Atlantic and the Pacific. The ship was captured and burned August 21, 1863, shortly after leaving Liverpool bound with a cargo of coal for New York by the Confederate raider *Florida*. She was ten years old when destroyed.

The two clippers with six westward California passages to their credit, which each made four runs out to San Francisco with sailings from East Coast ports during the years 1854-1860 inclusive and two thereafter prior to the end of 1864, were the *Viking* and the *Mary Robinson*. The *Viking*, a Bath-built clipper of 1,350 tons, launched into the Kennebec November 30, 1853, was a handsome, well-designed, fast ship. Her outward runs to San Francisco were made in 116, 122, 108, 134, 125, and 128 days, respectively, an average of 122.2 days; her first three passages averaged 115.3 days, and her last three averaged 129 days. The ship's best run of 108 days (December 1857-March 1858) would have been a very

fast passage if she had experienced reasonable luck and enjoyed the usual favorable trades in the South Pacific; but while she ran from New York to the line in 19 days, to Cape Horn in 48 days, and from the Pacific equator to the Golden Gate in 19 days, she required 41 days to run from the Cape to the Pacific equator, encountering only light winds in the South Pacific. The *Viking* made no very long passages, her longest run of 134 days in 1859 being due to bad sailing weather in the North Atlantic. She required 33 days from Sandy Hook to the line and had terrific gales off Cape Horn. The clipper passed the Horn July 6, when 66 days out, then experienced constant head gales "for two weeks steady," and during three days she was hedged in by ice and, it is said, "became unmanageable." The vessel was driven back by wind and seas and passed the Horn for the second time July 20, when 80 days out, but this time was able to proceed on her course and work into the Pacific, crossing the equator on August 15, twenty-six days after her second rounding of the Cape. When 106 days out, but in the North Pacific, she ran into calms and light airs and was 28 days running from the line to port. On her last passage, she reached San Francisco January 23, 1863, 128 days from New York, making a run of 85 days from the Atlantic equator, 47 days from Cape Horn, and 17 days from the Pacific equator—which is fast sailing after being held up in the North Atlantic by adverse conditions that resulted in a long drawn-out run of 43 days from Sandy Hook to the line. During this passage, the *Viking* covered 330 miles in twenty-four hours in the South Pacific, an average speed of $13\frac{3}{4}$ knots per hour for a day. The ship was wrecked on Princess Island off Simoda in the North Pacific June 4, 1863, while carrying Chinese coolies from Hong Kong to San Francisco; she was about nine and a half years old when lost.

The *Mary Robinson* was also a Bath-built ship and was a medium clipper of 1,371 tons, launched in 1854 and constructed to carry well and make good passages. On her maiden voyage, the ship left Boston May 25, 1854, and reached San Francisco October 12 after a passage of 140 days, port to port, reported as 139 days and 135 sailing days, as the ship called at Valparaiso en route and was there four days (August 22-26). On this run, the "*Robinson*" was 30 days off the Horn in heavy gales and snowstorms, but Captain Crocker reported that the ship sailed well when she had a chance, made 300 miles in one day, and logged at times 15 knots per hour. The vessel's best passage over the course was 115 days in 1864, which was her last run to California; but in 1860-1861 she went out in 120 days and in 1857-1858 in 122 days. The *Mary Robinson* averaged 127.5 days for her six westward Cape Horn passages to San Francisco, and her runs as reported averaged 127 days. In June 1864, the ship was wrecked while loading guano at Howland's Island; she was about ten years old when lost.

The sailing performances of the extreme clipper *Kingfisher* and the medium clipper *Carrier Dove*, each of which made six Cape Horn passages to California (three with sailings prior to the end of 1860 and three in later years), are set forth elsewhere. Two other clippers, the *Twilight* and *Invincible*, each of which was an important vessel, also had a lifetime record of making six westward runs to California, but each of these ships made only two such passages originating during the years 1850-1860 and four during the period 1861-1868 inclusive. The *Twilight* was a medium clipper of 1,482 tons, launched by Mallory at Mystic, Conn., October 6, 1857; she was a big carrier and, like several other Mystic-built medium and half clippers (*Andrew Jackson*, *David Crockett*, etc., and later the *Seminole*), had the ability to average out-and-out clipper speed while stowing cargoes that permitted them to be money-earners when the sharper-modeled ships had to lay up because of operating losses. The following is a record of the six Cape Horn passages made to San Francisco during the career of the *Twilight* under the American flag:

Year	1858	1859	1861	1862	1863-1864	1864-1865
Length of passage in days.....	101	114	109	137	121	115

The average length of these six passages is 116.2 days and of the first three runs only, 108 days. On her fastest run, which was her maiden passage, the *Twilight* reported a run out from New York of 100 days 20 hours, and she passed the *Dashing Wave*, which had sailed four days before her, and led the *Dashing Wave* by two days into port, beating her by six days on the passage. The only faster run to San Francisco made about this time was that of the Mystic-built medium clipper *Andrew Jackson*, destined to make the all-time fastest run of 89 days 4 hours between an East Coast port and San Francisco, which reached the California port eleven days after the *Twilight* and reported a run of 99 days, pilot to pilot, although her time from anchor to anchor has been said to be 100 days 16½ hours. The *Twilight's* longest passage (137 days in 1862) was made under adverse sailing conditions, as the ship encountered either light or head winds throughout the run. On her third, fourth, and fifth California voyages, the *Twilight* returned direct to New York, making these three eastward Cape Horn runs in 100, 99, and 95 days, respectively, an average of 98 days. Following her sixth westward passage, the *Twilight* was sold at San Francisco to the Peruvians for use in transporting coolies from China to the guano deposits; she had sailed about seven years under the American flag.

The extreme clipper *Invincible* of 1,769 tons, launched by W. H. Webb, of New York, on August 6, 1851, was one of the best and fastest clippers built in the world. She was designed and built as a North Atlantic passenger packet, but was diverted to the California trade because of a great demand for tonnage in 1851-1853. Later, after some service on the North Atlantic, she sailed as a packet chartered by the British White Star (Australian) Line for a few years and later as an American transatlantic packet. She returned to the California trade and operated therein during the years 1863-1866 inclusive. The following is a record of her six westward Cape Horn passages (five from New York and one from Boston) to San Francisco:

Year	1851-1852	1853	1863	1864	1865	1866
Length of passage in days.....	115*	111 (reported 110)	134	109	119	119

*115 days, port to port. Put into Rio de Janeiro for water due to shortage developing because of leaky tank. Was at Rio Jan. 26-28, 1852, reaching there when 37 days out. Therefore, was 113 days at sea on the run, but Captain Johnson reported that the clipper lost eight days because of putting into Rio and that the passage was 107 days on the course.

The average length of the six westward passages was 117.8 days, port to port. On her first passage to California, the *Invincible* covered 400 miles in a single day. On her second run, she was 23 days rounding the Horn in very heavy weather, which carried away her main yard and a lot of canvas, and on her longest passage, a 134-day run in 1863, the clipper was off the Horn for 35 days and at the end of the passage was compelled to take 35 days to run from the equator to the Golden Gate because of light winds and calms. Most of the *Invincible's* westward California passages were made at a bad season for speed and under unfavorable conditions, but she generally made good passages and outsailed her competitors. The ship made three eastward Cape Horn passages from San Francisco to New York, which averaged 97.6 days, and all her five eastward runs, including passages to Boston and Philadelphia, averaged 103 days. The *Invincible* was a fast vessel on all the trade routes of the world over which she sailed and was an outstanding clipper ship. She was destroyed by fire in New York September 11, 1867, when loaded and about ready to sail for San Francisco; she was about fifteen and three-quarters years old when lost.

There were sixteen clippers that made five westward Cape Horn passages to California during their lifetimes. One of these, the *Osborne Howes*, made all her runs with sailings prior to the close of 1860 (four from U.S.A. East Coast ports and one from Liverpool). Ten clippers made four such passages, with a fifth in the early sixties, and five—mentioned else-

where—made three westward runs to San Francisco with departures during the years 1850-1860 and two thereafter. The *Osborne Howes*, launched at Medford, Mass., in July 1854, was a medium clipper and evidently was not a fast sailer, although she is credited with making 325 miles in one day. The ship generally encountered bad weather off the Horn and usually light winds throughout most of the balance of the course, although on some passages she had heavy weather in the North Atlantic. Her average length of passage of 147 days is not suggestive of speed, even for an unlucky ship. She was sold to the British at Calcutta in June 1864, when about ten years old.

The *Phantom*, a medium clipper of 1,174 tons, launched at Medford, Mass., in December 1852, was a fast ship that performed well in the California trade. With an average of 117.6 days for all her westward passages, her fastest runs were 102 and 104 days, and the only passage that she made of over 125 days was her last run to San Francisco from New York in 137 days during 1861 (April 11-August 26). The *Phantom* was wrecked on Pilot Reef, Pratas Shoal, in July 1862, when about nine and a half years old.

The *Reporter*, a medium clipper of 1,474 tons, launched at the Curtis yard in East Boston in September 1853, made five passages from New York to San Francisco during her lifetime, with the fine average of 114.6 days. She foundered off Cape Horn during severe gales and tremendous seas on August 17, 1862, when endeavoring to round the Horn bound for San Francisco for the sixth time. Three members of the crew and the second mate were picked up on a raft by a British vessel, but all the other thirty-two men aboard the ship were lost. The *Reporter's* best passage was her last completed one—103 days in 1861; her longest, 133 days in 1858. The ship was about nine years old when lost.

The *Sierra Nevada*, a large clipper of 1,942 tons, launched at Portsmouth, N.H., May 29, 1854, was a good ship that showed speed and carried well. On the five westward passages that she made in the California trade prior to being sold to the British in March 1863, she averaged 117.2 days, her last three runs to San Francisco being made in 97, 116, and 105 days, respectively, an average of 106 days. The ship made only two direct runs eastward to a North Atlantic port, and these were passages from San Francisco to New York made in 98 and 101 days, respectively. On her fast 97-day passage from Boston to San Francisco, the *Sierra Nevada* ran to the Atlantic equator in 17 days 16 hours and from the line in the Pacific to the Golden Gate in 15 days, the ship's fine passage being due to this splendid sailing in the Northern Hemisphere. In Liverpool in 1855, the *Sierra Nevada*, when a year old, having been injured by grounding on the sill of the Wellington dock, had been sold for £9,000. Because of the Civil War, the ship was sold in 1863 to the British when about nine years old, and she fetched £10,750, being bought by the Australia-Liverpool Black Ball Line and renamed *Royal Dane*.

The *Neptune's Favorite*, a medium clipper of 1,347 tons, built by Stetson at Chelsea in 1854, was a fast ship on her earlier passages; but after her eastward Cape Horn passage in 1859 from Callao bound for England, when she put into St. Thomas leaking badly and had to discharge her guano cargo and forward it to destination by another vessel, she seems to have lost much of her speed and her luck. As an American ship, the *Neptune's Favorite* made five westward California passages. She was sold at London in early 1863 for £8,000, but in 1869, as the British ship *Mataura*, she made her sixth and last run around the Horn to San Francisco, where she arrived in November after a slow passage of 162 days from Ardrossan, Scotland. She did better on her eastward return passage, running from the Golden Gate to Liverpool in 116 days. The entire six westward passages to San Francisco of the American clipper *Neptune's Favorite* (later the British clipper *Mataura*) were as follows:

Departure	Philadelphia 1854	Boston 1856	New York 1858	New York 1860	New York 1861	Ardrossan (MATAURA) 1869
Length of passage in days	115	113	117	137	146	162

As an American ship, the *Neptune's Favorite* made five westward runs to San Francisco, averaging 125.6 days, but these can be divided into two periods of her history. Prior to the trouble experienced eastbound in 1859, the clipper made three passages to California and averaged 115 days on these runs. Afterwards, when operating under the Stars and Stripes, she made two westward Cape Horn passages during 1860-1862, which averaged 141½ days, and in 1869, as the British ship *Mataura*, she ran from Scotland to San Francisco in 162 days. In her prime, the *Neptune's Favorite* did some good sailing. She beat Britain's crack tea clipper *Chrysolite* by over two weeks in the China-to-England tea race in 1855, and on her maiden passage of 115 days to San Francisco, she was off the Horn for 20 days in heavy gales. When the ship seemed to lose her sailing prowess in 1860, she certainly encountered adverse sailing conditions during her last two runs westward in the California trade as an American ship. In 1860 she was 33 days to the Atlantic equator and 36 days from the line in the Pacific to the Golden Gate and on her 1861-1862 run, 41 and 26 days, respectively; she had light winds on both passages in the South Pacific, but she rounded the Horn in fine weather in 1860, being only 10 days from 50° S. Atlantic to 50° S. Pacific. On her next passage, she covered this part of the course in 19 days, which can be compared with an average of 171½ days on her two fastest passages; yet it is significant that the *Challenger* in 1860, passing the *Neptune's Favorite* at sea, made a nine-day better passage, and the *Prima Donna*, which was in company with her in the North Atlantic during her 1861-1862 run, beat the *Neptune's Favorite* by seven days to San Francisco.

The *Wild Pigeon*, an extreme clipper of 996 tons, launched at Portsmouth, N.H., July 31, 1851, was a fast ship originally intended for the China trade, but her maiden voyage was to California. She made four Cape Horn runs to San Francisco during the years 1851-1854, continuing around the world. After a round voyage in the China trade and some four years in the New York-Chile Cape Horn trade, the *Wild Pigeon* made her fifth and last passage to California in 1862. The clipper's passages to San Francisco were made in 107, 118, 126, 134, and 130 days, respectively, the average of all the five passages being 123 days. Her first two runs averaged 112½ days and the last three, 130 days. In the spring of 1863, she, with many other fine American clippers, went under the British flag because of the Civil War. Later, she was the ship *Bella Juana*, and as the Spanish bark *Voladora*, she was abandoned in the North Atlantic in February 1892, when about forty-one years old.

The *Sea Nymph* of New Bedford, a medium clipper of 1,215 tons, was a fair sailer that made four outward passages to San Francisco in 145, 113, 137, and 126 days, respectively, during the period 1855-1860. Having virtually completed her fifth westward Cape Horn run, she went ashore in a fog when 120 days out from New York and was lost about thirty-five miles northwest of the Golden Gate. The average length of the ship's four completed passages was 130.2 days, and considering her last run as a 121-day passage, the average of the five passages can be stated as 128.4 days. Another ship of the same name, built at Baltimore in 1850, was of only 537 tons and was far too small for a Cape Horner. The *Sea Nymph* of Baltimore made two outward runs from New York to San Francisco in 157 and 124 days during the years 1850-1852, when any vessel could make money in the California run. This little ship was sold in the Asiatic Pacific, was operated bark-rigged under the German flag for a few years, and was condemned at Hong Kong in late 1860, when about ten years old.

The *Nor'wester*, a medium clipper of 1,267 tons, launched at Medford, Mass., in April 1854, averaged 128.3 days on her first three outward passages to California (fastest, 122 days; longest, 132 days). In 1860 she made a run from Boston to San Francisco in 139 days and in 1864 loaded at New York for San Francisco, reaching that port January 17, 1865, on a run of 164 days from Portland, Maine, where the ship, leaking badly, had made port for repairs; the total time spent on the passage from her original departure from New York to arrival at San Francisco was 195 days. The *Nor'wester* made a sixth westward Cape Horn passage to San Francisco, but this was not from an East Coast U.S.A. or from any North Atlantic European port. In 1867 she sailed from New York to the Falklands light (in ballast)

and loaded at Port Stanley 1,463 tons, which was the cargo of the condemned ship *Charles Cooper*, and carried it to San Francisco, making a slow run of 72 days in light winds. The ship put into Key West February 23, 1873, on fire while bound to Liverpool from New Orleans with cotton. About half the cargo was saved, although some was damaged by water, and the ship herself became a total loss. She was about nineteen years old when her end came, but for several years she had been leaking badly.

The *Webfoot*, a medium clipper of 1,091 tons, built at East Dennis, Mass., in 1856, was a good carrier, and her first two outward passages to California were made in good time, averaging 119 days. Her three other westward runs to San Francisco, made during the years 1859-1862, were longer, taking 152, 134, and 146 days, respectively, an average for the three of 144 days and of all five passages, 134 days. The clipper stranded at Dunkirk in April 1864, suffered damage, and was taken to London and sold to the British, who operated her in deep-sea work until she was destroyed by fire at Puget Sound in late 1886, when over thirty years old.

The *Talisman*, a medium clipper of 1,237 tons, built at Damariscotta, Maine, in 1854, made five passages to California from East Coast U.S.A. ports during the years 1857-1862 in 140, 135, 142, 112, and 115 days, respectively. Her last two runs were fast, averaging 113.5 days; her first three averaged 139 days and the entire five, 128.8 days. The *Talisman* was a much faster ship than her records over the years suggest. She sailed from San Francisco February 10, 1859, in company with the *Great Republic*, and her run of 96 days to New York beat the passage of the big extreme clipper by four days. On her fast outward passage of 112 days in 1860-1861, she had ten days of calms in the North Pacific and, as she crossed the line when 83 days out, would have made a passage of 102 to 104 days with a reasonable measure of luck. On her next passage (115 days), she was 31 days running from the line to port in light winds and calms. Her long passages were due to adverse sailing conditions, and on her longest passage (144 days) she was 44 days to the Atlantic equator. The *Talisman* was captured and burned by the Confederate raider *Alabama* in the South Atlantic on June 5, 1863; the clipper was about nine years old when the war abruptly ended her career.

The *Ocean Pearl*, a medium clipper of 847 tons, built at Charlestown, Mass., in 1853, was too small a ship for the Cape Horn trade, but she was faster than the average length of her five westward passages (143.8 days) would suggest, as she generally experienced bad weather off Cape Horn and light winds and calms in the North Pacific. These outward runs to San Francisco were made in 135, 158, 139, 132, and 155 days, respectively (the last, a passage from Baltimore, being timed from Cape Henry). On this last passage, the *Ocean Pearl* encountered her usual strong westerly gales off the Horn, but instead of having calms and light airs as she approached the California coast, she was held back by strong northerly gales and was 14 days covering the last 700 miles of the course—an average speed for two weeks of about 2 knots per hour. The *Ocean Pearl* was wrecked at Tarragona in October 1864 while in the hands of a pilot; she was about eleven years old when lost.

The *Radiant*, a medium clipper of 1,318 tons, launched at the Curtis yard, East Boston, in January 1853, was a good carrier, but somewhat of a disappointment in speed. Her only good passage was her fifth and last, a run of 111 days in the winter of 1861-1862, the length of this passage being materially helped by a lucky rounding of the Cape in 7 days in fine Southern Hemisphere summer weather. The ship's other four passages were of 132 days (1853), 137 days (1855), 143 days (1858), and 137 days (1860), which is very uniform slow sailing and an average of 137.2 days. The lifetime average (five passages) is 132 days. The *Radiant* was "sold British" at Calcutta in 1863.

The little clipper ship *Raven* (711 tons) is of interest because of the reputation that she gained as a result of her first Cape Horn passage to San Francisco in 1851, when she made a run of 106 days and is credited with beating the big and fast *Typhoon* and the great *Sea Witch*. The *Raven* was too small for the California trade and the Cape Horn route, but she made outward runs of 121 and 119 days in 1852 and 1853, respectively. On her fourth

passage out to San Francisco in 1854-1855, she had to put into Rio de Janeiro, and she was 188 days, port to port. There is some mystery about this passage, as upon reaching San Francisco, the ship reported 84 days from Rio and 124 sailing days from New York. It was also said that the *Raven* cleared New York August 17, 1854, for Rio de Janeiro and that she made the run to San Francisco in only 118 days net "on the course." In any event, the *Raven* did not attempt any more westward California passages for some seven years, being used in trade with the East Indies and Orient, for which she was better fitted. In 1863, however, rigged as a bark, she attempted to make a fifth outward Cape Horn passage to San Francisco and put into Rio leaking and in distress. The vessel was condemned and sold when about twelve years old, but Brazilians bought and repaired her, and in 1875 she was operating as the bark *Mondego* of Lisbon.

Whereas the *Bald Eagle*, an extreme clipper ship of 1,705 tons, built by McKay at East Boston and launched November 1852, made only four westward passages to California, she is of interest aside from her consistently good passages (made in 107, 115, 117, and 120 days, respectively, an average of 114.7 days) because of her eastward Cape Horn passage in 1854. The *Bald Eagle* arrived at San Francisco January 25, 1854, with a general cargo and left that port March 1, actually bringing back to New York merchandise such as she and the other clippers had been taking out to the California port. The market had become glutted through excessive importations, prices were dropping rapidly, credits were affected, and to relieve the local situation the *Bald Eagle* took imported goods back to New York. The nature of this passage is of particular historical interest, but so is the run itself; for the *Bald Eagle*, leaving San Francisco March 1, 1854, anchored in New York Harbor May 19 after a passage of only 78 days 22 hours, which is the fastest all-time record over the eastbound Cape Horn course to any East Coast U.S.A. port for a cargo-laden sailing ship and within three days of the best time ever made by a ship sailing light (in ballast). The *Bald Eagle* "went missing" in the North Pacific in late 1861 while engaged in a passage from Hong Kong to San Francisco. She was nine years old when she disappeared, and the nature of her end is unknown.

*Statistics of Clipper Ship Sailing Performances over Each of Certain
Defined Sections of the Course on the Outward Passage to
California from an East Coast U.S.A. Port*

Lieut. Matthew Fontaine Maury, of the United States Navy and National Observatory and Hydrographic Office, in his "Special Course and Sailing Directions" (compiled to give the maximum benefit of general prevailing winds and currents to ships sailing the Seven Seas), on a passage from New York, Boston, and corresponding East Coast U.S.A. ports to San Francisco (or other California and Pacific U.S.A. ports), showed a track running from the port of departure to the southeast to mid-North Atlantic far to the eastward of the Bermudas, with a sweeping course south to a point clear but west of Cape St. Roque on the northeast Brazilian bulge of the South American continent; the suggested course generally followed the coast to the southward, passed west of the Falkland Islands and either through the Straits of Le Maire or east of Staten Island, and swept around Cape Horn, giving the southern tip of the continent a wide berth and working well out in the southern Pacific, for the track swung to the northeast and went far out from land as it headed by wide, easy sweeps to the Golden Gate. Lieutenant Maury estimated the average time for this run with good ships well sailed, under average prevailing wind and sea conditions, as

130 days, which is equivalent to an average speed of about 5 knots per hour based on average distances that he computed for sailing ships.

Maury divided the course from an East Coast U.S.A. port to San Francisco (or a California or West Coast U.S.A. port of destination) into five prime sections: (1) From a port of departure such as New York or Boston to the parallel of Cape St. Roque. He estimated this distance to average 4,500 nautical miles. (Later, the Atlantic equator, lying somewhat over five degrees of latitude to the north of Cape St. Roque, was substituted for the parallel of the South American cape as the end of the first section of the course and the commencement of the second section.) (2) From the latitude of Cape St. Roque to the parallel of 50° S. Atlantic, which mileage for a sailing ship he estimated to average 2,900 miles. (3) From the parallel of 50° S. Atlantic, around the Horn, to the same parallel in the Pacific. The average mileage estimated for this part of the run was stated as 1,400 miles. (4) From the parallel of 50° S. Pacific to the Pacific equator, with an estimated average mileage of 3,500 miles. (5) From the Pacific equator to the port of destination, which was almost exclusively, in actual practice, the port of San Francisco. The average mileage, as estimated, was 3,000 nautical miles from the line to the Golden Gate. The total average mileage over the five sections of the course covering a westward Cape Horn passage from an East Coast U.S.A. port to San Francisco, as estimated by Maury, was 15,300 nautical miles.

In the clipper ship era, speed was demanded on the outbound, or western, run from Atlantic ports to San Francisco, Calif., and all existing comparative speed data of the around-the-Horn wooden square-riggers during this period are based on the westbound passage. Few of the vessels made the return journey from "Frisco" to New York or Boston because, for many long years, no cargoes were available for an eastward run, and if they turned around and made a return passage, they sailed light (i.e., in ballast). Therefore, returning vessels generally picked up cargoes where obtainable in the Pacific (China, East Indies, etc.) or India and sailed back to the North Atlantic to either European or United States ports via the Cape of Good Hope, with the completed voyage being around the world sailing westward. The run from San Francisco to eastern U.S.A. ports was a much easier and generally faster passage than the run westbound because of more favorable prevailing winds and associated weather conditions.

(a) *Rounding the Horn*

Lieutenant Maury, in his "Explanations and Sailing Directions to Accompany the Wind and Current Charts" (published 1854), gives some interesting figures of the rounding of Cape Horn by 130 sailing ships spread quite uniformly throughout each of the twelve months of the year. Maury also records the length of time that the various ships, considered in the comparison, required to sail from the parallel of Cape St. Roque (about five degrees south of the equator) to 50° S. Atlantic (off Santa Cruz, Argentina, and northwest of the Falkland Islands), and the estimated average distance to the usual crossing place of the parallel of 50° S. for the Cape Horn trader was about 2,900 miles, or not quite the distance across the Atlantic. The distance traveled in doubling the Horn was said by Maury to be "nearly half the length of that from Cape St. Roque to Lat. 50° S., and the time occupied in rounding the Horn" (50° S. Atlantic to 50° S. Pacific) averaged only five-eighths the time spent in sailing the 45° of latitude in the South Atlantic (5° S. to 50° S.). Maury also wrote:

The average distance, made good against the current, around Cape Horn is 84 miles a day. The average distance from the parallel of St. Roque to that of 50°, through a mild climate, and with no such opposing current is 105 miles the day, and the average distance made good by the "liners"

[sailing packets] from Liverpool to New York is 95 miles a day. . . . So it appears that the passage from England to New York, under canvas, in the winter time [against strong westerlies], is nearly as difficult as the passage around the Horn.

The following comparative table of Cape Horn roundings and of South Atlantic runs on the course from Cape St. Roque to 50° S., with certain averages, ratios, and other statistics, is from data compiled by Maury or computed therefrom:

Month	No. of Roundings	Av. Time in Days from Cape St. Roque Parallel to 50° S.	Av. Time in Days Rounding the Horn —from 50° S. Atlantic to 50° S. Pacific	Ratio of Time Rounding Horn to Run from Cape St. Roque to 50° S. Atlantic	Three Shortest Roundings in Days			Three Longest Roundings in Days		
					Best	Second Best	Third Best	Longest	Second Longest	Third Longest
Jan.	10	26.5	16.4	.62	11	12	12	23	21	21
Feb.	11	28	16	.57	10	12	12	26	25	20
Mar.	10	26	18.4	.71	12	12	13	28	26	25
Apr.	12	30.8	16.5	.54	11	12	12	28	21	19
May	15	28.5	17.6	.62	11	12	13	29	26	23
June	11	27.1	15.9	.59	9	11	13	28	23	20
July	10	26.5	18.7	.70	7	14	17	26	24	23
Aug.	10	32	15.5	.49	11	12	13	21	20	18
Sept.	10	28.1	16.3	.58	9	12	14	22	21	18
Oct.	10	27.3	20.5	.75	10	14	15	33	32	24
Nov.	10	24.8	19.3	.70	12	17	17	24	23	22
Dec.	11	25.8	14.3	.55	7	11	11	19	19	18
Average for year	10.9	27.7	17.1	.62	7	11	11	33	32	24

Maury's average figures for the time required for rounding Cape Horn cover a period of time that was rather moderate as far as the record of later years is concerned in regard to turbulence. Whereas his stated best rounding of 7 days was the fastest crossing for years and was since beaten only by the *Thatcher Magoun* in the mid-sixties (with 6½ days) and the all-time 6-day record run of the *Young America*, which was not made until 1876, the clipper ship decade (1850's) saw roundings of the Horn that occupied two and three times as long as the maximum of 33 days mentioned by Maury. The time taken "rounding the Horn" is generally considered that required to sail from the parallel of 50° S. Atlantic to the same line of latitude in the Pacific. Two clipper ships have outstanding records in making fast roundings of the Horn. The *Young America*, built by Webb, of New York, in 1853, which made the all-time record crossing of 6 days (June 17-23, 1876), went around in 7 days in November 1869 and covered the distance in 8½ days in August 1853. It will be noticed that two of these fast roundings were made in the Southern Hemisphere winter season. The second clipper with an unusually fine record in making fast roundings of the Horn was the beautiful *Herald of the Morning*, built at Medford, Mass., in 1853 from designs by Samuel H. Pook, of Boston. She is credited with runs between the 50's of 7 days on her 1858-1859 passage and 8 days on each of her 1854 and 1855 passages to San Francisco. The *Flying Cloud* made three roundings in 7, 9, and 12 days, respectively, and the mammoth *Great Republic* in 9, 11, and 12 days; but the *Radiant*, a Boston medium clipper, with no pretense for speed, made only four westward passages to California and rounded the Horn on two of them in 7 and 8 days, respectively. The wonderful and consistently fast Cape Horner *Flying Fish*, on her seven runs to San Francisco, rounded the Horn on two of them in 7 and 9 days, respectively, and the *Flying Dutchman*, which made an 8-day rounding in 1853, is said to have made two such runs during the four passages that she made to San Francisco (1852-1857). The fuller-bodied Mystic, Conn.-built fast *Mary L. Sutton* made two roundings of the Horn in 8 and 9 days, respectively, and the extreme clipper *Typhoon* made two in 8 and 10 days. The durable medium clipper *David Crockett*, which ran in the trade for twenty-six years (1857-1883) and made twenty-five passages to California, rounded the Horn on two of them in 8 and 12 days, respectively. Any rounding of Cape Horn (from 50° S. Atlantic to 50° S. Pacific) in under 12 days can be considered fast, in 10 days or under "very fast," and in 8 days or less phenomenal and made under the smile of Dame Fortune.

The following is a list of fifty-six roundings of Cape Horn of clipper ships in 12 days or under. All were extreme or ordinary sharp-modeled, heavily canvased clippers or more moderate, better-carrying, and more conservatively sparred medium clippers with the exception of the half clippers *Glory of the Seas* of 2,009 tons (built in 1869) and *Seminole* of 1,439 tons

(built in 1865), which were fully as much clippers as many of the medium clippers built in the last half of the clipper ship decade (1850's).

Name of Clipper	Tonnage	Between the 50's in Days	Westward Passage of	Name of Clipper	Tonnage	Between the 50's in Days	Westward Passage of
YOUNG AMERICA	1,961	6	1876	FLYING FISH	1,505	9	1851-1852
THATCHER MAGOUN	1,248	6½	1864-1865	SOVEREIGN OF THE SEAS	2,421	9	1852
FLYING CLOUD	1,782	7	1851	Authority of Maury.			
FLYING FISH	1,505	7	1852-1853	FLYING CLOUD	1,782	9	1853
HORNET	1,426	7?	1855	MARY L. SUTTON	1,448	9	1856
RATTLER (N. Y.)	1,121	7	1858	GREAT REPUBLIC	3,356	9	1857
HERALD OF THE MORNING	1,294	7	1858-1859	TYPHOON	1,611	10	1851
RADIANT	1,318	7	1861-1862	BALD EAGLE	1,705	10	1852-1853
MIDNIGHT	962	7	1866	WHISTLER	820	10	1853
YOUNG AMERICA	1,961	7	1869	SWEEP-STAKES	1,735	10	1854-1855
ROBIN HOOD	1,181	7	Date in question	ANTELOPE (N. Y.)	1,186	10	1855-1856
SWORDFISH	1,036	8	1851-1852	EDWIN FORREST	1,141	10	1858
FLYING DUTCHMAN	1,257	8	1853	ANDREW JACKSON	1,679	10	1859-1860
Said to have made "two 8-day roundings of the Horn."				ATALANTA	1,289	10	1855
TYPHOON	1,611	8	1853	HORNET	1,426	10	1854
STAG HOUND	1,534	8	1854	GOLDEN GATE	1,349	11	1852-1853
HERALD OF THE MORNING	1,294	8	1854	JOHN GILPIN	1,089	11	1853
LOTUS	660	8	1854-1855	ELIZABETH F. WILLETS	825	11	1855
RED ROVER	1,021	8	1855	ELIZABETH F. WILLETS	825	11	1859
HERALD OF THE MORNING	1,294	8	1855	GREAT REPUBLIC	3,356	11	1860-1861
RADIANT	1,318	8	1855	GLORY OF THE SEAS	2,009	11	1873-1874
MARY L. SUTTON	1,448	8	1857	TRADE WIND	2,045	12	1852-1853
ENDEAVOR	1,137	8	1858	FLYING CHILDERS	1,125	12	1852-1853
PANAMA	1,139	8	1860	FLYING CLOUD	1,782	12	1854
REPORTER	1,474	8	1861	CLEOPATRA	1,562	12	1854-1855
DAVID CROCKETT	1,679	8	1867	NOONDAY	1,189	12	1861
SEMINOLE	1,439	8	Fastest of 21 runs.	GREAT REPUBLIC	3,356	12	1862-1863
YOUNG AMERICA	1,961	8½	1853	KING-FISHER	1,286	12	1869
GALATEA	1,041	8 days 20 hrs.	1854	DAVID CROCKETT	1,547	12	1871-1872

Down Easters, built to carry large cargoes and make good passages, occasionally made roundings of the Horn in fast time. On a passage from New York to San Francisco in 1895-1896, the *John McDonald* of 2,172 tons, launched at Bath, Maine, in December 1882, reported rounding the Horn in 6½ days, and her log shows:

Dec. 2 Lat. 50° South (Atlantic) Long. 62° 40' W.
 " 9 Lat. 50° South (Pacific) Long. 77° W.

The *C. F. Sargent* of 1,704 tons, built at Yarmouth, Maine, in 1874, while on a passage from New York to San Francisco under the command of Captain Baker in 1887, is credited with a run of only 6 days and 8 hours between 50° S. Atlantic and 50° S. Pacific; but details of this splendid performance are evidently not available, although the run was accepted by authorities as reported and as one "that has seldom been equalled and probably never surpassed."

The *Pactolus* of 1,205 tons, launched by Chapman & Flint at their Thomaston, Maine, yard in February 1865 (before they moved to Bath), made her fastest westward passage in the Cape Horn trade leaving New York on May 9, 1877, and reaching San Francisco after a run of 114 days. However, the outstanding thing about this passage is that Capt. Theodore P. Colcord reported rounding the Horn from Lat. 50° S., Long. 64° W. on the Atlantic side to the same parallel on the Pacific side (but Long. 89° W.) in 6 days, which, if correct, means the covering of a lot of mileage in running so far to the westward and equals the generally accepted all-time record for a run "between the 50's" made by the clipper ship *Young America*. A run over 6 days and under 7 days was generally considered as 6 days (Captain Creesy of the *Flying Cloud* reported his 89-day 21½-hour passage as an 89-day run); so the 6-day rounding of the Horn by the *Pactolus* may or may not have been as short as that of the *Young America* and might have been fully as long as the roundings of 6½ days reported by the clipper *Thatcher Magoun* and the Down Easter *John McDonald*.

These figures for fast runs in rounding the Horn do not, of course, take into consideration such all-important affecting factors as the season of the year or prevailing conditions of wind, sea, and weather. Whereas the *Young America* covered the distance between the 50's and sailed from the Atlantic to the Pacific around Cape Horn in 6 days (also in 7 days), the *Thatcher Magoun* in 6½ days, and seven other clippers covered this part of the westward course to California in 7 days, at least eleven clippers required 40 days or more to round the Horn, and the *Golden Eagle*, on her long, hard passage of 217 days from New York to San Francisco in 1859, was 90 days rounding the Horn, fighting her way against heavy gales and mountainous seas. This 90-day crossing from the Atlantic to the Pacific around the Horn is fifteen times as long as the record run of 6 days made by the *Young America* and is ten times or more longer than all of the thirty-one runs known to have been made by clippers in 9 days or less over this part of the course to California. While the extreme clipper *Golden Eagle* of 1,121 tons was battling the elements to round the Horn in a struggle that lasted 90 days and incapacitated for a time two-thirds of the crew from injuries and fatigue, a few clippers, in corresponding time, have made the entire passage from an East Coast U.S.A. port to San Francisco, a distance fully ten times as long as that part of the course between the 50's, which is covered in rounding the Horn.

It is surprising that the casualties off the Horn of the sharp-modeled, loftily sparrred, and heavily canvased clippers, built for speed rather than seaworthiness, were so small. The clipper *Reporter* of 1,474 tons, built in 1853, foundered off the Horn in August 1862, when nine years old, during a Southern Hemisphere heavy winter gale and tremendous seas, which strained the ship and started leaks beyond the capacity of the pumps to control. At the end of January 1858, the clipper *John Gilpin* was lost off the Horn, but this was due to no fault of the ship. The "*Gilpin*" struck the submerged part of an iceberg at night and made water. Captain Ropes, the next day, decided to "abandon ship," and through inexcusable carelessness in leaving her, the ship caught fire. All hands were saved, but some survivors of the crew, including the carpenter (who certainly should have known the amount of water in the hold and the relation between the volume of the leaks and the capacity of the pumps to handle it), brought sensational charges against Captain Ropes upon arrival at New York, claiming that the sea, weather, and conditions of the *John Gilpin* after striking the iceberg were such that the ship could easily have made Port Stanley in the Falklands, some 150 miles away, but that her skipper peremptorily ordered all hands into the ship's boats and then deliberately set the ship afire. The charges were not substantiated, but the scandal was unpleasant, to say the

least, and insinuations regarding loss to obtain insurance did not do the American merchant marine any good.

Large and powerful, fine iron and steel sailing ships in later years made very long roundings of the Horn. The four-masted steel shipentine *Edward Sewall* boasted of "conquering the Horn" in 1914, but she required 67 days to make the run of relatively small (theoretical) mileage from Lat. 50° S. in the Atlantic to the corresponding parallel in the Pacific. Some big metal ships have been defeated in their attempts to round the Horn and been compelled to turn back and sail for their Pacific Ocean destination via the Cape of Good Hope. Some ships have rounded the Horn with favorable winds and seas; some have actually been becalmed in the vicinity of the world's most turbulent point of land. Some vessels have made the run under ideal summer (Southern Hemisphere) sailing conditions; others have encountered terrific westerly or southwesterly gales, formidable high "greybeard" seas, or intense cold and heavy ice (or bergs), which affected the operation and safety of the ships. The rounding of the Horn could be troublesome at any season of the year, and it was generally a geographical location that gave concern to the most competent and experienced navigators.

The following is an admittedly incomplete record of long crossings of 30 days or over made by clipper ships in rounding the Horn and sailing "between the fifties" (50° Lat. S. Atlantic to 50° S. Pacific):

Name of Clipper	Tonnage	Between the 50's in Days	Westward Passage of	Name of Clipper	Tonnage	Between the 50's in Days	Westward Passage of
GOLDEN EAGLE	1,121	90	1859	CREST OF THE WAVE	942	36	1858-1859
WILD ROVER	1,100	60	1859	FLYING DRAGON	1,127	35	1853
SPARKLING WAVE	655	60	1859-1860	BLACK WARRIOR	1,828	35	1855-1856
CHERUBIM	1,796	56	1859	DARING	1,094	35	1859
JUNIPER	514	49	1853-1854	INVINCIBLE	1,769	35	1863
DASHING WAVE	1,180	42	1863	FEARLESS	1,184	35	1868-1869
ELLEN FOSTER	996	42	1857	SANCHO PANZA	876	33	1857
ANGLO-SAXON	868	41	1858	WEBFOOT	1,091	33	1859
OCEAN TELEGRAPH	1,495	40	1856	MORNING LIGHT (Boston)	1,713	32	1858
FLORA TEMPLE	1,915	40	1855-1856	FLYING DUTCHMAN	1,257	30	1852-1853
BOSTON LIGHT	1,154	40	1861	ARCHER	1,095	30	1856
ANGLO-SAXON	868	39	1862	KIT CARSON	1,016	30	1857-1858
SNOW SQUALL	742	38*	1853	OCEAN PEARL	847	30	1856-1857
ELIZABETH KIMBALL	998	37	1855-1856	KINGFISHER	1,286	30	1859
WEST WIND	1,071	37	1859-1860	HARRIET HOXIE	678	30	1853

*Reported as 60 days rounding Cape, which is impossible, as clipper ran from New York to Pacific equator in 115 days and was evidently at 50° S. Atlantic when 56 days out and at 50° S. Pacific about 94 days out, making the rounding in about 38 days instead of 60 days.

In addition to this list of thirty clippers (decidedly incomplete) requiring 30 or more days to round the Horn can be mentioned the *Panther*, a medium clipper of 1,278 tons, built at Medford, Mass., and launched in early 1854, which arrived at San Francisco November 30, 1857, after a 144-day passage from Boston and reported having been "all of September rounding Cape Horn." She had been forced by gales to go to the eastward of the Falklands, but a much slower clipper, the *Goddess*, leaving Boston about the same time and being a few days behind the *Panther* when the parallel of 50° S. Atlantic was reached, sailed through the Straits of Le Maire, rounded the Horn in 22 days, and reached San Francisco fourteen days

ahead of the *Panther*. The *Dashing Wave*, which was 42 days rounding the Horn during her 155-day passage from New York to San Francisco in 1863, got to the Cape when 79 days out after many days of battling the westerlies, but was driven back through the Straits of Le Maire twice by furious gales. The *Wild Rover*, on her 178-day California westward passage in 1859, during which she was 60 days rounding the Horn, was at the pitch of the Cape when 78 days out, but was driven back. She reported being off the Cape on four different dates; viz., August 11, August 13, August 17, and September 4. The *Boston Light*, which required 40 days to round the Horn on her 163-day passage from New York to San Francisco in 1861, made Staten Island August 2 and first passed Cape Horn August 8, following which she was hove to for a full week, forced back, and again passed the Horn on August 16. From August 20 to September 3 (a period of two weeks), the ship encountered heavy westerly gales, had the rudderhead carried away, and for eight days she headed south practically out of control; about a hundred tons of cargo had to be jettisoned to lighten the ship and get at the steering gear, and she was driven south to Lat. $59\frac{1}{2}^{\circ}$.

The medium clipper *Alarm* of 1,184 tons, built at the Briggs yard, South Boston, in 1856, on her second passage to San Francisco and her third westward rounding of the Horn, had a very rough time of it. She was 182 days on the passage, of which 111 days were spent in the Southern Hemisphere, but her actual time between the two 50's is unknown. The clipper was off the pitch of the Horn in 89 days, and it was sixty-eight days after that when she reached the Pacific equator. It is said that the *Alarm* made the Horn five times before she got clear and could continue into the Pacific and that on July 7 (or ninety days before she reached her destination), when hove to off the Horn, she shipped a sea that carried away her long boat and the figurehead and did much damage on deck. Upon arrival at San Francisco October 5, 1860, the *Alarm* had only enough fresh water aboard to last a couple of days.

The medium clipper *Anglo-Saxon* of 868 tons, which had the reputation of being a very good sea boat for her size, but which took 41 days to round the Horn in 1858 and 39 days in 1862, went from "50 to 50" on her 1855-1856 passage in 15 days and in 1860-1861 made this section of the run in 18 days. This ship averaged $27\frac{1}{2}$ days in rounding the Horn on her six passages between New York and San Francisco made during the years 1853-1862, the time of her runs between the 50's on each of these passages being 26, 15, 41, 26, 18, and 39 days, respectively.

The *David Crockett*, which has an 8-day rounding of the Horn to her credit on her 1879 passage of 136 days, was off the Cape on May 29 when 63 days out. On June 9, she had been forced back to Cape St. John (Staten Island), and it took her until June 12 (or 14 days) to fight her way back to Cape Horn. On her 1881 California passage of 124 days, the "*Crockett*" passed the Cape on May 21, the 60th day out, passed the Horn for the second time on May 28, and was hove to off the Cape for six days during terrific westerly gales. The *Alboni* (917 tons), on her 1854 passage to San Francisco, had a severe time of it off the Horn, being driven back 700 miles by westerly gales, and was obliged to go around the Falklands twice; on one occasion, the clipper was hove to for nine days. The *Viking*, on her 134-day outbound passage to California in 1859, rounded the Horn on July 6, when 66 days out, and was then off the Cape during gales for fourteen days and for three days was completely hedged in by ice. The ship became unmanageable, was driven back, and passed the Horn for the second time July 20, but twenty-six days later reached the Pacific equator. The *Ocean Telegraph*, which required 40 days to round the Horn in 1856, for twelve days did not make a single mile, and of the 150 days of her passage, 86 days were spent in the North Atlantic and rounding the Horn. The *Telegraph*, on her 1852-1853 passage from Boston to San Francisco (135 days), was 8 days beating through the Straits of Le Maire and then experienced very heavy weather off the Horn, losing the bowsprit and much canvas and springing yards on the mainmast; as a result, the ship had to put into Valparaiso for repairs and, it was reported, was delayed 15 days, but the passage was said to be "a run of 119 sailing days."

The *Hurricane* (1,608 tons), on her second voyage to California in October 1853, lost from 10 to 40 miles daily for fourteen days in the vicinity of Cape Horn and in eighteen days gained only 373 miles on her course of some 1,400 miles between the two 50°s (50° S. Atlantic-50° S. Pacific); in this fight against westerly gales, she lost her jib boom and fore-topgallant mast. Even the *Westward Ho* (1,650 tons), an outstanding and most consistently fast performer in her westward Cape Horn runs to California, when she arrived at San Francisco February 27, 1854, to complete a fine 105-day passage, reported: "Off Horn three weeks in heavy weather." If this clipper had enjoyed the luck of the *Flying Cloud*, whose average in three roundings of the Horn was only 9 days, the *Westward Ho* would on this occasion have made a passage of about 93 days. The *Sweepstakes*, an extreme clipper ship of 1,735 tons, on her 95-day passage between New York and San Francisco in 1856, passed Cape St. John (Staten Island) when 44 days out, but did not sight the Horn until the 52nd day and for eight days made only 120 miles on her course; yet she was lucky enough, notwithstanding this setback, to journey from 50° S. Atlantic to the same parallel in the Pacific in only 15 days, with part of the time spent hove to. Occasionally, ships actually encountered calms in the generally turbulent waters off Cape Horn (popularly known as "Cape Stiff"). The *Gazelle*, in 1853, and the *Wild Ranger*, in 1855, each reported: "Becalmed off the Horn for 3 days." The *Hornet* was among other clippers that commented on experiencing on one occasion calms off Cape Horn that delayed the ship's progress, but the *Typhoon*, when she made her 8-day rounding of the Horn in 1853, actually reported: "Rounded the Cape in only 8 days, of which 4 days were calms."

Records of the rounding of Cape Horn are quite often confusing and deceiving. Sometimes the time of arrival at Lat. 50° S. Atlantic is considered reaching the Horn and the crossing of Lat. 50° S. Pacific as leaving the Horn. Again, very frequently the date of arrival at the pitch of the Horn is stated, and sometimes concurrently the length of the run "between the fifties" is recorded, but when the date of arrival at either the Atlantic or Pacific 50th parallel is not given, it is impossible to record the sailing performance of the ship over the five prime divisions of the course. Some skippers reported "off the Horn" a certain number of days, meaning their delay after actually sighting Cape Horn to the north; whereas to others the term "was off the Horn" for a certain mentioned period means the time taken to round the Horn (from 50° S. Atlantic to 50° S. Pacific). Some shipmasters, upon arrival at San Francisco, even went so far as to say not that they were off the Horn or rounding the Horn for a certain number of days but that they were "detained off the Horn" for the time taken to run from the Atlantic to the Pacific, which is untrue. There were commanders who preferred to ignore Maury's suggested five divisions of the California course (i.e., two Atlantic and two Pacific, one of each in the Northern and Southern Hemispheres, and a fifth, which was a run from the Atlantic to the Pacific around the Horn) and concentrate on the run south to the pitch of the Cape and the run north from the Cape to destination, generally with the run from the port of departure to the Atlantic equator and from the line in the Pacific to the port of destination (San Francisco) or to the Golden Gate or the Heads or pilot as stated. The lack of universal standardization is at times bewildering. For instance, one clipper made a reported run of 139 days from Boston to San Francisco and experienced heavy weather in the South Atlantic. It is known that she sailed from Lat. 50° S. Atlantic to the same parallel in the Pacific (or "rounded the Horn") in 15 days; but the captain apparently wrote: "Off Horn 80 days," intending to record the fact that the ship was off Cape Horn 80 days out from Boston. This notation has been interpreted as "80 days off Cape Horn," which is, of course, ridiculous; for, if true, all the rest of the passage would have had to have been negotiated in the impossible time of only 59 days.

The uncertainty of the time required by any ship for a rounding of Cape Horn at any season of the year in relation to the time taken by another vessel at approximately the same time and what would generally be assumed as under very similar prevailing conditions of

wind and sea is illustrated by the experiences of the clippers *Herald of the Morning* (1,294 tons; built in late 1853), *Winged Racer* (1,767 tons; built in late 1852), and *Adelaide* (1,831 tons; built in late 1854). In January 1855, these three fast and powerful clippers left East Coast U.S.A. ports for San Francisco, where they arrived in May or early June, and their passage records are as follows:

Name of Clipper	Departure		Arrival at San Francisco 1855	Length of Passage in Days Port to Port	Remarks
	Port	Date 1855			
ADELAIDE	New York	Jan. 27	May 21	114	When 104 days out, was within 500 miles of the Golden Gate.
WINGED RACER	Boston	Feb. 3	June 3 (claimed June 2)	120 (claimed 119 days)	Reported as good run of 45 days to the Horn, but a slow run of 75 days north.
HERALD OF THE MORNING	New York	Feb. 4	May 15	100	99 days 12 hrs., pilot to pilot; 100 days 6 hrs., anchor to anchor.

When several hundred miles south of the equator and off the Brazilian coast, the *Herald of the Morning* and *Winged Racer* were in company. Both ships made good time in the South Pacific, but the "*Herald*" was off the pitch of the Horn one day before the "*Racer*," and off the Horn the "*Herald*" signaled the *Adelaide*; yet the records show that the "*Herald*" made a rounding of the Horn (from 50° S. Atlantic to 50° S. Pacific) in only 8 days, while the "*Racer*" required 17 days to cover the distance. From the pitch of the Horn in the run completing the rounding of the Cape and the journey up the Pacific to San Francisco, the "*Herald*" pulled away from the *Adelaide* six days and from the "*Racer*" seventeen days, but the astounding thing is that two ships—both fast—that were off the pitch of the Cape (not at 50° S. Atlantic) within a day of each other should vary in the time taken to round the Cape between the 50th parallels in the Atlantic and Pacific in the ratio of 17 to 8, or over two to one. The *Herald of the Morning*, when making this fast passage of 99 days 12 hours from pilot to pilot and being favored by Dame Fortune in the time taken to round the Cape, reported that she was held up off the Golden Gate by calms and light airs and was "within 180 miles of San Francisco for 6 days." The *Adelaide* claimed an even greater handicap in the North Pacific, reporting that when 104 days out she was 500 miles from the Golden Gate.

It is only the westward rounding of Cape Horn that through the annals of sail has been considered, with cause, as in a class by itself as a turbulent and hazardous stretch of water to be navigated by any vessel dependent upon canvas and wind for propulsion, and the rounding of the Horn has always been shunned by steam and power vessels, which prefer to use the safer and sheltered Strait of Magellan to journey from the Atlantic to the Pacific. The largest clipper ever built, the *Great Republic*, has a creditable record as a Cape Horner during the relatively brief period that the ship was engaged in the California trade. She was designed with the British-Australian packet service in view, which required running from Australia home eastward via Cape Horn; yet this big ship did well rounding the Horn on her six westward passages, averaging about 11 days on three of them. However, when loaded with Peruvian guano and making the eastward crossing from the Pacific to the Atlantic around the Horn in 1857, the big vessel shipped a tremendous sea as she headed up toward the Falklands, her deck was stove in, and several deck beams broken between the fore and main masts, water in big quantities got below, and the ship, unable to proceed, had to put into Port Stanley of the Falklands September 8, 1857, for repairs. An index of the easier "downhill" eastward roundings of Cape Horn as compared with the more turbulent "uphill" westward passage is afforded by the records over the course. Westward, the record is 89 days; but eastward, two clippers made the run (one to New York and one to Boston) in 76 days.

(b) From the Equator to Lat. 50° South in the Atlantic

In the early days, Cape St. Roque, Brazil, located on the northeast bulge of the South American continent at about Lat. 5° S. and Long. 35° W., being a landmark, was considered the end of the first stage of the Atlantic run to the Horn and the commencement of the second part of the course, which terminated, as recommended by Maury, at the 50° S. parallel of latitude.

Of 130 passages from the parallel of Cape St. Roque to that of 50° S. recorded by Maury in 1854, 13 (or 10 per cent) were made in 20 days or better; but none is stated as better than 19 days with the exception of that of the *Raven*, which is credited with a run of 18 days between the points. The 12 Maury-recorded passages of 19 and 20 days were of the following ships:

Name of Ship	Run in Days	Name of Ship	Run in Days	Name of Ship	Run in Days	Name of Ship	Run in Days
BALD EAGLE	19	JOHN GILPIN	19	COMET	20	SEAMAN	20
SWORDFISH	19	SENATOR	19	GOLDEN GATE	20	SENATOR	20
SOVEREIGN OF THE SEAS	19	SEA WITCH	20	JOHN WADE	20	NORTH AMERICA	20

Capt. Arthur H. Clark, in THE CLIPPER SHIP ERA, gives the following as the best passages made from Cape St. Roque to 50° S. during the entire American clipper ship decade:

Name of Clipper	Run in Days	Name of Clipper	Run in Days	Name of Clipper	Run in Days	Name of Clipper	Run in Days
SAMUEL RUSSELL	16	OCEAN EXPRESS	18	SWORDFISH	19	NORTH AMERICA	20
HORNET	17	RAVEN	18	WITCH OF THE WAVE	19	PANAMA	20
OCEAN PEARL	17	ELECTRIC SPARK	19	AURORA	20	RINGLEADER	20
BALD EAGLE	18	GALATEA	19	FLYING FISH	20	SEAMAN	20
COMET	18	GOVERNOR MORTON	19	GOLDEN GATE	20	SEA WITCH	20
ELECTRIC	18	JOHN GILPIN	19	JOHN WADE	20	SKYLARK	20
HURRICANE	18	SOVEREIGN OF THE SEAS	19	MANDARIN	20	TRADE WIND	20

This list is not complete, for the clipper ship *Malay* of 868 tons, on her 116-day maiden passage to California, leaving Boston September 15, 1852, ran from Cape St. Roque to 50° S. Atlantic in 17 days, and the *Live Yankee*, an extreme clipper of 1,637 tons, built at Rockland, Maine, also on her maiden voyage, left New York June 29, 1854, and during her 113-day passage to San Francisco covered the distance from Cape St. Roque to the parallel of 50° S. in the Atlantic in 17 days. The *Bald Eagle*, which on her second voyage to San Francisco (1853-1854) ran from Cape St. Roque to Lat. 50° S. Atlantic in 18 days, on her maiden passage in 1852-1853 made the run between these points in 19 days.

Usually, with good luck, it was about two days' sailing on a well-directed course from the Atlantic equator to Cape St. Roque, but many a ship, through faulty navigation, bad judgment, or ill-luck, fell to leeward of the Cape and lost valuable time beating around it. The very capable Capt. Edward C. Nickels on the *Flying Fish*, when she made her 92-day 4-hour passage from New York to San Francisco in 1852-1853, would have made a record over the course had he not been held up "off the Heads 3 days in calms and light airs" and, according to his own admission, had he not "figured too closely on his Atlantic equator position and Cape St. Roque and as a result got too far to the westward and lost time in having to beat around the Cape." The *Queen of the Seas*, which left Boston October 31, 1852

(the same day as the *Flying Fish* sailed from New York), on her maiden passage, fell quite badly to leeward of St. Roque and lost thirteen days thereby. The *Golden State*, which left New York May 25, 1854, and made a 125-day passage to San Francisco, according to her commander, Captain Barstow, fell to leeward of Cape St. Roque "and lost a week in beating around." In 1855 the *Sancho Panza* (Captain Hildreth) left Boston October 13 on her maiden voyage, and two days later the *Charmer* (Captain Lucas) sailed from New York, each bound for California. Each made a rather long passage, as did other ships covering the course about the same time, because of the setback received in the vicinity of Cape St. Roque. The *Sancho Panza* fell to leeward of the Cape and did not clear that "bugbear of navigation" until some 53 days after sailing. The *Charmer* also got to leeward of Cape St. Roque and was obliged to beat to the eastward; she crossed the equator four times and was not in southern latitude and properly heading south on her course until about 50 days out. This was the *Charmer's* second passage to San Francisco, and the result was that she required 80 days to make the Horn; whereas on her former trip, made ten months earlier, she had been off Cape Horn on the 51st day. The *Sirocco* (Captain West), a Baltimore-built clipper of 1,130 tons, cleared Philadelphia July 14, 1855, and reported a good run of 20½ days to the Atlantic equator, but she got too far to the west and required 6½ days to "beat around Cape St. Roque." The *Morning Light* of Boston, in 1853, was 5 days making the short run from the line to Cape St. Roque, as she crossed too far to the westward.

The *Great Republic* of 3,357 tons, on her record passage of 15 days 19 hours from Sandy Hook Lightship (December 7-23, 1856), did not do so well in the continued run to Cape St. Roque, for she required 3 days 19 hours to cover this relatively insignificant distance. She was not off the Cape and headed south until 19 days 14 hours from Sandy Hook, indicating either very light airs south of the line or the laying of the course too far to the westward, with from one to two days lost beating to the east and the north. The *David Brown*, the New York-built clipper ship of 1,717 tons, probably lost her historic race to San Francisco in December 1853-March 1854 with the Boston-built clipper *Romance of the Seas* of 1,782 tons at that critical part of the course—Cape St. Roque. The "*Brown*" ran to the Atlantic equator in 21 days, sailing 4,205 miles; while the "*Romance*" required 22 days to reach the line, logging 3,784 miles. Whereas the "*Romance*" made a good landfall at Cape St. Roque and continued south, the "*Brown*" fell to leeward of the Brazilian bulge, had to beat around the Cape, and as a result lost three days, making her run from the equator to the Horn 30 days as against 27 days for the "*Romance*." The ships made an identical rounding of Cape Horn, each in 13 days; but the *Romance of the Seas* completed the course in 96 days 18 hours, while the *David Brown* required 99 days 20 hours, the margin of victory for the Boston clipper being almost exactly the time lost by the New York ship off Cape St. Roque. In 1856 the *Swordfish* (Captain Crocker), bound from New York to Panama, crossed the equator June 1 when 25 days out, but it was six days later (June 7) before she got clear of Cape St. Roque. The *Orpheus*, a medium clipper of 1,272 tons, making her maiden passage that year, took 180 days to run from Boston to San Francisco and was 98 days to Cape Horn; she fell to leeward of Cape St. Roque and in beating around "was 40 days on soundings."

The *Don Quixote* and *Ocean Telegraph* each made good passages to California in 1857 in 109 and 107 days, respectively, but each was handicapped relatively early in her passage by falling to leeward of Cape St. Roque and losing time having to tack north and east to work around it. The *Santa Claus*, bound from New York to San Francisco in 1857-1858, made a run of 27 days to the line, but fell to leeward of Cape St. Roque and was about two weeks beating around it, crossing the Atlantic equator for the second time on this passage on the 40th day out.

Relatively short runs from the Atlantic equator to the parallel of Lat. 50° S. Atlantic, taken at random from the log abstracts of several typical passages between East Coast U.S.A. ports and San Francisco, are set forth herewith:

Name of Ship	Year of Passage	Line to 50° S. in Days	Name of Ship	Year of Passage	Line to 50° S. in Days	Name of Ship	Year of Passage	Line to 50° S. in Days
SAMUEL RUSSELL	1853-1854	18	RAVEN	1851	21	LIGHTFOOT	1853-1854	22
ELECTRIC	1852-1853	19	SWORDFISH	1851-1852	21	SEMINOLE*	1865-1866	22
HORNET	1855	19	GOLDEN RACER	1853	21	GLORY OF THE SEAS*	1873-1874	22
BALD EAGLE	1852-1853	20	SEA WITCH	1851	22	YOUNG AMERICA	1880	22
LIVE YANKEE	1854	20	SEA SERPENT	1853	22	GOLDEN GATE	1852-1853	22½
DERBY	1870	20	BALD EAGLE	1853-1854	22	* Half clippers built in 1865 and 1869, respectively.		

Among the ships whose handily available abstract logs show 23-day runs from the line to 50° S. Atlantic are the *Typhoon* (1851), *Sea Witch* and *Westward Ho* (1852), *John Gilpin* and *Witch of the Wave* (1853), *Surprise* and *Cleopatra* (1854), *Red Rover* (1855), *Sweepstakes* (1856), and *Andrew Jackson* (1859). It is surprising that the *Flying Cloud*, "the Greyhound of Cape Horners," never made a fast run over this (South Atlantic) part of the course to San Francisco, her best performance evidently being 25 days in 1854, which she practically duplicated the next year. Her other three runs in direct passages over the course were in 26, 29, and 28 days, respectively.

Among the relatively long runs over this the second section of the course from an East Coast U.S.A. port to California, as taken at random from log abstracts of the clippers, can be mentioned the following:

Name of Clipper	Year of Passage	Line to 50° S. in Days	Name of Clipper	Year of Passage	Line to 50° S. in Days	Name of Clipper	Year of Passage	Line to 50° S. in Days
NOONDAY	1861	49	HURRICANE	1859	38	MESSENGER	1867	36
LOTUS	1856	44	HORNET	1862-1863	38	WHITE SWALLOW	1853	35
KINGFISHER	1869	42	ELIZABETH F. WILLETS	1859	38	SEMINOLE	Longest of 21 runs.	35
HENRY BRIGHAM (TELEGRAPH)	1865	42	METEOR	1860	37	MAMELUKE	1855-1856	34
OSBORNE HOWES	1858-1859	39	MARY L. SUTTON	1857	36	NOONDAY	1859-1860	34
CHARIOT OF FAME	1858	38	SANTA CLAUS	1861	36	RADIANT	1861-1862	34

The half clipper *Seminole*, which made a run of 22 days from the Atlantic equator to Lat. 50° S., on another occasion required 35 days to cover this part of the course. Other long runs of the clipper ships were those of the *Lotus* (1854-1855) and *Romance of the Seas* (1862), each 33 days; *Golden Eagle* (1855) and *Goddess* (1857), each 32 days; *Stag Hound* (1852) and *Talisman* (1854), each 31 days; also 30 days for each of the clippers *Hornet* (1863-1864), *Golden Gate* (1854), *Elizabeth Kimball* (1855-1856), *Daring* (1859), and *David Crockett* (1871-1872).

(c) From East Coast U.S.A. Ports of Departure to the Atlantic Equator

Whereas the third and Cape Horn section of the course from an East Coast U.S.A. or North Atlantic port to California was the dreaded and most uncertain part of the westward, or outbound, run, the North Atlantic, or first, section of the course from the port of departure to the Atlantic equator (known as the run to the line) was likely to be uncertain, troublesome,

and drawn out at almost any season of the year. Many a passage to California that would otherwise have been a fine run was ruined as far as its total length, port to port, is concerned by the time taken to get to the Atlantic equator, cross it, and get headed south off the Cape of St. Roque and the South American (northeast) bulge. Practically all of the outward clipper ship passages to California originated at either New York, which is geographically located at about Lat. $40^{\circ} 42'$ N. and Long. $74^{\circ} W.$, or Boston, which is at about Lat. $42^{\circ} 21'$ N. and Long. $71^{\circ} 3'$ W. Throughout a course of some 3,600 to 4,200 miles from the port of departure to the line, the waters of the North Atlantic were subject to very heavy gales at times, particularly northwesterly ones in the winter months. Severe Gulf of Mexico (or tropical) hurricanes were likely to sweep up from the south and travel northeast with devastating fury at any time during the months of June-November inclusive, and light baffling winds and calms, sometimes of long duration, were not infrequently encountered. The *Winged Arrow*, in 1867, had too much wind leaving Boston, which culminated in a severe gale when she was 7 days out, after which for 24 days the clipper had very light winds and for 24 days made on an average only 82 miles a day (a speed of 3.4 knots per hour), and she took 35 days to reach the equator. The *Alboni*, in 1855, crossed the line 41 days out from New York; she was at the parallel of $5^{\circ} N.$ when 24 days from Sandy Hook and then was virtually becalmed for 17 days. The *Neptune's Favorite*, in 1861, also made a very slow 41-day run from New York to the Atlantic equator, but the cause of the protracted run was due to calms, which lasted about 15 days, experienced in the vicinity of Lat. $30^{\circ} N.$ The *Golden West*, on her maiden voyage, left Boston December 12, 1852, and when 21 days out, she was within 53 miles of the line. To travel that short theoretical distance, she had to sail 1,200 miles during the next seven days, traveling mostly to the north and east. The *Ringleader* left Boston September 10, 1860, was 39 days to the Atlantic equator, and had to cross the equator three times. Capt. J. D. Whitmore of the *Sea Serpent*, which sailed from New York for California April 11, 1855, reported that from the parallels of $38^{\circ} N.$ to his position of $8^{\circ} 26'$ S. and Long. $33^{\circ} 30'$ W., on May 16, the ship had sailed 5,531 miles in 35 days, with "the wind dead ahead, it not being to the eastward of southeast all that time." Many a good clipper was partially dismayed in the North Atlantic trying to make time and benefit from favoring gales. The *Great Republic*, a mammoth ship, which when cut down and with one deck removed still measured 3,357 tons, is credited with the record run of 15 days 18 hours from Sandy Hook to the line (December 7-23, 1856). She made this fast time benefiting by a favoring gale, which, it was reported, drove the big ship 360 miles in 19 hours (at the rate of 455 miles per day of twenty-four hours and a speed of 19 knots per hour).

The little extreme clipper *Tinqua*, built at Portsmouth, N.H., in 1852 and of only 668 tons (or one-fifth the size of the *Great Republic*), came within a very narrow margin of establishing an all-time record from an East Coast U.S.A. port of departure to the Atlantic equator. Leaving New York November 24, 1852, this little ship, on December 7, when 13 days out, was at Lat. $2^{\circ} 33'$ N. and Long. $31^{\circ} 10'$ W., or only 153 miles from the line. Up to this point, the *Tinqua* had been favored with very strong and moderate winds from points of the compass suitable for making good speed, but when what should have been well within a day's sail of the equator and a 14-day run seemed probable, her luck suddenly deserted her, the wind died out, and it took the little ship almost a week to travel the one hundred and fifty odd miles. The run to the line, instead of being a scant 14 days, became 19 days 19 hours (the progress to the goal, measured as speed, for the last week or so being less than at the rate of 1 knot per hour). The *Tinqua* was further handicapped on this passage by encountering eleven days of calms in the North Pacific as she approached the Golden Gate, and her run, which started so brilliantly, because of lack of wind north of the equator in both the Atlantic and Pacific became only a moderately good passage of 115 days.

The longest run to the Atlantic equator from a U.S.A. port made by any clipper was reported by the medium clipper *Mameluke* (1,303 tons), built by Briggs, South Boston, in 1855, and a sister to the *Fair Wind* (which ship is credited with the record passage of 8 days

18 hours between San Francisco and Honolulu). The *Mameluke*, leaving New York January 13, 1857, for California, had strong head winds from the time she left port and required 60 days to beat to the line; yet in March 1861 this same clipper made a fast transatlantic run, sailing from New York to Liverpool in 16 days.

The following is a list of passages known to have been made from an East Coast U.S.A. port to the Atlantic equator in less than 20 days. It is presented not as a complete list but as one recording fast runs taken from available abstract logs and data of clipper ship voyages compiled by accepted authorities.

Name of Clipper	Year of Passage	Port to Line in Days and Hours	Name of Clipper	Year of Passage	Port to Line in Days and Hours	Name of Clipper	Year of Passage	Port to Line in Days and Hours
GREAT REPUBLIC	1856-1857	15-19	ADELAIDE	1855-1856	18	PANAMA	1865	19
FLYING CLOUD	1853	17	STAG HOUND	1858	18	YOUNG AMERICA	Two 19-day runs	19
FLYING CLOUD	1854	17	HERALD OF THE MORNING	1860	18	YOUNG AMERICA	1880	19
STORM KING	1856	17	JACOB BELL	1856	18- 1	ARCHER	Fastest of 11 runs	19-12
GAME COCK	1861-1862	17	SURPRISE	1854	18- 6	ATALANTA	1855	19-12
STORM (bark)	1852-1853	17- 6	SWEEPSTAKES	1856	18- 8	SEA SERPENT	1853	19-16
WHITE SWALLOW	1856	17-13½	ANDREW JACKSON	1861	18-12	CLIMAX	1853	19-17
SIERRA NEVADA	1859-1860	17-16	JOHN LAND	1858	18-18	SURPRISE	1853	19-18
GOLDEN GATE	1854	17-20	FLYING FISH	1851-1852	19	TINQUA	1852-1853	19-19
NABOB	1856	17-21	HORNET	1853	19	SAMUEL RUSSELL	1851-1852	19-20
SEA SERPENT	1852	18	ANTELOPE (N.Y.)	1855-1856	19	SAMUEL RUSSELL	1850	20
HERALD OF THE MORNING	1855	18	VIKING	1857-1858	19	GOLDEN GATE	1852	20

The *Jacob Bell* made her run of 18 days 1 hour in 1856 from Sandy Hook to the Atlantic equator on a passage from New York to Bombay via the Cape of Good Hope, but the course followed from an East Coast U.S.A. port to the Atlantic equator and Cape St. Roque, Brazil, to an India, China, or Australia port is identical with that of ships bound for California via Cape Horn. The run of 17 days made by the *Game Cock* in December 1861 from Sandy Hook to the line was on an outbound passage from New York to China.

The *Northern Light* has been credited with making a 17-day run from Boston to the Atlantic equator, which is quite possible; but confirming data are not available, although this claimed run may be confused with a run of something between 16 and 17 days made by this fast clipper between the Atlantic equator and Boston when homeward bound on her record run from San Francisco in 1852. Several other runs of 20 days were made from East Coast U.S.A. ports to the Atlantic equator, such as that of the *Red Rover* (1855), *Andrew Jackson* (1859), *Reporter* (1861), and *David Crockett* (1871). The *Tinqua*, in addition to her fast run from New York (November 24-December 7, 1852) of 13 days to Lat. 2° 33' N., which dragged out through lack of wind to a 19-day 19-hour run to the line, is credited with a run of 20 days in 1854 from the Delaware Capes to the line. Among other vessels reporting 20-day runs from East Coast U.S.A. ports to the Atlantic equator are the fast and beautiful (but unfortunate) clipper *White Squall* and the speedy little ships *Courier* and *Hazard*, engaged in the South American trade.

The big, fast clipper *Comet* (1,836 tons), built by Webb, of New York, in 1851, has a wonderful record for fast runs. This ship holds the all-time record for an eastward Cape Horn passage of 76 days, pilot to pilot, and 76 days 7 hours, anchor to anchor, from San Francisco to New York (or to any East Coast U.S.A. or North Atlantic port). She also holds the record on the Pacific for the fastest runs from the equator to San Francisco and from San Francisco to the line and on the Atlantic from the equator to New York (or any East Coast U.S.A. port). However, holding three out of four records over the courses to and from ports of arrival and departure and the equator in both the Atlantic and Pacific, she failed to make the fourth and thus establish a monopoly of such sailing honors in the Northern Hemisphere associated with the California trade. In 1853 the *Comet* ran from pilot off the Golden Gate to the Pacific equator, under Captain Gardner, in 11½ days and was reported as 12 days from San Francisco anchorage to the line (February 13-25). Under the same skipper, the ship traversed this part of the course in 13½ days, leaving San Francisco December 27, 1853, and crossing the line January 10, 1854. In early 1856, the *Comet*, under Captain Arquit, ran from the Pacific equator to San Francisco in 12 days, but on the first section of this passage, because of adverse sailing conditions in the North Atlantic, she had required 33 days to run from New York to the Atlantic equator. The *Comet*, on her outward runs to California, seemed somewhat hoodooed in the North Atlantic, but she generally made up for the frowns of Dame Fortune during the first section of the passage by some splendid sailing over much or all of the balance of the course. On her maiden voyage, bad weather held her back in the North Atlantic, and she did not reach the line until 26 days out, but from the Atlantic equator to the parallel of 50° S. in the Pacific, she was only 32 days. Although she did not enjoy the usual favorable trades in the South Pacific and was 29½ days from 50° S. to the line, nevertheless, she ran up the Pacific to her destination in 45 days, as she was only 15½ days covering the last section from the equator to San Francisco and completed the passage in 103 days. On her second westward passage to California, the *Comet* was struck by a terrific Gulf of Mexico hurricane on October 2, 1852, when 5 days out of New York. She lost her foretopmast and main royal mast with everything attached and her fore and main topsails with other canvas, and the damage to spars, sails, rigging, and deck gear was tremendous. Moreover, the weather was unusually slow in moderating so that repairs could be made, and she did not cross the line until the 33rd day; but after that the clipper made a splendid run—considering the conditions and sailing “chances”—of 79 days to San Francisco, completing the passage, which had commenced with partial dismasting, in 112 days from port to port. The *Comet* arrived at New York March 14, 1854, establishing a record of 15 days (also stated as 14 days 17 hours) from the Atlantic equator. Other very fast passages over this course, on the run in, were made by the *Swordfish* in 16 days, arriving at New York March 2, 1860, and the *Mary L. Sutton*, which reached New York November 25, 1862, in 98 days from San Francisco and 16 days from the line. The Cape Horner *Young America*, in 1875, ran from the Atlantic equator to Sandy Hook Lightship in 16 days 20 hours, and in 1870 she went over this course in 17 days. The *Comet's* best run from New York to the Atlantic equator was apparently made in 20 days, and her longest was the run (before mentioned) of 33 days; running south-east from New York to the line, the *Comet* evidently did not hold her luck.

The clipper ship *Sirocco* (1,130 tons), on her passage from Philadelphia to San Francisco in 1855-1856, was reported as running (from the Delaware) to the line in 20½ days; but Captain West misjudged his course, and the ship was until the 27th day beating around Cape St. Roque before she could get clear of the South American coast and proceed south. Capt. Arthur H. Clark, in his excellent and original work *THE CLIPPER SHIP ERA* (published 1910), credits the McKay Boston-built extreme clipper *Stag Hound* of 1,535 tons with a run in February 1858 of 13 days from Boston Light to the equator “eclipsing all records.” This is obviously an error due to some misprint, as the run was made in 18 days (February 6-24), and the ship reported being clear of Cape St. Roque and at Lat. 7° S. when 21 days out.

The outstandingly successful Cape Horner *Young America*, which made twenty-five westward passages from North Atlantic ports around the Horn (twenty-four to San Francisco and one to Portland, Ore.), on her record passage from Liverpool to California in 96 days from pilot (October 16, 1872) to anchorage in San Francisco Bay (January 20, 1873) ran to the Atlantic equator after dropping her pilot in St. George's Channel, near Tuskar Rock, in 15 days 6 hours (or twelve hours less than the record time of the *Great Republic* from pilot off a U.S.A. port to the Atlantic equator). The *Young America* also passed Pernambuco (about two hundred miles south of Cape St. Roque) when 17 days 19 hours out. Considering mileage, this is probably the record run from a North Atlantic point of departure in either the United States or Britain to the Atlantic equator or to Cape St. Roque or Pernambuco, as the *Great Republic*, on her record run to the line, did not pass Cape St. Roque and get straightened out on her run south until she was 19 days and 14 hours out, which was two and a half or more days longer than the run of the *Young America* to the parallel of Cape St. Roque.

The *Great Republic's* record run from Sandy Hook to the Atlantic equator of a scant 16 days on her maiden voyage over the course to San Francisco was followed by an extremely long run of 41 days between the same points on her next voyage. Her six runs over this part of the course, made during the years 1856-1865, occupied 16, 41, 25, 24, 23, and 27 days, respectively, an average of 26 days, which is about the same as the average of the seven runs made over the course by the *Flying Fish*, whose best run was made in 19 days, slowest in 33 days, and average in 26.4 days. The *Panama* made six runs over the course in 22, 31½, 31, 21, 19, and 22 days, respectively, an average of 24.4 days. The *Stag Hound* made six westward California passages from East Coast U.S.A. ports (four from New York and two from Boston) during her career, and the average length of her runs from port of departure to the Atlantic equator was 22.8 days, the runs being made in 20½ (1851), 26 (1852), 21¼ (1853), 33 (1854), 18 (1857), and 18 (1858) days, respectively. The *Flying Cloud*, credited with two fast runs of only 17 days from Sandy Hook to the line in 1853 and 1854, had an average of her six runs of only 20.5 days, the remainder of her runs being made in 21 days (1851), 29 days (1852), 20 days (1855), and 19 days (1856). The consistently good work of the *Flying Cloud* in the North Atlantic (other than on her second passage, when she was badly beaten by the *N. B. Palmer* and the *Gazelle*) did much to win the fast clipper the popular title of "the Greyhound of the Cape Horners," but it is well to bear in mind that Capt. Josiah Perkins Creesy was a great driver and that he and the ship's owners (Grinnell, Minturn & Company, New York) placed their ship well on a sailing schedule as to seasons of the year that favored good runs. In addition to being an unquestionably very fast ship that was given good sailing chances, the *Flying Cloud*—as long as Captain Creesy commanded her—was a very lucky ship, and her commander was a notorious booster for his ship, which reacted to honor himself as her commander.

The mileage and other data of certain runs from New York or Boston to the Atlantic equator are set forth comparatively herewith:

Name of Clipper	Departure		Crossed the Line	Run in Days and Hours	Mileage		Average Speed in Knots per Hour
	Port	Date			For Run	Average per Day	
CLIMAX	Boston	Mar. 28, 1853	Apr. 17, 1853	19-17	3,600	188	7.83
BOSTON LIGHT	Boston	Dec. 30, 1854	Jan. 24, 1855	24-20	3,614	145½	6.06
GOVERNOR MORTON	New York	Dec. 15, 1854	Jan. 5, 1855	20-11	3,664	179	7.46
FLYING CLOUD	New York	Apr. 28, 1853	May 15, 1853	17	3,672	216	9.00
JACOB BELL	New York	Mar. 15, 1856	Apr. 2, 1856	18- 1	3,703	205	8.54
ROMANCE OF THE SEAS	Boston	Dec. 16, 1853	Jan. 7, 1854	22	3,784	172	7.17

Continued on next page.

MERCHANT SAIL

Name of Clipper	Departure		Crossed the Line	Run in Days and Hours	Mileage		Average Speed in Knots per Hour
	Port	Date			For Run	Average per Day	
MARY L. SUTTON	New York	Apr. 6, 1856	May 1, 1856	24-15	3,893	158¼	6.59
SWEEPSTAKES	New York	Feb. 20, 1856	Mar. 9, 1856	18- 8	3,896	213	8.88
TORNADO	New York	Jan. 11, 1853	Feb. 2, 1853	22	3,989	181	7.56
SWORDFISH	New York	Apr. 3, 1854	Apr. 22, 1854	18-15	4,002	219	8.96
GOLDEN EAGLE	New York	May 10, 1855	June 1, 1855	22	4,063	185	7.71
HURRICANE	New York	May 26, 1854	June 18, 1854	22-16	4,090	183½	7.65
SWORDFISH	New York	Feb. 12, 1853	Mar. 6, 1853	22	4,135	188	7.83
DAVID BROWN	New York	Dec. 13, 1853	Jan. 3, 1854	21	4,205	200	8.33

In the so-called "Deep-Sea Derby" and "race" of clippers to California in the winter of 1852-1853, made famous by the publicity given it by Lieutenant Maury, the calculated distance as made by him (including detour) from port of departure to the Atlantic equator for that season of the year was 4,115 miles, and the *John Gilpin*, the only contestant to figure mileage over the course, reported reaching the line after sailing 4,099 miles. Maury, in his publication of 1854, tabulates the sailing records of 176 vessels from a North Atlantic U.S.A. port to the Atlantic equator over what he terms the "New Route Crossing" and 32 over the course that he designates as the "Middle Route." Nine of the vessels considered by Maury that traversed the "New Route" are credited with runs of 20 days or better (not one using the "Middle Route" beat 25 days), and these "fast" passages were made during the period from November 1851 to December 1853. That Maury's list of passages is not complete during the period supposedly covered is evident from the omission of the run of the *Flying Cloud*, which according to her commander, Capt. Josiah Perkins Cressy, and the ship's log, left New York April 28, 1853, and crossed the line May 17 "after a run of 17 days, during which she logged 3,672 miles and averaged 9 knots per hour." The following are the fast runs from a U.S.A. port (seven from New York and two from Boston) to the Atlantic equator, recorded by Maury and arranged with supplementary data to facilitate a comparison:

Name of Clipper	Departure		Crossed the Equator		Length of Run	
	Port	Date	Date	Longitude West	Maury Days	Log—Days and Hours
SEA SERPENT	New York	Mar. 10, 1852	Mar. 28, 1852	29°-30'	18	18
STORM (bark)	New York	Dec. 21, 1852	Jan. 8, 1853	35°-30'	18	17- 6
FLYING FISH	Boston	Nov. 7, 1851	Nov. 26, 1851	32°-00'	19	19
SAMUEL RUSSELL	New York	Dec. 5, 1851	Dec. 24, 1851	30°-00'	19	19-20
SURPRISE	New York	Mar. 13, 1853	Apr. 2, 1853	30°-30'	20	19-18
CLIMAX	Boston	Mar. 28, 1853	Apr. 17, 1853	29°-20'	20	19-17
SEA SERPENT	New York	Feb. 12, 1853	Mar. 4, 1854	30°-20'	20	19-16
TINQUA	New York	Nov. 24, 1852	Dec. 14, 1852	32°-00'	20	19-19
GOLDEN GATE	New York	Dec. 6, 1853	Dec. 26, 1853	33°-56'	20	20

Ships following Maury's "New Route" crossed the equator usually in about Long. 32° W.; whereas ships taking the "Middle Route" went west to about Long. 27° or 28°, and the old route presumably lay farther still to the east. Maury said that the average length of passage for the year from a North Atlantic U.S.A. port to the Atlantic equator by his suggested "New Route" was 29 days, by the old course 41 days, and by the compromise "Middle Route" 35 days.

The following is a statement giving some of the long runs made by clippers between ports of departure in the United States (almost universally either New York or Boston) and the Atlantic equator (referred to as the line):

Name of Clipper	Year of Passage	Port to Line in Days	Name of Clipper	Year of Passage	Port to Line in Days	Name of Clipper	Year of Passage	Port to Line in Days
MAMELUKE	1857	60	VIKING	1862-1863	43	MORNING LIGHT (Philadelphia)	1853-1854	38
WHITE SWALLOW	1853	51	FEARLESS	1868-1869	43	YOUNG AMERICA	1870-1871	38
RED GAUNTLET	1855-1856	51	POLYNESIA	1861-1862	42	KINGFISHER	1853-1854	37
SEMINOLE	Slowest of 21 runs (a half clipper of 1,439 tons, built in 1865)	50	ELECTRIC SPARK	1866	42	MORNING LIGHT (Boston)	1853-1854	37
CYCLONE	1856-1857	48	ALBONI	1855	41	FLYING EAGLE	1855-1856	37
WILD RANGER	1854-1855	47	OSBORNE HOWES	1858-1859	41	FLYING CHILDERS	1860-1861	37
AURORA	1860-1861	47	GREAT REPUBLIC	1858-1859	41	FLORA TEMPLE	1855-1856	36
FLEETWING	Longest of 14 passages	47	NEPTUNE'S FAVORITE	1861-1862	41	GOLDEN EAGLE	1856	36
OCEAN TELEGRAPH	1856-1857	46	DON QUIXOTE	1862	41	ALARM	1860	36
CHERUBIM	1859	46	FLYING DUTCHMAN*	1854	40½	GOLDEN RACER	1853	35
WEST WIND	1859-1860	46	PRIMA DONNA	Longest of 14 passages	40	OCEAN EXPRESS	1854	35
ONWARD	1853-1854	45	JOHN MILTON	1856-1857	40	CLEOPATRA	1854-1855	35
SWEEPSTAKES	1853-1854	44	ORPHEUS	1860	40	MARY L. SUTTON	1857	35
TALISMAN	1859-1860	44	MESSENGER	1862	40	STORM KING	1861	35
CHARIOT OF FAME	1860	44	PANTHER	1864-1865	40	FLYING EAGLE	1863-1864	35
MALAY	1872	44	PANTHER	1867	40	HENRY BRIGHAM (TELEGRAPH)	1865	35
WILD PIGEON	1854-1855	43	GOLDEN WEST	1854	39	WINGED ARROW	1867-1868	35
MOUNTAIN WAVE	1854-1855	43	MAMELUKE	1855-1856	39	RADUGA	1852	35
GOLDEN CITY	1858	43	RINGLEADER	1860-1861	39			

*The FLYING DUTCHMAN, on this passage, was bound for Melbourne sailing east and rounding the Cape of Good Hope, but the course followed from New York to Cape St. Roque, Brazil, was the same as that used by ships bound for California via Cape Horn.

The medium clipper *Electric*, on her first passage to California in 1854-1855, was 34½ days running from Sandy Hook to the line. Runs of 34 days from East Coast U.S.A. ports of departure to the Atlantic equator were made by the *Live Yankee* (1854), *Flora Temple* (1857), *Dashing Wave* (1863), *Winged Arrow* (1866), and *Derby* (1866). Whereas in 1859 the clipper *Golden Eagle* required 90 days to round Cape Horn and sail from 50° S. Atlantic

to 50° S. Pacific, the *Young America* negotiated the distance in 1876 in only 6 days, the ratio of maximum to minimum runs for clippers over this part of the course being 15 to 1. The run in the North Atlantic from port of departure to the Atlantic equator has no such range of variableness, the all-time long run of 60 days of the *Mameluke* in 1857 being 3.8 times that of the record fast run of 15 $\frac{3}{4}$ days made by the *Great Republic* in December 1856. Considering the mileage and generally expected sailing chances, there were, however, many more long runs made over the North Atlantic part of the course to California than over the stretch "between the fifties" in the Southern Hemisphere and far fewer quick runs. The medium clipper *Fleetwing* of 896 tons was one of several ships that had a very poor average sailing performance over the North Atlantic section of the course on passages to San Francisco, and she averaged 38 days for her seven runs from port to the line, the longest being 47 days. The medium clipper *Panther* of 1,278 tons, on her six runs over this part of the course on her California passages, averaged 35 days; her shortest run was 30 days, and two were of 40 days. The Chelsea-built clipper ship *Malay* of 868 tons was a sharp-modeled vessel designed for speed, but on her five passages to California her average time from port of departure to the line was 34 days, with 44 days (in 1872) as the longest. The medium clipper ship *Ocean Express* of 1,697 tons made nine westward Cape Horn passages from U.S.A. East Coast ports (eight to San Francisco and one to Callao) in addition to two passages to California from Britain; the average of her runs from American ports of departure to the line was 31 days, the longest being 44 days and the shortest 23 days.

The three most important parts of the five prime sections of the course from an East Coast U.S.A. port to California which affected the length of the passage were: (1) the rounding of Cape Horn (50° S. Atlantic to 50° S. Pacific), (2) the run to the Atlantic equator, and (3) the run from the Pacific equator to port (the Golden Gate). Heavy weather on the first two of these sections was a prime contributing factor affecting time, but it was light winds, calms, and fogs in the North Pacific, as the California coast was approached, that spoiled many a passage that, with ordinary sailing chances in the North Pacific, would have been a good one. On the 173-day passage of the *Mameluke* in 1857 (January 13-July 5), this medium clipper was 60 days to the line and 104 days to the Horn, off of which she was 27 days. Up to this point, the ship had experienced heavy weather and been generally bucking head winds, but conditions changed when she reached 50° S. Pacific. The *Mameluke* had a good run north in the South Pacific, benefiting by the usual trades, but she was 30 days—mostly in light winds and calms—from the Pacific equator to her destination. In 1859 the big Baltimore medium clipper *Cherubim* of 1,796 tons (built in 1855), on her only passage in the California run, which occupied 193 days from port to port (New York, May 10-San Francisco, November 19), with a 7-day call at Valparaiso for water, was 46 days getting to the line in the Atlantic, and this slow run was capped with a 56-day rounding of the Horn. These two sections of the course together occupied 102 days, or thirteen days longer than the record run over the entire course to California.

Calms and light airs, which were the bugbear in the North Pacific and, as the California coast was approached, turned fast runs from East Coast U.S.A. ports into ordinary or even slow passages to San Francisco (port to port), we have seen, were not restricted or entirely peculiar to Pacific waters north of the line. The clipper ship *Alboni* (917 tons), which was a notoriously unlucky sailer in the North Pacific, encountering light airs and calms on all of her approaches to San Francisco, brought into the North Atlantic some of the bad luck that she constantly experienced due to lack of wind in the run from the line in the Pacific to San Francisco; for in 1855, as before stated, this ship was actually becalmed for 17 days on her run from New York to the line. In 1851 the *Eclipse*, making a 131-day passage from New York to San Francisco, reported a dull and uneventful run with fine weather and light winds and that the ship was "practically becalmed for 31 days." The *Flying Mist*, on her arrival at San Francisco March 12, 1857, in 115 days from New York, reported being becalmed 15 days in the Atlantic and 11 days in the Pacific—a total of 26 days for the passage.

(d) Length of Runs from East Coast U.S.A. Ports to 50° South Atlantic, 50° South Pacific, and to Pacific Equator; Also to Latitude of Rio de Janeiro, etc., and Runs North in Atlantic from Cape Horn

It was not the record-holders for the fastest westbound Cape Horn California passages that made the best time from the port of departure down the Atlantic to the parallel of 50° S. Five other clippers, four with runs of 41 days (*Surprise* in 1854, *Sweepstakes* in 1856, *Great Republic* in 1856-1857, and *Young America* in 1880) and the *Sea Serpent* with a run of 41½ days in 1853, beat the best sailing performance over this part of the course of 42 days made by the *Flying Cloud* in 1854 and the *Andrew Jackson* in 1861. Continuing around the Horn to 50° S. Pacific, the *Great Republic* (with 50 days) and the *Andrew Jackson* and *Herald of the Morning* (each with 52 days) made the best runs. The *Andrew Jackson* proved her class as a Cape Horner and her consistency as a fast sailer by making another run in 53 days; whereas the *Great Republic*, following her splendid run of 50 days, could do no better than 62 days on her other passages. The *Swordfish*, in 1851-1852, made the run to 50° S. Pacific also in 53 days, and the *Golden Gate*, on her 1852-1853 passage, covered this part of the course in 53½ days. The *Flying Cloud* showed in the years 1851-1854 why she was then considered the "Greyhound" of the Cape Horn fleet by running from New York to 50° S. Pacific in 54 days on three separate passages (1851, 1853, and 1854), which is wonderfully uniform sailing. Other clippers covering this part of the course in 54 days were the *Flying Fish* (1851-1852) and *Antelope* of New York (1855-1856). The seventeen clippers herein referred to that ran from an East Coast U.S.A. port of departure to 50° S. Atlantic in from 41 to 45 days (a range of four days), continuing their passages around the Horn, reached the parallel of 50° S. in the Pacific in from 50 to 69 days (a range of nineteen days), thus showing the much greater variability of sailing conditions prevailing in the waters around the Horn. The following is a comparison of the sailing records taken from fifty-one fast westward passages, tabulating primarily the performances from the East Coast U.S.A. port of departure to the parallel of 50° in the South Atlantic, but continuing the record of the run to the crossing of the same parallel of 50° in the South Pacific:

Name of Clipper	Year of Passage	From Port of Departure in Days to		Name of Clipper	Year of Passage	From Port of Departure in Days to	
		50° S. Atlantic	50° S. Pacific			50° S. Atlantic	50° S. Pacific
GREAT REPUBLIC	1856-1857	41	50	SEMINOLE*	1865-1866	45	59
SWEEPSTAKES	1856	41	56	SURPRISE	1853	45	69
YOUNG AMERICA	1880	41	57	COMET	1851-1852	46	58
SURPRISE	1854	41	59	RAVEN	1851	46	60
SEA SERPENT	1853	41½	59½	NEPTUNE'S FAVORITE	1856	46	61
ANDREW JACKSON	1861	42	52	LIGHTFOOT	1853-1854	46	68
FLYING CLOUD	1854	42	54	FLYING CLOUD	1851	47	54
GOLDEN GATE	1852-1853	42½	53½	REPORTER	1861	47	55
ANDREW JACKSON	1859-1860	43	53	JOHN GILPIN	1853	47	58
SWORDFISH	1851-1852	44	52	DERBY	1870	47	60
HERALD OF THE MORNING	1855	44	52	JOHN LAND	1858	47	62
ANTELOPE (N. Y.)	1855-1856	44	54	FLYING FISH	1853	48	55
SAMUEL RUSSELL	1850	44	61	RED ROVER	1855	48	56
FLYING FISH	1851-1852	45	54	TRADE WIND	1852-1853	48	60
FLYING CLOUD	1853	45	54	GOLDEN GATE	1854	48	64

* A "half clipper" of 1,439 tons, built in 1865.

Continued on next page.

MERCHANT SAIL

Name of Clipper	Year of Passage	From Port of Departure in Days to		Name of Clipper	Year of Passage	From Port of Departure in Days to	
		50° S. Atlantic	50° S. Pacific			50° S. Atlantic	50° S. Pacific
N. B. PALMER	1851	48	66	GREAT REPUBLIC	1860-1861	51	62
EDWIN FORREST	1858	49	59	FLYING CHILDERS	1852-1853	51	63
GLORY OF THE SEAS**	1873-1874	49	60	SEA WITCH	1851	51	65
FLYING DUTCHMAN	1853	50	58	WITCH OF THE WAVE	1853	51	70
BALD EAGLE	1852-1853	50	60	HURRICANE	1853	51	70
DAVID CROCKETT	1871-1872	50	62	PAMPERO	1860	51	71
GREAT REPUBLIC	1862-1863	50	62	WESTWARD HO	1852-1853	52	65
TYPHOON	1851	50	63	STAFFORDSHIRE	1852	52	66
RED ROVER	1855-1856	50	63	SEA WITCH	1852	52	70
SWALLOW	1870	50	65	NOONDAY	1857	52	72
FLYING FISH	1855	50	69				

** A "half clipper" of 2,009 tons, built in 1869.

Other clippers making runs from an East Coast U.S.A. port to the parallel of 50° S. Atlantic in 53 days were the *Cleopatra* in 1853, the *Bald Eagle* in 1853-1854, the *Coeur de Lion* in 1855, and the *Hornet* in 1863-1864. Continuing around the Horn, their passages to the parallel of 50° S. in the Pacific were 69, 72, 64, and 71 days, respectively.

Among the slower clipper runs from East Coast U.S.A. ports to 50° S. Atlantic on westward Cape Horn passages to San Francisco, a few have been selected at random with direct runs of from 59 to 86 days from New York or Boston to the parallel of 50° S. Atlantic and are set forth herewith comparatively, with figures added showing the length of the continued run from port of departure to 50° S. Pacific (i.e., around the Horn) and to the Pacific equator. The *Elizabeth F. Willets*, with a slow run of 59 days in 1859 from New York to 50° S. Atlantic (and 38 days of it spent running south from the line), did some fast sailing in the Pacific, as she reached San Francisco July 27, completing the passage in 111 days.

Name of Clipper	Year of Passage	From Port of Departure in Days to			Name of Clipper	Year of Passage	From Port of Departure in Days to		
		50° S. Atlantic	50° S. Pacific	Pacific Equator			50° S. Atlantic	50° S. Pacific	Pacific Equator
ELIZABETH F. WILLETS	1859	59	70	87	HORNET	1862-1863	68	83	104
DARING	1859	60	95	115	GAME COCK	1855	71		121
WHISTLER	1853	60	70	107	POLYNESIA	1861-1862	71	88	115
STAG HOUND	1854	60	68	88	MARY L. SUTTON	1857	71	79	100
HURRICANE	1859	60	80	105	CHARIOT OF FAME	1858	72	95	119
RADIANT	1861-1862	60	67	91	LOTUS	1856	73	93	118
NOONDAY	1859-1860	61	82	103	MAMELUKE	1855-1856	73	88	114
MESSENGER	1867	61	78	105					
MORNING LIGHT (Philadelphia)	1853-1854	62	87	112	NOONDAY	1861	73	85	114
DERBY	1866	62	82	106	TALISMAN	1859-1860	75	95	115
LOTUS	1854-1855	63	71	98	HENRY BRIGHAM (TELEGRAPH)	1865	77	98	138
GODDESS	1857	63	85	108					
METEOR	1860	67	82	106	OSBORNE HOWES	1858-1859	80	98	120
KINGFISHER	1869	67	79	108	WHITE SWALLOW	1853	86	102	121

Occasionally, the big California-bound clippers reported their time in days from port when "off Rio" or when "in the latitude of Rio," and the following table has been prepared to show the length of these runs, which are shown comparatively with a fast run of the 742-ton Maine-built extreme clipper *Snow Squall*. This vessel, while engaged generally in trade between New York and the Far East (and Australia) and making three passages around Cape Horn to California, in early 1856 made a round voyage between New York and Rio de Janeiro.

Name of Clipper	Departure		Rio de Janeiro	Run in Days	Remarks
	Port	Date			
ADELAIDE	New York	Jan. 27, 1855	Feb. 21, 1855 (lat.)	25	From New York to latitude of Rio on 114-day passage to San Francisco.
GOVERNOR MORTON	New York	1864	1864	27	Reported as passing Rio when "27 days out from New York" on her 1864 run to San Francisco.
VIKING	New York	Dec. 10, 1857	Jan. 7, 1858 (lat.)	28	From New York to latitude of Rio on 108-day passage to San Francisco (19 days to line).
FLYING CLOUD	New York	Jan. 21, 1854	Feb. 18, 1855 (lat.)	28	From New York to latitude of Rio on 89-day 8-hour passage to San Francisco (17 days to line).
ADELAIDE	New York	Dec. 27, 1855	Feb. 24, 1856 (line)	28	From New York to "hove to off Rio in heavy gale" on 124-day passage to San Francisco (18 days to line).
SNOW SQUALL	New York	Feb. 21, 1856	Mar. 21, 1856 (port)	29	A run from port to port in direct trade.
LOOKOUT	New York	Jan. 5, 1858	Feb. 3, 1858 (lat.)	29*	From New York to latitude of Rio on 112-day passage to San Francisco (21½ days to line).
FLYING CLOUD	New York	Mar. 13, 1856	Apr. 13, 1856 (lat.)	31	From New York to latitude of Rio on last passage to San Francisco (185 days, port to port; 19 days to line).
GOLDEN EAGLE	New York	Dec. 3, 1852	Jan. 4, 1853 (lat.)	32	From New York to latitude of Rio on passage to San Francisco via Rio (157 days, port to port; 129 sailing days).
PHANTOM	Boston	Jan. 6, 1853	Feb. 8, 1853 (lat.)	33	From New York to latitude of Rio on 104-day passage to San Francisco.

* Off Montevideo on 34th day and off Cape Horn on the 47th day.

It has been claimed that the record between New York (or any East Coast U.S.A. port) and the latitude of Rio de Janeiro is held by the *Phantom*, which, it is said, was off Rio "on the 23rd day out from Boston" (see New York *HERALD* of May 26, 1853); but the 33-day run as stated above seems more consistent with the rest of the passage to San Francisco, as the clipper was off Cape Horn when 55 days out, and on a passage of 104 (or 105) days to San Francisco, a run of 22 days from the latitude of Rio de Janeiro to the Cape seems much more reasonable than one of 32 days.

Running north from Rio de Janeiro (or from the latitude of Rio), the Baltimore clipper ship *Grey Eagle* of 479 tons, built in 1848 for Philadelphia owners, claimed a record run of 23 days from Rio (May 17, 1852) to quarantine grounds below Philadelphia (June 9) and reported passing at sea the fast *Black Squall*, a clipper bark of 400 tons (built at Cape Elizabeth, Maine, in 1850), racing with her, and running pretty even for the four days June 2-5.

The "defeated" *Black Squall*, however, arrived at Sandy Hook, New York, at about the same time as the *Grey Eagle* arrived in the Delaware and reported leaving Rio May 14 and making a 26-day passage. It is evident that the *Grey Eagle* enjoyed much better winds during the early part of the passage than did the *Black Squall*, and both little ships did some fine sailing. Even if the *Grey Eagle* seemed to have the best of the argument during the days (June 2-5) that they were in sight of each other, it would seem that the smaller *Black Squall* covered more mileage from June 2 to her destination (June 9) than did her antagonist. Captain Codman of the *Black Squall* took a pilot at Sandy Hook at noon on June 9, 1852, and reported 15 days from the equator (which equals the record) and 26 days from Rio, having "run by daily observation 5,136 miles, average of 197½ miles per day." Captain Whipple reported very strong favorable winds and a contrary current during the first week out from Rio, but claimed that his ship ran "over bottom" 1,600 miles in a week and "229 miles a day on an average." He asserted that this was equivalent to an average of 277 miles a day if "an average contrary current of 2 knots per hour" was taken into consideration and the ship's speed through the water recorded. The 554-ton Newburyport-built clipper *Courier* (Captain Olmstead) arrived at Philadelphia June 29, 1859, and reported a passage of 25 days from Rio de Janeiro. Few of the large clippers making an eastward Cape Horn passage from San Francisco to an East Coast U.S.A. port reported their runs home from the latitude of Rio de Janeiro, but the *Northern Light*, on her record run of 76 days 8 hours from Sandy Hook to Boston Light, reported running from the latitude of Rio to pilot off Boston Light in 24 days (and some odd hours), which was declared to be a record over the course.

The little clipper ship *Warner* of 500 tons, built at Cape Elizabeth, Maine, in 1851, arrived at New York July 9, 1853, under the command of Captain Carr, completing a splendid run of 67 days from Valparaiso and reporting the extraordinary time of only 27 days from the latitude of 36° S. to port, which is a record that has stood to the end of the era of sail. The extreme clipper ship *Messenger* of 1,351 tons, built at New York in 1852, on her 100-day passage from San Francisco to New York in 1863, reported a fast run of 26 days from the latitude of 17° S. Atlantic to Sandy Hook. On this ship's record run of 82 days from the Golden Gate to the Delaware Capes (and 85 days to Philadelphia) in 1853-1854, she reported averaging 200 miles a day for thirty-five consecutive days running north in the Atlantic, and after leaving the latitude of 18° S., she made 3,016 miles in twelve days running north—an average of 251 miles per day. On this passage, the *Messenger* ran from Cape Horn to the Delaware Capes in 44 days. The little clipper bark *Dawn* of 387 tons, built by Collyer, New York, in 1857, did some very consistent, fast sailing between the Plate and New York. She arrived under Captain Chase at New York at 2:00 A.M. on June 11 and reported "36 days from Buenos Aires," having covered "6,500 miles and averaged 180 miles per day," which established a record between the ports. The *Dawn* made other runs between the Argentine port and New York in 38, 39, and 40 days, respectively. The time of 36 days from the latitude of the Plate in the open Atlantic to New York has undoubtedly been beaten by several clippers making eastward Cape Horn passages home, but no ship, it would seem, has ever beaten the little *Dawn's* record of 36 days from Buenos Aires to New York or her average of 38¼ days for four successive voyages between the ports. The extreme clipper ship *Eagle* of 1,296 tons, with Capt. J. S. Farren in command, left Montevideo June 2, 1854, and arrived at New York July 8 after a run of 36 days, said at that time to be a record between the ports; but this is not as fast a run as that made later by the clipper bark *Dawn* (which was only 30 per cent the size of the *Eagle*) when she made her run of 36 days six years later (1860) from the more distant Buenos Aires to New York.

In the fastest eastward passages from San Francisco to the home port, the New York record-holder *Comet* (76 days to Sandy Hook pilot) ran from the Horn to the Atlantic equator in 26 days, but the Boston record-holder *Northern Light* (76 days 8 hours to Boston Light pilot), the fast New York clipper *Contest* (80 days 8 hours to Sandy Hook pilot), and

the *Young America* (81 days to ten miles off Sandy Hook, when thick fog set in) each made the run over this part of the course in 22 days. The runs up the Atlantic to an East Coast U.S.A. port from the pitch of Cape Horn of several fast clippers during their record or near record sailing performances eastward from the Pacific (all direct from San Francisco except the *Adelaide*, which was from Callao, Peru, and the *Flying Mist*, which was from San Francisco via Valparaiso and Caldera) are stated comparatively herewith:

Name of Clipper	Tonnage	At Cape Horn	Arrival at	Passage in Days and Hours	Remarks
NORTHERN LIGHT	1,021	Apr. 20, 1853	Pilot off Boston Light, May 29, 1853	38- 8	Atlantic run of a record passage of 76 days 8 hours from San Francisco to Boston, pilot to pilot.
FLYING MIST	1,183	Sept. 6, 1857	New Point, Chesapeake Bay, Oct. 13, 1857	37	Atlantic run of a 51-day passage from Caldera to Chesapeake Bay bound for Philadelphia.
YOUNG AMERICA	1,961	Apr. 26, 1870	Sandy Hook, June 4, 1870	39	Atlantic run of an 81-day passage from San Francisco to ten miles off Sandy Hook, when thick fog set in and delayed taking pilot aboard one day.
ADELAIDE	1,831	Oct. 7, 1859	Hampton Roads, Nov. 14, 1859	38	Atlantic run of a 60-day passage from Callao to Hampton Roads, pilot to pilot.
COMET	1,836	Feb. 1, 1854	Sandy Hook pilot, Mar. 14, 1854	40-17	Atlantic run of a 76-day record passage from San Francisco to New York, pilot to pilot.
COMET	1,836	Feb. 1, 1854	Anchor New York Harbor, Mar. 14, 1854	41	Atlantic run of a 76-day 7-hour record passage from San Francisco to New York, anchor to anchor.
COMET	1,836	Feb. 1, 1854	220 miles off Sandy Hook, Mar. 11, 1854	38-11	Wind changed to dead ahead when about half way between Hatteras and New York and about 1½ days' ordinary sailing from destination.
CONTEST	1,098	Apr. 19, 1853	Sandy Hook, May 30, 1854	41- 8	Atlantic run of an 80-day 8-hour passage from San Francisco to Sandy Hook, pilot to pilot.
CONTEST	1,098	Apr. 19, 1853	286 miles off Sandy Hook, May 26, 1854	37- 4	Took 100 hours in light winds to cover the short distance to Sandy Hook pilot, averaging only 2⅞ knots per hour during this part of the passage.
TRADE WIND	2,045	Apr. 20, 1853	Off Hatteras, May 29, 1854	38	Bound for New York from San Francisco; 78 days to Hatteras (Lat. 30° N.), when ran into head winds, and reached Sandy Hook (Lat. 40° N.) 84 days out.

In 1870 the *Young America* ran from Cape Horn to Sandy Hook in 39 days, being 22 days from the Cape to the Atlantic equator and 17 days from the line to Sandy Hook. (In 1875 she ran in 16 days 20 hours from the equator to Sandy Hook.)

(e) From 50° South Pacific to the Line—Sailing North in the South Pacific
on the Fourth Section of the Course to California

Maury, in his report on wind and current charts with sailing directions (published 1854), records the sailing performances of 229 ships in the Pacific from 50° S. bound north. Fifteen of these ships (or only about 6½ per cent of the total considered) made runs from the parallel of 50° S. to the equator in 20 days or less. The following is a comparative record of these relatively fast runs, all made during the period of study (September 1850-May 1853):

Name of Clipper	Run in Days	Date	Name of Clipper	Run in Days	Date	Name of Clipper	Run in Days	Date
FLYING CLOUD	17	July 1851	SWORDFISH	19	Jan. 1852	JOHN BERTRAM	20	Feb. 1852
CELESTIAL	18	Sept. 1850	COURSER	19	Mar. 1852	UNION	20	Aug. 1852
HURRICANE	18	Mar. 1852	FLYING DUTCHMAN	19	Dec. 1852	WINGED ARROW	20	Oct. 1852
SURPRISE	18	May 1853	FLYING FISH	19	Dec. 1852	MALAY	20	Nov. 1852
MERMAID	19	Sept. 1851	WILD PIGEON	19	Dec. 1852	JOHN GILPIN	20	Dec. 1852

The best runs registered by the clipper ships over the South Pacific, or fourth, section of the course (from 50° S. Pacific to the line) during westward, or outbound, passages from East Coast U.S.A. ports to San Francisco are recorded herewith:

Name of Clipper	Date of Passage	Run in Days	Name of Clipper	Date of Passage	Run in Days	Name of Clipper	Date of Passage	Run in Days
METEOR	1859	15½	HURRICANE	1851-1852	18	FLYING FISH	1853	19
MARY L. SUTTON	1856	15¾	YOUNG AMERICA	1853	18	BELLE OF THE WEST	1853	19
DASHING WAVE	1860	15¾	JOHN BERTRAM	1853	18	WHITE SWALLOW	1853	19
HERALD OF THE MORNING	1868	16	SURPRISE	1853	18	WINGED ARROW	1854	19
LIVE YANKEE	1854	16	SWEEPSTAKES	1854-1855	18	STARLIGHT	1854	19
FLYING CLOUD	1851	17	GLORY OF THE SEAS*	1873-1874	18	GOLDEN EAGLE	1855	19
STAFFORD-SHIRE	1852	17	YOUNG AMERICA	1879	18	SIROCCO	1855	19
SWEEPSTAKES	1856	17	SWORDFISH	1851-1852	19	FLYING DRAGON	1856-1857	19
ELIZABETH F. WILLETS	1859	17	COURSER	1852	19	FLYING DUTCHMAN	1857	19
MARY L. SUTTON	1863	17	FLYING DUTCHMAN	1852-1853	19	ORPHEUS	1868	19
CELESTIAL	1850	18	WILD PIGEON	1852-1853	19	YOUNG AMERICA	1875	19

* A half clipper of 2,009 tons, built in 1869; made during a 96-day passage from New York to San Francisco.

The *Mary L. Sutton* holds the all-time record for fast sailing in the South Pacific, as in 1856 she sailed from 57° S. to the Pacific equator in only 17 days. The half clipper *Seminole* of 1,439 tons, built in 1865, is credited with a run from 50° S. Pacific to the line in 18 days. The *Eagle* is credited with an 18-day run from 50° S. to the Pacific equator, and among the clippers reporting 19-day runs over this part of the course when making outward passages to San Francisco are the *Don Quixote*, *Neptune's Car*, and *Ocean Telegraph*. The clipper bark *Mermaid*, in September 1851, also made a 19-day run from 50° S. to the Pacific line. Among

the passages over this South Pacific section of the course on the westward run to California negotiated by clippers in 20 days can be mentioned the following:

Name of Clipper	Date of Passage	Run in Days	Name of Clipper	Date of Passage	Run in Days	Name of Clipper	Date of Passage	Run in Days
JOHN BERTRAM	1851-1852	20	FLYING DUTCHMAN	1853	20	FLYING FISH	1855	20
MALAY	1852-1853	20	FLYING CLOUD	1854	20	DARING	1859	20
WINGED ARROW	1852	20	STAG HOUND	1854	20	ANDREW JACKSON	1859-1860	20
UNION	1852	20½	STARR KING	1854	20	TALISMAN	1859-1860	20
JOHN GILPIN	1852-1853	20	ELECTRIC	1854-1855	20	DAVID CROCKETT	1871-1872	20

Among the other clippers that have claimed 20-day runs between 50° S. Pacific and the line, when bound to California, are the *Alarm*, *Archer*, *Flying Dragon*, *Golden Eagle*, *Shooting Star*, *Syren*, and *Telegraph*. The *Flying Dutchman*, an extreme clipper ship of 1,257 tons, built by Webb, New York, in 1852, made four westward Cape Horn passages to San Francisco before she was wrecked on the New Jersey coast in February 1858. On all these passages, the ship made good time in the South Pacific, and the available abstract logs for three of these runs from 50° S. to the Pacific line show 19, 20, and 19 days, respectively, an average of 19.3 days. Among the ordinary direct passages from East Coast U.S.A. ports to California where clippers made a relatively long run over the South Pacific section of the course (from 50° S. to line) can be mentioned the following:

Name of Clipper	Date of Passage	Run in Days	Name of Clipper	Date of Passage	Run in Days	Name of Clipper	Date of Passage	Run in Days
EDWIN FORREST	1858	40	EAGLE	1853	31	NOONDAY	1861	29
HENRY BRIGHAM (TELEGRAPH)	1865	40	FLYING EAGLE	1853	31	KINGFISHER	1868	29
WILD RANGER	1860	47 (from Horn)	VICTORY	1853	31	BALD EAGLE	1852-1853	29
WHISTLER	1853	37	EUREKA	1856	31	FLYING CHILDERS	1852-1853	29
INO	1851	34	HURRICANE	1853	30	GOLDEN WEST	1852-1853	28
CLEOPATRA	1853	34	COMET	1851-1852	29½	TORNADO	1853	28
HERALD OF THE MORNING	1873	34	SAMUEL RUSSELL	1850	29	CELESTIAL	1853	28
DERBY	1870	33	SEA SERPENT	1852	29	GOVERNOR MORTON	1853	28
HORNET	1863-1864	32	RATTLER	1853	29	HOUQUA	1853	28
RADUGA	1851	32	SIROCCO	1853	29	CLIMAX	1853	28
HARRIET HOXIE	1852	32	PANAMA	1860	29	REPORTER	1861	28

The above list is far from complete, particularly for periods subsequent to 1853. The fast half clipper *Seminole*, which is credited with a run of 18 days from 50° S. Pacific to the line, had a long run of 33 days between the same points during her career. Lieutenant Maury, in his report (published 1854), erroneously records the McKay-built *Staffordshire* (1,817 tons) as taking 48 days to run from 50° S. Pacific to the line and 66 days to San Francisco in 1852; but this big, fast clipper actually ran from 50° S. Pacific to the equator in only 17 days and from the line to destination in 19 days, making the complete run from 50° S. Pacific to San Francisco in 37 days. She left Boston May 3, 1852, was at 50° S. Pacific on July 8, when 66 days out, crossed the equator July 25, when 83 days out, and reached San Francisco August 13, 1852, making a run of 19 days from the line and completing the passage in 102 days.

Maury also records certain runs of clippers from 50° S. Pacific to the equator that were not direct runs and whose times between the stated parallels of latitude, therefore, are not comparative. The *N. B. Palmer*, which was at 50° S. Pacific July 30, 1852, he records as making a run to the line in 39 days, but he admits that she "touched at Valparaiso." Actually, the "*Palmer*" put into Valparaiso with a mutinous crew and to land two seamen who were in irons for attempting to murder the first and second mates. At Valparaiso, most of the crew deserted the ship, and new hands had to be located and engaged before the ship could proceed on her journey; so she had four or more days of port detention as well as the loss of time associated with the temper of the men and the changes made in the course, although the ship ran from Valparaiso to San Francisco in 41 days. Maury also records runs for the *Stag Hound* from 50° S. Pacific to the line of 34 days in March-April 1851 and 35 days in May 1853, but on the former passage the clipper was at Valparaiso 5 days, and on the latter she stopped at Juan Fernandez for water, left there on May 15 after a detention of some 5 days (primarily due to a heavy gale, May 10-14), and crossed the equator twenty-one days later, or on June 5.

(f) *Pacific Equator to San Francisco—the Fifth and Last Section
of the Course from an East Coast Port to California*

Maury, in his 1854 report as superintendent of the National Observatory with "Explanations and Sailing Directions to Accompany the [government-published] Wind and Current Charts," records the passages of 229 ships from the Pacific equator to San Francisco, of which 18 (or 7.8 per cent) are credited with runs of 18 days or better and crossed the Pacific equator during a period of years prior to August 1853. The following table has been prepared from a mass of detailed figures compiled by Lieutenant Maury covering passages of sailing ships from 50° S. Pacific to San Francisco during each month of the period February 1847-August 1853. In Maury's data, clippers are mixed up with ordinary American sailing ships; but there have been excluded from both the number of ships considered and the averages certain vessels whose performances were deemed by Maury as extraordinarily slow and not worthy of incorporation in the average length of runs per month.

Month	No. of Ships	Period of Study	From 50° S. Pacific to Equator— Run in Days				From Equator to San Francisco— Run in Days			
			Average	Best	Mean of Best Runs	Slowest	Average	Best	Mean of Best Runs	Slowest
Jan.	18	1850-1853	27.7	19	22½	38	25	16	21	37
Feb.	25	1847-1853	28.8	20	25	42	24.4	17	20	35
Mar.	25	1850-1853	29.6	18	25	66	26.8	15	24	37
Apr.	18	1849-1853	30.2	21	24½	46	31.3	24	30	44
May	38	1849-1853	30.3	18	24¾	52	30.4	24	30¼	45
June	23	1849-1853	31.3	21	27	47	32.4	20	28	52
July	10	1850-1853	29.4	17	23	48*	28.2	18	28	42
Aug.	13	1849-1852	27.3	20	25	41	34	27	31	42
Sept.	10	1849-1852	24.4	18	21	34	28.8	20	24	44
Oct.	15	1849-1852	25.7	20	24	36	24.6	17	23	40
Nov.	14	1850-1852	24.7	20	24	42	24.7	16	23	34
Dec.	15	1849-1852	25.7	19	22	39	24.1	14	21	37

* The stated 48-day run of the *STAFFORDSHIRE* is an error; the next longest of the ten runs recorded for July was 39 days.

The course of the Cape Horners westward bound to California was laid by experience well to the west of South and Central America, and ships made as much westing as possible after rounding the Horn in the South Pacific, generally seeking to get a position of longitude at about 85° to 90° W. when they crossed the 50° S. parallel of latitude. Running north, the aim was to cross the equator at about 110° to 115° W. The course plotted varied somewhat with the season of the year, but it was the intent of almost all navigators to cross the line well to the east in the Atlantic and to the west in the Pacific. The following table has been

prepared from statistics compiled by Maury during the period of study of the courses followed of 229 sailing ships making westward passages to California and gives the range of longitude and mean position of the ships at Lat. 50° S. Pacific and at the equator for each month of the year. The positions of the ships did not vary greatly with the season or with the individual commanders, and the course generally averaged about Long. 82° W. at Lat. 50° S. Pacific and about Long. 110° W. at the line.

Month	Number of Ships	Longitude (West) at Lat. 50° S.			Longitude (West) at Pacific Equator		
		Course Farthest West	Course Farthest East	Mean Course	Course Farthest West	Course Farthest East	Mean Course
Jan.	18	84°	77°	80°-08'	121°	104°	110°-30'
Feb.	29	95°	78°	82°-27'	119°	93°	110°-16'
Mar.	25	87°	77°	81°-08'	119°	102°	110°-00'
Apr.	19	88°	78°	81°-15'	118°	99°	109°-35'
May	38	87°	77°	81°-45'	123°	100°	110°-00'
June	23	86°	77°	80°-15'	122°	98°	109°-40'
July	10	89°	79°	82°-24'	124°	110°	114°-18'
Aug.	13	87°	78°	83°-04'	113°	99°	106°-46'
Sept.	10	85°	79°	81°-18'	116°	99°	109°-18'
Oct.	15	84°	77°	80°-00'	120°	101°	110°-00'
Nov.	14	89°	79°	82°-56'	117°	96°	107°-56'
Dec.	15	89°	78°	81°-36'	122°	104°	112°-18'

There is presented herewith the best sailing performance for each month between (a) 50° S. Pacific and the equator and (b) the Pacific line and San Francisco. This table continues the compilation of comparative data on the course of the clipper ships running north from Cape Horn to San Francisco in the Pacific as given by Maury in his government report printed in 1854. In only one case (the *Celestial* for the month of September) did the same clipper win the honors over both sections of the course, although on some occasions other clippers came within a day or two of doing so. As shown on an earlier table, the months of April-August inclusive were generally poor months for North Pacific runs to San Francisco, with the winter months averaging much more favorable sailing conditions. The following table shows that during the period covered by Maury's study the fast runs were made in November-March and the slowest (of the best runs per month) in April and May.

Month Passing Lat. 50° S. Pacific	Fastest Run of Series from 50° S. to Line				Fastest Run of Series from Line to Port		
	Name of Clipper	Long. W. at 50° S.	Long. W. at Line	Run in Days	Name of Clipper	Long. W. at Line	Run in Days
Jan.	SWORDFISH	80°	110°	19	CONTEST	111°	16
Feb.	JOHN BERTRAM	84°	110°	20	SURPRISE	110°	17
Mar.	HURRICANE	81°	103°	18	PHANTOM	113°	15
Apr.	STAR OF THE UNION	84°	106°	21	SWORDFISH	114°	24
May	SURPRISE	84°	111°	18	SEA SERPENT	102°	24
June	COMPETITOR	79°	112°	21	HOUQUA	115°	24
July	FLYING CLOUD	81°	124°	17	HORNET	113°	20
Aug.	UNION	84°	101°	21	STAFFORDSHIRE	110°	18
Sept.	CELESTIAL	84°	115°	18	WITCH OF THE WAVE	114°	27
Oct.	WINGED ARROW	83°	115°	20	CELESTIAL	115°	20
Nov.	MALAY	87°	106°	20	SEA WITCH	114°	18
Dec.	FLYING DUTCHMAN	89°	110°	19	TYPHOON	115°	18
	FLYING FISH	80°	112°	19	COMET	117°	16
	WILD PIGEON	85°	111°	19	WHITE SQUALL	118°	14

The variation in the best speed for each month of the year ranged from 14 to 27 days on the run from the line to port, a difference of 13 days (or 93 per cent); whereas on the run from Lat. 50° S. to the equator, the best speed for the various months ranged from 17 to 21 days, a difference of only 4 days (or 24 per cent). Combining the fastest runs each month over both sections of the course from 50° S. Pacific to San Francisco, we find that the best time made was 33 days (by different ships and not by the same vessel) in December

and March and, surprisingly, 35 days (because of unusually lucky conditions) in July; November, 36 days; February, 37 days; with September and October each 38 days. The worst months were August with 48 days; April, 45 days; May, 42 days; and June, 41 days. The combined best runs over the course for the five consecutive months November-March inclusive averaged 34.8 days and for the four months April, May, June, and August, 44 days.

The fastest runs from the Pacific equator to San Francisco of the clipper ships to complete a westward Cape Horn California passage from an East Coast U.S.A. port are set forth in the following table. The list of runs made in 18 days or better from the line to port of destination is intended to be complete; but it is possible that a few runs eligible to be included have been unintentionally omitted because of no available authoritative data, and some claimed fast runs are not included, as they do not qualify. A large number of runs was made by clippers in 18 days or less to some indefinite point somewhere in the vicinity of the Farallones or "off the Heads" or "the California coast" or to an area of fog or calms said to be somewhere near the Golden Gate, but the points where some masters would have liked to end their passages were at times a great many miles and many days' journey from the port of destination.

Name of Clipper	Date of Passage	Run in Days	Name of Clipper	Date of Passage	Run in Days	Name of Clipper	Date of Passage	Run in Days
COMET	1855-1856	12	TRADE WIND	1852-1853	16½	WINGED ARROW	1853	18
WINGED ARROW	1868	13½	FLYING DRAGON	1856-1857	16½	GAME COCK	1853-1854	18
WHITE SQUALL	1850-1851	14	SURPRISE	1850-1851	16-7/12	WEST-WARD HO	1853-1854	18
FLYING CLOUD	1854	15	SEA WITCH	1852	17	ARCHER		18
JOHN GILPIN	1852-1853	15	FLYING FISH	1854-1855	17	YOUNG AMERICA	1854	18
PHANTOM	1853	15	FLYING CLOUD	1855	17	ELECTRIC	1854-1855	18
ARCHER	1858	15	STARLIGHT	1860	17	FLYING FISH	1856-1857	18
COMPETITOR	1858	15	ARCHER		17	WINGED ARROW	1856-1857	18
SIERRA NEVADA	1859	15	VIKING	1862-1863	17	BLACK HAWK	1858	18
COMET	1851-1852	15½	REPORTER	1860	17	OCEAN TELEGRAPH	1859	18
CONTEST	1852-1853	16	OCEAN EXPRESS		17	MARY L. SUTTON	1860	18
FLYING DUTCHMAN	1852-1853	16	SEMINOLE*	1865-1866	17	MORNING LIGHT (of Boston)	1860	18
FEARLESS	1854	16	YOUNG AMERICA	1866	17	MIDNIGHT	1860	18
FLYING FISH	1855	16	SEA SERPENT	1871-1872	17	DASHING WAVE	1862	18
ANTELOPE (New York)	1855-1856	16	YOUNG AMERICA	1873	17	HORNET	1863-1864	18
ANDREW JACKSON	1859-1860	16	ARCHER		17½	GLORY OF THE SEAS**	1873-1874	18
ARCHER		16	SEAMAN	1850-1851	18	ELECTRIC	1854-1855	18½
ORPHEUS	1868	16	TRADE WIND	1850-1851	18	CLEO-PATRA	1854-1855	18½
OCEAN EXPRESS		16	WINGED ARROW	1852	18	GREAT REPUBLIC	1862-1863	18½
OSBORNE HOWES	1858-1859	16	FLYING FISH	1852-1853	18	ROMANCE OF THE SEAS	1853-1854	18¾
YOUNG AMERICA	1880-1881	16	JOHN BERTRAM	1853	18			

* Half clipper of 1,439 tons, built at Mystic, Conn., in 1865 (credited with two 17-day runs).

** Half clipper of 2,009 tons, built at East Boston in 1869.

Maury credits the *Wild Pigeon*, in his 1854 report, with a run of 17 days from "the line to California" and a passage from an East Coast U.S.A. port in 1851-1852 of 105 days, with a crossing of the Pacific equator on January 10, 1852. Maury's records sometimes fail to check with each other, and the clipper arrived at San Francisco January 28, 1852, Captain Putnam reporting a passage from New York of 107 days; if the January 10 date for crossing the equator as stated by Maury is correct, then the run from the line to port would be 18 days and not 17 days. Putnam, however, made no claim to a fast run in the Pacific, but commented on prevailing light winds, and his run from the line to port was probably longer than 18 days.

The *Game Cock's* run in 1853-1854 has been referred to as "16 days from the equator to San Francisco," which is incorrect. The clipper crossed the line in the Pacific April 5, 1854, and sixteen days later (April 21) was "inside the Farallon Islands," where she was detained by fog. She passed through the Golden Gate and anchored in San Francisco Harbor on April 23, 114 days from New York and 18 days from the line. This experience of the *Game Cock* at the portals of her destination was a very common one. In the above list of fast runs from the equator to San Francisco (or the Golden Gate) another 18-day run over the course made by the *Hornet* in 1853 is not mentioned, as it was reported to "the Bar," and the ship was delayed and could not sail through the Golden Gate until later. Capt. Arthur H. Clark credits the Chelsea-built extreme clipper *Aurora* with a 17-day run from the line to San Francisco, the *Flying Fish* with two such runs, and the *Sovereign of the Seas* with one, the latter two ships being the product of Donald McKay, East Boston. The *Flying Fish*, one of the finest and most consistently fast sailers in the Cape Horn trade, is herein credited with runs over the North Pacific part of the course in 16, 17, 18, and 18 days, respectively; but on her 1854-1855 passage she crossed the Pacific equator on December 24, 1854, and fourteen days later (January 7, 1855) reached "the Farallons." She did not enter the Golden Gate and anchor at her port of destination until January 10, 1855, the run to San Francisco from the line being recorded as 17 days. Whereas Clark credits the *Sovereign of the Seas* with a 17-day run from "the Pacific equator to San Francisco" and Maury says that this clipper made the run over this part of the course (on the only passage that she ever made to California) in 18 days, evidently both Clark and Maury are in error; for on this very highly publicized voyage from New York to San Francisco and return via Honolulu, the big clipper left New York August 4 and reached San Francisco November 15, 1852, completing the passage in 103 days. She crossed the Pacific equator October 27 and nineteen days later sailed through the Golden Gate into San Francisco Harbor; moreover, she had not been held up by fog and calms around "the Farallons" or pilot grounds. The *Aurora* could possibly have made a 17-day run from the line to the Golden Gate, but it is improbable, as this clipper had the reputation of being "fated to experience light winds in the Pacific, particularly off the California coast" and, on her fastest passage to San Francisco, was seven days traversing the last 500 miles of the run. Clark credits the Webb-built *Challenge* of 2,006 tons with an 18-day run from the line to San Francisco, and the big ship was fully capable of it, but supporting data are unavailable.

Both Clark and Maury list the *Samuel Appleton* (March 1851), *Typhoon* (October 1851), *Staffordshire* (March 1852), and *Golden City* (December 1852) as making 18-day runs from the Pacific equator to port. The *Samuel Appleton*, built by Paul Curtis at Medford in 1849, was not a true clipper, but a fast ship of 780½ tons built for the China trade; under favorable sailing conditions, she was quite capable of making the run credited to her. The *Typhoon* reached San Francisco November 18, 1851, 108 days from New York and 20 days from the line, which she had crossed October 29. The *Staffordshire*, a fast clipper designed for the transatlantic trade, reached San Francisco August 13, 1852, completing a passage of 102 days from New York, with a run of 19 days from the line and only 36 days from 50° S. Pacific. The *Golden City* arrived at San Francisco January 4, 1853, 118 days from New York, but she was off the Farallones when 112 days out and suffered several days' delay because of a

dense fog. (Evidently, Captain Dewing, Maury, and Clark considered this passage and run from the line to end before the clipper actually entered the Golden Gate.) Among the clippers that made 19-day runs from the Pacific equator to San Francisco are the following:

Name of Clipper	Date of Passage	Name of Clipper	Date of Passage	Name of Clipper	Date of Passage	Name of Clipper	Date of Passage
SAMUEL RUSSELL	1850	STAFFORD-SHIRE	1852	FLYING EAGLE	1855-1856	GREAT REPUBLIC	1856-1857
FLYING CLOUD	1851	BALD EAGLE	1852-1853	HORNET		VIKING	1857-1858
N. B. PALMER	1851	WEST-WARD HO	1852-1853	ARCHER		DERBY	1866
SWORDFISH	1851-1852	EAGLE	1853-1854	WINGED ARROW	1855-1856	FLEETWING	Twice
ONWARD	1852	BOSTON LIGHT	1854-1855	JOHN STUART	1856	KATE HOOPER	To the Heads

The *Winged Arrow* reached San Francisco January 4, 1856, after a fast run in the North Pacific of 14 days to a point 100 miles from her destination, but because of light airs and calms required 5 more days to reach anchorage in the harbor. The *Flying Eagle*, on January 17 of the same year (1856), also reached a point 100 miles from port after a fast run from the line (16 days), but because of bad sailing weather required 3 days to reach port, thus lengthening the run on the last section of the course to San Francisco to 19 days.

The clipper ship *Archer* (1,095 tons; built 1852-1853) has a fine record for fast sailing in the North Pacific. Between 1853 and 1872, she made eleven westward Cape Horn passages to California, and her average time for all runs from the Pacific equator to San Francisco was 23 days, the longest being 38 days on her maiden voyage. No other clipper, it would seem, has to her credit six such fast runs as 15, 16, 17, 17 $\frac{2}{3}$, 18, and 19 days, respectively, an average for the six of only 17 days. The *Flying Cloud's* fast passages under Captain Creesy averaged 21.6 days for the five runs from the Pacific line to the Golden Gate and ranged from 15 to 29 days, the runs of 20 days or less being made in 15, 19, and 20 days, respectively, or 18 days for the best three. The *Flying Fish* averaged 19.7 days for her seven runs over the course, the best being in 16, 17, 18, and 18 days, respectively (an average of 17 $\frac{1}{4}$ days for four), and the longest was only 23 days. The *Winged Arrow*, a medium clipper of 1,052 tons, built by Briggs (South Boston), has an outstanding record for sailing in the North Pacific on her westward passages to San Francisco. She stands second of all ships with her run in February 1868 of 13 days from the Pacific equator to the San Francisco Bar and 13 $\frac{1}{2}$ days to anchor in the Bay. On both her 1852 and 1853 passages, she ran from the line to the Golden Gate in 18 days; on her arrival at San Francisco on February 8, 1855, she had run from the Pacific equator to within 300 miles of the Golden Gate in 15 days, but light airs and calms lengthened the run to 20 days before she anchored in San Francisco Bay. When she reached San Francisco January 4, 1856, 19 days from the line, she had sailed to within 100 miles of the Golden Gate in only 14 days. The average time of seven of her total of nine passages to San Francisco from East Coast U.S.A. ports from the Pacific line to destination was only 18 days, these runs (negotiated during the years 1852-1868) being made in 18, 18, 20, 19, 18, 20, and 13 $\frac{1}{2}$ days, respectively. This medium clipper's work running north in the Pacific from Lat. 50° S. was remarkably fast and uniform.

Because of erratic sailing conditions in the North Pacific as the California coast was approached from the south, the fastest clippers were just as apt to end their passages from an East Coast or North Atlantic port to San Francisco with a long run from the Pacific equator to destination as were slower sailing vessels; for it was not ability to sail fast that often determined the length of the run over the last section of the course in the North Pacific but a combination of the season of the year and the smiles or frowns of Dame Fortune. It took a good, fast ship to make a record or near record run over the course, but a very long run from

the Pacific line to San Francisco was no indication that the ship making it was slow. No sailing vessel can show speed in light airs, calms, baffling light winds, and fogs, and at certain seasons of the year any ship escaping such handicaps on the run to San Francisco Harbor from the Pacific line was lucky. It is of interest to note that although the equator was generally crossed at about Long. 100° to 120° W., San Francisco is located at about Long. 122½° W. and Lat. 37¾° N.; so the port of destination is farther west than the longitude at which ships generally crossed the equator, and the course that had to be steered north of the equator gradually brought the ship nearer the land, which materially influenced the winds. The lower part of the peninsula of Southern California (the tip of the Mexican Baja California) is in Long. 110° W., and its latitude of about 23° N. is quite close to the Tropic of Cancer. At the equator, the average course of a sailing vessel in the clipper ship era was approximately thirty degrees of longitude west of the land, for the American continent at that parallel of latitude does not extend beyond Long. 81½° W. At Lat. 50° S., the average ship crossing at about Long. 82° W. is about seven degrees west of the Chilean coast, and this spread between the South American coast and the sailing ship course north in the Pacific gradually increased to some thirty degrees of longitude as the equator was reached. In the Northern Hemisphere, after Central America is passed, the relationship of land and course is reversed, and during the last several hundred miles of the passage to San Francisco, ships were frequently delayed by calms, light and baffling winds, and fogs for periods of many days and sometimes as much as two weeks or even more.

The following table has been prepared from available abstract logs and believedly authentic data of clipper ships giving slow runs on westward Cape Horn (or outward) passages in the California trade from the Pacific equator to San Francisco. The list of long runs here recorded of from 28 to 45 days (although it refers to 120 passages and runs from the line to San Francisco) is by no means complete, but merely reflects the occasionally slow work in the North Pacific of the better known clippers whose performance records have been preserved and are readily available. It was said in the fifties that every fast clipper engaged in the California trade would experience one or more long and "heartbreaking" outward passages if she sailed in the trade long enough; "if the gales while rounding Cape Horn did not get her, the light and baffling winds, calms, fog, and erratic weather as she approached the California coast most probably would," and usually the run in the North Pacific, more frequently than the rounding of Cape Horn, spoiled what would otherwise have been a fast passage.

Name of Clipper	Date of Passage	Run in Days	Name of Clipper	Date of Passage	Run in Days	Name of Clipper	Date of Passage	Run in Days
TORNADO	1852	45	NORTHERN CROWN	1853	39	ELIZABETH F. WILLETS	1857	37
THATCHER MAGOUN	1866	45	ALARM	1856	39	DARING	1857	37
GOLDEN STATE	1853	42	STORM KING	1856	39	HURRICANE	1859	37
ORPHEUS	1856	41	ARCHER	1853	38	MINNEHAHA	1864	37
ONWARD	1856	40	ALBONI	1855	38	SEMINOLE*	Slowest in career	37
MARY L. SUTTON	1857	40	STAR OF THE UNION	Longest of 8 runs	38	WHITE SWALLOW	1856	36
RINGLEADER	1857	40	GOLDEN RACER	1854	37	ALBONI	1858	36
FLYING EAGLE	1862	40	FLYING EAGLE	1854	37	NEPTUNE'S FAVORITE	1860	36
ELECTRIC SPARK	1866	40	LOTUS	1856	37			

* The fast half clipper SEMINOLE (built in 1865), which is credited with making two 17-day runs from the line to the Golden Gate, made one run over this part of the course that required 37 days.

(Continued on next page)

MERCHANT SAIL

Name of Clipper	Date of Passage	Run in Days	Name of Clipper	Date of Passage	Run in Days	Name of Clipper	Date of Passage	Run in Days
OCEAN EXPRESS	Slowest of 10 runs	36	YOUNG AMERICA	1867	33	MAMELUKE	1857	30
DAVID CROCKETT	1867	36	ELECTRIC SPARK	1867	33	HENRY BRIGHAM (TELEGRAPH)	1865	30
PRIMA DONNA	1869	36	MESSENGER	1867	33	YOUNG AMERICA	1876	30
MESSENGER	1852	35	ALBONI	1852-1853	32	WHITE SWALLOW	1853	29
NOONDAY	1855-1856	35	RADIANT	1853	32	SURPRISE	1853	29
JOHN MILTON	1856-1857	35	MESSENGER	1854	32	SEAMAN'S BRIDE	1853	29
FLORA TEMPLE	1857	35	SWEEPSTAKES	1854-1855	32	GOLDEN STATE	1854	29
ALARM	1860	35	JOHN MILTON	1855	32	COEUR DE LION	1854	29
SANTA CLAUS	1861	35	GOLDEN EAGLE	1858	32	FLYING CLOUD	1855	29
INO	1851	34	CHARIOT OF FAME	1858	32	CHARMER	1855-1856	29
FLYING EAGLE	1853	34	NOONDAY	1861	32	DON QUIXOTE	1856	29
GOLDEN RACER	1853	34	HERALD OF THE MORNING	1866	32	NEPTUNE'S CAR	1856	29
RADIANT	1855	34	GEM OF THE OCEAN	1852-1853	31	MARY L. SUTTON	1856	29
CHALLENGER	1855	34	WITCHCRAFT	1853	31	FAIR WIND	1857	29
EDWIN FORREST	1858	34	COEUR DE LION	1855	31	ENDEAVOR	1857	29
INVINCIBLE	1863	34	WILD DUCK	1856	31	POLYNESIA	1860	29
MINNEHAHA	1862-1863	34	WIZARD	1856	31	METEOR	1860	29
HERALD OF THE MORNING	1873	34	CHARMER	1857	31	TALISMAN	1860-1861	29
DAVID CROCKETT	1883	34	WITCHCRAFT	1860	31	SEA SERPENT	1866	29
STAG HOUND	1852	33	CHALLENGER	1860	31	UNION	1852	28
SURPRISE	1854	33	HERALD OF THE MORNING	1861	31	FLYING DUTCHMAN	1853	28
GOLDEN EAGLE	1854	33	TALISMAN	1861-1862	31	CLEOPATRA	1853	28
VIKING	1854	33	ORPHEUS	1865	31	SEA SERPENT	1853	28
SWORDFISH	1854	33	GRACE DARLING	1865-1866	31	RED ROVER	1855	28
QUEEN OF THE SEAS	1855	33	FLYING EAGLE	1866-1867	31	ELIZABETH F. WILLETS	1855	28
VIKING	1855	33	WILD DUCK	1854	30	NEPTUNE'S FAVORITE	1856	28
DARING	1859	33	GRACE DARLING	1854	30	FLYING DUTCHMAN	1857	28
DASHING WAVE	1859	33	SEA SERPENT	1855	30	DASHING WAVE	1858	28
FLYING EAGLE	1860-1861	33	SWORDFISH	1855	30	FLYING EAGLE	1859	28
ANGLO-SAXON	1862	33	POLYNESIA	1855	30	DON QUIXOTE	1861	28
DAVID CROCKETT	1862	33	STAR OF THE UNION	1856	30	FLYING EAGLE	1863-1864	28
			ELECTRIC SPARK	1857	30			

(g) *Erratic and Frequently Variable Sailing Conditions in
the North Pacific on the Last Section of Cape
Horn Passages to San Francisco*

Practically all ships engaged in the California trade at sometime or other had their passages materially lengthened by encountering very unfavorable sailing conditions in the North Pacific as the port of destination was approached. Among the clippers whose sailing performances were greatly affected on several of their passages by the conditions encountered on the run between the Pacific equator and the Golden Gate can be mentioned the following: The *Alboni*, on her 1852-1853 outward passage to San Francisco, took 18 days to cover the last theoretical 300 miles of the course, moving during this time at the rate of less than 7/10ths of one knot per hour toward her goal, and for seven days of this period she was close to the Golden Gate in a dense fog. On her 1855 passage, this clipper was within 500 miles of her destination for nineteen days, making the speed on the desired course average only 1.1 knots per hour during this period of calms and light unfavorable winds and causing the run from the line to port to increase because of the weather to 38 days. In 1858 the ship was 36 days traversing this the last section of the course (equator to port) because of light winds and calms. The *Thatcher Magoun*, on her maiden (1856) westward passage, was within 600 miles of San Francisco for nine days, on her 1862 run within 100 miles of her destination for nine days, and in 1863 required 14 days to cover the last 350 miles—equivalent to a speed of less than one knot per hour during the last two weeks of the passage. In 1866 this fine ship made one of the longest clipper runs from the line to the Golden Gate on record, requiring 45 days to cover this part of the course because of light winds, calms, and generally unfavorable sailing conditions. The *Orpheus*, which in 1868 made a fast run of 16 days from the Pacific equator to San Francisco, required 41 days in 1856 and 31 days in 1865 to cover this part of the course because of calms and light winds; in 1859 she required 6 days to traverse 44 miles through a calm belt as she neared the California coast (an average speed of 3/10ths of a knot per hour). On her 1867 passage, the clipper was within 500 miles of the Golden Gate for fifteen days and on her 1873 run was 700 miles from port just two weeks before she reached her destination.

The *Sea Serpent*, on her 1853 outward California passage, was 28 days from the line to port because of encountering twelve days of calms and head winds after passing the parallel of 20° N. In 1855 the clipper required 30 days to cover this last section of her passage, and she was within 500 miles of her destination for fifteen days. On her 1856 and 1866 passages, the "*Serpent*" ran from the line to port in 26 and 29 days, respectively, this slow time being caused by lack of wind. In 1861 she was held off the Heads four days and, in 1867, eight days by dense fogs, and on her 1868 passage she was within 400 miles of her goal for fifteen days and averaged only 26½ miles per day during this last part of her run to San Francisco. The *Messenger* made nine westward passages to California, and on only one of them did she experience favorable weather. On her maiden voyage in 1852 she was 35 days from the Pacific equator to San Francisco because of light winds and calms. On her second outward passage, she was within 600 miles of the Golden Gate for seventeen days and averaged less than 1½ knots per hour over the course for this period of about two and a half weeks. She was off the California coast for twelve days, with the sea reported "as smooth as glass." On her next run out to California (1854), the *Messenger* was within 800 miles of her destination for the last eleven days and, because of light winds and calms, was 32 days from the line to port. In 1863 she was within 150 miles of port for seven days and for the last week of her run averaged only 9/10ths of a knot per hour on her course; in 1867 she was 33 days from the equator to the Golden Gate in light airs, calms, and adverse winds.

The *Storm King* had a fair measure of luck in the North Pacific on only one of her runs to San Francisco, and on this her 1860 passage she was 21 days from the line to port. On her maiden voyage, the clipper was five days in fog off the California coast. On her second run to

San Francisco (1856), she was 39 days from the line to port in light winds and calms and the following year was within 200 miles of the Golden Gate for a week. On her fourth run to California (1858-1859), the *Storm King* was 11 days making the last 450 miles in light airs, calms, and fog, and in 1861 she was close to her destination for nine days and hove to for two days in a dense fog off the Heads. Following this passage, the clipper made a round voyage between San Francisco and Hong Kong and on the return trip made the Heads June 3, 1862, after a smart transpacific run of 44 days. The ship's ill-luck on the approach to San Francisco held, but this time she was detained for five days within 10 miles of the Golden Gate by a heavy gale and high seas. Occasionally, heavy north and northeasterly gales spoiled good runs during the last part of the course to San Francisco, but such experiences were rare. The *Wizard*, however, reaching port December 19, 1853, had been within 500 miles of the Golden Gate for ten days and during that time averaged only about 2 knots per hour on her course in the face of heavy northerly gales. The *Red Rover*, which in 1855, with a 100-day passage from New York to San Francisco in sight, had been held within 900 miles of the Golden Gate for sixteen days by light winds and calms and was becalmed for seven days off the Heads on her 1857 passage, on her maiden run to California was held off the Golden Gate in April 1853 for three days in heavy gales. On her next run out the following year, she had a somewhat similar experience, being held back off the California coast in May 1854 by heavy gales that ripped sails, stove in a boat, did much damage on deck, and filled the cabin with water.

The *Don Quixote*, on five of her seven passages from East Coast ports to San Francisco, was handicapped in her sailing performance by light winds and calms off the California coast. On her second passage (1854), the clipper was within 300 miles of the Golden Gate for ten days, and on her next run out she was close to the San Francisco Heads when seventeen days from the line, but then became fog-bound and was seven days reaching port. On her 1861 passage, the *Don Quixote* was 28 days running from the line to port and was within 900 miles of her destination for fifteen days. The following year, the clipper made her last Cape Horn westward passage and was within 300 miles of the Golden Gate for seventeen days.

The *White Swallow* made nine westward passages to California, and on most of them—her fastest as well as her slowest run—she had rather poor luck on the last part of the course. On her maiden passage in 1853 (which was her poorest sailing performance, port to port), she was 29 days from the line to San Francisco and was held off the Golden Gate for six days in calms and fog. On her next run out (1856), the clipper, because of persistent light winds and calms, was 36 days from the Pacific equator to the Golden Gate. The fastest passage to California of the *White Swallow* was made in 1860. She was 40 miles from the Golden Gate on August 1, when 104 days out from Boston, but calms and a dense fog made the passage a run of 110 days, as the ship did not reach San Francisco Bay until August 7, although the pilot was aboard for thirty hours. In 1864 the clipper was 27 days from the line to port and within 500 miles of the Golden Gate for two weeks. The next year she was off the San Francisco Heads four days in a dense fog after a passage conspicuously lengthened by light winds and calms, and in 1867, after a turbulent passage in the Atlantic and South Pacific, she crossed the line 101 days out and then had a slow run of 29 days in light winds and calms to the Golden Gate.

The *Tornado*, on her maiden passage westward around the Horn to California in 1852, was 45 days from the line to San Francisco in light and baffling winds and calms. On her second run out, she was within 300 miles of the Golden Gate for a week, and on both of her next two California passages (and the last of her four runs to San Francisco), the big clipper had bad luck as to weather as she neared her destination. On the 1854-1855 passage, she was within 520 miles of the Golden Gate for twelve days, and on her 1855-1856 (and last) passage she was 500 miles from her destination twelve days before she reached port. On all of her runs to San Francisco, the *Tornado* averaged only $1\frac{3}{4}$ knots per hour on her course during the last several hundred miles of her passages.

The *Neptune's Favorite* was not smiled on by Dame Fortune in the North Pacific, for the average length of her four runs from the line to the Golden Gate was $27\frac{3}{4}$ days. In 1856 she covered this part of the course in 28 days, but was within 200 miles of her destination for eleven days, averaging only about 18 miles per day and $\frac{3}{4}$ ths knot per hour over this part of the course (theoretical distance). In 1860 she was 36 days running from the line to port in baffling light winds and calms, and on her 1861-1862 (and last) passage the clipper was detained off the San Francisco Heads by the weather for four days, making her run 26 days from the line to port.

The *Hurricane* made four westward passages to San Francisco, and on the third of them (1854) Captain Very, her commander, had high hopes of making a near record run of 90 days. However, the bugaboo of light winds and calms as the California coast was approached upset all calculations, and the ship was 15 days covering the last 1,040 miles of her course. Not only were the winds light, when there were any, but also they were northerly, and the ship, tacking against light northerly winds and intermittently lying becalmed, logged 1,777 miles during the last 15 days of a passage that the unfavorable weather extended to 100 days. On her fourth and last voyage in the California trade in 1859, the *Hurricane* made land well to the south of San Francisco 125 days out from New York and then was 17 days in calms and light head winds working to the Golden Gate. The *Ocean Telegraph*, on her maiden voyage in 1854, also followed a course which took her too far to the east, and she made land some 100 miles to the south of the Golden Gate and in light airs and fog was 7 days making port. On her next passage to San Francisco, this clipper was within 100 miles of her destination in light winds and calms for eight days. The *Adelaide* made four voyages in the California trade and encountered poor sailing conditions in the North Pacific on all of them. On her maiden passage in 1855, she was within 500 miles of San Francisco for ten days and on her second run out (1855-1856) was within the same distance from port for two weeks because of light baffling winds and calms. In September 1857, when completing her third outward passage, the *Adelaide* was held off the California coast a week because of calms and light weather. The *Daring*, on all her three Cape Horn runs to California made in the fifties, ran up against unfavorable sailing conditions in the North Pacific and averaged 31 days between the line and San Francisco. On her maiden passage in 1855-1856, the clipper was within 200 miles of the Golden Gate for five days. On her second run (1857), she was 37 days from the equator to port, and in 1859, on her third outward run, she was within 400 miles of her destination for fourteen days, her average speed on the course for the last two weeks of the passage being only 1.2 knots per hour based on theoretical distance over bottom.

The *Wild Duck* made three outward Cape Horn passages to San Francisco and ran into light winds and calms in the North Pacific on all of them. On her maiden voyage in 1853, she was within 300 miles of destination for six days and on her next run (1854) was 30 days from the line to the Golden Gate and within 600 miles of her destination for fifteen days. On her third outward passage (1856), the clipper required 31 days to run from the equator to port and was north of the latitude of San Francisco for ten days. The *Charmer* made four westward Cape Horn runs to California and on none of them enjoyed good sailing weather on the last section of the course. The average length of her three runs made in the fifties from the Pacific equator to the Golden Gate was 29 days (best, 27 days; slowest, 31 days). On her initial and her fastest run, the clipper was within 500 miles of San Francisco for seven days, and calms and light winds reduced her average speed over the theoretical course to 3 knots per hour for the last week of her passage. On her second run (1855-1856), the *Charmer* was within 800 miles of the Golden Gate for eleven days, and in 1857 she required 31 days to cover the distance from the line to port because of light winds and calms. The *Ocean Pearl*, on her 1862-1863 passage from Baltimore to San Francisco, was within 700 miles of her destination for two weeks, but the great delay in completing this passage was not because of the usual light winds but because of northerly gales, which blew for fourteen days and which she had

to buck against. On her 1857-1858 passage, the clipper was becalmed off the Golden Gate for five days and had her pilot aboard for three days, and on her maiden passage (1853-1854) the *Ocean Pearl* was detained four days off the San Francisco Heads in a dense fog. The *Ringleader*, during her career, made six westward passages to San Francisco, and although her average length of passage is excellent, her last run out in 1860-1861 was in 130 days, being her only long passage; yet this clipper was prevented from making more fast runs by conditions encountered in the North Pacific. On her initial passage from Boston (October 21, 1853) to San Francisco (February 8, 1854), a 110-day run, the *Ringleader*, off the California coast, was within 400 miles of her destination for ten days and with luck would have reached her destination in 103 days and shortened her passage by a week's time. In 1857 the clipper made what was for her a long passage of 124 days from Boston to San Francisco, but she was at the Pacific equator when 84 days out, and light winds and calms made her run from the line to port a long drawn-out affair of 40 days. The following year (1858) she was 114 days from New York to San Francisco, but was within 700 miles of the Golden Gate for sixteen days, averaging only about 44 miles per day and 1.8 knots per hour on the theoretical course during the last 16 days as against an average of about 148 miles per day and 6 knots per hour for the first 98 days of the passage.

The *Neptune's Car*, on her first three westward runs around the Horn to California, was handicapped as to length of passage by light winds and calms during the latter part of each run. On her initial passage in 1853-1854, she was within 800 miles of her destination for twelve days and required 11.3 per cent of the time of her run to cover 5.2 per cent of the mileage. In 1855 the ship made a fast run of 101 days to San Francisco, which would have been a much more impressive sailing performance if the clipper had not been "becalmed for 8 days in the North Pacific." On her third outward passage to San Francisco in 1856, the *Neptune's Car*, because of light winds and fog, was 29 days from the Pacific equator to the Golden Gate and was reported as "close to the San Francisco Heads for 10 days." The *Hornet*, on her maiden passage out to California in 1851, was badly laden, had a sick captain, and experienced ill-luck throughout; so it is not surprising that she took 26 days in light winds and calms to run from the line to port, although the clipper on three other occasions covered this part of the course in 18, 19, and 18 days, respectively. On her third westward Cape Horn passage (1854-1855), the *Hornet* had five days of calms north of the line in the Pacific, and on her fourth run out in 1855 the clipper was close to the Heads on her 107th day out and then had six days of calms, passing through the Golden Gate to complete a 113-day passage.

The reliable *David Crockett*, which for thirty years proved that she was fast, sturdy, and lucky in the California trade, encountered Dame Fortune's frowns occasionally. In 1858 she was 27 days on the run from the Pacific equator to San Francisco, in 1862 she was 33 days and was within 400 miles of destination for a week, and in 1867 she took 36 days to run from the line to the Golden Gate. In 1877 she was within 800 miles of port for thirteen days, in 1879 within 600 miles of the Golden Gate for fifteen days, and in 1883, on her last passage, required 34 days in light winds and calms to run from the Pacific equator to destination. The fast and reliable *Young America*, which was a successful Cape Horner for thirty years, making twenty-four westward passages to San Francisco and a twenty-fifth westward run around the Horn with Portland, Ore., as her destination, had only two long runs in the North Pacific, but the clipper's passages were often lengthened by encountering light and baffling winds on the run from the Pacific equator to the Golden Gate. On a 130-day passage from New York to San Francisco in 1867, the ship was 33 days making a run from the line to port, being becalmed ten days in Lat. 20° N. In 1876, nearing the end of a 125-day outward passage to San Francisco, the *Young America* moved only twenty miles on her course in a full week's time, and her run from the Pacific equator to destination was 30 days. Before she completed her 131-day westward passage in 1871-1872, the clipper was held within 750 miles

of port for seven days, and on her longest outward passage of 139 days to California in 1870-1871, she was within 400 miles of the Golden Gate for ten days. Before the *Young America* completed her 117-day passage in 1863, she had been held by light winds and calms within 600 miles of destination for twelve days, and when the clipper made her brilliant run from Liverpool to San Francisco in 1872-1873 in 96 days, pilot to pilot, the passage would have been from a day to a day and a half shorter if she had not encountered erratic, changing winds as she neared the Golden Gate. Even when she made her fast run of only 16 days from the Pacific equator to the Golden Gate in January 1881, the clipper had some bad luck, for sixty hours were required to travel the last 84 miles of the journey because of a violent storm.

The *Herald of the Morning*, which was a Cape Horner during the years 1854-1875 and made fifteen direct westward passages to San Francisco, encountered her share of unfavorable sailing weather in the North Pacific. On her last direct run from an East Coast port to San Francisco in 1873, she made her longest run of 34 days from the Pacific equator to port and was becalmed for a week in about 27° N. In 1866, on a slow passage of 134 days from Boston, 32 days were required in light winds and calms to run from the line to the Golden Gate, and in 1861 she took 31 days to cover this part of the course. On her maiden passage in 1854 (106 days from Boston), the "*Herald*" was within 180 miles of the Golden Gate for six days, and on her 1858-1859 passage of 116 days from Boston she was within 800 miles of her destination for twelve days. When making her fastest westward California passage of 100 days in 1855, the clipper crossed the equator when 79 days out and was, therefore, 21 days making the run from the line to port. The *Dashing Wave*, which was in service about sixty-seven years, but made her last of eleven passages as a Cape Horner in 1870 (when seventeen years old), like practically all other ships, was at times annoyingly slowed down in the North Pacific by light winds, calms, and fog. On April 18, 1858, she reached San Francisco after a good run of 107 days from Boston, but as late as the 90th day out a passage of about 95 or 96 days was anticipated, as she was only 800 miles from the Golden Gate. The run from the line to port, which gave promise of being made in about 16 or 17 days, lengthened to 28 days, and the ship was 17 days in light winds and calms in covering the last 800 miles of the course. The following year the "*Wave*" reached San Francisco from New York on August 3, but after a brilliant run of 15 days 16 hours in the South Pacific, she was 33 days negotiating the last section of the course from the line to port and, because of light winds and fogs, required 18 days to traverse the last 500 miles, making but little more than one knot per hour toward her goal during the last two and a half weeks of her passage.

The extreme clipper *Star of the Union* made eight outward passages to California and had the reputation of being a fast ship but unlucky as to weather and particularly unfortunate in regard to sailing conditions encountered in the North Pacific. The average length of her runs from the line to the Golden Gate was 30 days, the fastest being in 23 days and the slowest run 38 days, with calms being generally encountered off the California coast. On one occasion she was 12 days and on another 10 days in covering the last 500 miles of the course. On a 30-day run from the line to port in 1856, she was off the Heads for eight days in a dense fog, and when the ship made her best run of 23 days from the equator to destination, she made a brilliant run to within 500 miles of the Golden Gate in 11 days and then required 12 days in light airs, calms, and fog to complete the passage. The *Golden Racer* made three Cape Horn passages to San Francisco and reached the Pacific equator when 96, 98, and 95 days out, respectively. Completing her maiden passage (1853), she was 34 days in light winds from the line to port and was within 100 miles of port for four days; on her second passage (1854), she had a long run of 37 days from the equator to the Golden Gate because of lack of wind. On her third and last run over the course, she had better luck with the weather and covered this last section of the passage in 22 days, but she was deprived of the credit of making a very good run by being held close to port for five days in calms and fog. Notwithstanding a fairly good last run, the "*Racer's*" average of her three runs from

the line to the Golden Gate was 31 days, which is slow sailing. The *Ocean Express*, which made two very fast runs of 16 and 17 days, respectively, from the Pacific equator to the Golden Gate, made one very slow run of 36 days over this part of the course. The average of her ten runs (on passages made during the years 1855-1871 inclusive) over the North Pacific course from the equator to the Golden Gate is not good, being 26 days, but the ship encountered her full share of light winds and calms, being within 700 miles of the Golden Gate for eighteen days on one passage and within 600 miles of port for twelve days on another.

The *Flying Cloud*, known as the "Greyhound" in the California Cape Horn trade, did some splendid, consistently fast sailing on her five direct passages from New York to San Francisco during the years 1851-1855 inclusive, all of these voyages being made under the command of Capt. Josiah Perkins Creesy. On the clipper's first four outward passages, her runs from the Pacific equator to port were made in 19, 20, 25, and 15 days, respectively, an average of $19\frac{3}{4}$ days for the four. However, the luck of the ship and her capable commander could not hold out indefinitely in the waters of the North Pacific, and on her fifth passage (and her last direct run from an East Coast U.S.A. port to California), although she made a good run of 80 days from New York to the Pacific equator, she required 29 days to complete the passage to port, being "becalmed for 12 days between 10° and 14° North Latitude."

The *Radiant*, on her first two Cape Horn passages to San Francisco in 1853 and 1855, was 32 and 34 days, respectively, making the run from the Pacific equator to the Golden Gate. On the maiden voyage, she was within 700 miles of her destination for ten days and in 1855 required 10 days to cover the last 400 miles because of light winds and calms. With the exception of one fast run of 15 days from the line to port in 1858, the *Competitor* seemed fated to run into light winds and calms in the North Pacific. On her maiden passage in 1853, she required 15 days to cover the last 900 miles of the course, and on her second run out she reached San Francisco on September 23, 1854, after being at a point only 800 miles from the Golden Gate on August 31; this means that the ship moved toward her destination at an average of only some 35 miles a day and a speed, based on theoretical distance on course, of less than $1\frac{1}{2}$ knots per hour for the last 23 days of the passage. The *Sancho Panza*, which reached San Francisco March 8, 1856, completing her maiden passage (from Boston), was reported by her commander, Captain Hildreth, to have been within three days' sail of the Golden Gate for twelve days, and on her next outward run to California she arrived at San Francisco November 16, 1857, Captain Bird reporting that the clipper had been within 400 miles of port for ten days.

The extreme clipper *Golden State*, on her maiden passage, showed a great deal of speed, but was partially dismantled in the Atlantic and had to put into Rio de Janeiro for repairs. In the North Pacific, however, the ship encountered only light winds and calms and made the exceedingly long run of 42 days from the line to the Golden Gate. On her next passage to California, she reached San Francisco September 28, 1854, but again experienced light winds and calms as she neared her destination, being 14 days covering the last geographical 700 miles of the journey. The medium clipper *Mary L. Sutton*, which became famous for her fast passage on her maiden voyage in 1856 (an outward run to California), made an all-time speed record in the South Pacific (from 57° S. to the line in 17 days); but after she reached the equator, she required 29 days in light winds to complete her passage. The following year the "*Sutton*" was 40 days making the run from the line to San Francisco in light winds and calms and during 12 consecutive days made only 8 miles; yet in 1860 this ship ran from the Pacific equator to the Golden Gate in only 18 days. The *Electric Spark* seemed to be fated to encounter unfavorable sailing conditions on her outward runs in the California trade. Her maiden passage made in 1855-1856 was said to be a pronounced exception, and she made a good run from Boston to San Francisco in 106 days, but even on this passage she required 25 days to run from the Pacific equator to the Golden Gate. On her second outward passage (1857), she was 30 days from the line to port in light winds and calms; but in 1866 she required 40 days to sail from the equator to destination, and she was reported as being "within

90 miles of the Golden Gate for 18 days." This would seem to be a record for tardiness, as this figures an average of only 5 miles a day toward the goal for a period of over two and a half weeks and an average "speed" of about one-fifth of a knot per hour. In 1867 this clipper required 33 days to make the run from the line to the Golden Gate, and evidently all of her nine passages in the North Pacific to San Francisco were made in light winds and calms. The Maine-built clipper *Flying Eagle* made a dozen westward Cape Horn passages to California and was generally unlucky in the sailing conditions experienced in the North Pacific. On seven of her runs from the Pacific equator to San Francisco, she averaged 33 days, these runs being as follows: 34 days in 1853, 37 days in 1854, 28 days in 1859 (being off the Heads four days in fog), 33 days in 1860 (being within 900 miles of port for twenty days and becalmed off the Heads for four days), 40 days in 1862, 28 days in 1863-1864, and 31 days in 1866-1867.

The *Viking*, on both her maiden (1854) and her second (1855) outward passages, ran in the California trade and was 33 days on the last section of the run from the Pacific equator to San Francisco because of light winds and calms, being within 200 miles of the Golden Gate for ten days on her second passage out. On the longest of her six runs to San Francisco (a 134-day passage in 1859), the *Viking* was 28 days from the line to port; but on her last passage in 1862-1863, this part of the course was covered in only 17 days, and on her 1857-1858 run she made it in 19 days. The *Coeur de Lion* made only three westward passages to California, and all were considered light weather runs, the clipper not getting wind enough for any length of time to show much speed. On her second passage in 1855, which was her fastest (119 days from New York), the ship reached the Pacific equator 88 days out, but light winds caused the run from the line to port to occupy 31 days. On her maiden passage in 1854, she was 29 days over this last section of the course and on her last passage (in 1856) 27 days, her average length of run from the Pacific equator to the Golden Gate being 29 days—which is very slow.

The *Talisman*, which in 1859 beat the big and fast *Great Republic* by four days in a race to New York from San Francisco with an eastward rounding of Cape Horn, made five outward passages in the California trade, and on all of them her passages were lengthened by poor sailing conditions. On her third passage in 1859-1860, which was her longest (142 days from New York), the *Talisman* made a slow run all the way and was 27 days from the Pacific equator to San Francisco. Her next run out in 1860-1861 was her fastest passage (112 days from New York), but she required 29 days to run from the line to port, and it was reported that she would have made the passage in 103 days had she not been held up by ten days of calms in Lat. 24° N. On her fifth and last run to California in 1861-1862, the *Talisman* was 115 days from New York, but she crossed the Pacific equator when 84 days out and was 31 days traversing the course from the line to the Golden Gate in light and baffling winds. The speedy extreme clipper *Swordfish*, which on her passage to California in 1851-1852 beat the *Flying Fish* by about nine and a half days and made a run of several hours less than 91 days on her passage from New York to San Francisco, spent 20 days (or 22 per cent of the entire length of the run) in the North Pacific, and this run of 20 days from the line to port was deemed "fast." In 1854 the *Swordfish*, on her third California voyage, made a passage of 110 days from New York to San Francisco; she was at the Pacific equator when 77 days out, but required 33 days to run from the line to port, the completion of the passage in the light erratic winds and calms of the North Pacific requiring 43 per cent as much time as the run down the Atlantic, the rounding of the Horn, and the run up the Pacific to the equator. On her next passage to California in 1855, the *Swordfish* again encountered poor sailing conditions in the North Pacific, being 30 days on the run from the equator to the Golden Gate, and she reported being within 100 miles of her destination for a week.

The *Witchcraft*, on her 1853 passage from New York to California, crossed the Pacific equator when 79 days out, and Captain Dudley had hopes of a 95-day passage, but fate was against him. Light winds and calms stretched out the run from the line to port to 31 days, and for thirteen days, we are told, the fast clipper "lay practically motionless." On her next

passage out, she did better. She reached the Pacific equator when 77 days out from New York and completed the passage in 98 days, but when 91 days out, she was within 700 miles of the Golden Gate and during the last week of the passage traveled at the rate of only about 4 knots per hour to her destination, the run from the line to port being made in 21 days. On the outward passage of her last voyage, the *Witchcraft* reached San Francisco July 29, 1860, after experiencing light winds and poor trades in the Pacific; she was 31 days from the line to the Golden Gate and was within 840 miles of her destination in light winds and calms for sixteen days.

The *Morning Light* of Boston, on her maiden voyage, made an outward passage from Boston to San Francisco in the winter of 1853-1854 and on the last section of the course ran from the Pacific equator to a point 500 miles from the Golden Gate in 15 days, but it took this extreme clipper 10 days to cover the relatively short distance in light winds and calms. On her next run to California, the *Morning Light* made her best westward passage of 112 days to San Francisco, but Captain Knight reported being held within 200 miles of port for four days because of lack of wind. The *Grace Darling*, on her maiden voyage in 1854, was 30 days running from the Pacific equator to the Golden Gate, but during the first 14 days she sailed fast and got within 700 miles of her destination, only to have light and baffling winds and calms cause her to take 16 days to complete this short part of the course. On February 2, 1866, the "*Darling*" reached San Francisco 31 days from the Pacific equator; the clipper had been within 300 miles of port for twelve days and for this period of time had, therefore, advanced toward her port of destination at the rate of only about one knot per hour. The *Elizabeth F. Willets*, on her maiden voyage, crossed the Pacific equator 90 days out from New York and then required 28 days to reach San Francisco, being 11 days covering the last 800 miles of the course and having seven days of fog close to the California coast. On her next run to California, the "*Willets*" reached San Francisco August 1, 1857; she had crossed the Pacific equator when 93 days out from New York, but light winds and calms were responsible for a long 37-day run from the line to the Golden Gate, and she was within 100 miles of port for a week. The *Golden City*, on her 1852 (maiden) passage to San Francisco, was detained five days off port in a dense fog and on her third outward run to California was becalmed off the San Francisco Heads for five days. The *Monsoon*, completing her maiden passage, reached San Francisco January 6, 1853, having been four days outside the Golden Gate in a dense fog, and the following year, after sighting land, she was blown off her course and did not reach port until seven days later.

The *Alarm* made two westward Cape Horn passages to California, and on both of them she encountered adverse sailing conditions in the North Pacific. On her maiden voyage in 1856, the clipper was 39 days from the equator to San Francisco because of light northerly winds and calms, and in 1860 she required 35 days to make this part of the course in light winds and calms. Having had a very bad and protracted rounding of Cape Horn, when the ship reached port on October 5, 1860, she was 182 days out from Boston and had enough water on board to carry her for only two more days. Donald McKay's 1,698-ton medium clipper *Minnehaha* made only two outward passages to California, but on both of them she encountered bad sailing conditions in the North Pacific. On her 1862-1863 passage, she was 34 days running from the line to San Francisco and in 1864 was 37 days traversing this part of the course in light head winds and calms, and it was reported that she required 12 days to cover the last 200 miles of the journey; an average of $35\frac{1}{2}$ days for the only two runs made between the Pacific equator and the Golden Gate is slow work for any vessel. The *John Milton*, a medium clipper of 1,444 tons, had a sea life of only about three years before she was wrecked at night in a gale and blinding snowstorm in February 1858, off Montauk, when bound for New York. Two passages were made around the Horn to California. On the first (1855), she was 32 days from the Pacific equator to San Francisco, and on the second (1857) she required 35 days to run from the line to port, both of these runs being made in light and baffling winds and calms.

The extreme clipper *Challenger* made seven westward passages to California; on her second run out, in 1855, she was 34 days from the line to the Golden Gate and, in 1860, was 31 days over this part of the course, being held back by light winds and calms. The *Surprise*, a splendid, fast ship and the first real clipper built at East Boston, made three outward Cape Horn passages to San Francisco in 97, 116, and 118 days, respectively; her runs from New York to the Pacific equator were made in 80, 87, and 85 days and from the line to port in 16 days 14 hours, 29 days, and 33 days, respectively, her long runs in the northern Pacific in light airs and calms on her 1853 and 1854 passages being entirely responsible for the big difference in sailing performance on these runs as compared with her record-breaking passage of 96 days 15 hours in the winter of 1850-1851. The *Golden Eagle* was 33 days from the Pacific equator to San Francisco in 1854 and 32 days over this section of the course in 1858, and it is said that she was 30 days on her run between the line and port in 1856. Details of this passage are confusing, but light winds and calms were responsible for this fast extreme clipper's long runs in the North Pacific. The *Noonday* completed four passages to San Francisco from East Coast ports and was lost by striking a submerged rock when approaching the Golden Gate to end her fifth, which would have been a slow passage of 140 or 141 days from Boston. She made two long runs from the Pacific equator to port, being 35 days on her maiden passage in 1855-1856 and 32 days in 1861. The two runs made in 1857 and 1859-1860 occupied 24 and 23 days, respectively, and her average on the four completed passages was 28½ days—which is slow. However, when lost near the Farallones, the *Noonday*, under full sail, was making 9 to 10 knots per hour, but on her earlier runs, light winds and calms were generally encountered as the clipper approached the California coast.

The *Polynesia* made two slow runs traversing the North Pacific section of the course out from East Coast ports to California. In 1855, on a 125-day passage from Boston to San Francisco, she was 95 days to the Pacific equator, but required 30 days to complete the course, and in light winds and calms she was within 600 miles of the Golden Gate for eighteen days. In 1860 the *Polynesia*, at the end of a 138-day passage from New York, was 29 days running from the line to San Francisco. The *Flying Dutchman* was an outstandingly fast Cape Horner, but her life was short, and she made only four westward passages to California. However, on her second and fourth outward runs to San Francisco in 1853 and 1857, respectively, she went out to the Pacific equator in very fast time, and her passages were then drawn out by 28-day runs from the line to her destination. In 1853 the clipper was at the Pacific equator 78 days out from New York, and a passage of 95 days seemed likely, but light winds and calms in the run to port lengthened the passage to 106 days. On her last passage westward in 1857, the *Flying Dutchman* was at the line in the Pacific in only 74 days, and a near record run was probable; but fate willed otherwise, the winds became light, and the clipper required 18 days to cover the last 1,000 miles of the course to the Golden Gate because of light and adverse winds. Even with this great handicap, the ship made a 102-day passage, port to port. Some 80 per cent of the mileage was covered in 74 days, while the other fifth required about 27½ per cent of the total time of the passage, and the last 6½ per cent of the mileage took over 17½ per cent of the total time required for the run from port to port.

The *Endeavor* made eight westward California passages, and on her shortest run out of 122 days in 1858 she crossed the Pacific equator when 93 days out and required 29 days to reach San Francisco, covering only ten degrees of latitude in 11 days. In 1869 the clipper ran from 50° S. Pacific to the Golden Gate in 48 days, and this would have been a very smart sailing performance if she had not been detained within 600 miles of port for twelve days by light winds and calms. The *Mameluke*, on her maiden voyage, ran out to San Francisco from Boston (1855-1856) in 139 days and was 25 days from the Pacific equator to port, but reported being within 600 miles of the Golden Gate for ten days in light winds and calms. Her next passage to California (1857) was a long drawn-out affair of 179 days, with 90 days spent in the Northern Hemisphere and 27 days in battling heavy gales off Cape Horn; her run from the Pacific equator to the Golden Gate occupied 30 days and was made in light

winds, whereas her long run from Boston to the Atlantic equator had been due to strong head winds. The extreme clipper *Game Cock* was a very fast ship. Making a passage of 114 days from New York to San Francisco in 1852, Captain Hollis reported being within 500 miles of the Golden Gate for nine days, and in early 1854 Captain Osgood reported a passage between the same ports in 112 days, with a run from the line to "inside the Farallones in 16 days," which became an 18-day run from the equator to port when the *Game Cock* was held up two days by fog off the Golden Gate.

The medium clipper *Fair Wind* generally encountered poor sailing conditions in the North Pacific. On the outward passage of her maiden voyage, she went out from Boston to San Francisco in 1855-1856 and was 26 days in the run from the Pacific equator to port. On her second voyage in 1857, the clipper was 29 days in the North Pacific on her passage to San Francisco and reported being within 700 miles of the Golden Gate for twelve days in light winds and calms. The *Eagle Wing*, on the outward passage of her maiden voyage in 1853-1854, ran from Boston to San Francisco in 105 days. Captain Linnell reported a run of 23 days from the line and stated that when in Lat. 18° N. he had hopes of making a 95-day passage, but that light winds and calms had lengthened the passage by ten days. As the clipper did not cross the Pacific equator until she was 82 days out, she would have had to make an amazingly fast run of 13 days from the line to port to complete the passage in 95 days. In 1856 the *Eagle Wing* made a 118-day passage from New York to San Francisco, and Captain Waters reported being within 100 miles of the Golden Gate for six days. In 1858, under Captain Worth, the clipper was 27 days running from the Pacific equator to destination under unfavorable sailing conditions because of lack of wind. The *Romance of the Seas*, a fast extreme clipper of 1,782 tons, was a good Cape Horner as far as speed and seaworthiness were concerned. She made four westward passages to California and reached the Pacific equator in 78, 90, 80, and 86 days, respectively, from her port of departure (either Boston or New York). Completing her passages, she ran from the line to port in 18 $\frac{3}{4}$, 23, 26, and 20 days, respectively. On her third California voyage in 1860-1861, she ran out to San Francisco in 106 days, and on the 93rd day out and 13 days beyond the equator, she was deemed to be three days' sail from the Golden Gate. However, light winds and calms caused the clipper to be 13 days in completing the passage, and an anticipated fast run of 16 days from the line to port became a slow one of 26 days. On her second passage to San Francisco (1856), the "*Romance*" was off the coast for three days, and on her fourth and last run out to California in 1862, she ran from the Pacific equator in 20 days to complete a 106-day passage from New York to San Francisco, but was held off the Golden Gate four days or else would have made a 102-day passage, with a 16-day run from the line. The *Golden Fleece* (2) made a dozen Cape Horn westward passages to San Francisco. In January 1870, she crossed the equator 90 days out from New York, and a run of 105 days was anticipated, but light winds and four days of calms stretched the run from the line to port from 15 to 21 days and the passage from 105 to 111 days. In 1875 the "*Fleece*," when 113 $\frac{1}{2}$ days out, was 200 miles from the Golden Gate and had made a fast run of 12 $\frac{1}{2}$ days from the line to that point (a near record); but then the ship ran into six days of calms, followed by a strong northerly wind, and she was 7 $\frac{1}{2}$ days making port, her run from the Pacific equator lengthening to 21 days.

The *Onward*, which on her maiden voyage in 1852 ran from the Pacific equator to the Golden Gate in 19 days, on her third run out to California in 1856 required 40 days to cover this part of the course, and one-half of this time was spent in practically a dead calm. The *Archer*, which has an outstanding record for good sailing in the North Pacific, having six runs to her credit from the line to the Golden Gate in from 15 to 19 days, made one long trip over this part of the course. On her maiden passage in 1853, she required 38 days to run from the Pacific equator to San Francisco because of light winds and calms. The *Lotus* was a fast little clipper but too small for a Cape Horner; however, it was in the North Pacific that she did her poorest sailing, being 37 days (also reported as 38 days) running from the

line to the Golden Gate in 1856. In a race with the *Ocean Express* in 1869, the medium clipper *Prima Donna* was beaten in the North Pacific, and her antagonist passed through the Golden Gate the winner by eleven days, as the *Prima Donna*, encountering light winds and calms, required 36 days to run from the line to port. The *Flora Temple* was a big Baltimore-built clipper of 1,915 tons, which in 1857 was 35 days running from the Pacific equator to San Francisco, part of the run being made in very heavy weather; she reached port September 14 after a run of 129 days from New York, having been within 500 miles of the Golden Gate for twelve days and off the Heads for six days. The *Santa Claus*, on her last passage to San Francisco, where she arrived in September 1861, was 140 days from Boston and 35 days from the Pacific equator; during the North Pacific run, the clipper had experienced a terrific hurricane around Lat. 16° N. and had encountered both heavy and light weather on the run. The early extreme clipper *Ino*, launched in New York January 4, 1851, made three passages from New York to San Francisco and on her maiden run required 34 days to sail from the line in the Pacific to the Golden Gate because of light baffling winds. In 1858 the *Edwin Forrest* made a passage of 133 days from New York to San Francisco. She was 34 days on the run from the Pacific equator to port, the latter part being in light airs and calms, and was off the Heads for four days in a dense fog. The *Invincible*, one of the fastest and best sailing ships ever built, made six westward Cape Horn passages to California during her career, and on one of these—her longest and only long passage—made in 1863, she was 34 days in light winds running from the Pacific equator to San Francisco. The *Stag Hound* made six westward Cape Horn passages to California, but on only her second run in 1852 did she make a very long run in the North Pacific, when she was 33 days from the line to San Francisco and was within 1,000 miles of her destination for twenty days. On her other five passages, she ran from the Pacific equator to port in an average of a scant 24 days, the runs being made in 21, 26, 22, 25, and 25 days, respectively. In 1857 she was off port for seven days in light airs and calms, and on her last passage in 1858, she experienced not light but strong head winds.

The *Queen of the Seas*, on her second passage to San Francisco, was 33 days from the Pacific equator to port, and for the last 20 days of this run (and of her passage of 136 days), Captain Tay reported light winds and calms. The *Sweepstakes* made three outward passages from New York to San Francisco and on the first and third made good runs from the Pacific equator to port, but on her second passage (1854-1855) she required 32 days in light head winds to run from the line to the Golden Gate. On her maiden passage, this clipper ran from the equator to within 550 miles of port in only 13 days, and then she ran into calms and light airs and required 7 days to complete the passage. In 1856 she was at the equator when only 73 days out, and with a 90-day passage in sight and a fine run in the South Pacific behind her, she was evidently forced too far to the westward and ran to port in some 21½ days, with winds from the north. The *Gem of the Ocean*, a small medium clipper (702 tons), built at Medford, Mass., in 1852, made only one Cape Horn passage to California; she crossed the Pacific equator 89 days out from Boston, but did not reach San Francisco until 120 days out because of light winds and calms, she being "near the coast for ten days and off the Heads for five days." The *Wizard* made one slow passage from the Pacific equator to San Francisco, being 31 days covering this part of the course on an outward run to California in 1856, as she was delayed by light winds and a "dead calm," which, it was reported, persisted for thirteen days. On her maiden voyage, the clipper ran from the line to port in 22 days, the last 10 days of which she had to make against strong northerly winds. The extreme clipper *Telegraph*, prior to her burning, scuttling, sale, and rebuilding at Savannah, Ga., in 1857, made no outstandingly slow run over the North Pacific section of the course from an East Coast port to California; but in 1865, on her last passage as an American ship (renamed the *Henry Brigham*), she made a long run out to San Francisco of 168 days from New York and was 30 days on the last section of the course from the Pacific equator to the Golden Gate. The *Seaman's Bride*, on her 120-day passage from New York to San Francisco in 1853, was

29 days running from the Pacific equator to the Golden Gate and was becalmed off the Heads for seven days.

The *Golden Gate*, on her third and slowest outward passage to California in 1854, was 120 days from New York to San Francisco, and she ran from the line to the Golden Gate in 29 days, being retarded by lack of wind. On her maiden voyage in 1851-1852, the clipper made a light weather passage out to San Francisco in 115 days, which was good time considering sailing conditions, but on this run she was within 300 miles of her destination for eight days. On her second and fastest run between the ports (104 days in 1852-1853), the ship was 24 days between the line and port. Although the medium clipper *Meteor* made five westward passages to California during the years that she was in the Cape Horn trade (1852-1855 and 1859-1860), she made only one passage that can be considered long (133 days), and on this run she made her only long run (29 days) between the Pacific equator and the Golden Gate. However, the *Meteor*, which is generally credited with holding the all-time record for fast sailing over the South Pacific section of the course to California from an East Coast U.S.A. or Atlantic port, was more or less handicapped on all her passages by light winds and calms in the North Pacific. On her maiden passage in 1852-1853, a run of 110 days was claimed by her command, and she reported being within 400 miles of her destination for eight days; whereas on her fastest passage in 1855 she was at the Pacific equator 84 days out from Boston and sailed well for 13 days thereafter, following which light winds kept her back for 10 days, and she was 26 days from the line to port.

The Baltimore-built clipper ship *Union* of 1,012 tons made only two California voyages, and on her maiden passage of 119 days in 1852 from New York to San Francisco she was 28 days running from the Pacific equator to port in light and erratic weather. On her second and last passage over the Cape Horn California course in 1854, the clipper was 126 days between ports and 23 days on the run from the line to the Golden Gate. The *Cleopatra* made only two westward passages to California, and on the first of these, in 1853, the clipper was 103 days from Boston to the Pacific equator. She was making a wearisome long run from the line to port, having taken some 23 days to cover about 1,900 miles on the course (an average of about 83 miles per day and less than $3\frac{1}{2}$ knots per hour), when the winds became strong, and the ship covered the last 1,200 miles of the course in only 5 days, averaging about 240 miles per day and 10 knots per hour and benefiting by a complete reversal of the usual weather experienced as the California coast was neared. On her second and last passage to San Francisco in 1854, the run from New York to the Pacific equator was made in 92 days, following which the *Cleopatra* made a good run of $18\frac{1}{2}$ days to port, which would have been better still had she not experienced one and a half days of dense fog off the Golden Gate. The *Anglo-Saxon* made a long passage of 171 days from New York to San Francisco in 1862 and was 39 days bucking gales off Cape Horn and 62 days running up the Pacific in light winds. She was 33 days on the run from the equator to destination and reported "within 700 miles of the Golden Gate for 18 days in a constant succession of light airs and calms." The *Eureka*, on her 1853-1854 passage to San Francisco, reported upon arrival 123 days out from New York that she had been detained a week by dense fogs within two days' sail of the port. The *Galatea*, which on one of her outward runs to San Francisco ran from the line to port in 22 days and reported the distance as only 2,700 miles as logged, on her 1856-1857 passage of 119 days from New York was within 400 miles of the Golden Gate for ten days in light and baffling winds. The *Gazelle*, a clipper modeled for speed, on her 1854 passage to San Francisco crossed the Pacific equator 91 days out from New York and reached her destination September 27, completing a passage of 114 days with a run from the line of 23 days. Captain Dollard reported on arrival that his ship had been "close to the California coast for 12 days in light winds and calms and off the Heads 2 days in a fog."

Among the single passages of other clippers not heretofore referred to which showed poor sailing performances in the North Pacific can be mentioned the following: The *Wild Rover* reached San Francisco February 8, 1863, 121 days out from Boston and reported being

within 200 miles of the Golden Gate for ten days. After crossing the Pacific line, the clipper had enjoyed good winds and covered about 2,800 miles in 15 days (about 187 miles per day and an average speed of 7.8 knots per hour); but thereafter she ran into some very heavy weather, for on January 25 (fourteen days before she reached port) her fore- and main-topmasts and main topgallant masts were sprung, and a combination of adverse sailing conditions caused her to advance on her theoretical course for the last ten days of her passage at the average rate of only 20 miles per day and some 8/10ths of a knot per hour. The *Elizabeth Kimball*, on her 1855-1856 passage of 140 days from Boston to San Francisco, ran from 50° S. Pacific to the line in 21 days, but was 27 days thence to port and reported being "within 3 days' sail of the Golden Gate for 15 days." This statement, if correct, means that a run of 15 days from the Pacific equator to port was in sight when she ran into adverse sailing conditions (only three days from destination), which dropped her progress over the course from about 200 miles a day to around 40 miles. The *Black Warrior*, on her 124-day passage from New York to San Francisco in 1855-1856, ran from the Pacific equator to port in 25 days, but reported being within 280 miles of the Golden Gate for ten days. On her next and last Cape Horn passage to California, this Maine-built 1,828-ton medium clipper went out in the good time of 114 days, but reported being "becalmed 27 days on the passage," which seems incredible, and where she was becalmed is not known. The ill-fated *Highflyer*, which "went missing" in the North Pacific when bound for Hong Kong in 1855, on her 144-day passage from New York to San Francisco made earlier that year (May 17-October 8) reported being within 500 miles of the Golden Gate for fourteen days in light winds and calms. The *Fleetwing*, which made two good runs of 19 days from the Pacific equator to San Francisco and is credited with a run of 41 days from 50° S. Pacific to port, was up against bad luck at times by running into light winds and calms in the North Pacific and in 1868 reported being within 350 miles of the Golden Gate for ten days. The *West Wind* made a 129-day passage from Boston to San Francisco in 1855 and encountered light winds in the North Pacific, being 10 days covering the last 400 miles of the run from the line to port.

The *Midnight* had average luck in her many runs from the Pacific equator to San Francisco, and on her fastest outward passage from an East Coast port (her maiden run of 117 days in 1854 from Boston) reported being detained by light winds off port. Her second best westward passage was a run in 1866 of 119 days from New York, when she covered the last section of the course from the Pacific equator to port in 21 days, but reported being "on the coast 10 days in fog, near the Roads 3 days and anchored off the Heads for a day." Captain Brock reported a passage of 119 days, port to port, but only 117 days under sail. The *Sea Nymph* of New Bedford had no very long runs in the North Pacific due to unfavorable sailing conditions, but on her maiden voyage, when she made a quick run of 38 days from Valparaiso to San Francisco, Captain Fraser reported that he was within 600 miles of the Golden Gate for ten days. On her next and fastest westward passage from an East Coast port to San Francisco, the "*Nymph*" spent 25 of the 113 days of this passage on the run from the Pacific equator to the Golden Gate. The *Sierra Nevada*, which in 1859 made a very fast run of 15 days from the Pacific equator to San Francisco, on her 1857 outward passage of 140 days from Boston reported being becalmed in the North Pacific for ten days and held off the Golden Gate for three days. The Maine-built extreme clipper *Rattler*, which did good work as a transatlantic packet as well as sailing the Seven Seas for thirty-seven years, on one of her California voyages ran out to San Francisco in 113 days from New York; but Captain Marsh reported that she was 500 miles from the Golden Gate when only 96 days out and that light winds and calms caused the clipper to take 17 days to cover this short distance, averaging less than 30 miles a day and about 1¼ knots per hour on the theoretical course for this wearisome period of time. The *Kingfisher*, on her maiden voyage in 1853-1854, made her fastest run to California, being 114 days from Boston to San Francisco; but she had crossed the Pacific equator when 94 days out and was off the San Francisco Heads when 109 days out and 15 days from the line, where she was five days in a dense fog. On this clipper's longest run out from an

East Coast port to California (135 days from Boston to San Francisco) in 1869, she was 27 days in light weather running from the Pacific equator to port.

(b) From Lat. 50° South Pacific to San Francisco

Whereas the sailing performances of the *Meteor*, *Mary L. Sutton*, *Dashing Wave*, *Herald of the Morning*, and *Live Yankee* in running from Lat. 50° S. to the Pacific equator in 16 days or less and of the *Comet*, *Winged Arrow*, and *White Squall* in making a run from the line to the Golden Gate in 14 days or less were outstanding, it is generally felt by marine authorities that the record run of 35 days covering the course up the Pacific from Lat. 50° S. to San Francisco constituted a greater achievement by merchant sail. This record was established during the westbound Cape Horn California passages of the *Flying Dutchman* (1,257 tons) and *John Gilpin* (1,089 tons) in 1852-1853 and was equaled by the *Flying Cloud* (1,782 tons) in 1854, the *Flying Dragon* (1,127 tons) on her 1856-1857 Cape Horn passage, and by the *Orpheus* (1,272 tons) in 1868. However, it was the run over the Pacific part of the course made by the *Flying Dragon* in early 1857 that was considered the most meritorious by contemporaries, and it has been said: "The *Flying Dragon* actually ran from the parallel of 50° South Pacific to the Golden Gate in 33½ days and established an all-time record over the course."

The *Flying Dragon* was a Down East clipper of 1,127 tons built at Bath, Maine, and launched into the Kennebec River in June 1853. She left New York Harbor November 27, 1856, deep laden, on a Cape Horn westward passage to California and was anchored in San Francisco Harbor March 5, 1857, after a passage of 97 days. On this outward run, the little clipper had a rough time of it rounding the Horn in 17 days, and if she had had the luck of other ships that made passages from an East Coast port to San Francisco in 89 to 93 days (seven such clippers averaged 9 days rounding the Horn), she would have made, theoretically, an 89-day passage, port to port, thus about equaling the all-time record held by the *Andrew Jackson* and closely followed by the *Flying Cloud* of from 89 to 90 days. However, it was in the Pacific that the *Flying Dragon* did her best sailing, beating all her competition most conclusively, and her run from Lat. 50° S. Pacific to destination is of particular significance as compared with that of the big Donald McKay-built clipper *Great Republic* (a ship of three times her size). The two ships sailed these waters at the same time, as they arrived at San Francisco within four days of each other. The following is a comparison of the runs made by ten clippers with records of 97 days or better from an East Coast U.S.A. port to San Francisco, showing the time taken rounding the Horn (from 50° S. Atlantic to 50° S. Pacific) and the length of the run from 50° S. Pacific to the port of destination. The superiority of the sailing performance of the *Flying Dragon* over that of the *Great Republic*—the world's largest clipper—on the run up the Pacific is conspicuous.

Name of Clipper	Year of Passage	Length of Passage to San Francisco in Days	Length of Run in Days				
			From 50° S. Atlantic to San Francisco	Rounding the Horn (50° to 50°)	50° S. Pacific to Equator	Equator to San Francisco	50° S. Pacific to San Francisco
FLYING CLOUD	1854	89	47	12	20	15	35
JOHN GILPIN	1852-1853	93	46	11	20	15	35
FLYING DRAGON	1856-1857	97	52	17	19	16	35
ANDREW JACKSON	1859-1860	89	46	10	20	16	36
FLYING CLOUD	1851	90	43	7	17	19	36
FLYING FISH	1852-1853	92	44	7	19	18	37
SWORDFISH	1851-1852	91	47	8	19	20	39
SWEEPSTAKES	1856	95	54	15	17	22	39
GREAT REPUBLIC	1856-1857	92	51	9	23	19	42
ANTELOPE (N. Y.)	1855-1856	97	53	10	27	16	43

The following is a statement showing the sailing records of forty-nine clipper ships (including two "half clippers") on the run from the parallel of 50° S. Pacific to San Francisco, the port of destination. The ships included are those with sailing performances over this part of the westward Cape Horn course from an East Coast U.S.A. port to San Francisco of from 35 days (the all-time record) to 43 days. Whereas an effort has been made to show all the ships that made the very fast runs, the list of those with runs of over 40 days from 50° S. to the Golden Gate is admittedly quite incomplete.

Name of Clipper	Date of Passage	Run in Days	Name of Clipper	Date of Passage	Run in Days	Name of Clipper	Date of Passage	Run in Days
FLYING DRAGON	1857	35	ELECTRIC	1854-1855	38½	ELIZABETH F. WILLETS	1859	41
JOHN GILPIN	1852-1853	35	WHITE SQUALL	1850-1851	39	HORNET	1862-1863	41
FLYING DUTCHMAN	1852-1853	35	PHANTOM	1853	39	DAVID CROCKETT	1871-1872	41
FLYING CLOUD	1854	35	WINGED ARROW	1854	39	HURRICANE	1851-1852	42
ROMANCE OF THE SEAS	1862	35	GOLDEN EAGLE	1855	39	SAMUEL RUSSELL	1852	42
ORPHEUS	1868	35	SWEEPSTAKES	1856	39	GOLDEN CITY	1852	42
FLYING CLOUD	1851	36	SEMINOLE**	1865-1866	39	WEST-WARD HO	1852-1853	42
STAFFORD-SHIRE	1852	36	SEA SERPENT	1871-1872	39	TRADE WIND	1852-1853	42
FLYING FISH	1855	36	COURSER	1851-1852	40	STAG HOUND	1854	42
ANDREW JACKSON	1858-1859	36	GOLDEN EAGLE	1852-1853	40	GREAT REPUBLIC	1856-1857	42
GLORY OF THE SEAS*	1873-1874	36	YOUNG AMERICA	1853	40	GOVERNOR MORTON	1870	42
FLYING FISH	1852-1853	37	LIVE YANKEE	1854	40	YOUNG AMERICA	1879	42
CONTEST	1852-1853	37	CLEOPATRA	1854-1855	40½	TYPHOON	1851	43
CELESTIAL	1850	38	GREAT REPUBLIC	1862-1863	40½	WINGED RACER	1852-1853	43
SEA WITCH	1852	38	SURPRISE	1850-1851	41	BALD EAGLE	1853-1854	43
WINGED ARROW	1852-1853	38	SEAMAN	1850-1851	41	ANTELOPE (N. Y.)	1855-1856	43
OSBORNE HOWES	1858-1859	38	N. B. PALMER	1851	41	GREAT REPUBLIC	1860-1861	43
SWORDFISH	1851-1852	38½	SPARKLING WAVE	1855	41	DERBY	1866	43
JOHN BERTRAM	1851-1852	38½	FLEETWING	Fastest of 15 runs	41	YOUNG AMERICA	1875	43

* Half clipper built in 1869. ** Half clipper built in 1865.

The *Winged Arrow* made nine westward passages to San Francisco, and the average length of run of six of them was only 43 days, a probable record; the best runs were 38 days on the 1852-1853 and 39 days on the 1854 passages. The fastest runs made by a single clipper on the Pacific direct from Lat. 50° S. to San Francisco for each month of the year as stated by Maury in his report of 1854 (covering a period ending in the summer of 1853) are set forth herewith:

MERCHANT SAIL

Month Crossing Lat. 50° S. Pacific	Name of Clipper	Length of Run in Days			Month Crossing Lat. 50° S. Pacific	Name of Clipper	Length of Run in Days		
		From 50° S. to Line	From Line to Port	From 50° S. to Port			From 50° S. to Line	From Line to Port	From 50° S. to Port
January	CONTEST	21	16	37	August	UNION	21	28	49
February	JOHN BERTRAM	20	18	38	September	CELESTIAL	18	20	38
March	PHANTOM	24	15	39	October	SEA WITCH	23	18	41
April	SWORDFISH	22	24	46	November	GOLDEN CITY	24	18	42
May	SURPRISE	18	32	50	December	FLYING DUTCHMAN	19	16	35
June	HORNET	25	20	45		JOHN GILPIN	20	15	35
July	FLYING CLOUD*	17	19	36					

* The STAFFORDSHIRE, through a typographical error of 30 days in Maury's computations, is deprived of the honor of tying the FLYING CLOUD in making a run of 36 days in this month. The STAFFORDSHIRE crossed Lat. 50° S. Pacific on July 8, 1852, and the equator on July 25 (seventeen days later) and was at San Francisco August 13 after a run of 19 days from the line and 36 days from Lat. 50° S. Pacific.

Among the clippers making particularly long runs from 50° S. Pacific to San Francisco can be mentioned the following. This list does not include such long runs up the Pacific to the Golden Gate as that of the *Orpheus* in 82 days (1856), the *Alboni* in 80 days in 1858-1859 and 66 days in 1852-1853, the *Messenger* (1863) and *Syren* (1885), each in 78 days, and the *Governor Morton* (1873) and *Wild Ranger* (1860) in 71 days, all of which runs were reported from the Horn (and not from Lat. 50° S.) to the Golden Gate.

Name of Clipper	Date of Passage	Run in Days	Name of Clipper	Date of Passage	Run in Days	Name of Clipper	Date of Passage	Run in Days
EDWIN FORREST	1858	74	CLEOPATRA	1853	62	MESSENGER	1852	60
GOVERNOR MORTON	1871	72	LOTUS	1856	62	MESSENGER	1867	60
HENRY BRIGHAM (TELEGRAPH)	1865	70	HURRICANE	1859	62	SURPRISE	1854	59
INO	1851	68	WHISTLER	1853	61	SIROCCO	1853	58
TORNADO	1852	68	MARY L. SUTTON	1857	61	ARCHER	1853	58
FLYING EAGLE	1853	65	NOONDAY	1861	61	RADUGA	1851	57
VICTORY	1852	63	SANTA CLAUS	1861	61	JOHN LAND	1853	57
HORNET	1851	62	HARRIET HOXIE	1852	60	DERBY	1870	57

The *Golden Gate* (1854) and *Kingsfisher* (1869) also made runs from 50° S. Pacific to port in 56 days. The erratic nature of sailing conditions in the Pacific is illustrated by the work of the *Governor Morton* in the early seventies. In 1870 the clipper ran from 50° S. to San Francisco in 42 days, but the next year took 72 days over the same course, having the benefit of the usual trades for only eight days.

The following is a list of the record, near record, and fast runs sailing south in the Pacific from the Golden Gate (San Francisco) to Cape Horn—not to the parallel of 50° S. Pacific but to the Horn itself.

Name of Clipper	Sailed from San Francisco	At Cape Horn	Run from Golden Gate to the Horn	Remarks
COMET	Dec. 27, 1853	Feb. 1, 1854	35 days 7 hrs.	Crossed the line Jan. 10, 1854, 13½ days out.
NORTHERN LIGHT	Mar. 13, 1853	Apr. 20, 1853	38 days	Record passage from San Fran- cisco to Boston.

(Continued on next page)

Name of Clipper	Sailed from San Francisco	At Cape Horn	Run from Golden Gate to the Horn	Remarks
CONTEST	Mar. 11, 1853	Apr. 19, 1853	39 days	Passage of 80 days 8 hrs. to Sandy Hook.
COMET	Feb. 13, 1853	Mar. 23, 1853	38 days	Crossed the line Feb. 23, 11½ days out.
MESSENGER	Oct. 13, 1853	Nov. 20, 1853	38 days	Record passage from San Francisco to Philadelphia.
FLYING DUTCHMAN	Feb. 12, 1853	Mar. 23, 1854	38½ days	Crossed the line Feb. 24, 12 days out.
TRADE WIND	Mar. 11, 1853	Apr. 20, 1853	40½ days	Made fast run of 78 days from San Francisco to Cape Hatteras.
NEPTUNE'S CAR	Jan. 31, 1862	Mar. 13, 1862	41 days	Crossed the line Jan. 14, 1862; reported 13 days out.

In 1875 the *Young America* ran from the Golden Gate to the Pacific equator in 15 days 22 hours and reached Cape Horn when 41 days 1 hour out. The previous year this clipper had run to the line in 17 days and to Cape Horn in 41 days 10 hours; while in 1870 she made a run of 16 days from the Golden Gate to the line.

(i) *Recapitulation of Runs over Sections of the Westward Cape Horn Course to California, of Completed Fast Passages, of Runs between Intermediate Ports, and an Analysis of Fast, Medium, and Slow Passages from East Coast U.S.A. Ports to San Francisco*

Over each of the five sections, or laps, of the course from a United States North Atlantic port to San Francisco, a different clipper ship holds the record as far as claimed and published times for these runs are concerned. These are set forth herewith:

Section of Course	Record Time in Days	When Run Made	Name of Clipper	Tonnage	Year Built	Builder
North Atlantic U.S.A. port (New York) to Atlantic equator	16 (15 days 19 hrs.)	Dec. 1856	GREAT REPUBLIC	3,357	1853-1854	McKay, Boston, and Sneed & Whitlock, Greenpoint, N. Y.
Equator to 50° S. Atlantic	18	1853 (16 days from Cape St. Roque)	SAMUEL RUSSELL	957	1847	Brown & Bell, New York
50° S. Atlantic to 50° S. Pacific—"rounding Cape Horn"	6	June 1876	YOUNG AMERICA	1,961	1853	Webb, New York
50° S. Pacific to equator..	15½	July 1859	METEOR	1,068	1852	Briggs, South Boston
Pacific equator to San Francisco	12	Feb. 1856	COMET	1,836	1851	Webb, New York
Total of the record times over the five sections of the course	67½	1853-1876	Runs from New York to San Francisco made by five different ships (all built in New York or Boston) during the years 1847-1854 and of from 957 tons to 3,357 tons.			

Maury, in his 1854 report, gives the average distances from the parallel of 50° S. in the Pacific to the equator as 3,500 miles and from the equator to the Golden Gate as 3,000 miles, these distances being estimated for vessels presumably using the track charts of "the Pathfinder of the Ocean." Combining these figures for average distances with others already stated and the average length of passages recorded by Maury, we obtain the following figures based (a) on Maury's stated January averages and (b) on a voyage that commenced in January and

ended in May, which takes Maury's January figures for the run to Cape St. Roque, the February average for the run from the Cape to 50° S. Atlantic, an average of the February and March statistics for rounding the Horn, the April average for the run from 50° S. Pacific to the equator, and the May figure for the run from the line to the Golden Gate.

Section of Course	Estimated Average Mileage	"A"		"B"	
		Days	Miles per Day	Days	Miles per Day
Port to Cape St. Roque.....	4,500	31	145	31	145
Cape St. Roque to 50° S. Atlantic.....	2,900	26.5	109	28	104
50° S. Atlantic to 50° S. Pacific.....	1,400	16.4	85	17.2	82
50° S. Pacific to equator.....	3,500	27.7	126	30.2	116
Pacific equator to Golden Gate.....	3,000	25	120	30.4	99
Total	15,300	126.6	121	136.8	112

"A" shows an average speed of about 5 knots and "B" a speed of about 4¾ knots per hour.

Considering as "fast" runs of 20 days from a North Atlantic port to the equator, 22 days from the equator to 50° S. Atlantic, 10 days around the Horn (i.e., from 50° S. Atlantic to 50° S. Pacific), 20 days from 50° S. to the equator (Pacific), and 18 days from the equator to San Francisco (a total of 90 days), we find it of interest to note that the all-time record over the course, westbound, is between 89 and 90 days, and in the entire annals of sail only two ships have beaten the mark of 90 days, three passages being accepted as having been made in between 89 and 90 days. These phenomenally fast runs were: *Andrew Jackson*, 89 days 4 hours, pilot to pilot (1859-1860); *Flying Cloud*, 89 days 8 hours, Sandy Hook to pilot grounds (1854); and *Flying Cloud*, 89 days 21½ hours, Sandy Hook to anchorage (1851). Lieutenant Maury maintained that the fastest possible passage from either New York or Boston to San Francisco would be 85 days if a clipper ship should enjoy a great measure of good luck over the entire length of the course. He characterized the 89-day 21½-hour passage of the *Flying Cloud* as a remarkable performance, but he expected to see it beaten sometime by a clipper that followed faithfully his "Sailing Directions," made the passage in the most favorable season, and was favored with a maximum of good luck. It would seem that Maury favored the *Great Republic* (after she made a great run to the Atlantic equator and completed her maiden passage to San Francisco in 92 days) as the extreme clipper that "sooner or later would do the trick"; but Maury guessed wrong, for the big 3,357-ton *Great Republic*, whereas a great sailer under conditions that suited her, was positively not the queen of Cape Horners and not as worthy of that title as the *Flying Cloud*. Ultimately, it was a far less spectacular and "sort of matter-of-fact and unheralded Mystic-built medium clipper" that became the only ship afloat to beat (and that by only a few hours) the two westward Cape Horn passages of 89-90 days of the *Flying Cloud*.

Although the *Flying Cloud* and the *Andrew Jackson* hold the westbound around-the-Horn all-time records from New York to San Francisco, Calif., neither holds speed records over any one of the five sections of the run from an eastern port to the Golden State. Moreover, the *Andrew Jackson* does not appear among the list of ships negotiating any section within four days of the record time, thus indicating that that vessel, with her low average for total length of all passages, must have been a uniformly fast sailer but not given to bursts of extreme speed.

The speed record for each of the five main sections of the westbound passage to California is held by a different ship, and the *Great Republic* is the only one of the five clippers holding a section record that, with her run reported as 92 days in 1856-1857, made an entire passage from an East Coast U.S.A. port in 100 days or less. If the record run of the *Young America* of 15 days 6 hours from pilot to the Atlantic equator on her 96-day run (pilot to pilot) from Liverpool to San Francisco in 1872-1873 is considered over the first section of the course, then the *Great Republic*, with her run of 15 days 19 hours from pilot off Sandy Hook to the line,

is deprived of the distinctive honor in the North Atlantic, and no clipper holding a sectional record made a total passage in better than 96 days from a North Atlantic port to San Francisco.

The *Flying Cloud*, *Flying Fish*, and *Young America* figure prominently in the sectional sailing performances on the westward Cape Horn passage to San Francisco, and their best records as made during their entire careers are set forth herewith in comparison with their best completed single passage and a statement of their lifetime service in the California trade. (In 1883 the *Young America* made a twenty-fifth westward rounding of Cape Horn, but her port of destination was Portland, Ore., and not San Francisco, Calif.)

Section of Course to San Francisco	FLYING CLOUD	FLYING FISH	YOUNG AMERICA
North Atlantic departure (pilot) to equator....	17 days (Sandy Hook)	19 days (Sandy Hook)	15 days 6 hours from Tuskar; 19 days from Sandy Hook
Atlantic equator to Lat. 50° S.....	25 days	23 days	22 days
Rounding the Horn—50° S. Atlantic to 50° S. Pacific	7 days	7 days	6 days
Lat. 50° S. Pacific to equator.....	17 days	19 days	18 days
Pacific equator to Golden Gate (San Francisco) ..	15 days	16 days	16 days
Total of best section runs.....	81 days (Sandy Hook)	82 days (Sandy Hook)	77 days 6 hours from Tuskar; 81 days from Sandy Hook
Actual best complete single passage over course..	89 days	92 days 4 hours, anchor to anchor	96 days (pilot to pilot) from Brit- ain; 102½ days from New York
Total number of westward Cape Horn passages to San Francisco.....	6 (1851-1856)	7 (1851-1857)	24 (1853-1882)
Average length of all passages made during career	115.7 days (port to port)	105.6 days (port to port)	116 days (av. of 23 passages)

During the years 1850-1860 inclusive, seventeen clipper ships made nineteen westbound Cape Horn passages from a North Atlantic U.S.A. port to San Francisco in under 100 days. These "two-figure" passages are recorded chronologically as follows:

Name of Clipper and Tonnage	Length of Passage	Description of Passage	Departure		Arrival at San Francisco
			Port	Date	
SEA WITCH (908 tons)	97	97 sailing days via Valparaiso	New York	Apr. 14, 1850	July 25, 1850
SURPRISE (1,261 tons)	96-15	Sandy Hook to anchorage	New York	Dec. 13, 1850	Mar. 19, 1851
FLYING CLOUD (1,782 tons)	89-21½	Sandy Hook to anchorage	New York	June 2, 1851	Aug. 31, 1851
SWORDFISH (1,036 tons)	90-18	Sandy Hook to anchorage	New York	Nov. 11, 1851	Feb. 10, 1852
JOHN GILPIN (1,089 tons)	93-20	Sandy Hook to pilot	New York	Oct. 29, 1852	Feb. 1, 1853
FLYING FISH (1,505 tons)	92- 4	Anchor to anchor	New York	Oct. 31, 1852	Jan. 31, 1853
DAVID BROWN (1,717 tons)	99-20	Sandy Hook to anchorage	New York	Dec. 13, 1853	Mar. 23, 1854
ROMANCE OF THE SEAS (1,782 tons)	96-18	Boston Light to Golden Gate	Boston	Dec. 16, 1853	Mar. 23, 1854
FLYING CLOUD (1,782 tons)	89- 8	Sandy Hook to pilot grounds	New York	Jan. 21, 1854	Apr. 21, 1854
WITCHCRAFT (1,310 tons)	98	Sandy Hook to anchorage	New York	May 9, 1854	Aug. 15, 1854

Continued on next page.

Name of Clipper and Tonnage	Length of Passage	Description of Passage	Departure		Arrival at San Francisco
			Port	Date	
	<i>Days-Hours</i>				
HURRICANE (1,608 tons)	99-16	Pilot to pilot	New York	May 27, 1854	Sept. 4, 1854
HERALD OF THE MORNING (1,294 tons)	99-12	Pilot to pilot	New York	Feb. 5, 1855	May 15, 1855
ANTELOPE (1,186 tons)	97- 7	Sandy Hook to anchorage	New York	Dec. 8, 1855	Mar. 15, 1856
SWEEPSTAKES (1,735 tons)	94-19	Pilot to pilot	New York	Feb. 20, 1856	May 25, 1856
FLYING DRAGON (1,127 tons)	97	Sandy Hook to pilot	New York	Nov. 27, 1856	Mar. 5, 1857
GREAT REPUBLIC (3,357 tons)	92	Pilot to pilot	New York	Dec. 7, 1856	Mar. 9, 1857
ANDREW JACKSON (1,679 tons)	99-18	Pilot to pilot	New York	Jan. 16, 1858	Apr. 27, 1858
SIERRA NEVADA (1,942 tons)	97	Pilot to pilot	Boston	Dec. 24, 1859	Mar. 30, 1860
ANDREW JACKSON (1,679 tons)	89- 4	Pilot to pilot	New York	Dec. 25, 1859	Mar. 24, 1860

Two other clipper ship passages from New York to San Francisco were reported as "two-figure runs" in the many westbound Cape Horn passages made during the clipper ship decade ending in arrivals at San Francisco in early 1860; these claimed runs were made by the *Contest* (97 days) and *Flying Fish* (98 days 18 hours). However, these passages were evidently each of 100 days duration and are so recorded here. The *Contest* might have shaded 100 days, pilot to pilot, but she was off Sandy Hook November 16, 1852, and passed through the Golden Gate February 24, 1853, 100 days later. The *Flying Fish* took her pilot 100 days 2 hours out from Boston Light, anchored outside the Bar 100 days 6 hours out, and did not enter the harbor until she was 101 days out. The following seven clipper ship passages, generally classed according to custom as 100-day runs, between an East Coast U.S.A. port and San Francisco were made during the 1850's:

Name of Clipper and Tonnage	Length of Passage	Description of Passage	Departure		Arrival at San Francisco
			Port	Date	
	<i>Days-Hours</i>				
FLYING FISH (1,505 tons)	100- 6	Pilot to anchor- age off Bar	Boston	Nov. 6 1851	Feb. 14, 1852
CONTEST (1,098 tons)	100	Sandy Hook to anchorage in harbor	New York	Nov. 16, 1852	Feb. 24, 1853
ORIENTAL (1,003 tons)	100	Anchor to anchor	New York	Jan. 27, 1853	May 7, 1853
WESTWARD HO (1,650 tons)	100-18	Boston Light to anchorage in harbor	Boston	Jan. 13, 1855	Apr. 24, 1855
NEPTUNE'S CAR (1,616 tons)	100-23½	Sandy Hook to anchor	New York	Jan. 14, 1855	Apr. 25, 1855
WESTWARD HO (1,650 tons)	100	Sandy Hook to anchorage in harbor	New York	Dec. 16, 1856	Mar. 26, 1857
TWILIGHT (1,482 tons)	100-20	Pilot to Golden Gate	New York	Jan. 5, 1858	Apr. 16, 1858

Three of the above passages were nearer 101 than 100 days, but it was the accepted practice to speak of a run under 101 days as a 100-day passage. When Captain Creesy made a passage of 89 days 21½ hours in the *Flying Cloud* over the course, he reported the run as 89 days, and it was so accepted.

After the arrival of the *Andrew Jackson* on her record run of 89 days 4 hours and the *Sierra Nevada* on her fast 97-day run at San Francisco on March 24 and 31, 1860, respectively, only two ships—both "half clippers"—made the run from an Atlantic East Coast U.S.A. port to San Francisco in less than 100 days, and this service, being deemed coastwise trade, is restricted to American-built vessels. This is indicative of the letdown in sailing ships from the boom days of the early fifties to the discouraging shipping days of the post-Civil War period. The *Seminole* of 1,439 tons, built by Maxon & Fish at Mystic, Conn., in 1865, arrived at San Francisco from New York March 10, 1866, after a passage of 98 days, and Donald McKay's last ship, the *Glory of the Seas* of 2,009 tons, built at East Boston in 1869, made the run in 96 days, arriving at San Francisco January 18, 1874. However, she had been hove to off the Heads 94 days out from Sandy Hook and on the 95th day was at the San Francisco Bar futilely looking for a pilot, all of whom, because of the heavy sea running, were inside the harbor. The *Young America*, in the winter of 1872-1873, made a famous passage from Liverpool to San Francisco of 99 days, port to port, which was only 96 days from dropping her pilot off the Coningbeg Lightship near Tuskar to anchorage in San Francisco Harbor. The clipper was less than a hundred miles southwest of the Golden Gate when 94 days out, but as the wind turned, she was obliged to beat to port. An outstanding feature of this passage was a run of only 15 days 6 hours from her point of departure to the Atlantic equator and 17 days 13 hours (also reported 17 days 19 hours) to Pernambuco; she was off the Horn (November 29, 1872) 43 days and 12 hours after dropping her English pilot and reached the parallel of 50° S. Pacific when 51 days out. The *Young America* then encountered poor winds, making only 727 miles in 7 days, and crossed the equator when 79 days out. But for light winds in the South Pacific and adverse conditions as she approached the California coast, the *Young America* would have made a passage of 90 or 91 days, pilot to pilot, when she was twenty years old.

Some of the clipper ships made many consecutive slow outward passages in the California trade. The medium clipper *Ellen Foster* of 996 tons, built by Joshua T. Foster at Medford, Mass., in 1852, was supposedly a good sailer; if so, she must have experienced most unfavorable sailing conditions, for the ship made three westward passages from Boston to San Francisco during the period 1855-1862 in 147, 167, and 165 days, respectively, an average of 159.6 days for her three runs. The small Newburyport-built medium clipper *Victory*, launched in 1851, averaged 152 days on all her four passages to California, and the last three (1853-1855) averaged 158.7 days. The last three outward passages to San Francisco of the clipper ship *Alboni* of 917 tons (built at Mystic, Conn., in 1852) were made in 147, 165, and 150 days, respectively, and averaged 154 days. The *Osborne Howes*, a medium clipper of 1,100 tons (built at Medford, Mass., in 1854), which averaged 147 days for her five Cape Horn passages to San Francisco, averaged 153 days for the last three made in 1857-1860, and this ship was supposed to be "a good sailer" and is credited with a day's run of 325 nautical miles.

To illustrate the "uphill" nature of the Cape Horn westward passage from an East Coast U.S.A. port to San Francisco as compared with the eastward passage, it can be noted that whereas the all-time record westward passages are a strong 89 days, the record eastward passages are held by the following two clippers as herewith set forth:

Name of Clipper	Tonnage	Departure		Arrival		Length of Passage
		Port	Date	Port	Date	
COMET	1,836	San Francisco	Dec. 27, 1853	New York	Mar. 14, 1854	76 days, pilot to pilot; 76 days 7 hours, anchor to anchor
NORTHERN LIGHT	1,021	San Francisco	Mar. 13, 1853	Boston	May 29, 1853	76 days 8 hours, pilot to pilot (also reported 76 days 6 hours)

The *Comet* ran from the Golden Gate to Cape Horn in only 35 days 7 hours—an all-time record; whereas the *Northern Light*, with a run of 38 days, holds the second place honors tied with the *Messenger*, which also made the run in 38 days when making her record passage of 82 days (November 1853-January 1854) between San Francisco and Philadelphia. On the run north in the Atlantic, the *Comet* was a day's run from New York in 38½ days; but the wind turned dead ahead, and she was two days beating to Sandy Hook, making a run north in 40½ days. The *Northern Light*, with good favorable winds all the way, made the pilot off Boston Light 39 days from the Horn. The *Flying Mist*, in 1857, is credited with a run from the Horn to New Point, Chesapeake Bay, in 37 days—the record. The *Contest*, on her maiden voyage in 1852-1853, ran from New York to San Francisco in 100 days and made a fast return passage of 80 days 8 hours (Golden Gate to Sandy Hook pilot) and 76 days 4 hours to a point 286 miles from Sandy Hook, where the wind deserted her. That the *Contest* was fast is proven by the fact that although she was 108 days running out on her second westward California passage, she beat such speedy clippers as the *White Swallow*, *John Bertram*, *Atalanta*, and *Wild Ranger* (all arriving at San Francisco October 24-25, 1853) by forty, six, sixteen, and sixteen days, respectively, and on this run, it is said, she ran to the Horn in only 36 days—an amazing sailing performance, if true.

It should be stated, however, that all the above-mentioned fast eastward Cape Horn passages were made by clippers running light and in ballast. The first clipper to take some cargo aboard at San Francisco for the return passage of a California voyage to an East Coast U.S.A. or North Atlantic port was the *Bald Eagle*, which sailed through the Golden Gate March 1, 1854, partially laden with merchandise that she and other clippers before her had taken out to San Francisco. The Pacific Coast markets having become glutted with goods and with imports far exceeding demands, the merchants took steps to discourage the continuance of shipments to be made and reduce stocks on hand by returning some of them to the East. The *Bald Eagle* made a fast eastward passage in 1854 and anchored in New York Harbor May 19 after a passage of 78 days 22 hours from the Golden Gate, which has been heralded as "the fastest eastward run, or a record, for a cargo-laden vessel"—a statement which needs modification. The *Bald Eagle* made this passage very lightly laden and at light draft, with low displacement; indeed it is doubtful as to whether she drew much more water than several of the clippers that returned east in ballast. The record for the fastest eastward Cape Horn passage for a cargo-laden ship is held by the *Young America*, which left San Francisco March 15, 1870, and at 8:00 A.M. on June 4, when less than 81 days out, was 10 miles from Sandy Hook. A thick fog set in, and she had to haul offshore and wait over a day before she could get a pilot and then suffered further delay before anchoring in New York Harbor, which she did, completing a record run of 83 days for a loaded ship reaching an East Coast U.S.A. port from San Francisco. However, this run was 82 days to pilot and only 81 days to Sandy Hook. The next year (1871) the *Young America* made the second fastest eastward Cape Horn passage for a cargo-laden ship when she arrived at New York July 2, 86 days out from San Francisco. The two best passages of the *Young America* from New York outward to San Francisco were made in 102½ and 107 days, respectively, an average of 104¾ days; her two fastest runs eastward (also cargo-laden) were made in 83 and 86 days, respectively, an average of 84½ days. The difference of some twenty days between the best eastward and westward runs is significant and illustrates the easier nature of the eastward, or "downhill," run over the usually more turbulent and "uphill" westward passage.

The following statement records several record or near record runs either between the ports of departure or destination and some intermediate port or between two intermediate ports at which calls were occasionally made on the outward or homeward run in the Cape Horn California trade.

Name of Clipper	Tonnage	Departure		Destination		Length of Passage in Days
		Port	Date	Port	Date	
ADELAIDE	1,831	New York	Jan. 27, 1855	Lat. of Rio de Janeiro	Feb. 21, 1855	25
SEA WITCH	908	New York	Apr. 13, 1850	Valparaiso	June 11, 1850	59
WITCHCRAFT	1,310	Rio de Janeiro	June 10, 1851	San Francisco	Aug. 11, 1851	62
SPARKLING WAVE	655	Montevideo	June 14, 1855	San Francisco	Aug. 14, 1855	61
TELEGRAPH	1,078	Valparaiso	Mar. 9, 1854	Point Reyes (San Francisco)	Apr. 12, 1854	34
RATTLER	1,121	Callao	1878	San Francisco	1878	28
HORNET	1,426	San Francisco	Sept. 4, 1853	Callao	Oct. 7, 1853	33½
SEAMAN	546	San Francisco	Apr. 18, 1851	Valparaiso	May 23, 1851	35
JOHN BERTRAM	1,080	San Francisco	July 5, 1851	Rio de Janeiro	Sept. 2, 1851	58½
SOVEREIGN OF THE SEAS	2,421	Honolulu	Feb. 12, 1853	New York	May 6, 1853	82
N. B. PALMER	1,399	Honolulu	Apr. 23, 1854	New York	July 14, 1854	82
PHANTOM	1,174	Callao	Sept. 16, 1853	Rio de Janeiro	Oct. 18, 1853	32
SEAMAN	546	Valparaiso	1851	Rio de Janeiro	1851	28
DEFIANCE	1,900	Chincha Islands, Peru	Feb. 27, 1855	Hampton Roads, Va.	Apr. 20, 1855	52
OCEAN TELEGRAPH	1,495	Callao	Apr. 28, 1855	New York	June 25, 1855	58
TELEGRAPH	1,078	Valparaiso	June 22, 1853	Boston	Aug. 20, 1853	58
WILD PIGEON	996	Pisagua, Chile	Aug. 31, 1858	New York	Oct. 21, 1858	51
FLYING MIST	1,183	Caldera, Chile	Aug. 23, 1857	New Point, Chesapeake Bay	Oct. 13, 1857	51
WILD PIGEON	996	Talcahuano, Chile	Mar. 9, 1860	New York	Apr. 28, 1860	50

The big extreme clipper *Sovereign of the Seas*, returning from her 103-day passage to San Francisco (August 4–November 15, 1852) on her maiden voyage, went to Honolulu to load whale oil and bone for New York. The homeward passage, reported as 82 days and proclaimed as a record, was highly publicized by the builder, who had the ship for sale, and claims were made of a record day's run. It will be noted that about fourteen months after the "*Sovereign*" made her "wonderful fast record passage," the smaller, fuller, and more conservatively sparred clipper *N. B. Palmer*, built for the China trade, equaled the much-heralded 82-day passage of the *Sovereign of the Seas* from Honolulu to New York and evidently beat the big McKay clipper's time by a few hours. This passage received but little attention, although the run of the *N. B. Palmer* from Honolulu to the Atlantic equator was made in somewhat less than 57 days, which was better than the highly advertised run of the "*Sovereign*" in these waters and over this part of the course. If the "*Palmer*" had not run into light winds and calms in the North Atlantic, which lengthened her run from the line to destination to 25 days, she would have beaten the much talked-of passage of the "*Sovereign*" by many days. Incidentally, the *N. B. Palmer* operated under the American flag successfully for over twenty-two years and, after being sold abroad, was kept in steady service until she was forty-one years old. The *Sovereign of the Seas* was sold to the Germans in 1854 after a single round voyage as an American trader. A chartered voyage in the British-Australian trade gave dissatisfaction to her foreign owners and was so unfortunate that they were evidently relieved to get rid of her when, on a passage from Hamburg to China in 1859, she stranded on the Pyramid Shoal in the Straits of Malacca and became a total loss when seven years old.

The following shows comparatively the sailing performances of clippers on ninety-eight of certain of their westward Cape Horn passages to San Francisco over each of the five main divisions of the course (the Atlantic equator is substituted for Cape St. Roque as the starting

point of the second section of the passage as well as the ending of the first section). These passages are typical, and while the list includes most of the record and near record fast runs, the compilation and analysis of passages cover runs of from 89 to 168 days and, therefore, include representative slow and medium as well as fast passages. Of these ninety-eight passages, fourteen were made in 100 days or less, twenty-nine in from 101 to 110 days, twenty-three in from 111 to 120 days, eleven in from 121 to 130 days, thirteen in from 131 to 140 days, and eight in over 140 days. The range is from the runs of the *Andrew Jackson* and *Flying Cloud*, each in 89 days, to the passage of the *Telegraph* (renamed *Henry Brigham*), which in 1865 made a run of 168 days over the course.

Name of Clipper	Year Built	Tonnage	Year of Passage	Time in Days between Points as Stated					Total Passage in Days
				Sandy Hook to Equator	Equator to 50° S. Atlantic	50° S. Atlantic to 50° S. Pacific	50° S. Pacific to Equator	Equator to San Francisco	
ANDREW JACKSON	1855	1,679	1859-1860	20	23	10	20	16	89
FLYING CLOUD	1851	1,782	1854	17	25	12	20	15	89
FLYING CLOUD	1851	1,782	1851	21	26	7	17	19	90
SWORDFISH	1851	1,036	1851-1852	23	21	8	19	20	91
FLYING FISH	1851	1,505	1852-1853	21	27	7	19	18	92
GREAT REPUBLIC	1853-1854	3,357	1856-1857	16	25	9	23	19	92
JOHN GILPIN	1852	1,089	1852-1853	24	23	11	20	15	93
SWEEPSTAKES	1853	1,735	1856	18	23	15	17	22	95
GLORY OF THE SEAS	1869	2,009	1873-1874	27	22	11	18	18	96
ANTELOPE (N. Y.)	1852	1,186	1855-1856	19	25	10	27	16	97
FLYING DRAGON	1853	1,127	1856-1857	21	24	17	19	16	97
SEMINOLE	1865	1,439	1865-1866	23	22	14	22	17	98
HERALD OF THE MORNING	1853	1,294	1855	18	26	8	27	21	100
FLYING FISH	1851	1,505	1851-1852	19	26	9	23	23	100
TRADE WIND	1851	2,030	1852-1853	22	26	12	25½	16½	102
STAFFORDSHIRE	1851	1,817	1852	25	27	14	17	19	102
YOUNG AMERICA	1853	1,961	1880	19	22	16	22	23½	102½
GREAT REPUBLIC	1853-1854	3,357	1862-1863	23	27	12	22	19	103
REPORTER	1853	1,474	1861	20	27	8	28	20	103
COMET	1851	1,836	1851-1852	26	20	12	29½	15½	103
DAVID CROCKETT	1853	1,679	1871-1872	20	30	12	20	21	103
GOLDEN GATE	1851	1,349	1852-1853	20	22½	11	26½	24	104
FLYING FISH	1851	1,505	1855	25	25	19	20	16	105
GREAT REPUBLIC	1853-1854	3,357	1860-1861	24	27	11	23	20	105
RAVEN	1851	712	1851	25	21	14	24	22	106
FLYING CLOUD	1851	1,782	1853	17	28	9	27	25	106
GOLDEN EAGLE	1852	1,121	1855	22	32	13	19	20	106
FLYING DUTCHMAN	1852	1,257	1853	23	27	8	20	28	106
ROMANCE OF THE SEAS	1853	1,782	1862	20	33	18	15	20	106
N. B. PALMER	1851	1,399	1851	23	25	18	22	19	107

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Name of Clipper	Year Built	Tonnage	Year of Passage	Time in Days between Points as Stated					Total Passage in Days
				Sandy Hook to Equator	Equator to 50° S. Atlantic	50° S. Atlantic to 50° S. Pacific	50° S. Pacific to Equator	Equator to San Francisco	
WESTWARD HO	1852	1,650	1852-1853	29	23	13	23	19	107
BALD EAGLE	1852	1,705	1852-1853	28	22	10	28	19	107
SEA WITCH	1846	908	1852	29	23	18	21	17	108
RED ROVER	1852	1,021	1855	20	28	8	24	28	108
TYPHOON	1851	1,611	1851	27	23	13	25	20	108
JOHN LAND	1853	1,054	1858	18½	28½	15	21	25	108
ELECTRIC	1853	1,046	1854-1855	34½	19	17	20	18½	109
SWALLOW	1854	1,435	1870	25	25	15	22	22	109
SAMUEL RUSSELL	1847	957	1850	20	24	17	29	19	109
SEA SERPENT	1850	1,337	1853	19½	21½	18	23	28	110
SEA WITCH	1846	908	1851	29	22	14	22	23	110
STAG HOUND	1850	1,534	1854	33	27	8	20	22	110
CLEOPATRA	1853	1,562	1854-1855	35	23	12	22	18½	110½
MARY L. SUTTON	1856	1,448	1856	25	32½	9	15½	29	111
RADIANT	1853	1,318	1861-1862	26	34	7	24	20	111
ELIZABETH F. WILLETS	1854	825	1859	21	38	11	17	24	111
RED ROVER	1852	1,021	1855-1856	27	23	13	26	23	112
FLYING CHILDERS	1852	1,125	1852-1853	23	28	12	28	22	113
NEPTUNE'S FAVORITE	1854	1,347	1856	22	24	15	24	28	113
LIVE YANKEE	1853	1,637	1854	34	20	19	16	24	113
GREAT REPUBLIC	1853-1854	3,357	1864-1865	27	30	9	29	19	114
LIGHTFOOT	1853	1,996	1853-1854	24	22	22	25	21	114
BALD EAGLE	1852	1,705	1853-1854	33	20	19	21	22	115
SURPRISE	1850	1,261	1853	19	26	24	18	29	116
WITCH OF THE WAVE	1851	1,498	1853	28	23	19	21	26	117
NOONDAY	1855	1,189	1857	26	26	20	21	24	117
DERBY	1855	1,062	1870	27	20	13	33	24	117
SWEEPSTAKES	1853	1,735	1854-1855	31	26	10	18	32	117
SURPRISE	1850	1,261	1854	18	23	18	26	33	118
ELIZABETH F. WILLETS	1854	825	1855	28	29	11	22	28	118
UNION	1851	1,012	1852	25½	30	15	20½	28	119
COEUR DE LION	1854	1,098	1855	24½	28½	11	24	31	119
PAMPERO	1853	1,375	1860	23	28	20	21	27	119
GOLDEN GATE	1851	1,349	1854	18	30	16	27	29	120
EUREKA	1851	1,041	1856	26	29	10	31	24	120
PANAMA	1853	1,139	1860	31	26	8	29	26	120
HORNET	1851	1,426	1863-1864	23	30	18	32	18	121
LOTUS	1852	660	1854-1855	30	33	8	27	25	123
HURRICANE	1851	1,608	1853	25	26	19	30	23	123
STAG HOUND	1850	1,534	1852	26	31	12	22	33	124
HORNET	1851	1,426	1862-1863	30	38	15	21	20	124
DERBY	1855	1,062	1866	34	28	20	24	19	125
NOONDAY	1855	1,189	1859-1860	27	34	21	21	23	126
CHARIOT OF FAME	1853	2,050	1858	22	38	14	20	32	126
YOUNG MECHANIC	1855	1,375	1862	22	25	25	28	27	127

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Name of Clipper	Year Built	Tonnage	Year of Passage	Time in Days between Points as Stated					
				Sandy Hook to Equator	Equator to 50° S. Atlantic	50° S. Atlantic to 50° S. Pacific	50° S. Pacific to Equator	Equator to San Francisco	Total Passage in Days
GODDESS	1855	1,126	1857	31	32	22	23	21	129
GOLDEN RACER	1852	838	1853	35	21	19	21	34	130
WHISTLER	1853	820	1853	32½	27½	10	37	24	131
CLEOPATRA	1853	1,562	1853	24	29	16	34	28	131
EDWIN FORREST	1853	1,141	1858	21	28	10	40	34	133
METEOR	1852	1,068	1860	30	37	15	24	29	135
KINGFISHER	1853	1,286	1869	25	42	12	29	27	135
MORNING LIGHT (of Philadelphia)	1853	938	1853-1854	38	24	25	25	24	136
OSBORNE HOWES	1854	1,100	1858-1859	41	39	18	22	16	136
MESSENGER	1852	1,351	1867	25	36	17	27	33	138
MAMELUKE	1855	1,303	1855-1856	39	34	15	26	25	139
SANTA CLAUS	1854	1,256	1861	22	36	21	26	35	140
ELIZABETH KIMBALL	1853	998	1855-1856	25	30	37	21	27	140
MARY L. SUTTON	1856	1,448	1857	35	36	8	21	40	140
POLYNESIA	1852	1,084	1861-1862	42	29	17	27	25	140
TALISMAN	1854	1,237	1859-1860	44	31	20	20	27	142
HURRICANE	1851	1,608	1859	22	38	20	25	37	142
CHARIOT OF FAME	1853	2,050	1860	44	28	23	24	24	143
NOONDAY	1855	1,189	1861	24	49	12	29	32	146
DARING	1855	1,094	1859	30	30	35	20	33	148
WHITE SWALLOW	1853	1,192	1853	51	35	16	19	29	150
LOTUS	1852	660	1856	29	44	20	25	37	155
HENRY BRIGHAM (TELEGRAPH)	1851	1,078	1865	35	42	21	40	30	168

The Effect of Season of the Year upon the Length of Westward California Passages

Between August 21, 1851, and April 28, 1852 (about eight months), fifteen of the thirty-two clippers sailing from East Coast U.S.A. ports to San Francisco (with departures from May 6, 1851, to January 10, 1852) arrived at their California destination with passages of 110 days or less to their credit. The best runs were the *Flying Cloud's* 89 days 21½ hours and the *Swordfish's* 90 days 18 hours, and the average of the fifteen fast passages was 104¾ days. It has been said: "In the early fifties about one-fifth of the entire clipper fleet engaged in the California run were making passages around the Horn in the excellent time of 110 days or less." The performance during the eight-month period above mentioned, when 47 per cent of the total westward clipper passages from East Coast U.S.A. ports to San Francisco were made in 110 days or better, is a record, without parallel, in sailing ship annals.

The following is a recapitulation of clipper ship passages from eastern ports to San Francisco (1850-1860 inclusive):

Year of Leaving Eastern Ports	Total Number of Voyages Recorded	Number of Passages of 110 Days or Less	Percentage of Passages of 110 Days or Less to Total
1850	24	7	29.17
1851	48	12	25.00
1852	117	18	15.39
1853	150	23	15.33
1854	110	10	9.09
1855	122	12	9.84
1856	100	14	14.00
1857	67	6	8.96
1858	97	6	6.19
1859	86	8	9.30
1860	67	9	13.43
Total—1850 to 1860 inclusive	988	125	12.65

The season of the year in which a passage was made had a great effect upon the length of runs of sailing ships in the California trade. The following table has been compiled as a compact recapitulation of statistics on westbound Cape Horn passages between an East Coast U.S.A. port and San Francisco as recorded by Maury in 1854. As here arranged, neither the total averages for the entire passages nor the comparison of sailing performances per month are true averages because (1) the number of ships studied varied through three different sections of the total course and (2) the month stated for the run to the Atlantic equator is that in which each ship sailed from a North Atlantic port. For rounding the Horn and the run from the parallel of Cape St. Roque south, the month reported by Maury is presumably that in which a ship crossed from the Atlantic to the Pacific; in the run up the Pacific from 50° S. to the equator, the month stated is that in which the parallel of 50° S. was crossed; and for the run from the Pacific equator to the Golden Gate, the month used by Maury was that in which each ship crossed the line.

Month	No. of Ships	From North Atlantic U.S.A. Port in Days		From Cape St. Roque to 50° S. Pacific in Days			From 50° S. Pacific North in Days			Average from North Atlantic Port to San Francisco in Days
		To Atlantic Equator	To Cape St. Roque	No. of Ships	From Cape St. Roque to 50° S. Atlantic	From 50° S. Atlantic to 50° S. Pacific	No. of Ships	To Equator	To San Francisco	
Jan.	16	28	31	10	26.5	16.4	18	27.7	52.7	126.6
Feb.	26	27.7	30.3	11	28	16	29	28.8	53.2	127.5
Mar.	18	27	30	10	26	18.4	25	29.6	56.4	130.8
Apr.	9	26	29.3	12	30.8	16.5	19	30.2	61.5	138.1
May	14	33.2	36.5	15	28.5	17.6	38	30.3	60.7	143.3
June	10	29.2	32.1	11	27.1	15.9	23	31.1	63.5	138.6
July	10	33	36.5	10	26.5	18.7	10	29.4	57.6	139.3
Aug.	11	30.5	32.8	10	32	15.5	13	27.3	61.3	141.6
Sept.	8	38	40.4	10	28.1	16.3	10	24.4	53.2	138.0
Oct.	8	32.8	35.8	10	27.3	20.5	15	25.7	50.3	134.1
Nov.	25	28.6	31.5	10	24.8	19.3	14	24.7	49.4	125.0
Dec.	21	25.1	29.9	11	25.8	14.3	15	25.7	49.8	119.8
Average for year	14.7	29.1	32.2	10.9	27.7	17.1	19.1	28.5	56.5	131.5

The following statement has been compiled from published records of sailings and length of westward Cape Horn passages in the California trade to show the effect of the time

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of the year in which the passages were made upon the making of fast runs from East Coast U.S.A. ports to San Francisco, the universal port of destination:

Period of Time of Departures from East Coast Ports		Total Number of Passages Recorded	Number of Pas- sages of 110 Days or Less	Percentage of Passages of 110 Days or Less to Total
From	To			
July 7, 1853	Oct. 4, 1853*	34	0	0.
Oct. 5, 1853	May 9, 1854**	61	17	27.8
May 10, 1854	Nov. 12, 1854*	51	0	0.
Nov. 13, 1854	Feb. 24, 1855**	49	8	16.4
Feb. 25, 1855	Dec. 5, 1855*	86	3	3.5
Dec. 6, 1855	Apr. 5, 1856**	40	13	32.5
Apr. 6, 1856	Oct. 3, 1856*	52	0	0.
Oct. 4, 1856	May 30, 1857**	54	10	18.5
May 31, 1857	Nov. 14, 1857*	25	0	0.
Nov. 15, 1857	Apr. 3, 1858**	39	8	20.5
Apr. 4, 1858	Dec. 22, 1858*	63	0	0.
Dec. 23, 1858	Jan. 23, 1859**	9	2	22.2
Jan. 24, 1859	Nov. 2, 1859*	67	0	0.
Nov. 3, 1859	Feb. 7, 1860**	23	9	39.1
Feb. 8, 1860	Oct. 23, 1860*	43	0	0.
Oct. 24, 1860	Dec. 31, 1860**	15	6	40.0

* Period of slow passages.

** Period of fast passages.

During 1858, 1859, and 1860, there were periods of 262 days, 282 days, and 258 days, respectively, when not a single ship made a passage from an eastern port around the Horn to San Francisco in 110 days or less. From April 4, 1858, to December 31, 1860, only winter periods of 31 days, 96 days, and 68 days, respectively, saw such fast passages made, the number being seventeen in the winter period aggregating 195 days. Out of a total of 997 days ending December 31, 1860, there were 802 days, or 80.5 per cent, that saw no passages commenced that were completed in 110 days or under.

The effect of the season of the year on the length of westward passages from East Coast U.S.A. ports around the Horn to San Francisco and on the possibility of making fast runs on such passages is illustrated herewith by a record of the number of fast clipper ship passages to California made during the years 1850-1860 inclusive with sailings from East Coast ports during each of the twelve months of the total period covered by the survey—which was the real clipper ship era:

Departures from East Coast U.S.A. Ports during the Month of	Passages of					
	100 Days and Under		101 to 105 Days		110 Days and Under	
	Number for the Month	Percentage of Entire Year	Number for the Month	Percentage of Entire Year	Number for the Month	Percentage of Entire Year
January	1	5.9	8	25.0	19	15.2
February	1	5.9	1	3.1	7	5.6
March	0	—	0	—	3	2.4
April	1	5.9	1	3.1	8	6.4
May	1	5.9	2	6.3	7	5.6
June	1	5.9	0	—	3	2.4
July	0	—	1	3.1	4	3.2
August	0	—	1	3.1	5	4.0
September	0	—	0	—	1	0.8
October	2	11.7	4	12.5	16	12.8
November	2	11.7	7	21.9	21	16.8
December	8	47.1	7	21.9	31	24.8
Total	17	100.0	32	100.0	125	100.0

Dividing the years into three periods of four months each, we find that the fast passages around the Horn from eastern United States ports to San Francisco during the years

1850-1860 inclusive were made in the winter months, with the voyages commencing at eastern ports during October, November, December, and January.

Four-Month Periods for All Years 1850-1860	Percentage of Fast Voyages Made during Each Four-Month Period		
	Passages of 100 Days and Under	Passages Over 100 But Not Over 105 Days	All Passages of 110 Days and Under
February, March, April, and May.....	17.7	12.5	20.0
June, July, August, and September.....	5.9	6.2	10.4
October, November, December, and January.....	76.4	81.3	69.6
Total	100.0	100.0	100.0

Of 125 voyages of 110 days and under, 87 were negotiated commencing at eastern ports in the months of October, November, December, and January. Of 17 voyages made in 100 days and under, 13 were made commencing at eastern ports in these same four winter months, and of 32 voyages made in over 100 days but in less than 106 days, 26 were commenced at eastern ports in October, November, December, and January.

The GREAT REPUBLIC—the World's Largest Clipper Ship

The *Great Republic*, heralded as Donald McKay's masterpiece, was the largest wood sailing ship ever built (excluding the timber ship *Baron of Renfrew* of 5,294 tons, which was not a real seagoing ship but a shaped raft fitted with spars and sails to carry it with favoring westerlies across the Atlantic to a British market). The *Great Republic* was constructed by McKay at his own expense on speculation, with the British-Australian emigrant (and freight) as well as the California trade conspicuously in mind. He succeeded in borrowing money to augment his own private fortune to build this ship when, from the start, the shipping fraternity declared that she was "too large to pay" and would "bankrupt her owners." At the time of her building, much was written of the bigness of the *Great Republic*, and she was highly advertised by McKay and ardent Boston enthusiasts as "one of the wonders of the world." Contemporary newspapers said that she had four decks, would carry 6,000 tons dead-weight, and had "a height of 285 ft. from keel to truck"; that in her construction had been used "3,500 tons of white oak, 1,500,000 ft. of hard pine, over 326 tons of iron, and 56 tons of copper (exclusive of sheathing metal)." We are told of her tremendous spars; that "she spread 15,653 yards of duck" and "was provided with a 15-horsepower engine to assist a crew that would total about 130 men and boys to handle the sails" and cargo.

The *Great Republic* was launched October 4, 1853, in the presence, it was stated, of "the largest number of people to witness such an event in this or any other country." One enthusiastic report says: "The launch was a public holiday, and 60,000 people gathered to see the vessel take the water." Another says that 30,000 people packed the shipyard and vicinity to see the biggest ship ever built go overboard, and still another description of Boston's great event says: "At the time of the launch, there must have been some fifty thousand spectators who crowded the yard and adjacent streets; other vantage points were Chelsea Bridge, the Navy Yard and the buildings and wharves at the north end of Boston." When completed, the big ship had not been sold in spite of McKay's highly organized advertising; so her builder-owner decided to send the vessel to New York, where the Empire State shipowners could view her and, if a sale was not made, then across the Atlantic to Liverpool, where

efforts would be made to sell her to one of the British-Australian packet lines. The new ship was placed in command of Donald McKay's brother, Lauchlan McKay, who had been the skipper on the *Sovereign of the Seas* on her maiden voyage. Lauchlan was primarily a shipwright, whose experience at sea had been in the U. S. Navy as a carpenter. The *Great Republic* left Boston in tow during the latter part of November and moored to a New York pier on the East River to load for Liverpool. It is said that she took "a cargo of provisions aboard valued at \$300,000." The impressive new "Giant of the Seas," unquestionably the "largest ship afloat," was thrown open to the public for inspection; a crew of the number as planned by McKay was engaged, the sails bent, and it was the intent to sail "this magnificent vessel inaugurating a new era on New Year's Day 1854."

At midnight on December 26, 1853, however, a great conflagration broke out in the plant of the Novelty Baking Company on the New York water front (242 Front Street), and blazing cinders carried by a strong wind to the wharf where the *Great Republic* lay set fire to the vessel. Belated efforts were made to save the ship, her masts were cut away, and she was scuttled; but the vessel was deep and the water shallow (there being only one or two feet of water under her keel), and all her upper works were burned to the water's edge. The ship was condemned and given up to the underwriters. The reports of the ship's cost and value and of McKay's loss vary greatly. One says that "the vessel represented an investment by Donald McKay of nearly \$300,000"; that he "confidently expected to realize a fortune from her" and "a few days before the fire had refused an offer of \$280,000 for the ship." This sounds like Boston-exaggerated publicity. Another source says that McKay had placed a price of \$250,000 on the vessel, that she had cost him \$225,000 to build, and that the ship, equipment, cargo and supplies when burned represented a value of nearly \$600,000. The insurance carried was \$180,000 on the vessel and \$275,000 on the cargo. Therefore, it is impossible to estimate the loss to McKay as builder, owner, and operator, but it is probable that he was personally "hit hard by the loss." Fortunately, McKay had recently established business relations with James Baines, of Liverpool, and the demand for new large clipper tonnage for the British-Australian trade in 1854 "lessened the effect of the blow."

Another clipper ship that caught fire on December 26, 1853, from sparks from the conflagration on shore that so seriously burned the *Great Republic* was the handsome and very fast *White Squall* of 1,109 tons, built by Jacob Bell in 1850 and modeled somewhat after the lines of the *Samuel Russell* and *Oriental*. Mate Poole cut the moorings of the *White Squall* when the wharf where the vessel lay caught fire from the burning Front Street bakery during a heavy wind. However, before she drifted and could be towed clear of the burning docks and the *Great Republic*, the *White Squall* was on fire, and when she finally grounded at the foot of Hudson Street, the ship burned to the water's edge. The vessel was sold "as she lay" by the underwriters for \$5,500; she was raised and rebuilt as a one-decked bark of 896 tons, but the glory of the ship was passed. In 1854-1856, the reconstructed *White Squall* made pathetic attempts to make a passage from New York to San Francisco. She sailed from New York December 22, 1854, put back for repairs, and sailed again February 17, 1855. She went into Rio de Janeiro dismasted and in distress on March 25 and returned to New York in February 1856 after repairs; she was refitted, loaded, and again sailed for California, but in September 1856 she put into Montevideo in distress once more, with all hopes abandoned for continuing the voyage. She was sold to the French and renamed the *Splendide* (hailing port, Marseilles).

The clipper ship *Red Rover* of 1,021 tons, loading at New York for her second voyage to California, was damaged to some extent by this fire, and a fourth vessel, the full-bodied trading ship *Joseph Walker*, was destroyed in this destructive fire of December 26, 1853, on the New York water front and docks.

The wreck of the once proud *Great Republic* was sold by the underwriters to the firm of A. A. Low & Bro., New York, which placed the vessel with Sneed & Whitlock, ship-builders, at Green Point, Long Island, for reconstruction under the direction of Capt. "Nat"

Palmer. A. A. Low & Bro. was a very competent and experienced ship-operating company, having owned such famous and successful clippers as the *Samuel Russell* (1847), *Oriental* (1849), *Surprise* (1850), *N. B. Palmer* (1851), *Contest* and *Jacob Bell* (1852), and *David Brown* (1853). The *Great Republic* was originally built with four decks, the upper being a light spar deck. In reconstruction the fourth deck was eliminated and high bulwarks built above the main, which became the new upper, or weather, deck. The mainmast of the original vessel measured 131 ft. long and was 44 in. in diameter; it was shortened 17 ft. in rebuilding. The main yard, which was originally 120 ft. long and 28 in. in diameter, was reduced in length during reconstruction to 100 ft. and the lower foreyard cut from 110 ft. to 90 ft. All other spars and the area of the sails were reduced in somewhat similar proportions. THE MONTHLY NAUTICAL MAGAZINE, the leading contemporary shipping journal, published in New York, said in an article on the *Great Republic*: "We regard her as deficient in breadth to spread the rigging sufficiently, to say nothing of stability for the due security of the enormous propulsive power with which she was originally provided. Her masts have been shortened in consequence. We do not regard her model as equal to those of the *Flying Cloud* or *Sovereign of the Seas* by the same builder, Donald McKay, of Boston." Even later-day Massachusetts marine historians have admitted that Donald McKay overreached himself in the building of the *Great Republic*, and this in more ways than one. Undoubtedly, he let his imagination run away with him and, with a great urge to produce an outstanding monument of his constructive art, created at great expense an unprofitable and, therefore, unsalable ship. Howe and Matthews, the Massachusetts historians, commenting on the disaster that befell the *Great Republic* as designed and built by Donald McKay, have written: "That she would have proved a profitable ship is very doubtful, for the cost of running her was estimated at \$10,000 a month and her great draft would have obliged her to lighten her cargo at most ports."

The *Great Republic* was a "jinx ship," even after her extreme design had been modified and materially rationalized by reconstruction. The original, official government measurements say that as she left the hands of her builder to load for her maiden voyage she was of 4,555 tons register, with the prime dimensions stated as, "length 335 ft., beam 53 ft., depth 38 ft." After reconstruction, following her partial destruction by fire before she ever moved under her own canvas, the official measurements given are materially different; viz., "length 302 ft., beam 48.4 ft., depth 29.2 ft.; registered tonnage 3,357." The change in depth and tonnage is accounted for by the elimination of the spar, or upper weather, deck, but why should such changes as were made in rebuilding the vessel reduce her length 33 ft. and her beam 4.6 ft.? Her hull below water was thoroughly repaired, but the model naturally remained unchanged. The *Great Republic*, as designed, was too large a vessel for her day—too big for harbors and for handling. Also, she had spars and a sail spread too large for practical use and safety, not to mention economy. Wise men salvaged the design as well as the vessel herself, but they could not make a successful operating ship out of what McKay, with his imaginative flights and stubbornness, had given them to work with. She was an extreme clipper and very sharp-lined under water, with large internal volume in the high "upper works." If fully loaded with average cargoes, she naturally went to deep draft (about 26 ft.), and from her maiden voyage onward the operation of the ship was seriously handicapped by depth of water in the harbors that she sought to enter in trade.

Donald McKay designed and built the *Great Republic* without any regard to (1) limiting conditions affecting overseas trade due to depth of water, width of dock entrances, size and nature of available cargoes; and (2) economy of operation and net return on invested capital. The vessel as rebuilt before her first voyage was not a practical operating ship with which to make money in trade on the Seven Seas. However, if she had gone into service as originally designed and constructed with an additional spar deck, a main yard of 120 ft., a mainmast of 131 ft., and well over 100 able seamen (in addition to boys, etc.) in the crew to man her (instead of 52), the result would have been disastrous to the vessel and the reputation of the famous man who conceived and built her and who was solely responsible for

her construction, for no practical owner and operator of ships would have anything to do with her.

McKay originally planned "to put a crew of from 100 to 120 seamen with an additional 30 boys on the vessel" and stated that this number would be necessary to handle the tremendous sails. When the ship was refitted and put into actual service, the spars and canvas had been so greatly reduced that she was operated with less than half the crew originally planned. (Later, Arthur Sewall & Company operated four-masted shipentines that carried more cargo than the *Great Republic* with about one-quarter the crew originally signed for the big McKay clipper and one-half the number carried on the reconstructed vessel.) A. A. Low & Bro. placed Capt. Joseph Limeburner of the fast clipper *Samuel Russell* in command of the *Great Republic*, and he remained in the ship until 1864. Clearing from New York for London February 21, 1855, she made her first voyage under sail and was reported by Captain Limeburner to have sailed February 24 and to have been 13 days to Scilly. The log shows the mileage as 3,241 nautical miles for 15 full days' sailing from Sandy Hook to noon of March 11, when she was in the midst of the English Channel (and some distance from the Thames River). Captain Limeburner waxed unduly enthusiastic in his writing, for he added, "The ship can easily make 400 miles in 24 hours." No sailing vessel ever built could "easily make" the distance of 400 nautical miles through the water in a day or attain the average speed involved of $16\frac{2}{3}$ knots per hour for twenty-four consecutive hours. To cover such mileage, all conditions must be amazingly propitious and "Old Lady Luck in command."

Although Captain Limeburner reported that the *Great Republic* was 12 miles from the Isle of Wight (and as far as his records go the voyage was ended) on March 11, the vessel did not reach Gravesend until March 15. Then she was required to lay off Bosherville for several days waiting for spring tides, so that she could go "higher up the river and discharge into lighters, as none of the entrances of the docks are wide enough to admit her." A contemporary writer says, "The *Great Republic* was slated to sail from New York to Liverpool, but it was found that she would draw too much water to permit her to enter the Mersey at the height of the tide." Here she commenced to encounter troubles that harassed her throughout her career, all of which had been foretold by experienced American shipbuilders and ship-owners. Owing to her great draft, she was unable to dock on the Mersey, and when she was sailed to the Thames River to unload, there was not a dock in London that could take her. She had to anchor well out and discharge her cargo into lighters.

It would seem that A. A. Low & Bro. was fortunate in being able to charter the *Great Republic* to the French Government for transport service, and she carried troops and stores to the Black Sea during the Crimean War. Her first passage with troops is said to have been a run from Liverpool to Marseilles with "1,600 British troops aboard," but with no cargo in the holds and "floating quite light when she crossed the Mersey Bar." It is said that the French charter paid the owners of the ship 17 shillings per ton per month and that in January 1856 the *Great Republic* was at Marseilles loading stores for the Crimea in company with the American ships *Monarch of the Seas*, *Ocean Herald*, *Queen of Clippers*, and *Titan*. After several Mediterranean voyages in the French Army service, the big ship returned to New York in the late fall of 1856. Her owners decided to place her in the California Cape Horn trade, she having been "particularly re-designed for either the British-Australian or New York-San Francisco passenger and freight service." It is said that, before the vessel joined the Cape Horn fleet, her jigger mast was removed and she was converted from a four-masted shipentine into a full-rigged clipper ship and a "typical three-skysail yarder."

On the first voyage to California, the *Great Republic* cleared from New York December 5, 1856, with a reported "5,000 measurement tons" (not deadweight) of mixed cargo aboard. Captain Limeburner reported:

Sailed from New York December 7, 1856. hours from thence to the line. On the fifth day out
Dropped pilot outside Sandy Hook Lightship at traveled 413 miles, 360 of which were covered at
3:00 P.M. and made a record run of 15 days 18 the rate of 19 knots. Passed Cape San Roque 19

days 14 hours out; was off the pitch of the Horn in 45 days 7 hours and sailed around the Cape with skysails set. A week later crossed 50° S. in the Pacific. Crossed the equator in 118° W. on February 17, 1857, and was within five hundred miles

of the Golden Gate on the eighty-seventh day out from Sandy Hook. Calms and fogs delayed the vessel, but she entered the Golden Gate 92 days out from New York.

The *Great Republic*, on her maiden Cape Horn run, is credited with "the fastest passage to California of any ship sailing from an East Coast United States port during a long period of time." The *Sweepstakes* of 1,735 tons (Captain Lane), built in 1853 by Daniel and Aaron Westervelt, New York, left New York February 20, 1856, and was at the Golden Gate on May 24 after a passage of 94 days 19 hours, pilot to pilot, and 95 days, dock to dock. Following the fast run of the *Sweepstakes*, there was no run to challenge that of the *Great Republic*, which was a reported 92 days from Sandy Hook to the Golden Gate, until the *Andrew Jackson* (1,679 tons), sailing from New York on December 25, 1859, reached San Francisco on March 24, 1860, and established by this passage an all-time record of "89 days and 4 hours from New York to San Francisco" (three years fifteen days after the *Great Republic* of 3,357 tons had made her fast run reported as 92 days). The relatively small Maine-built clipper *Flying Dragon*, however, sailed from Sandy Hook ten days before the *Great Republic* and, although experiencing bad weather off the Horn and taking almost twice as long (or eight more days) to run from 50° S. Atlantic to 50° S. Pacific than the big McKay clipper of three times her size, outsailed her big opponent in the run up the Pacific from Lat. 50° S. to port. A comparison of the abstract logs and sailing performance (over all and the various parts of the course) of the *Great Republic*, *Sweepstakes*, *Flying Dragon*, and *Andrew Jackson* is of interest:

	SWEEPSTAKES (1,735 tons)	FLYING DRAGON (1,127 tons)	GREAT REPUBLIC (3,357 tons)	ANDREW JACKSON (1,679 tons)
Departure from New York.....	Feb. 20, 1856	Nov. 27, 1856	Cleared Dec. 5, 1856; dis- charged pilot Dec. 7, 1856.	Dec. 25, 1859
Sandy Hook to Atlantic equator.....	18 days (18 days 8 hrs.)	21 days	16 days (15 days 18 hrs.)	20 days
Equator to 50° S. Atlantic.....	23 days	24 days	25 days	23 days
Rounding the Horn (50° S. Atlantic- 50° S. Pacific).....	15 days	17 days	9 days*	10 days
50° S. Pacific to equator.....	17 days	19 days	23 days*	20 days
Pacific equator to San Francisco.....	21 days	16 days	19 days	16 days
Length of passage from New York to San Francisco	Pilot to pilot, 94 days 19 hrs.; anchor to anchor, 95 days; land to land, 93 days 23 hrs.	97 days	92 days	89 days (89 days 4 hrs.)
Arrival at San Francisco.....	May 25, 1856	Mar. 5, 1857	Mar. 9, 1857	Mar. 24, 1860
Sandy Hook to 50° S. Atlantic.....	41 days	45 days	41 days	43 days
Sandy Hook to 50° S. Pacific.....	56 days	62 days	50 days	53 days
Sandy Hook to Pacific equator.....	73 days	81 days	73 days	73 days
50° S. Pacific to Golden Gate.....	38 days	35 days	42 days	36 days

* Captain Limeburner also reported 11 days rounding the Horn and 21 days from 50° S. Pacific to the line, but in both of his contradicting statements the time to 50° S. Atlantic and to the Pacific equator is the same; i.e., 41 days and 73 days, respectively.

In the North Atlantic, the *Great Republic* had the advantage of a favorable gale which the other clippers did not enjoy, and the size of the "*Republic*" permitted her to take full benefit of its unusual driving power in the desired direction. The best wind that the *Sweep-*

stakes encountered in the North Atlantic gave her a day's run of 301 miles, while the *Great Republic* reported 413 miles on her fifth day out from New York. The big Boston-built ship is reported to have "passed Cape St. Roque 19 days 14 hours out"; this is slow sailing from the line, being 3 days 20 hours as against 2 days as a good average, and suggests that the time from New York to the line, stated as 15 days 18 hours, might have been favored somewhat in record-making enthusiasm at the expense of the following leg. The *Sweepstakes* gained two days on the *Great Republic* in the run down the South Atlantic, and even though the southeast trades were light, she made 286 miles in one day. However, the bigger vessel had all the best of it rounding the Horn, and she was fortunate in not experiencing the westerly gales and heavy seas that the New York-built ship had to buck steadily between 50° S. Atlantic and 50° S. Pacific and that were of such force that the *Sweepstakes* was required to heave to for several days. Captain Lane reported, "Passed Cape St. John, Staten Island, 44 days out and saw the Horn, 30 miles distant, on the 52nd day." Captain Limeburner reported his ship as passing "the longitude of Cape Horn in 45 days 7 hours" from Sandy Hook, "coming round with skysails set," and being "52 days from Sandy Hook to 50° S. Pacific." This does not check with his abstract log as published, which gives the run as 50 days between the points stated, but this two days' discrepancy of statement is balanced on the run in the South Pacific, for Captain Limeburner wrote, "Crossed the equator in the Pacific on February 17 in 118° West 21 days from 50° South and 73 days out." The log of the *Sweepstakes* covering this leg of the course shows, "From 50° South Pacific to the line had good to light trades, being 17 days on the run with 306 miles as the best day." (Incidentally, this was one of the best sailing performances on record in the annals of sail over this part of the course, being beaten on only five occasions, and ties the best all-time sailing performance of the *Flying Cloud* in the South Pacific.)

On the final leg of the course, the *Great Republic* enjoyed splendid sailing conditions, and after 14 days she was only 500 miles off the Heads; the vessel required 5 days to cover this distance, as she ran into light airs and some fog. The *Sweepstakes*, on the other hand, encountered northerly winds after crossing the equator, and Captain Lane wrote: "The trades forced us too far to the westward, and our prospects for making a 90-day passage, which were good when we crossed the line, were spoiled." On May 24, the *Sweepstakes* "made land three miles distant about 40 miles south of San Francisco"; however, the next twenty-four hours had to be spent "bucking a strong northwest gale, but the ship anchored in the Bay at 3:00 P.M., May 25, after a passage of 94 days and 19 hours, pilot to pilot, 93 days 23 hours, land to land, and 95 days, anchor to anchor." On these passages, the ships were well loaded, but the *Great Republic*, whereas carrying a big measurement cargo, was not loaded nearly as deep, in proportion, as the *Sweepstakes*. The big McKay clipper was drawing 24 ft. of water, which was 82 per cent of her measured depth of hold (as rebuilt—and only 63 per cent of the depth as originally built), while the much smaller *Sweepstakes*, loaded to a mean draft of 22 ft. 8 in., was actually down in the water (with 2,400 tons of cargo aboard) equivalent to 1.03 times her registered depth of hold.

It is evident that sailing conditions generally were very favorable for good westward passages to California when the *Great Republic* and *Flying Dragon* made their fast runs over the course between November 1856 and March 1857. Arthur H. Clark, in *THE CLIPPER SHIP ERA*, says that during this period the *Westward Ho* and *Andrew Jackson* each made a westward California passage of 100 days, and other records give the average length of five clipper passages made about this time as 98½ days.

The draft of water of the *Great Republic* handicapped her in discharging at San Francisco, and the dimensions of the ship would have caused her to have experienced difficulty in getting any kind of paying cargo in the Orient for her passage home, so she sailed to Peru for Chincha Islands guano and made the run from San Francisco to Callao in 54 days. On the return Cape Horn passage of her maiden voyage in the California trade, the *Great Republic*, running eastbound from Callao to London, was badly battered off Cape Horn. The

seas stove in her bulwarks and deck between the fore- and mainmasts and smashed several main deck beams; a great deal of water was taken aboard, and the ship started leaking. She put into the Falkland Islands September 8, 1857, "with her holds half full of water," and after repairs and the replenishing of stores, she continued her passage, but did not arrive at London until January 11, 1858. She was then "obliged to lighter part of her cargo before she could enter the Victoria Dock, her draft being 25 feet and 6 inches while the dock admitted only 24 feet." It is said that the eastward passage of the *Great Republic* from San Francisco to London occupied 287 days, of which some 190 days were spent at sea and the balance as detention at Peru for cargo (about 32 days) and at Port Stanley, Falkland Islands, for repairs (about 65 days).

The *Great Republic* did her best work in the East Coast-to-California run, where her size helped her to perform well. The following is a record of all her six westbound passages in the around-the-Horn service, based on both elapsed time (clearance to entry) and the length of her runs as reported and as here recorded:

Voyage No.	Sailed from New York	Arrived San Francisco	Length of Passage in Days		
			Elapsed Time	As Claimed	As Recorded
1	Dec. 5, 1856	Mar. 9, 1857	94	92	92
2	Aug. 30, 1858	Dec. 28, 1858	120	120	120
3	Nov. 23, 1859	Mar. 12, 1860	110	110	110
4	Oct. 23, 1860	Feb. 6, 1861	106	104	105
5	Nov. 23, 1862	Mar. 6, 1863	103	102	103
6	Oct. 23, 1864	Feb. 15, 1865	115	114	114

The average length of the six passages, as recorded, is 107.8 days.

Returning eastbound around the Horn, the *Great Republic* is credited with three passages in ballast from the Golden Gate to Sandy Hook in 100, 98, and 120 days, respectively, an average of 106 days; also one passage with grain to the Mersey in 96 days (pilot to pilot). She made two return passages by way of Callao, Peru, where she loaded guano for London. As before stated, the first of these was disastrous, and the ship nearly foundered after passing Cape Horn. The second of these guano voyages was to London via Queenstown, and it was on this passage that her command claimed, "The ship logged $19\frac{3}{4}$ knots for several hours in the North Atlantic with the wind abaft the beam and topmast stunsails set."

On her first eastward-bound Cape Horn passage from San Francisco to New York, the *Great Republic* sailed from the California port February 10, 1859, in company with the medium clipper *Talisman* of 1,237 tons, and this Maine-built ship, with a 96-day passage, soundly defeated the big McKay clipper by four days on the run to New York. The *Talisman* arrived at New York May 18 and the *Great Republic* on May 22, 1859. It is evident that the sailing record of the *Great Republic* on her eastbound Cape Horn passages is not as good as on the westbound runs, although her grain passage from the Golden Gate to the Mersey in 1861 was a very creditable sailing performance.

On her second passage to San Francisco in 1858, the *Great Republic* was 41 days reaching the equator instead of 16 days as on her first trip over this route; but she is credited with making the run from Sandy Hook to the Golden Gate in 120 days, her time from the equator in the Atlantic to San Francisco being 79 days as against 76 days on her first voyage. The *Great Republic* sailed from New York August 30, 1858, in company with the *Adelaide*, a medium clipper packet of 1,831 tons, built in 1854 by A. C. Bell for Thomas Wardle, New York, and the transatlantic trade. The *Adelaide* made four Cape Horn westbound passages in the years 1855-1858 during the clipper ship era, averaging $124\frac{1}{2}$ days. She was not particularly fast in this service, although she is credited with some fine sailing in the early sixties in the North Atlantic trade for which she was designed, a record run of 25 days (January 28-February 22, 1855) from Sandy Hook to the latitude of Rio de Janeiro, and a 60-day passage from Callao to Hampton Roads in 1859. In the 1858 run out to California, the *Great Republic*

tried "to shake off" the *Adelaide* in the North Atlantic, but could not do so. For eight days they sailed in company, neither ship gaining any advantage. They then went on different tacks and separated, only to meet, however, over five weeks later off Pernambuco and again to sail in company for a few days before parting once more. Evidently, Captain Limeburner was luckier than Captain Wakeman in his search for wind, for the *Great Republic* reached San Francisco thirteen days ahead of her adversary—not, however, before the *Adelaide* had proven during a period of many weeks that under certain sailing conditions she was just as fast as "or even a little faster" than the much-vaunted *Great Republic*. The medium clipper *Golden Fleece* (2) of 1,535 tons (built in late 1855) sailed from Boston on July 24, or thirty-seven days before the *Great Republic* left New York, and beat her eight days on the run out. There were twenty-three clipper ships sailing from East Coast United States ports for California in 1858 that completed their passages, clearance to entry or port to port, in better than 120 days—which was the reported time made by the *Great Republic*.

On a third run around the Horn westbound, the *Great Republic* is reported to have left New York November 23, 1859, for San Francisco, made a passage of 110 days, and raced the *Ocean Telegraph* (1,495 tons), which reported a passage of only 105 days 20 hours. However, Captain Limeburner acknowledged a beating of only one day and implied that Captain Little was "cheating" on his reported run, as both clippers reached San Francisco the same day and "Little left New York a day after me." The *Robin Hood* of 1,181 tons cleared New York fifteen days after the *Great Republic* and beat the passage of that big clipper to San Francisco by three days, making the run in 107 days. The *Archer* of 1,095 tons cleared New York six days after the *Great Republic* and, upon arrival at San Francisco, reported a passage of 108 days—or two days better than the run of the *Great Republic*. The *Lookout* of 1,291 tons, which arrived at San Francisco from New York on February 20 (three weeks ahead of the *Great Republic*), also reported a passage of 108 days. About a month after the sailing of the *Great Republic* from New York, the *Sierra Nevada*, a New Hampshire-built ship of 1,942 tons, cleared Boston and made a splendid passage of 98 days to San Francisco. However, a week before the "*Nevada*" entered the Golden Gate, the *Andrew Jackson*, which had sailed from New York after the "*Nevada*" had left Boston, arrived at San Francisco, having completed the all-time record passage of 89 days 4 hours. This was twenty-one days better than the 110-day passage of the *Great Republic* completed just twelve days earlier in March 1860.

The *Great Republic* again left New York on October 23, 1860, for San Francisco. She is reported to have crossed the equator 24 days out, rounded Cape Horn 55 days out, sailed between the two 50's—Atlantic and Pacific—in 11 days, crossed the equator in the Pacific on January 16, 1861, 85 days out, and arrived at the Golden Gate February 6, 1861, 106 days from New York. Captain Limeburner reported this passage as a run of 104 days and gave the sailing date as October 24, which, if correct, would make a passage of 105 days. This passage of the *Great Republic* (whether considered as a 106-, 105-, or 104-day run) was not, however, as claimed, "the fastest westward passage in the California trade with departures from East Coast ports in the year 1860." The medium clipper *Mary L. Sutton* of 1,448 tons, built at Mystic, Conn., in 1856, made two sailings from New York for San Francisco in 1860, on January 29 and November 23 (which are both, according to accepted procedure, classed as 1860 outward California passages), and reached her port of destination on May 12, 1860, completing a 103-day passage, and on March 11, 1861, after a run reported as 106 days. On her 103-day passage, the "*Sutton*" ran from New York to the pitch of the Cape in 50 days, but was off the Horn 15 days in bad weather, which was followed by a splendid fast run north in the Pacific. Out of a total of six westward Cape Horn passages to San Francisco, the *Great Republic* made four in 110 days or better—a fine performance; but the *Mary L. Sutton* (a medium clipper that was built to carry well and earn money on her voyages when making good passages and that was only 40 per cent the size of the big extreme McKay clipper) made three of her five westward passages to San Francisco with departures from

New York during the five years 1856-1860 inclusive in 110 days or better and is credited with the fastest passage made in 1860—a run of 1860, which was both originated and completed in that year. Other fast westward passages to California commencing at an East Coast U.S.A. port during the year 1860, besides the two fast runs made by the *Mary L. Sutton* and the fine passage of the *Great Republic*, were as follows:

Name of Clipper	Captain	Tonnage	Departure		Arrival at San Francisco	Length of Passage in Days
			Port	Date 1860		
ROMANCE OF THE SEAS	Clough	1,782	Boston	Dec. 28	Apr. 13, 1861	105½
MORNING STAR	Foster	1,105	Boston	Jan. 7	Apr. 22, 1860	106
SPITFIRE	Leach	1,549	Boston	Dec. 21	Apr. 8, 1861	107
BLACK HAWK (II)	Bowers	1,109	New York	Dec. 21	Apr. 8, 1861	107
HERALD OF THE MORNING	Mitchell	1,294	Boston	Feb. 7	May 25, 1860	108
GOLDEN EAGLE	Swift	1,121	New York	Dec. 7	Mar. 28, 1861	110

It is of interest to note that all of the nine fastest outward passages to California in 1860 had sailings from East Coast ports during the period from October 23 to February 7; one sailing was in late October, one in late November, three in December, two in January, and two in the first part of February. The New York medium clipper *Black Hawk*, built by Webb in 1857 and destined to become one of the greatest of all Cape Horners, made twenty westward Cape Horn runs to San Francisco during the period 1857-1880. Sailing from New York December 21, 1860, she ran an even race with the Maine-built extreme clipper *Spitfire*, which left Boston the same day, and the two ships, after a very good run of 107 days, anchored in San Francisco Harbor within a few hours of each other on April 8, 1861.

Upon arrival at San Francisco in February 1861, the *Great Republic* was fortunate to obtain a grain cargo for Liverpool (for at that time few cargoes of western products were available), and, as before stated, the big clipper made a fine run of 96 days to the Mersey from the Golden Gate, pilot to pilot. At Liverpool the *Great Republic* was unable to book any cargo, so she crossed the Atlantic in ballast, making the passage in 32 days. Upon arrival in New York, the vessel was seized by the U. S. Government because of the fact that five-eighths of her was owned in the Confederate States of the South (Virginia and South Carolina). The firm of A. A. Low & Bro., with its northern friends and associates, got control of the vessel "by buying out the Southerners" and then chartered the ship to the government to be used for transport purposes during the Civil War. It is probable that at no time was A. A. Low & Bro. as a firm financially interested to any substantial amount in the *Great Republic*. The members of this company purchased and reconstructed the burned ship as a speculation, sold shares of her freely with profit to themselves, put one of their good captains in command (Limeburner), and did the best they could with the big ship in the interest of the holders of "fractions," or shares. The *Great Republic* experienced all sorts of difficulties when in government service. During a gale, she went ashore and dragged across the transport *Idaho*, driving that vessel ashore also. Two weeks later, she was again ashore at the mouth of the Mississippi, after which it was decided that the ship drew too much water and was too unwieldy for transport service. Accordingly, she was returned to her owners, and her mercantile passages in the Cape Horn trade were resumed.

Sailing from New York at the end of November of 1862, the *Great Republic* got into a heavy blow and suffered some damage in a gale off Cape Hatteras. It is said that the *Alabama* was on the lookout for the McKay clipper and at one time was sixty miles to eastward of her position; however, the vessels did not meet. The *Great Republic* is credited with a run of 103 days from New York to San Francisco, arriving out March 6, 1863, although Captain Limeburner reported "a fast 102-day passage from Sandy Hook to the Golden Gate." No

cargo was available in San Francisco, and, as on all previous voyages, the ship would not venture to cross the Pacific in hopes of picking up a cargo in China, Manila, or India, so the *Great Republic* made a run in ballast to Callao (43 days), where she loaded guano at the Chincha Islands bound for Queenstown "for orders." She then proceeded to the Thames River, where the guano was discharged, after which she made a westbound crossing of the Atlantic in 27 days, her first voyage in merchant service during the period of the Civil War ending in New York on May 4, 1864.

Captain Limeburner was relieved of his command by Capt. Josiah Paul, and the *Great Republic* made her last California voyage sailing from New York October 23, 1864, and arriving at San Francisco February 15, 1865, after a passage of 114 days (elapsed time, 115 days). The big clipper completed the voyage by a slow passage of 120 days from San Francisco to New York, and this was her last rounding of Cape Horn. On this voyage, which was her last under the American flag, Captain Paul had a great deal of trouble with members of the crew, who, he claimed, were "insubordinate, inexperienced and incompetent"; however, the men claimed that "the big brute was undermanned" and the sailors "driven beyond human endurance." The length of this last Cape Horn passage between New York and California can be compared with what the much smaller and far more practicable clipper ships *Young America* of 1,961 tons and *David Crockett* of 1,679 tons were doing about that time and were going to continue to do in the Cape Horn run for some twenty years after the *Great Republic* had to be withdrawn, as she "could not be made to pay her way." (All the three clippers were built in 1853.) In 1863-1866, the *David Crockett*, with a cut-down rig and a relatively full model, made three westbound passages to San Francisco in 110, 107, and 114 days, respectively, port to port, and returned twice to Liverpool in 100 and 94 days. The *Young America* ran out in 117 days in 1863 and 118 days in 1865, anchor to anchor, and returned on the latter voyage to Liverpool in 108 days, dock to dock.

The following is a comparative record of the first and the last three westward passages of the *Great Republic* between New York and San Francisco and gives the length of run over parts of the course and the length of the entire passages in days. The second passage of the clipper, made in the fall of 1858, was a run of 120 days, the run to the Atlantic equator occupying 41 days, and the third passage, for which complete data are not available, was a run of 110 days made in the winter of 1859-1860.

Part of Course	Runs between Points in Days				Part of Course	Runs between Points in Days			
	1856-1857	1860-1861	1862-1863	1864-1865		1856-1857	1860-1861	1862-1863	1864-1865
Sandy Hook to Atlantic equator	16	24	23	27	Sandy Hook to Atlantic equator	16	24	23	27
Equator to 50° S. Atlantic	25	27	27	30	Sandy Hook to 50° S. Atlantic	41	51	50	57
Rounding the Horn (50° S. Atlantic to 50° S. Pacific)	9*	11	12	9	Sandy Hook to 50° S. Pacific	50*	62	62	66
50° S. Pacific to equator	23*	23	22	29	Sandy Hook to Pacific equator	73	85	84	95
Pacific equator to Golden Gate	19	20	19	19	Sandy Hook to Golden Gate	92	105	103	114
Sandy Hook to Golden Gate	92	105	103	114					

* Captain Limeburner, on this 1856-1857 passage, also reported rounding the Horn in 11 days and the run from 50° S. Pacific to line as 21 days, but the time stated on both his reports to 50° S. Atlantic and Pacific equator is the same.

Upon arrival in New York on February 15, 1865, the *Great Republic* was laid up for more than a year, as she could not be operated under the Stars and Stripes except at "a great

loss." The vessel was bought cheap in 1866 by Capt. J. Smith Hatfield, of Yarmouth, Nova Scotia, and two years later (in 1868) she is credited with a crossing of the Atlantic from St. John to Liverpool, with favorable westerly winds, in 14 days. At Liverpool she was purchased for £3,500 (about \$17,000) by the Merchants Trading Company and renamed *Denmark*. The career of the *Great Republic* ended in March 1872, when on a voyage in ballast from Rio de Janeiro to St. John, New Brunswick, she foundered not far from Bermuda. A north-westerly gale, which was encountered on March 2 in Lat. 32° N., started a leak that her pumps could not control, and the big vessel was abandoned on March 5 and sank in the North Atlantic. Both the *Great Republic* and *Great Eastern*, the largest sail and steam merchant vessels in the world, were designed and built with the British-Australian trade route primarily in mind. Each ship was too big for her day and unprofitable in operation; yet it is significant that neither made a voyage in the trade for which she was especially constructed.

Lieutenant Maury, writing of the maiden passage of the *Great Republic* to San Francisco (when the ship beat by eleven days the best time she was able to make in any of five subsequent passages and by eighteen and a half days the average length of her following five westward runs from New York to San Francisco), says:

The shortest passage that in the present state of shipbuilding [1857] will probably ever be made from New York to San Francisco is 85 days (pilot to pilot); and the very clever first officer of this ship, writing from California, expressed the opinion that "should she continue to run between New York and San Francisco, from the experience of this voyage [her first Cape Horn passage of 94 days, clearance to entry, and 92 days as reported and recorded] she will one day make the trip

within your possible 85 days." The friends of this noble specimen of naval architecture, however, can scarcely hope for a fair trial and proper display of her prowess until she shall be sent on a voyage to Australia. The brave west winds of the Southern Hemisphere, which she will then encounter, will enable her to show herself; elsewhere, she can scarcely find a sea wide enough, with belts of wind broad enough, for the full display of her qualities and capabilities.

As before stated, the *Great Republic* was designed and built on speculation with an eye primarily on the Australian trade. This meant the British-Australian service, for only English ports could furnish cargoes and supply the passengers in quantity for this trade, which was decidedly narrow and "British for the British." However, it is strange for a technical man—who naturally appreciated the advantages to any big and powerful clipper of the Australian trade over the China trade, where small ships were favored, and over the California Cape Horn service, where medium-sized ships gave the greatest satisfaction—to say that outside of the Southern Hemisphere there was scarcely "a sea wide enough, with belts of wind broad enough," for the *Great Republic* to show to advantage. Marine authorities always knew that the ship was too big, but they criticized her depth and draft and, to a lesser extent, her length; they denounced her 120-ft. main yard and the original crew of some 130 men that, it was said, would be required to man her. However, no practical operator or shipmaster ever suggested that she was too big for the ocean. The fact that the *Great Republic* reported and is credited with a run of 92 days on her first passage to California has caused certain Massachusetts historians to say: "If she could do so well with a sail spread reduced by about one-quarter, what would the ship have done in speed if she had been operated as originally designed and built by Donald McKay." Arthur H. Clark expressed the views of Bostonians generally when he wrote:

There can be little doubt that with her original spars and sail plan the *Great Republic* would have made this passage [New York to San Francisco] in 85 days or less, and it is to be regretted that, even

with her reduced rig, she never made a voyage between England and Australia, the service for which she was built and especially adapted.

The *Great Republic* as she floated at her loading wharf in New York at the end of 1853 was an impracticable merchant ship for any trade. It is fortunate for the reputation of her builder and for him—and his pocketbook—as an owner that the *Great Republic* was never sent to sea as she left his East Boston yard. McKay lost money by being underinsured when his big ship burned, but this loss was small compared with what it would have been had he

attempted to operate her. Once in commission, she would have been unsalable at any figure unless acquired at a very cheap price by some courageous person with the intent of spending money in cutting her down—in both spars and depth of hull. It was well for the *Great Republic* and her talented and courageous—but “size and speed crazy”—builder, Donald McKay, that a thoroughly practical and experienced designer, master, and operator of fast deep-sea ships, Capt. Nathaniel B. Palmer, was given the job to reconstruct and “make something usable and worth while” out of the burned and scuttled *Great Republic*. Captain Palmer has been accused by McKay champions of being “too conservative,” but Captain “Nat” was a sound businessman and, coupled with this fact, had proved himself in the building of Atlantic and, later, of China packets to be an originator and full of initiative, expressing a great measure of intelligent courage rather than emotional foolhardiness. No captain, officers, and men could have handled the massive spars and sails of the original “*Republic*,” and dismasting in a real blow would have been inevitable. We read from official papers that, even with her greatly reduced sail spread, on her first and best passage to California, the captain and his officers (including Chief Mate Montgomery Parker, whom Lieutenant Maury, in his writings, refers to as “the very clever chief officer”) “always went armed” and had to drive the men to their tasks. Clark says, “It was perhaps fortunate that the topgallant sails were never clewed up during the passage and that Cape Horn was rounded with skysails set.” Imagine what would have happened in any trade route of the world if heavy squalls had necessitated the rapid shortening of sail on a ship with a 120-ft. main yard and a 131-ft. lower mast, with all other spars in proportion, or how the heavy ship would have handled if filled with cargo to her original measured depth of 38 ft. instead of her reconstructed depth of 29 ft. 2 in.!

There is no question about the *Great Republic's* being better adapted for the Australian trade than for service on any other ocean route, for in trading between any North Atlantic port (either American or European) and the antipodes, the ships ran east all the time when in the latitude of the 40's and 50's in the Southern Hemisphere and had the full benefit of the “Roaring Westerlies” from the South Atlantic well west of the Cape of Good Hope to a point east of Cape Horn. This course would have given the big and powerful ship every opportunity to show high speed and take full advantage of the prevailing high winds—often of gale force. As rebuilt and rationalized by Captain Palmer, the *Great Republic* was a usable craft, but she had some inherent handicaps that could never be overcome. These grew more formidable as competitive conditions became more severe and resulted, ultimately, in the ship's being sold abroad after being laid up in 1865-1866 following a decade of service; of this, three and a quarter years were spent in war work as a transport (about one and three-quarters years in Europe, most of which time she was under French charter, and about one and a half years under U. S. Government charter). It was generally felt that, after the *Great Republic's* first eastward passage around the Horn, the ship was structurally weak and that the fire of December 1853, with the pounding she got off Cape Horn in August 1857, caused the vessel to develop weaknesses, with rather persistent leaking, which culminated in her foundering at sea in the North Atlantic.

The clipper ships built by Donald McKay, some specifically for the California trade, were not good Cape Horners as far as length of service, or longevity, in the trade was concerned. Some of the McKay clippers made wonderful runs sailing westward around the Horn to San Francisco, but they seem to have worn themselves out soon and to have been short-lived in the trade. Of all the McKay clippers built during the years 1849-1856 inclusive (and in any part of the clipper ship era), the *Great Republic* was the last one to make a westward Cape Horn passage; she left New York on this run just nine years and eight months after she first sailed from port under her own canvas and after only six and a half years in the merchant service. The following record of the McKay clippers built for American owners, with their number of westbound passages in the Cape Horn California trade, their age while in such service, and their total length of life, is of interest:

Name of Clipper	Built (Launched)	Tonnage	No.	Cape Horn Passages Westbound		
				Age When Making Last Passage	Average Length of Passages in Days	Length of Life
REINDEER	1849 (June)	806	5	7	147	Wrecked; 10 years.
STAG HOUND	1850 (Dec.)	1,534	6	7½	117.2	Burned; 10¾ years.
FLYING CLOUD	1851 (Apr.)	1,782	6	5	115.7	Sold abroad, 8 years; wrecked, 23 years.
STAFFORDSHIRE	1851 (June)	1,817	1	1	102 (only one)	Wrecked; 2½ years.
FLYING FISH	1851 (Sept.)	1,505	7	6¼	105.6	Wrecked; 7¼ years.
SOVEREIGN OF THE SEAS	1852 (June)	2,421	1	½	103 (only one)	Sold, 2¼ years; wrecked, 7 years.
FLYING DUTCHMAN	1852 (Sept.)	1,257	4	4¾	109	Wrecked; 5½ years.
WESTWARD HO	1852 (Sept.)	1,650	4	4½	103.3	Sold abroad, 5 years; burned, 11½ years.
BALD EAGLE	1852 (Nov.)	1,705	4	3¾	114.7	Foundered; 9 years.
EMPRESS OF THE SEAS	1853 (Jan.)	2,197	3	4½	120	Burned; 9 years.
CHARIOT OF FAME	1853 (Apr.)	2,050	3	7½	128.7	Sold, 9 years; lost, 21 years.
(A sister ship, STAR OF EMPIRE, made no Cape Horn passages and was condemned when three years old.)						
ROMANCE OF THE SEAS	1853 (Oct.)	1,782	4	9½	105.5	Foundered; 10¼ years.
GREAT REPUBLIC	Completed 1855 (Feb.)	3,357	6	8⅔	107.8	Sold abroad, 11 years; foundered, 17 years.
MASTIFF	1856 (Feb.)	1,034	2	1½	137	Burned; 3 years.

These fourteen McKay clipper ships made a total of fifty-six westward Cape Horn passages to California (an average of four passages per vessel), which averaged 115.6 days per passage for the entire group—a fine record as far as speed is concerned. However, the average age of these McKay clippers when making their last passage to California was only five years (the oldest only about seven and a half years). The average age of these clippers when lost or sold abroad was about seven and a quarter years, and the average life of all these vessels—under any flag—was only about ten and a half years.

*The YOUNG AMERICA and DAVID CROCKETT—the Greatest of All Clippers
as "Cape Horners" Considering the Length and Quality of
Their Service in the California Trade*

Of the famous American clippers built in the early fifties, few survived the Civil War to take a place with the later-built Down Easters in the grain trade run from San Francisco to eastern American and European ports. The *Young America* and *David Crockett*, however, not only made great records in the early Cape Horn trade in the fifties, or the clipper ship

era, but also carried cargoes eastward around the Horn from California to North Atlantic ports in the sixties, seventies, and early eighties as well as westward to San Francisco and survived some thirty years of buffeting over the world's most turbulent trade route—a period longer than that of any other ship, including the later and heavier-built Down Easters. The *Young America* and *David Crockett* became known as rivals for leadership and sailing honors in the California trade, but this competition did not develop until after the clipper ship decade and the ships were ten years old. The "*Crockett*" was in her fourth year when she made her initial run in early 1857 in the California trade, but from that time on, she operated regularly in the service until the end of 1883—a period of twenty-seven successive years. The *Young America* made her maiden voyage in 1853, and it was in the California trade; her last voyage to San Francisco terminated with a return to New York in July 1882, but this was followed by a westward Cape Horn passage to Portland, Ore., and a return to New York via San Francisco (where she loaded for the East). She reached New York to complete her last Cape Horn and her last eastward run from California in October 1883, thirty years and four months after she had first left that port bound on her first voyage to San Francisco. The *Young America* made four passages from New York to San Francisco in the fifties, but in 1857-1858 and in 1860-1862 she engaged in other trades (China, Australasia, East Indies, Britain, etc.). She became a regular Cape Horner again when she sailed from New York for San Francisco in May 1863 and continued in the Cape Horn trade until she was sold to the Austrians in New York at the end of 1883. Both the *Young America* and *David Crockett* were built in 1853, the former being launched at New York about six months before the "*Crockett*" was put in the water at Mystic, Conn. When these clippers did their best sailing around the Horn and became rivals as Cape Horners, each had been cut down in spars, sails, and crew from her original design and complement, a practice that, developing toward the end of the fifties, had extended generally, for economic reasons, to all clipper-rigged ships that remained in service during the sixties and thereafter. The *Young America* made her best westward Cape Horn passage, a run of 102½ days, from New York to San Francisco in 1879-1880, and the *David Crockett's* best passage over the course was made in 103 days in 1871-1872.

Both the *Young America* and *David Crockett* were true clippers, but it is incorrect for historians to class the *Young America* as an extreme clipper. In the design of this ship, William H. Webb, her builder, clearly portrays his reaction, for economic operating reasons, to the extreme hollow-lined and oversparred clippers that had been built in 1851 and 1852 and that were still being ordered and launched in 1853. The *Young America* was the product of one of the greatest naval architects and practical shipbuilders in the world and of a thoughtful and observing man, who sought to profit by the known performances of his own earlier vessels and by the experiences of shipowners and sea captains with his and other builders' ships. Webb was also a keen businessman and an economist. As early as September 1850, he criticized the demands then being made by shipowners and sea captains for extreme sharp-lined clipper ships, with big deadrise, lofty spars, long yards, and a great wealth of canvas, maintaining that such were not merchant ships that could possibly survive for long in a competitive world, where conformity to sound and basic economic principles was necessary for survival. When the *Gazelle* was launched from his yard on January 21, 1851, on the same day that he put the transatlantic packet ship *Isaac Bell* and the Pacific Mail steamship *Golden Gate* in the water, the *Gazelle*, with her extremely sharp lines and great deadrise, was lauded by the marine fraternity in general, and many authorities proclaimed her to be the best-modeled sailing ship of her day. However, Webb disclaimed her and openly declared that she had been built to conform with the demands of her owners, Taylor & Merrill (and particularly Robert L. Taylor), of New York, and the ship's commander, Captain Henderson; that he did not think much of her "as a ship of commerce and particularly for Cape Horn work," as she had the model and rig of a yacht, and while she should do well in the tropics and possibly in the China trade, if deadweight and volume carrying capacity (with the num-

ber of men required to man her) were deemed of secondary importance, yet she was unsuited for trade in the northern and southern latitudes and, in his opinion, was not the type of ship—even if admittedly beautiful—that would give satisfaction and prove profitable in operation in the California trade. If Webb was to continue to build sailing vessels, he had to build the type of ship that owners wanted and were willing to pay well to obtain and get quickly, and the demand in 1851 and 1852 (continuing into 1853) was for speed and more speed, with a premium paid for speedy construction during the latter part of 1851 and throughout 1852. In his later years, after retirement, when publishing the lines of his ships, Webb wrote of the *Gazelle*:

Built early in the clipper ship era especially for the California trade. This ship was built having a great deal of deadrise, to meet the views of her owners, two retired sea captains, who entertained old-fashioned and erroneous ideas of modeling. She did not prove as fast as other clipper ships having much less deadrise of floor and carrying more cargo. This ship fell in at sea, on several occasions, with the clipper ship *Flying Dutchman* of about the same general dimensions, having less deadrise of floor, also the *Swordfish* of much less

general dimensions, and much less deadrise of floor. With light winds and smooth seas, the *Gazelle* could barely hold her own, but with stronger winds and heavier seas the others invariably passed the *Gazelle*. The *Flying Dutchman* carried about one-fourth more cargo and the *Swordfish* fully one-third more cargo than the *Gazelle*. These tests proved what the designer had always maintained: that excessive deadrise of floor was not, but, rather, flat floor was, best to secure high speed.

Following the building of the *Gazelle*, Webb launched four clippers in 1851, and he was so influenced by the universal opinion of the marine fraternity that he modeled some ships with evident enthusiasm that year (for he was undoubtedly "bitten by the speed bug") that he would have declined to father in 1850. In 1852 he built two clippers, and one of them was of the extreme type (although somewhat rationalized as had been the clipper packet *Invincible*, designed and built by him in 1851). In 1853 the first clipper ship to be launched by Webb was the *Young America*, put overboard on April 30, and Webb declared he was pleased with this vessel, for she was a real and not a freaky ship. He felt that she should give satisfaction trading on the Seven Seas for many long years and "prove to be a good sea boat and make money for her owners." History proves the correctness of Webb's views expressed by him in both the winter of 1850-1851 and again in the spring of 1853. In addition to capitalizing his experience with his first real clipper (the *Celestial* of 860 tons), launched June 10, 1850, and a host of fine, fast pre-clippers and China packets (which became known as early China clippers), Webb, when designing the *Young America*, profited by the performance records of a large fleet of fast American clippers built during the late forties, but particularly in 1850-1852, and by his experience with and knowledge of the work at sea of the following extreme clippers constructed by him in 1851 and 1852, excluding packets and the clipper *Australia* of 1,447 tons, built for the Atlantic trade in 1852:

Name of Clipper	Tonnage	Launched	Name of Clipper	Tonnage	Launched
GAZELLE	1,244	Jan. 21, 1851	INVINCIBLE	1,769	Aug. 6, 1851
CHALLENGE	2,006½	May 24, 1851	SWORDFISH	1,036	Sept. 20, 1851
COMET	1,836	July 10, 1851	FLYING DUTCHMAN	1,257½	Sept. 9, 1852

All were very fast ships, and even though, as Webb predicted, the *Gazelle* was not a top-flight Cape Horner, she made fast transpacific runs. Her three passages from Hong Kong to New York via the Cape of Good Hope were made in 98, 99, and 91 days, respectively, which is fast, uniform sailing. The *Challenge*, hoodooed from the start by Capt. Robert H. Waterman, a wretched crew, and queer-acting owners, was a very fast ship, beat all the British and American clippers in runs in the England-China tea trade, and was "so big, beautiful and speedy" that the British Admiralty "took off her lines" while she was in dry dock in London. The *Comet* was one of the fastest and most successful of extreme clippers ever

built and probably holds more records than any other sailing ship, including that of the eastward Cape Horn passage from San Francisco to a North Atlantic port. The *Invincible*, built as a clipper packet for transatlantic service, was the equal of any ship afloat as a speedy, reliable carrier and good sea boat, and she won honors as a Cape Horner and an Australian packet as well as in the North Atlantic. The *Swordfish*, on her maiden passage, decisively defeated Donald McKay's new and much larger crack Cape Horner *Flying Fish*; the *Swordfish* was small for the California trade, but made fast passages wherever she sailed and made many sailing records, including the all-time shortest run (81 days in 1859-1860) ever made between Shanghai and an East Coast U.S.A. port. (On this record run, the clipper was becalmed five days at the Atlantic equator.) The *Flying Dutchman* was one of the fastest and best of all Cape Horners and did some splendid sailing both in the California trade and on the Seven Seas until she was wrecked on the New Jersey coast in February 1858. Her model, which is said to have been "faultless," reflected the working of Webb's mind and foretold the approach of the *Young America*, which was launched some seven and two-thirds months after the *Flying Dutchman* was put in the water.

The *Young America*, which proved to be "an excellent fast vessel with a phenomenal record for seagoing qualities and uniformity of performance," was described by Webb when he launched her on April 30, 1853, as his idea of "a practical, money-maker sailer." He definitely stated that she was, in his opinion, his best creation, expressing "sound principles" that should make her safe, reliable, and steadily profitable because of an increase in pay load over the more "extreme" clippers. Webb did not expect the *Young America* to hang up many, if any, high-speed clipper ship records. It is significant that the one record she did make—and still holds—was in rounding Cape Horn (from Lat. 50° S. Atlantic to the same parallel in the Pacific) in only 6 days (June 17-23, 1876), but it is incorrect to say that the ship made this record "combatting Cape Horn greybeards." Whereas these waters are generally acknowledged to be the most turbulent in the world and the most trying for sail endeavoring to make a westward passage around the Horn, yet no ship could make the run in 6 days (or under 10 days) unless she was favored with unusually favorable sailing conditions. The time of rounding the Horn varied from 6 to 90 days for speedy clippers, and many bigger and more modern ships have fared far worse; some even failed in their efforts and, "turning tail" to the westerly gales and high seas, continued their passage to the Pacific by sailing with the winds of the Roaring Forties via the Cape of Good Hope. The *Young America*, however, in addition to holding the all-time record of making this rounding (6 days), is credited with other roundings of 7 days in November 1869 and 8½ days in August 1853. Lubbock, the British historian, writing of the "remarkable record" of the *Young America* in sailing around the Horn between the 50's in 6 days, says:

This is undoubtedly the most difficult traverse for a sailing ship in the whole world. Many and many a fast, well-found ship has spent one and even two months over it; and there are many in-

stances of vessels putting their helm up in despair and going east about the whole way round the world rather than face another bout with the merciless Cape Horn snorter.

The *Young America* was the last real clipper built by W. H. Webb, the versatile and highly accomplished technical and practical shipbuilder of New York, although he did build the handsome and speedy medium clipper *Intrepid* of 1,173 tons and the less well-known medium clipper *Uncowab* of 988 tons in 1856. Historians generally agree, having the record of the ship for thirty odd years before them, that the *Young America* was "Webb's masterpiece," and some authorities affirm that she was "the greatest clipper ship ever built." Webb personally wrote of the *Young America* after his retirement, when he published the lines and certain data of most of the ships that he had designed and constructed:

Built expressly for the California and East India trade in 1853. Was a most beautiful and successful ship and made many very rapid passages under different commanders. Among others from New

York to San Francisco, 103 days; . . . San Francisco to New York, . . . 83 days, the latter being the shortest record for loaded ship; San Francisco to Liverpool, 103 days . . . and Liverpool to San

Francisco (13,800 miles) in 99 days; wonderful passage and shortest on record. This ship beat, in a race from San Francisco to New York, the noted English clipper ship *Escocesa*, leaving port on the same tide, 5 days; and the still more noted clipper

ship *David Crockett*, sailing about the same time, 11 days. . . . After thirty years of continuous service, with only slight repairs, was sold to Austrian parties who changed her name. No other sailing ship has made such a record.

A list of the *Young America's* passages not only in the California trade but also on the Seven Seas, in the Pacific, East Indies, oriental and British-Australian, and New Zealand trade has been omitted for the sake of brevity, although Webb emphasizes the clipper's wonderful rounding of the Horn in 6 days.

Webb, writing from memory, was slightly confused in regard to some of the facts relating to his ship, which has been referred to by a British marine historian as "the unconquerable *Young America*." The British iron ship *La Escocesa*, built at Dundee in 1868 (fifteen years after the *Young America* was launched) and known as "the Scottish Lady," had a great reputation for speed as well as beauty, and among her sailing performances was a claimed record run across the Atlantic "against the westerlies." In the fall of 1872, so highly was the sailing ability of *La Escocesa* considered that she was heavily backed by many British to beat "the famous *Young America*" on a passage from Liverpool to San Francisco (as the vessels were scheduled to sail about the same time), and this notwithstanding the reputation of the *Young America* for fast passages and for her oft demonstrated ability to "kill off" ships that aspired to beat her in competition over any sailing course at the same time. Not only did *La Escocesa* race the *Young America* on a passage from Liverpool to San Francisco but also she continued the contest on a passage back to Liverpool, with the two ships sailing from the Golden Gate in company. The record of these two races, as given by Basil Lubbock, is set forth herewith:

Name of Ship	Liverpool to San Francisco			San Francisco to Liverpool		
	Left Liverpool	Arrived San Francisco	Passage in Days	Left San Francisco	Arrived Liverpool	Passage in Days
LA ESCOCESA	Oct. 7, 1872	Jan. 31, 1873	116	Feb. 27, 1873	June 27, 1873 (Queens-town)	120 (Queens-town)
YOUNG AMERICA	Oct. 12, 1872	Jan. 20, 1873	99	Feb. 27, 1873	June 14, 1873	106

On the race out, the *Young America*, sailing five days after *La Escocesa*, beat her by seventeen days on the run to San Francisco. Returning—with a crowd of friends and backers to see them start together and Captain Evans of *La Escocesa* determined to prove that the American clipper's victory on the run out was "a fluke"—the *Young America* reached Liverpool two weeks before *La Escocesa* put into Queenstown on the southwest Irish coast and some distance from her final destination. It was said that "close on \$50,000" was wagered on the outcome of the race on the eastward and homeward passage around the Horn, which is surprising in view of the one-sided nature of the contest on the westward run. However, Captain Evans claimed that his ship, which sailed five days ahead of the *Young America*, was still five days ahead when the ships reached the Pacific equator and that *La Escocesa* lost the race only in the North Pacific; by having the ships sail together on the return, he said that he would not let the American ship get ahead of him and would beat her on the run to England. It would seem that the *Young America* beat *La Escocesa* even more decisively on the run east than on the passage out, for she did the better sailing of the two over every part of the course. On this 1872-1873 passage out, the *Young America's* 99-day passage from Liverpool to San Francisco, port to port, was her record run of 96 days from pilot to the Golden Gate, which would have been a run of less than 95 days but for a change of wind and the necessity to tack and stand offshore as she approached the Golden Gate. During this race between *La Escocesa* and the *Young America* in 1872 from San Francisco to Liverpool, an outsider, the

Glory of the Seas, appeared and, with a run of 112 days, beat the fast little Britisher by ten days to destination, although she herself was beaten six days by the *Young America*.

The statement made by Webb that the *David Crockett*, sailing about the same time from San Francisco as the *Young America* and *La Escocesa*, was beaten eleven days on the run to New York is obviously incorrect, as the race between the *Young America* and *La Escocesa* was to Liverpool and not New York. The *David Crockett* left San Francisco March 22, 1873, or twenty-three days after the other ships sailed, and made a splendid run of 98 days to Liverpool, the fastest of her career. There was but very little difference between the length of passages of the *Young America* and *David Crockett*, and although the *Young America* was capable of greater speed and made higher day's runs, the length of their long-distance sea voyages was much the same. Only once in their careers did the *Young America* and *David Crockett* sail from San Francisco for New York anywhere near the same time, and that was in August 1867, when the *Young America*, sailing on the 12th, made a passage of 99 days to New York (arriving November 19); whereas the "*Crockett*," sailing August 28 (or sixteen days after her rival), occupied 114 days on the run and did not arrive at New York until December 20, 1867. However, the next year, the *David Crockett*, sailing from San Francisco ninety-five days after the *Young America* had left and encountering entirely different sailing conditions, ran to New York in 95 days (arriving November 27, 1868); whereas the *Young America* reached New York September 8, 1868, 110 days out from San Francisco.

A race from San Francisco to Liverpool that British historians have commented on was that between the American *Glory of the Seas* and the fast British iron ship *Wasdale*, with the two vessels sailing over the course virtually in company and arriving at their destination together, the Britisher the winner of a close race by a day. But the *Young America* also appeared in this picture. Sailing from San Francisco thirteen days after the *Wasdale* and fourteen days after the *Glory of the Seas*, she overtook both of these fast ships during a beat up the Irish Channel after passing Cape Clear, "passed 20 ships one day and 19 the next all close-hauled on the starboard tack," and reached Liverpool a day ahead of the *Wasdale* and the "*Glory*." An analysis of this sailing performance is given herewith:

Name of Ship	Nationality	Year Built	Tonnage	Left San Francisco	Arrived at Liverpool	Passage in Days
				1874	1874	
GLORY OF THE SEAS	U. S. A.	1869	2,009	Feb. 26	June 24	118
WASDALE	British	1872	1,220	Feb. 27	June 24	117
YOUNG AMERICA	U. S. A.	1853	1,439 (1865 meas.)	Mar. 12	June 23	103

In 1876-1877, the *Glory of the Seas* made her fastest passage of 103 days on the San Francisco-Liverpool run, but the *Young America*, also leaving San Francisco in October 1876, ran to New York in 99 days and during 1875-1877 made four eastward Cape Horn passages to New York, laden, that averaged 95 days.

The *Young America* made twenty-five westward and twenty-two eastward roundings of Cape Horn when engaged in the California trade (and two more eastbound roundings of the Cape returning from Callao, guano laden, on British passages to Melbourne in 1860-1861 and New Zealand in 1862). She made twenty-four outward passages to San Francisco from North Atlantic ports (twenty from New York, three from Liverpool, and one from Antwerp). Her last westward rounding of the Horn was on a voyage from New York to Portland, Ore., and on her return passage she made her last passage of Cape Horn when running eastward, bound for New York, with a cargo taken on board at San Francisco. The average of the clipper's twenty passages from New York to San Francisco is 118 days (with the 1859 run

worked into the average as the 117 days actually spent at sea, although the time on the course was much less); the fastest runs were one of 102½ days, two of 107 days each, one of 109 days, two of 110 days each, one of 112 days, one of 116 days, and five of 117 days each. The average of the ship's three passages from Liverpool to San Francisco, port to port, was 108.7 days, the shortest being a run of 99 days in 1872-1873, which was a record passage of 96 days, pilot to pilot. The average of the ship's twenty-three passages from New York and Liverpool to San Francisco was 116.8 days.

Running eastward around the Horn, the *Young America* made fourteen passages from San Francisco to New York, the average length of the thirteen direct runs being only 98.2 days; the fastest, made in 1870, was the record run of 83 days for a cargo-laden ship, which was in reality a passage of only 81 days, as a thick fog set in at Sandy Hook and delayed the ship's completion of the run to port. Other fast runs from San Francisco to New York were made in 86, 92, 92, 97, 99, and 99 days, respectively, and the ship's longest run over the course was in 114 days. The *Young America* made six passages from San Francisco to Liverpool, which averaged 108.8 days, port to port, the fastest being in 103 and 105 days and two in 106 days, and the last five averaged only 105.6 days. The average of all twenty-one passages from San Francisco eastward around Cape Horn to North Atlantic ports, including a run of 118 days from San Francisco to Antwerp in 1881 and a run from San Francisco to New York in 100 sailing days in 1883, was 103½ days, port to port, and 102.3 days at sea. The other of the twenty-two eastward Cape Horn passages made by the clipper was a run of 96 days from Honolulu to New York, which was the return passage of her maiden voyage. On her 103-day passage from San Francisco to Liverpool in 1874, the run was 98 days to Cape Clear and 102 days 12 hours from bar to bar; it was on this passage that the *Young America* beat McKay's half clipper *Glory of the Seas*, built in 1869 (sixteen and a half years after the Webb clipper), by fifteen days. On her record passage of 96 days, pilot to pilot, from Liverpool to San Francisco in 1872-1873, the *Young America* was 15 days 6 hours to the Atlantic equator and 17 days 19 hours to a point off Pernambuco (beyond Cape St. Roque), both of which times are records, and was at Lat. 50° S. Atlantic in 39 days 6 hours from pilot.

The *Young America* made her first three westward Cape Horn passages in 110, 110, and 107 days, respectively, during the years 1853-1856, an average of 109 days for the three runs; but on her fourth passage in 1859 she was unfortunate and partially dismasted near the Plate. Her master, Capt. "Nat" Brown, Jr., made the mistake of turning back and putting into Rio de Janeiro for "quick repairs," which occupied 57 days and spread out the length of passage to 174 days, port to port; whereas the run was 117 days at sea and about 106 days "on the course," as the ship ran from Rio to San Francisco in only 69 days. This experience of putting into Rio for repairs caused the *Young America* to make all her own repairs to masts and spars when at sea thereafter. It was felt that the fourth run of the clipper could have been made from New York to San Francisco in not more than 120 days—and possibly in a shorter time—if she had made repairs at sea and kept moving toward her destination instead of putting back to Rio, which added about 1,800 miles to the length of passage and, with a port detention of 57 days, caused the completed passage to lengthen to 174 days. Considering the 117 days at sea (part of which was spent running back from the Plate and returning thereto) as the length of the *Young America's* fourth passage, then her first four runs from New York to San Francisco average not 125.2 days as stated in the records of average completed passages, port to port, but 111 days, and her average for twenty-four westward Cape Horn passages to San Francisco is lowered from 120.3 days to 117.9 days. This is a record for all clippers making eight or more such passages, being slightly better than the 118-day average of the *Archer*, with eleven passages (1853-1872); 118.7 days for the *Mary L. Sutton*, with eight passages (1856-1864); and 118.9 days for the *David Crockett*, which, making twenty-five passages during the years 1857-1883, was the only ship to rival the *Young America* and challenge her supremacy as a Cape Horner in the California trade.

To show the extent to which the commanders of the *Young America* profited by that ship's uneconomic experience and great waste of time when, under Capt. Nathaniel Brown, Jr., she put into Rio de Janeiro March 18, 1859, for repairs after being partially dismasted off the Plate, it is of interest to note how Capt. George Cumming coped with a much worse disaster in the South Atlantic in late 1868. Sailing from New York October 23, 1868, for San Francisco laden with railroad iron, etc., the *Young America* on December 3, when 41 days out, was "caught aback" in a sudden vicious pampero and thrown on her beam ends. She lost her mizzen-topmast, main topgallant, and foreroyal masts, with all attached, the cargo shifted, the ship made a great deal of water, and before the storm passed the crew was worn out and bordering on mutiny. The port of Montevideo was nearby, but Captain Cumming never hesitated to handle the job himself and keep away from a South American port. After a week of superb seamanship and severe man-driving, Cumming had a jury rig on the mizzen. On December 15, sails were set on a fidded main-topgallant mast, but the captain had to fight both the elements and his own crew on a run to the Horn, which was sighted on Christmas Day after experiencing several days of "terrific Cape Horn snorters." The *Young America* reached San Francisco February 17, 1869, "looking like a yacht" notwithstanding her jury rig. She had made the passage, port to port, in only 117 days and run from the scene of her disaster to destination in only 76 days. The underwriters recognized Captain Cumming's good work, courage, and resourcefulness in an emergency and his actions, which saved them "a mint of money," by presenting him with a memorial and a purse of \$1,000 in gold.

Howe and Matthews, in *AMERICAN CLIPPER SHIPS* (Marine Research Society, Salem, Massachusetts, 1927), write:

The *Young America* was always a prime favorite with shippers, commanded the highest freight rates, and proved to be a veritable mint to her owners. The freight list on her maiden voyage, New York to San Francisco, was \$86,400. In 1866 it was \$50,442, while that of the new ship *Seminole*, loaded at the same time and a larger carrier, was \$45,600. She also proved to be a money-maker for

friends and admirers, as her passages were the subject of betting for larger aggregate amounts than was the case with any dozen other ships, and she never failed to realize expectations. A single run from San Francisco to Liverpool netted her Pacific Coast and European backers as much as \$40,000.

The *Young America* left New York for San Francisco June 10, 1853, on her maiden voyage. On May 14 (twenty-seven days before she sailed), her builder, W. H. Webb, annoyed at the extreme propaganda and "challenge to the world" emanating from the McKays, of Boston (who had the big extreme clipper ship *Sovereign of the Seas* for sale and were having great difficulty in interesting shipowners in this 2,421-ton sharp-lined, oversparred vessel), offered to wager \$10,000 a side that the *Young America* would beat the *Sovereign of the Seas* on a passage to San Francisco, the ships to sail "loaded" and "within thirty days of each other." The *Sovereign of the Seas* was at New York May 6 to June 18, at which time (eight days after the Webb clipper had left for San Francisco) she sailed for England, was chartered for a British-Australian voyage, and was then sold to the Germans. It is a matter of regret that the McKays did not take up the Webb offer for a match race to California. The *Sovereign of the Seas* had just concluded a fast and profitable maiden voyage, and she was the type and size of ship that McKay championed with ardor, but that American shipowners would not order and did not care to buy. The *Young America*, on the other hand, was the type of ship that in 1853 appealed to American owners and merchants. She was a more conservative and rational product and more in harmony with the spirit of the times and the demand for speed tempered by experience, but she was built to carry a fair amount of cargo, make good passages with a moderate crew, make some money, and last for many long years, if properly handled and cared for, in the California or any other exacting trade.

The Cape Horn course does not offer opportunities either for single great day's runs or for big mileage per day for protracted periods such as occur in the South Atlantic, Indian Ocean, and South Pacific (the Roaring Forties—and fifties) in the Australian trade traveling

to the eastward, both on the outward passage (via Cape of Good Hope) and on the homeward run (via Cape Horn); yet the *Young America* has some very fast sailing to her credit. In late 1876, during a 99-day passage from San Francisco to New York, the clipper on four consecutive days covered 365, 358, 360, and 340 miles, respectively, a total of 1,423 nautical miles in four days and an average speed for that period of about 15 knots per hour. In 1872, soon after leaving Liverpool for San Francisco and sailing southwest in the North Atlantic, she covered 340 miles in one day, 300 in another, 1,138 miles in four consecutive days, and 1,609 miles in the next week—a total of 2,747 nautical miles in eleven days and an average of about 250 miles per day for the period. (At this time, she was making a record run of 15 days 6 hours from pilot to the Atlantic equator.) Running eastward in the California Cape Horn trade in 1870, the *Young America* traveled 1,780 miles in a week, and in 1875 (on a 92-day passage from San Francisco to New York) she made 1,802 miles in a week and 6,435 miles in the month of March—an average of 207½ miles per day for thirty-one consecutive days.

The following is a record of the time occupied by the *Young America* in making round voyages between North Atlantic ports and San Francisco, with the ports of origin New York, Liverpool, and San Francisco, respectively. The voyages mentioned were not particularly outstanding for the clipper, but represent about the average of her performances during the years 1865-1881 inclusive.

Year	Outward				Return			Total Elapsed Time of Round Voyage	At Sea, Port to Port, Both Ways
	Port of Departure	Port of Arrival	Length of Passage	Detention in Port Discharging and Loading	Port of Departure	Port of Arrival	Length of Passage		
			Days	Days			Days	Days	Days
1868	New York Jan. 9, 1868	San Francisco Apr. 27, 1868	109	24	San Francisco May 21, 1868	New York Sept. 8, 1868	110	243	219
1873- 1874	New York Oct. 29, 1873	San Francisco Feb. 13, 1874	107	27	San Francisco Mar. 12, 1874	Liverpool June 23, 1874	103	237	210
1872- 1873	Liverpool Oct. 12, 1872	San Francisco Jan. 20, 1873	99	40	San Francisco Feb. 27, 1873	Liverpool June 14, 1873	106	246	206
1867- 1868	San Francisco Aug. 12, 1867	New York Nov. 19, 1867	99	30	New York Jan. 9, 1868	San Francisco Apr. 27, 1868	109	258	208
1880- 1881	San Francisco May 20, 1880	Liverpool Sept. 3, 1880	106	39	Liverpool Oct. 11, 1880	San Francisco Jan. 30, 1881	110	245	216

Basil Lubbock, the British marine historian, has written: "Though many a clipper and many a carrier was built in Down East yards, with whose model and construction it would be hard to find a fault, no more perfect wooden sailing ships were ever built than that famous pair of valiant Cape Horners, *Young America* and *David Crockett*." Both of these American clippers, built in 1853, were not only outstanding and historic in the California trade but also profitable as well as reliable, speedy carriers. They were, therefore, eminently successful ships as is proven by their passage or sailing performance records and by their length of service in a highly competitive trade. The *David Crockett*, throughout her career, like the *Young America*, had the reputation of being "a great money-maker," and Howe and Matthews, writing of her in AMERICAN CLIPPER SHIPS, say:

Throughout her career, the *Crockett* was a phenomenally successful ship and, up to the time of her sale in 1883, is said never to have cost the underwriters one dollar. She also proved to be a mint for her owners. Her original cost was \$93,000, and up to 1876 she is said to have re-

turned a net profit of \$500,000, including allowance for a thorough overhauling in 1869 [when sixteen years old]. In 1866, her freight list from New York to San Francisco was \$46,872, gold, and for her return cargo of wheat and barley to Philadelphia, she received \$30,000 in currency. The total time on the round voyage was 234 days,

including 26 days in port in San Francisco. In 1872-1873, her total time on the voyage from New York to San Francisco and thence to Liverpool was 261 days, of which 55 days were spent in port. Her net profit was \$37,000 on the trip, and for her grain cargo to Liverpool she received £4-6-2 for each 2,000 pounds.

The *David Crockett*, launched at the yard of Greenman & Company, Mystic, Conn., October 18, 1853, was built for Handy & Everett, New York, and the transatlantic packet trade, in which she operated (with the exception of a passage in 1855 from Liverpool to Aden and return from Bombay) until February 1857, when she was "put up" for California. She sailed from New York March 10 on her first Cape Horn passage for San Francisco. The *David Crockett's* outward runs to California with departures from New York during 1857-1860 were not particularly impressive, being made in 122, 116, 131, and 123 days, respectively, an average for the four of 123 days; but her average for the next six westward Cape Horn runs from New York to San Francisco was only 111.8 days (minimum, 107 days; maximum, 117 days), which is remarkably uniform fast sailing for the years 1861-1867 inclusive, after the original sail spread had been cut down in the interest of economy of operation. The lifetime record of the *David Crockett* in the westward California run is twenty-five passages during the years 1857-1883, the average length of passage being 118.9 days. The fastest outward runs of the "*Crockett*" to San Francisco were 103 days in 1871-1872 (November 24-February 17), 104 days in 1874-1875, 106 days in 1869, 107 days in 1864, 108 days in 1872-1873, and 109 days in 1875-1876. The average of these six fastest westward Cape Horn runs is 106.2 days, and the total time of her best eight outward runs is 857 days—an average of 107.1 days per passage. This is practically the same as the total time of 854½ days (and an average of 106.8 days) for the eight best passages of the *Young America* from North Atlantic ports to San Francisco.

The *David Crockett* did not cross the Pacific from San Francisco and continue her voyage by sailing around the world and home via the Orient and the Cape of Good Hope as the *Young America* did on three occasions, but all the "*Crockett's*" twenty-five California voyages were both outward and homeward via Cape Horn. Two of the homeward passages were with guano cargoes, one in 1860-1861 to Hampton Roads, Va., and the other in 1865 to Liverpool. Of the twenty-three direct passages from San Francisco eastward around Cape Horn to a North Atlantic port, fourteen were to New York, and these averaged only 99.2 days, the fastest runs being 88, 89, 92, 93, 95, 95, and 99 days, respectively, and the longest runs 116, 114, and 104 days. The seven passages from San Francisco to Liverpool averaged 107.7 days, the fastest runs being 98, 100, and 107 days, respectively, and the longest 116 days. If the eighth run to Britain, reported as "120 days to Queenstown," is considered as 122 days to Liverpool, then the average of eight passages from San Francisco to Liverpool is 109.5 days. A passage from San Francisco to Philadelphia was made in 94 days, the average for all the twenty-three direct passages eastward around the Horn to North Atlantic ports being only 102.6 days. It is apparent, therefore, that the sailing performances of the *Young America* and *David Crockett* on both the westward and eastward Cape Horn runs in the California trade were practically the same, and two more evenly matched square-riggers have not sailed the seas in the same service for such a long period of time (some thirty years) in the annals of merchant sail. A comparative lifetime record of both the outward and homeward passages of the *Young America* and *David Crockett* in the California trade covering the years 1853-1883 inclusive is presented herewith:

YOUNG AMERICA			DAVID CROCKETT			YOUNG AMERICA			DAVID CROCKETT		
Year Beginning and End of Passage	Outward	Return	Year Beginning and End of Passage	Outward	Return	Year Beginning and End of Passage	Outward	Return	Year Beginning and End of Passage	Outward	Return
1833	110	Via Honolulu Around the world				1871		86 New York			
1834	110	Around the world				1871-1872	131	105 Liverpool	103	102 New York	
1836	107	Around the world				1872-1873	99 Liverpool	106 Liverpool	108	98 Liverpool	
1837						1873		103 Liverpool	113	107 Liverpool	
1837-1858						1873-1874	107	103 Liverpool			
1838						1874	117 Liverpool	103 Liverpool			
1838-1859						1874-1875		92 New York	104	116 Liverpool	
1859	117 (sailing days)	100 New York				1875	112	97 New York	109	120 Queenstown	
1859-1860						1875-1876		99 New York			
1860						1876	125	92 New York	113	104 New York	
1861						1876-1877		99 New York			
1861-1862						1877	136	92 New York	116	100 New York	
1862						1877-1878		101 New York			
1862-1863						1878	117	101 New York			
1863	117					1878-1879		100 New York			
1863-1864		125 Liverpool				1879	116	114 New York	136	100 New York	
1864	120	Around the world				1879-1880	102	106 Liverpool			
1864-1865						1880		118 Antwerp	128	116 New York	
1865-1866	117					1880-1881	110 Liverpool	118 Antwerp	124	99 New York	
1866		108 Liverpool				1881	142 Antwerp	102 New York	157	102 New York	
1867	130	New York				1881-1882		100 sailing days New York via Rio	138	92 New York	
1868	109	New York				1882	151 to Portland				
1868-1869	117	New York				1882-1883					
1869		102 New York				1883					
1869-1870	122	New York									
1870		83 New York									
1870-1871	139	New York									

It is difficult to obtain a true comparison of the dimensions of the *Young America* and *David Crockett*. Webb, the builder of the *Young America*, when publishing the lines and giving data of the ships that he had designed and constructed, says that the clipper was "235 ft. long on deck, 40 ft. 2 in. molded beam and 25 ft. 9 in. depth of hold." Greenman, of Mystic, Conn., the builder of the *David Crockett*, gave the dimensions of his clipper as "215 ft. 10 in. long, 40 ft. 10 in. beam, and 27 ft. deep"; but evidently the same points were not taken by the two builders in measuring their vessels. The government's measurements for tonnage, soon after the clippers were built, were:

Name of Clipper	Builder	Year Built	Tonnage	Dimensions in Feet		
				Length	Beam	Depth
YOUNG AMERICA	W. H. Webb, New York	1853 (launched Apr. 30)	1,961	243	43.2	26.9
DAVID CROCKETT	Greenman & Co., Mystic, Conn.	1853 (launched Oct. 18)	1,679	215.8	40.6	27

In 1865, when the new tonnage measurements based on internal volume were made, the tonnage of both ships was naturally reduced, the new tonnage of the *Young America* becoming 1,439 tons and that of the *David Crockett*, 1,547 tons. In 1883 the registered tonnage measurement of the *Young America* (as she was "sold foreign") was placed at 1,380 tons, and it is apparent that the model of the *Young America* was sharper-lined than that of the *David Crockett*. The reduction in tonnage of 522 tons for the *Young America*, based on the 1865 new measurement formula as compared with the old system of computation based only on the ship's prime dimensions, and a reduction of 132 tons for the *David Crockett* indicate that both ships were clippers, but the tremendous drop in registered tonnage of the *Young America* is unprecedented and inexplicable. It must have been due to the elimination of a great deal of space in the 1865 computation (possibly the entire upper deck of the three-decked vessel, which had a 42-ft. poop), for the difference in the fineness of model (or block coefficient) of the two ships could never have been responsible for the big difference in the drop in tonnage of the two ships when the 1865 measurements were taken. As some records give the 1853 depth dimension of the two clippers as *Young America*, 26.9 ft. and *David Crockett*, only 19.7 ft. (with the tonnage stated as 1,961 and 1,679 tons, respectively), it is possible that from the first the main deck and not the lighter weather deck of the *David Crockett* (built as a packet for transatlantic service) was used in the computation of tonnage and that later, in highly competitive days when a reduction of tonnage measurement became an economic factor of some importance, the *Young America* followed suit and did all things possible to get her tonnage down and remove a handicap under which she had been operating. Records of the actual cargo-carrying capacity of the *Young America* are not available, but she must have been a good carrier in both deadweight and volume to have survived in a highly competitive trade for thirty years and loading a great variety of cargoes. Moreover, she almost invariably had a freight list that was higher than ships of somewhat similar dimensions that sailed against her, and all of this advantage in freight revenue could not, for decades, have been attributed to popularity that was so great that she could overcome any big handicap in carrying capacity. The *Young America* had the reputation in the trade of being a very fast, reliable ship "and a good carrier." The *David Crockett* boasted that, when deeply laden, she got aboard "about 2,200 short tons" of wheat, which she is said to have carried from San Francisco to Liverpool. This figure of about 1,968 long tons in deadweight is 1.17 times her original registered tonnage of 1,679 tons and 1.27 times her "new measurement" (1865) registered tonnage. It was also said that the capacity of the "*Crockett*" for California cargo was "about 2,800 weight and measurement tons," which means little as far

as deadweight alone is concerned, but is important when it comes to the question of relative revenue from freight.

The *Young America* was a more expensive product than the *David Crockett*, as the total cost of the Webb-built clipper equipped and furnished ready for sea was stated as \$140,000, or "about \$70 per ton." The original cost of the *David Crockett* was reported as \$93,000 (or about \$55½ per ton). This was probably the price paid the contract builders by Handy & Everett, although it is known that Greenman & Company, at Mystic, Conn., built cheaper ships than did W. H. Webb, of New York. However, the Mystic yards turned out splendid vessels of good models for both speed and carrying capacity, but the record of the *David Crockett* proves that they built ships well, to last; for this clipper, for speed, strength, staying power, and carrying capacity, could hardly have been improved upon as a Cape Horner. She challenged Webb's masterpiece, the *Young America*, for champion honors in the California trade throughout the sixties, the seventies, and into the eighties after the most brilliant McKay-built clippers had "shot their bolt" and long departed from the service and from the trade routes of the world.

The *Young America* was sold to the Austrians at New York in December 1883, having completed her last Cape Horn passage with a run from San Francisco to New York in about 100 sailing days. She was renamed *Miroslav* (hailing port, Buccari) and put in the transatlantic trade, where she was "run cheap" with a pathetically small crew and "no money to spend on upkeep." She sailed from the Delaware Breakwater February 16, 1886, and "went missing" when thirty-three years old. The *David Crockett* was sold at the same time as the *Young America*, and she was operated in the Atlantic by two sets of American owners, latterly rigged as a bark, but kept in repair. In May 1890, when in her thirty-seventh year, the old "*Crockett*" was sold to Philadelphia parties for conversion into a tow barge. Her sailing days were over, but authentic information in regard to the date and nature of her end is not available.

The Medium Clipper ANDREW JACKSON—Record-holder over the Westward Cape Horn California Course

The little village of Mystic, Conn., built twenty clippers and reputed clippers during the years 1851-1859 inclusive, but eight were small craft ranging from the *Eliza Mallory* of 649 tons to the *Alboni* of 917 tons. In October 1853, Greenman & Company launched the first large clipper ship to be built at Mystic, the *David Crockett* of 1,679 tons, which, built as a transatlantic clipper packet, was destined to be one of the two most successful Cape Horners, considering speed and length of steady service, in the California trade. During that same year (1853), Charles Mallory built the extreme clipper ship *Pampero* of 1,375 tons, and Irons & Grinnell built the medium clipper ship *Electric* of 1,274 tons. Whereas the *Electric* spent most of her life in the transatlantic trade and made only one California voyage, she proved herself to be fast, and the *Pampero*, on her first voyage to California, gained a reputation for speed which she held throughout her career, being sold to the U. S. Government in July 1861. (Continuing around the world, she completed this voyage via China in 9 months and 23 days.) Three medium clippers of size were constructed at Mystic, Conn., in 1854 by Irons & Grinnell, Greenman & Company, and Maxon, Fish & Company, respectively, ranging from 1,387 tons to 1,482 tons; they were good carriers, but slow sailers. In March 1855, the Irons & Grinnell yard launched one of the greatest of all Cape Horners, the medium clipper *Andrew Jackson* of 1,679 tons, which proved to be one of the fastest sailing ships in

the world as well as a good carrier. In that same year, George Greenman & Company built the medium clipper *Leah* of 1,438 tons, which was a most unfortunate vessel, for she sailed from New York January 4, 1856, on her maiden voyage and was never heard from again. In 1856, George Greenman built the rather mediocre medium clipper *Atmosphere* of 1,485 tons, but Charles Mallory launched that year for his own account the splendid medium clipper *Mary L. Sutton* of 1,448 tons, which, with the *David Crockett* (built in 1853) and the *Andrew Jackson* (built in 1855), makes a trio of Mystic-built clippers, launched in the period 1853-1856 inclusive, that compares favorably for speed, carrying capacity, money-making ability, and quality of design and construction with the best three clippers produced at any time in any shipbuilding community in the world. In 1857, Charles Mallory built the fast medium clipper *Twilight* of 1,482 tons, which on her first run to California made a passage of 100 days 20 hours and was within a few hours of the run made by the *Andrew Jackson* about that time. Greenman & Company built the big-carrying but slow medium clipper *Prima Donna* (which made fourteen westward passages to California), ringing down the curtain for the 1850's on Mystic's contribution to the fleet of sizable clippers and medium clippers.

In the sixties, Mystic continued to build a type of deep-sea square-rigger that conformed more with the Maine idea of what were the essentials for a good money-making ship than that of most New York and Boston builders. In July 1865, as the Civil War closed, Maxon, Fish & Company (builders of the medium clippers *B. F. Hoxie* of 1,387 tons in 1854 and the *Aspasia* of 632 tons in 1856) launched the "half clipper" *Seminole* of 1,439 tons. She made history on her maiden voyage with a passage of 98 days to California, which was the fastest westward Cape Horn run made since another Mystic-built ship, the *Andrew Jackson*, sailed over the course in the winter of 1859-1860 in the record time of 89 days 4 hours. This run of the *Seminole* was one of the only two westward passages to California from an East Coast U.S.A. port made by any ship in 100 days or less after 1860 or throughout the balance of the sailing era. The little village of Mystic, Conn., possesses no natural advantages for shipbuilding, but among the vessels built there were four clippers that stand well up in the list of America's finest contributions to the world's deep-sea fleet of fast and sturdy money-making wood sailing ships. Not one was of the extreme type; two of them were medium clippers and one an even fuller-modeled half clipper. A comparison of the dimensions and general data concerning these four outstanding Mystic-built ships is set forth herewith:

Name of Ship	Type	Launched	Builder	Tonnage	Dimensions in Feet			End of Career
					Length	Beam	Depth	
DAVID CROCKETT	Clipper	Oct. 1853	Greenman & Co.	1,679	215.8	40.8	27	Converted into tow barge in 1890.
ANDREW JACKSON	Medium clipper	Mar. 1855	Irons & Grinnell	1,679	222	41.2	22.2	Sold to British in 1863. Wrecked Gaspar Straits, Dec. 1868.
MARY L. SUTTON	Medium clipper	Feb. 1856	Charles Mallory	1,448	192 (216 O.A.)	40.7	23	Wrecked while loading, Baker's Island, Nov. 1864.
SEMINOLE	Half clipper	July 1865	Maxon, Fish & Co.	1,439	196	41.5	25	Store ship at Adelaide, Australia, in 1900's.

All of this famous quartet of Mystic, Conn., ships were Cape Horners for all or part of their career, which, in the case of the *Andrew Jackson*, was terminated by the Civil War and the decision of the owners to sell the ship to foreign owners. The *Mary L. Sutton* came to a tragic and untimely end, when only eight and two-thirds years old, while loading guano at Baker's Island for an eastward Cape Horn passage; squalls of hurricane force wrenched the

ship from her mooring buoys and drove her on reefs, where heavy seas pounded the fine ship to destruction.

The record of the *Andrew Jackson* in the California trade will be referred to in detail later. The *David Crockett* tied with the Webb-built clipper *Young America* with twenty-five Cape Horn voyages, and her average length of westward passages to San Francisco of 118.9 days, port to port, is unbeaten. The *Mary L. Sutton* was quite unlucky as to weather on her runs out to San Francisco, but she did much brilliant sailing. She holds the all-time record in the South Pacific, but her second and last (eighth) westward Cape Horn runs were spoiled by lack of wind. On her second passage, she was twelve consecutive days in calms, covering only 8 miles in that period. The average length of all the "Sutton's" eight westward passages was 118.6 days. Even on the fastest six of them, on which she averaged 110.8 days, she was almost invariably delayed by unfavorable sailing conditions; yet she made consecutive outward runs in 103 and 106 days, and the average of her five direct eastward passages from San Francisco to New York was 96.4 days, the fastest being made in 94 days and the longest in 100 days. On her first eastward Cape Horn passage, which was a run of 95 days to New York, the "Sutton" made her landfall when 85 days out. The fuller-modeled and later-built half clipper *Seminole* made twenty-one westward California passages and averaged 126 days on twenty direct runs, the best being made in 98 days and the slowest in 155 days. The ship made twenty eastward Cape Horn passages, and the average of her sixteen direct runs from San Francisco to New York was 108 days (best, 94, 96, and 97 days, respectively; longest, 119 days). The *Seminole* made an eastward Cape Horn run to Queenstown in 101 days and passages from San Francisco to Liverpool in 116 and 112 days, respectively. The ship was sold for the Pacific trade in 1887 and rigged as a bark for the deep-sea and coastal lumber and coal trade. In 1898 she was acquired for the Alaska trade and later went out to Australia, being used as a store ship at Adelaide during the first part of the twentieth century. Unless wrecked, through no fault of the vessels themselves, the best ships built at Mystic, Conn., were evidently long-lived vessels as well as good carriers and fast sailers.

Whereas the Mystic-built clipper *David Crockett* and Webb's New York-built clipper *Young America* were rivals in the California trade during their careers and sailed in competition with each other for many long years prior to the close of 1883, the Mystic-built medium clipper *Andrew Jackson* is generally considered as the great challenger and rival of Donald McKay's East Boston-built extreme clipper *Flying Cloud*—"the Greyhound of the Cape Horn route" in the clipper ship decade of the 1850's. Yet the *Andrew Jackson* and *Flying Cloud* never raced each other, and Captain Creesy had taken the fast McKay ship out from New York on her last direct run to California five months before the *Andrew Jackson*, with an imperfect rig, left New York (July 15, 1855) on her maiden voyage and her first Cape Horn passage to San Francisco. The *Flying Cloud*, under the command of Captain Reynard, cleared New York for the last time bound for California on March 13, 1856, but did not reach San Francisco until September 14 (185 days later), as she had put into Rio de Janeiro en route for repairs. The re-rigged *Andrew Jackson* made her first sailing from New York for San Francisco in November 1856, about eight months after the *Flying Cloud* had departed from that port on her disastrous sixth and last run to the Golden Gate; so the old "Queen of the Cape Horners," which wore the crown and held the westbound record over the course from August 31, 1851, until it was taken from her by the Mystic-built medium clipper *Andrew Jackson* on March 24, 1860 (which ship retained the crown and honors to the end of the era of merchant sail) never came in direct competition with the *Andrew Jackson* and never sailed over the course at even approximately the same time. The old "Queen of the Cape Horners" and the ship that was destined to remove her from the throne met once when neither was under canvas, and this meeting occurred in New York Harbor. Since the unfortunate, long, and expensive passage from New York to San Francisco in 1856 of the *Flying Cloud*, she had been laid up at the California port for many months, following which her owners had her brought to the East by Captain Creesy, where she was laid up for two years

and eight months (April 1857-December 1859) because of heavy losses that would have been sustained if they had attempted to operate her. At the end of 1859, the *Andrew Jackson*, which had seen continuous and profitable service in the California trade since her completion, was loading at New York, with the banner "Up for California" flying at her fore, preparatory to sailing for San Francisco on a passage that was to be the all-time record run from an East Coast U.S.A. or any North Atlantic port to California. The *Flying Cloud*, the then holder of speed honors over the course, was towed by after having been reconditioned and again put in commission, not for another California voyage, however, for her days as a Cape Horner were over and her owners would not take the risk of putting her in that trade again, but bound for Europe for charter or sale. The *Flying Cloud* was sold to English owners in May 1862, and after leaving New York for London December 8, 1859, she never again rounded the Horn or visited a U.S.A. port.

The *Flying Cloud* saw service as a Cape Horner from early June 1851 and was engaged in the California trade during the height of the boom and the years of ridiculously high freight rates and carrier charges. She made four voyages while business and revenues were good, but on her last voyage under Captain Creesy signs of depression and some liquidation were evident, which continued through the following year (1856), when the ship, under Captain Reynard, made her last California voyage. She was unfortunate, lost much money, and showed herself to be greatly in need of rehabilitation, as she had been strained by hard driving and had not been kept in as good physical condition by constant repairs and replacements as a ship of her type and success warranted. At Rio de Janeiro in May-June 1856, her spars were shortened somewhat in the interest of both safety and economy, and after the clipper had been laid up during the commercial depression and panic, her spars were further cut down before she was put in commission again in November 1859 to be sent to Europe. The *Andrew Jackson* made the outward passage of her maiden voyage, which was to California, in the latter part of 1855 and during a period of business depression and rapidly lessening freight rates and revenues. After being re-rigged, based on experience gained from the initial voyage, the Mystic medium clipper commenced to run regularly without digression in the California trade in mid-November 1856, when "the shadows had lengthened." While the *Flying Cloud* and many other extreme clippers were laid up because of operating losses, the *Andrew Jackson* ran steadily in the Cape Horn service and made money for her owners throughout "the waning years of the clipper ship era," which embraced the depression and panic of 1856-1858 and the uncertain and turbulent years 1859-1862 that preceded and saw the commencement of the Civil War.

Capt. Arthur H. Clark, in *THE CLIPPER SHIP ERA*, credits the *Andrew Jackson* with westward passages from New York to San Francisco of 103, 102, and 100 days in 1856-1859 and an all-time world record Cape Horn passage of 89 days 4 hours in 1859-1860 and says: "With this superb record by the *Andrew Jackson*—four consecutive passages averaging 98½ days each—the American clipper ship era may well bring its brilliant career to a close." Felix Riesenbergh, Jr., in his history of the Golden Gate, affirms that "the Mystic-built medium clipper" *Andrew Jackson* held the speed laurels over the East Coast to California trade route; for in addition to being the acknowledged champion with a record run of 89 days 4 hours, "beating the time of the *Flying Cloud*," she "made four consecutive passages averaging ninety-eight and a half days each," which is the all-time record for fast uniform sailing on westward passages around Cape Horn. Even Howe and Matthews, in *AMERICAN CLIPPER SHIPS*, who favor the *Flying Cloud* and claim that she made the fastest westward passage of 89 days 8 hours in 1854, credit the *Andrew Jackson* with four consecutive westward Cape Horn passages from New York to San Francisco in an average of 99⅓ days; whereas according to their own figures, the best four consecutive runs of the *Flying Cloud* averaged 99.8 days, and her five passages under the command of Captain Creesy averaged 101½ days. They admit that the *Andrew Jackson* made five consecutive passages under Captain Williams aver-

aging only 100½ days. (Actually, it was 100 days elapsed time and only 99 days as recorded and generally accepted by the marine fraternity.)

Carl C. Cutler, in *GREYHOUNDS OF THE SEA*, says:

To the *Sea Witch* belongs the honor of being the first ship to break the century mark on the California run. She was destined to make three successive voyages to San Francisco from eastern ports in three successive years, none of which exceeded 110 days in length. Other clippers were later to duplicate this feat, but with the exception of the *Andrew Jackson*, which made four successive voyages in four years well within the above time limit, none appears to have exceeded it.

The *Andrew Jackson* and *Flying Cloud* each made four successive runs (in consecutive years) in 98½ and 100 days, respectively, but the fast clipper *Westward Ho* averaged 103.3 days for four successive runs; the *Flying Fish*, 103.5 days; the *Great Republic*, 106.7 days; the *Swordfish*, 107 days; and the *Flying Dutchman*, 109 days. The *Sea Witch* averaged 105 days for her three westward California passages, and the big *Romance of the Seas*, her only close competitor for speed honors among the clippers making only three such runs, averaged 105.3 days. Aside from the wonderful little *Sea Witch* of 908 tons (built for the China trade in 1846), with a record of 97 days established July 24, 1850, and the splendid new clipper *Surprise* of 1,261 tons (also designed for the China trade and launched October 5, 1850), which arrived at San Francisco March 19, 1851, and made a record of 96 days 15 hours for a direct passage from a North Atlantic port to California, the *Flying Cloud*, an extreme clipper of 1,782½ tons designed and built by Donald McKay, East Boston, Mass., for the California trade and launched April 15, 1851, was the first of many speedy Cape Horners built in the years 1851-1853 inclusive to establish a lower sailing record on a westward passage to San Francisco than the 96 days 15 hours of the *Surprise*. When the *Flying Cloud* anchored in San Francisco Harbor August 31, 1851, she established a record of 89 days 21½ hours out from New York, anchor to anchor (or 6 days 17½ hours lower than that of the *Surprise*). This held unchallenged until Captain Creesy, with the *Flying Cloud*, reported an arrival at San Francisco April 20, 1854, and claimed a new record passage of 89 days 8 hours, which was evidently not supported by unquestioned proof. It was generally accepted, however, inasmuch as no other ship or master was involved, and it was simply a case of a combination of ship and captain having lowered a record some 13½ hours on about a three-month run that they themselves had established 2 years 7 months 20 days before. The *Flying Cloud* was a sharp-lined extreme clipper, with lofty spars, long yards, and a wealth of canvas, designed primarily, if not solely, for speed and requiring a large crew to handle her. The ship was outstandingly lucky, but aside from that, she seemed to be excellently designed for making fast runs and short passages in the California trade and, by her sailing performance, well earned the title of "Greyhound" of the California clipper fleet.

The *Andrew Jackson* was an entirely different ship from the *Flying Cloud* and generally the contemporary clippers of her class. She was fuller under water, but still had fine lines and an excellent model for speed; a more powerful and commodious hull both above and below water, with buoyant ends. She was amply sparred and canvased, but more rugged and not as sharp or as extreme in either model or rig as the McKay ship. A few prejudiced critics went so far as to say: "The *Andrew Jackson* is no clipper at all; she cannot possibly have made the passages claimed, as such speed is not in the vessel." Generally, such statements were made in ignorance by some booster of a rival builder's product and often by people who had never seen the ship. This antagonism toward the *Andrew Jackson* as a plebeian ship that sought to dethrone the aristocratic *Flying Cloud* was due primarily to propaganda and the effect of the advertising given the *Flying Cloud* by her captain, builder, and owners as the "Greyhound of the Seas," the "Queen of Cape Horners," and the "champion fast sailer among all clippers," with claims which lodged in the public mind and went far beyond the good ship's actual accomplishments. Some defenders and advocates of true recognition of the demonstrated high speed of the *Andrew Jackson* have later added insult to injury by

likening her to the Canadian-built clipper *Marco Polo* of 1,625 tons (built by Smith, St. John, New Brunswick, in 1851), which was sent to England for sale and was ridiculed by British marine "authorities." They declared the *Marco Polo* to be "a mere box with ship rig that could not possibly be made to sail," and the Liverpool press described her as being "a big thick lump of a black ship with tremendous beam, a vessel you could carry on to glory in, even to sporting lower and topmast stunsails in a strong gale." However, the wise James Baines, founder of the British-Australian Black Ball Line, who knew a ship, saw the *Marco Polo* in dry dock, and as soon as he saw her splendid underwater body, he bought her from old Paddy McGee, the Liverpool ragman and marine store dealer, who had picked her up cheap.

On her maiden voyage in 1852, the *Marco Polo* made a record passage of 68 days from Liverpool to Melbourne. She proved to be an amazingly fast sailer, a powerful sail-carrying vessel, a big carrier (she had 930 emigrants aboard), and a fine sea boat. She beat the steamer *Australian*, made 364 miles in one day, and on the completion of her first round voyage in the amazing time of 5 months and 21 days (another record), the ship—once scornfully referred to by the British as "a Canadian tub" and "the ugliest ship in the world"—was heralded in the press and declared by her captain, owner, and the British marine fraternity as "the fastest ship afloat." That this was, in the minds of British merchants and the trade, no idle boast (and held as far as the British merchant marine was concerned until U.S.A.-built clippers such as the Pook-designed and Maine-built superlative *Red Jacket* and the fine, big McKay-built clippers flew the British flag and entered the British-Australian packet trade) is proven by the fact that "they dug their hands into their pockets and willingly paid a stiff premium to get their goods carried by the *Marco Polo*"—a speed, comfort, and safety premium that passengers were also, it would seem, glad to pay, in her prime (and before big and fast U.S.A.-built clippers appeared in the trade), to book passage on her.

After her maiden voyage, the British, who had originally derided "the ugly New Brunswick ship," actually referred to her as "the speedy and handsome *Marco Polo*" when eulogizing her sailing performance. This was evidently a practical application of the old proverb, "Handsome is as handsome does"; for the Canadian ship was positively not a handsome vessel. The early clippers built in New Brunswick and Quebec and sent to Britain for sale often had good underwater lines, copied "from ships built in the States," but were rather crude and heavy in appearance and "entirely lacking in grace and beauty." On the other hand, clippers built at Mystic, Conn., from the first, were fine-looking vessels. Some of the smaller clippers were yacht-like, and the first big Mystic clipper, the *David Crockett*, whereas not as handsome as Webb's superlative and much more costly *Young America*, was described as "decidedly distinctive and pleasing in appearance as she floats and with a model that authorities in ship design and operation consider as almost perfect." A later Mystic-built medium clipper was described as "a beautiful ship in all respects," and most of the vessels of the Mystic yard, when they reached New York, were referred to by critics as "superior" and decidedly good-looking, strong, and well-designed and built ships. Mystic built some very fast clippers, but the village was never guilty of turning out a crude-looking product that resembled the *Marco Polo*.

Neither the *David Crockett*, built in 1853, nor the *Andrew Jackson*, launched seventeen months later, was analogous in any respect, except that of surprising speed, to the *Marco Polo*, and New York experts and unprejudiced members of the marine fraternity described the *Andrew Jackson* as "a handsome and powerful looking vessel" as she floated in the water, "both loaded and light." An authoritative critic referred to her as "not only burdensome but also beautiful, combining to a rare degree the beauty and speed of the extreme clipper with the larger storage capacity of the older packet ship." The *Andrew Jackson* was not as much of a packet ship in hull design as was the *David Crockett*, which later proved to be a magnificent Cape Horner, but she carried well, and it was admitted by those who refused to pay tribute to the ship for her splendid fast passages that she was "a very strong and particularly

well-built ship and always delivered her cargoes in first-class condition." It was also said that the *Andrew Jackson* had a hull and spars that would stand hard driving, and when she was sold to the British during the Civil War, a survey found her, after eight years of service, "in first-class condition; as sound as a bell and as good as new"—something that could not be said for the *Flying Cloud* after her less than six years in the California trade. The medium clipper *Andrew Jackson* was more conservatively sparred and canvased and carried a smaller crew than the extreme, "out-and-out," or full-fledged clippers of her day, but she was well sparred and rigged after her first trial voyage, crossed only one skysail yard (the main), and was free from flying kites, etc. The ship was built to carry well and, if economically operated, make money, even though she entered the trade and saw service in the depression years following the California boom. A contemporary authority said of the *Andrew Jackson*: "She has long and lofty spars and carries lots of canvas, and it looks as if she will stand driving." New York's greatest, most experienced, and successful ship designer and builder, William H. Webb (and, incidentally, the builder of the truly great Cape Horner *Young America*), after examining the *Andrew Jackson* in New York prior to her second voyage to California, expressed admiration of this Mystic-built rival and said: "If this ship is not fast, then I have never seen a fast ship and know nothing of models and spar plans." When the *Andrew Jackson* was sold abroad because of conditions brought about by the Civil War (with American shipowners losing their nerve because of the activities of Confederate raiders such as the *Alabama* and the lack of protection given American shipping on the Seven Seas by the U. S. Navy), it is significant that the *Andrew Jackson* was sold in New York and that a "canny Scot" who knew a good ship and the qualities needed in a ship to make money became the new owner.

Apparently, the famous Irons & Grinnell ship was built "on spec," not by the builders but by Mystic people and connected outside financial interests. She was not ordered by any shipping firm, but when completed was sent to New York, where she was promptly purchased at "a nice price for her builders" by John H. Brower & Company, owner of the 1,482-ton clipper *Harvey Birch*, which had been built at the same Mystic yard. Financial ownership and control evidently changed while the vessel was building, and the ship that had been laid down as the *Belle Hoxie* was christened the *Andrew Jackson*, when launched, after the famous American general and seventh president of the United States. Strange as it may seem, some of the bias against the ship can be attributed to the vessel's name, which was not popular in some channels. Such stupid prejudice against the name was evidenced when the ship's figurehead, a carved wood figure of Andrew Jackson, was hacked and chopped with an ax by some fanatical parties that for political reasons did not like the memory of the man (who had died in 1845) or the ship that bore the name of the soldier-statesman and so took their spite out on the vessel's figurehead.

It is a strange coincidence that the *Andrew Jackson* had the same identical registered tonnage as the *David Crockett*; each was Mystic-built and of 1,679 tons, but they were not sister ships and were the product of different builders. The dimensions were slightly different, the *Andrew Jackson* being somewhat longer, slightly beamier, and of less depth than the earlier-built ship. Both of these ships, however, and the *Mary L. Sutton*, which followed them, had a decidedly family or community resemblance in their underwater lines and indicated that a master model (possibly purchased from Naval Architect Samuel H. Pook, of Boston) was responsible to a great degree for the shape of their underwater hulls. The *Flying Cloud* was 6 per cent bigger than the *Andrew Jackson* and carried about 10 per cent more canvas, but, it was said, "carried 350 tons less freight" and required a much larger crew to handle her. In regard to the size of crew, Capt. John E. Williams, of Mystic, Conn., the master of the *Andrew Jackson*, was a much more economy-minded man than the more spectacular Capt. Josiah Perkins Creesy, of Marblehead, Mass., who was the famous skipper of the *Flying Cloud*.

The sailing performance of the *Andrew Jackson* on her first California voyage did not satisfy her master, Capt. "Jack" Williams, and few, if any, masters had a better "feel of a ship" than he had. As the voyage continued, Williams became convinced that his ship was out of balance and that the spars were not placed right; so upon her return to New York, he presented his views to John Brower, the owner, and went over in painstaking detail the reasons for his deductions and conclusions. Brower concurred in the views of his master, and "as the model and hull was known to be right and capable of more speed than she showed us on the maiden voyage," at Captain Williams' suggestion, the spar plan of the vessel was changed, the masts moved, and the rake as well as the stepping altered. When the *Andrew Jackson* sailed again, she carried no more canvas, but was "a handier, smarter, and faster ship." After the spar plan was modified, there is no record that the "*Jackson*" ever made a slow or mediocre passage, and her one voyage made as originally rigged by her builders (128 days around the Horn westbound) was a little better than the 130-day average time set for clippers on this run by Lieutenant Maury of sailing directions and track chart fame. On her "unsatisfactory" maiden voyage, two other fast clippers sailed with the *Andrew Jackson* on the outward passage to San Francisco, and the new Mystic-built ship not only beat them both but also made a faster Cape Horn run to California than any of the five clippers that had sailed from an East Coast port before her with departures ranging from June 25 to July 15, 1855.

The position of the masts in a ship is a matter of vital importance. Much of the success of the *Shenandoah*, one of the "Big Wood Four" of the Sewalls, of Bath, Maine, which, with her full model and heavy rig, gained quite a reputation for speed in the 1890's, is attributed by her commander, Capt. James F. ("Jim") Murphy, to the fact that the ship was "spared right and her masts stepped in exactly the right place for her hull." Captain Murphy declared that the *Shenandoah* "manoeuvred like a knock-about sloop" and that "she sailed a full point nearer the wind" than the best of her contemporary square-riggers. On one occasion, he affirmed, the *Shenandoah*, under his command, beat up Chesapeake Bay in the teeth of a northerly gale with a number of big fore-and-aft schooners, and his big square-rigger "both outfooted and outpointed every one of these vessels" under sailing conditions that greatly favored the schooner rig. Captain Murphy was very emphatic in attributing the success of the *Shenandoah* to the proper stepping of her masts and the relatively inferior sailing qualities of some other big Sewall ships to errors made in the spar plans. Lubbock, the British marine historian, writing of the sailing performance of the *Shenandoah*, emphasizes the claims made by Captain Murphy of the ship's perfect balance and says: "As every sailing ship man or racing yachtsman will tell you, the position of a ship's masts is the first consideration. If these are correctly placed, it will make all the difference between a ship that is easy to handle and smart in every evolution, and one which is the reverse." Captain Murphy influenced the builders and managing owners of the *Shenandoah* to give him a free hand in stepping the masts and sparring that vessel, and they later declared that they were glad that they had acceded to Captain "Jim's" request. It would seem that Capt. "Jim" Murphy made the *Shenandoah* a better than average sailer by his sparring of her and later in driving a well-balanced vessel. In the same way, Capt. "Jack" Williams, some thirty-six years earlier, "made the medium clipper *Andrew Jackson* the champion of Cape Horners" of the clipper ship decade (and prior to the Civil War); but Captain Williams had to re-step the masts of his ship and re-spar and re-rig the vessel after she had left the hands of her builders (who knew nothing of the sailing of ships) and after she had revealed her faults to him on a maiden voyage in the California trade.

After the *Andrew Jackson* had her masts re-stepped, she made sailing history that has never been equaled by any ship at any time over the world's toughest sailing course; i.e., around Cape Horn and in the turbulent southern latitudes (and, at times, the North Atlantic and the pampero area off the Plate) to be ended by an unpredictable run in the North Pacific from the line to the Golden Gate, with its erratic winds, calms, and fogs. The following is a

record of the four westward around-the-Horn passages made by the medium clipper *Andrew Jackson*, after she was re-rigged, during the last half of what is known as the "American clipper ship decade." All of these four passages originated at New York during November 1856-December 1859 and terminated at San Francisco during the thirty-seven-month period ending March 23, 1860, when the new all-time record of 89 days 4 hours over the course was recorded.

Voyage No.	Departure from New York	Arrival at San Francisco	Passage in Days	Remarks
2	Nov. 15, 1856	Feb. 28, 1857	105 elapsed	Reported as 102 days from Sandy Hook to port; also as 101 days "Hook to Gate" and 100 sailing days, pilot to pilot.
3	Jan. 16, 1858	Apr. 27, 1858	101 elapsed	Reported "47 days to Horn, off Horn 13 days," and 99 days 18 hours to San Francisco, pilot to pilot.
4	Dec. 23, 1858	Apr. 5, 1859	103 elapsed	Reported as 102 days. (Also stated that average length of this and two preceding passages was 101½ days.)
5	Dec. 25, 1859	Mar. 24, 1860 (entry day following arrival)	90 elapsed (89 actual)	Passage of 89 days 4 hours from New York to anchorage on pilot grounds at entrance to Golden Gate—the world's all-time record.
Average of 4 passages—elapsed time.....			99¾	Length of passages accepted by contemporaries gives an average of 98½ days for the 4 (maximum, 102 days; minimum, 89 days).
Average of 4 passages—as reported.....			98	

The *Andrew Jackson* made the fastest westward passage to San Francisco of any ship in 1861, with a run of 103 days elapsed time, port to port, reported as a 102-day passage by Captain Johnson, who had replaced Capt. "Jack" Williams in command. The famous combination of the *Andrew Jackson* and Captain Williams, which had rivaled that of the *Flying Cloud* and Captain Creesy and the *Flying Fish* and Captain Nickels, was broken. The only run to challenge that of the *Andrew Jackson* in 1861 was made by the sharper-lined clipper *Reporter*, whose skipper, Captain Howes, on arrival at San Francisco May 5, 1861, reported a passage of 103 days (the clipper's best California run) and a fortunate rounding of the Horn (50° S. Atlantic to 50° S. Pacific) in 8 days. (On her next attempted rounding of Cape Horn in August 1862, the *Reporter* encountered severe gales and foundered.) In 1862 the *Andrew Jackson* made her last California passage in 114 days elapsed time, port to port, with Captain Johnson in command, but details of this her longest Cape Horn westward run after she was re-sparred and re-rigged by Captain Williams in 1856 are not available. The *Andrew Jackson*, however, made five consecutive outward passages to San Francisco, averaging 100.4 days elapsed time, port to port, and 99.2 days as reported, and her last six passages over the course averaged 102½ days elapsed time and 101½ days as reported—all of which are all-time sailing records for five and six consecutive passages over the course. If the maiden voyage of the *Andrew Jackson* under an imperfect rig is included, the average of all the clipper's seven outward passages to California as recorded is 106.1 days, and for ships that made five or more passages over the course, this is second only to the record of the extreme clipper *Flying Fish*, which averaged 105.6 days for her total of seven such runs; but if the average of the length of all the seven passages made by the *Andrew Jackson* as recorded by contemporaries is accepted, the Mystic-built medium clipper slightly shades the *Flying Fish* with an average of 105.4 days.

The *Flying Fish* (1,505 tons), built by Donald McKay at his East Boston yard in 1851 and launched about five months after the *Flying Cloud*, holds, in the ultimate, a better record for westward passages to California than the more famous "McKay flyer" and "Greyhound" of the Cape Horn route. During her career, the *Flying Fish* made seven outward passages to San Francisco, which averaged only 105.6 days; whereas in her lifetime the *Flying Cloud*

made six such passages, which averaged 115.7 days, port to port. The *Flying Fish* had been decisively beaten on her maiden run out to California by the new and much smaller W. H. Webb clipper *Swordfish* (1,036 tons), and the summer of 1851 triumph of the McKay Boston-built ship *Flying Cloud* was publicized to overshadow completely the whipping administered to McKay's later clipper, the *Flying Fish*, in a race that ended at San Francisco in mid-February 1852, with the Webb clipper making a passage in 90 days 18 hours and the McKay clipper requiring 100 days 6 hours to make the run. The "fly in the ointment" was the fact that the *Flying Fish* was owned by Sampson & Tappan, of Boston; whereas the *Flying Cloud* had been bought upon completion by Grinnell, Minturn & Company, of New York, from Enoch Train, of Boston, her original owner. Nevertheless, the McKay-Boston propaganda mill concentrated on boosting the *Flying Cloud* as the record-holder and champion of all Cape Horners.

The *Flying Fish*, on her second passage to California in the winter of 1852-1853, made a fine run out to San Francisco in 92 days 4 hours and beat the fast clippers *John Gilpin*, *Northern Light*, and *Queen of the Seas* (and all other "entries"), which sailed about the same time as she did, in a contest dramatized by Maury as the "Cape Horn Sweepstakes" and since referred to by historians as the "Great Deep-Sea Derby," with fifteen or sixteen entries. Yet the *Flying Fish* did not get revenge on the *Swordfish*, which was not in the "race"; nor did she beat the record time of the *Flying Cloud*, so her great sailing on this passage was practically ignored by the McKay-Boston camp. It was only the frowns of Dame Fortune and a little bad luck that deprived the *Flying Fish* on this outward run from gaining the honor of making a record passage from an East Coast port to San Francisco. Captain Nickels, through an error of judgment, got to leeward of Cape St. Roque near the Atlantic equator and lost about two days; but notwithstanding this bit of ill-fortune, the "*Fish*," on her 88th day out, was actually 156 miles nearer her destination than the "*Cloud*" had been on her June-August 1851 passage, when Captain Creesy reported his ship's record run of 89 days 21½ hours from New York to San Francisco. As the *Flying Fish* approached the California coast, Dame Fortune frowned again, and this time Captain Nickels was guilty of no error of judgment. She reached a point only a few miles off the land in 15 days from the line and only 34 days from the parallel of 50° S. Pacific and was then detained for three days in calms and light contrary airs. A passage that gave great promise of beating the *Flying Cloud's* record by a full day or the greater part of a day (according to how the wind held in direction and force) dragged out to 92 days and 4 hours before the *Flying Fish* could get wind enough to sail through the Golden Gate and come to anchor in San Francisco Harbor. If Captain Nickels had not got to the leeward of Cape St. Roque and thereby lost two days near the Atlantic equator, it is quite possible that the *Flying Fish* might have reached the Golden Gate without being delayed by calms and contrary light winds off the California coast, in which case an all-time record passage of some 86 or 87 days would have been made by that clipper. (The *Flying Dutchman*, arriving at San Francisco January 27, 1853, made a fast run of 16 days from the line and 35 days from 50° S. Pacific.)

Another fast Boston clipper, also built by McKay and owned by Sampson & Tappan (which also owned the *Flying Fish*), was the *Westward Ho* (1,650 tons), launched a year after the "*Fish*," but which, during her brief career of some five and a half years under the American flag (October 1852-March 1857), did some splendid sailing and made four fast westward Cape Horn passages that averaged only 103.3 days. In the so-called California "Sweepstakes" of the winter of 1852-1853, the *Westward Ho*, on her maiden voyage, was as badly beaten by the *Flying Fish* as that clipper had been beaten by the *Swordfish* when she had sailed against her in the winter of 1851-1852, when the "*Fish*" was making her initial run. Therefore, the McKay-Boston publicists ignored the *Westward Ho* and concentrated on the *Sovereign of the Seas* (2,421 tons), which McKay had built and wanted badly to sell, and on the *Flying Cloud*, whose record sailing performance over the westward Cape Horn run to

California was used vigorously as a "come-on" to sell other McKay-built clippers (built, building, and proposed) and in the fall of 1853 to obtain a contract for building a fleet of big clippers for James Baines, Liverpool, and the British-Australian trade. It is surprising, considering the excellent sailing record of the *Westward Ho*, that so little was said by contemporaries or has been written by historians about that excellent speedster. It would seem that her passages were consistently good without any one being phenomenal or spectacular. The *Westward Ho*, although badly beaten by the *Flying Fish* and *John Gilpin* in the California "Sweepstakes" of 1852-1853, did not sail any race with these ships, as she had left port two weeks before them and had not experienced the sailing chances of the clippers that left port the end of October 1852. Moreover, this maiden passage of the *Westward Ho* recorded as 107 days, port to port, elapsed time, which was that clipper's longest run over the course, was reported by Captain Johnson as a passage of 103 days. The other three westward Cape Horn runs to San Francisco were made in 105 days (1853-1854), 100 days 18 hours (1855), and 100 days (1856-1857). This makes the only consistently fast sailing for four consecutive voyages that is comparable with that of the *Andrew Jackson*, which made her first of five consecutive fast outward runs to San Francisco about the time that the *Westward Ho* made her last run to California (December 1856-March 1857) prior to being sold to the Peruvians.

McKay's fast Cape Horner, the *Flying Cloud*, is greatly handicapped in any comparison of average length of passages, port to port, by her disastrous sixth and last outward passage of 185 days under Captain Reynard via Rio de Janeiro, where she put in for repairs after being partially dismasted in the South Atlantic. For her five earlier consecutive outward runs under Captain Creesy, the *Flying Cloud* has an admirable record of an average of 101.8 days for the five passages and 100 days for the first four. It was on this sailing record—and the combination of the ship and Captain Creesy—that the *Flying Cloud* during the years 1851-1855, by sheer merit and excellence of sailing performance, won and fairly earned the title of the "Greyhound" and "Speed Queen" of the Cape Horners. The *Flying Cloud* was lucky, but she was a very fast ship, and the combination, with a capable and lucky master (who was a notorious driver), makes the ship either a record-breaker or an outstanding contestant for championship honors. It has been said that Captain Creesy "made the *Flying Cloud*," a statement obviously untrue, for with any one of a dozen or more top-flight driving commanders, the *Flying Cloud* would have shown outstanding speed. On some occasions, the *Flying Cloud* was beaten, and this by ships of believedly lesser speed, and it is felt that the fault was not with the ship but with her master. In 1852 the *N. B. Palmer* sailed from New York on May 22, and the *Flying Cloud* had dropped her pilot off Sandy Hook on May 14—eight days before; yet the "*Palmer*" talked with the *Flying Cloud* on July 1, when in about 32° S. Atlantic, having gained eight days on the McKay speedster in forty days' sailing. Captain Creesy was chagrined and rude to Captain Low, but the truth is that the master of the *Flying Cloud* banked more on his luck and hunches than he did on Maury's sailing track and directions (based on the recorded experiences of thousands of passages) and too often went off the track searching for wind. On the next and third outward passage of the *Flying Cloud* in 1853, that clipper was beaten by the *Hornet* in a sea run from off Sandy Hook, where the vessels were in company, by about a day to the San Francisco pilot grounds. On this occasion, Captain Creesy, after having made a fine run to 50° S. Pacific and beaten the *Hornet* by seven days to this point, lost all his lead and a day more by the course that he pursued running north in the Pacific, going far to the west and north and covering a lot of mileage looking for wind. Later, Creesy was so aware of his errors of judgment (after he saw the *Hornet* waiting outside the port and anchoring in the harbor ahead of him) that he refused to turn over to Lieutenant Maury his track chart, log, or even an abstract therefrom of any part of the passage other than the run from New York to the Atlantic equator. Over this first section of the passage, with a run of only 17 days from Sandy Hook to the line, Creesy knew full well that he had beaten the *Hornet*.

Captain Cressy was not the only famous skipper who, "thrilled with his own good luck," became conceited as a navigator and unwilling to follow the advice of the "Pathfinder of the Seas" and benefit by the Maury-recorded experience of others. Capt. David S. Babcock, the very capable commander of the *Swordfish* and *Young America*, when in command of the latter ship on her maiden voyage, left New York June 10, 1853, ten days after the 818-ton Bath-built *Windward* (Captain Whiting) had left port. On July 8, when in Lat. 8° N., the *Windward* reported sighting the *Young America*. Captain Whiting, following the Maury charts and sailing directions, steered south, while Captain Babcock took his ship to the east. The log of the *Windward* reports again meeting the *Young America* under generally similar conditions on July 15 (6:00 A.M.)-16 (noon) and on July 21 in Lat. 4° 17' S. and Long. 32° 40' W. Captain Whiting wrote: "At 5.00 the *Young America* comes along again & sails right away from me so did not gain anything by tacking to E'w'd." The *Windward*, following the Maury track and sailing directions, continued on her journey south, and forty-three days later and fifty-six days after she had first sighted the *Young America*, Captain Whiting's log reads:

Sept. 2—58.58 S. 70.02 W.—ship *Young America* on my lee bow 2 or 3 miles dist. Hoist my ensign and then my private flags; he won't answer me; acts as though ashamed of the beat I have

given him from the line up here: If a breeze springs up he runs right away from me as he did before. If he does not look out sharp I shall be close on him at S. Frisco.

Apparently, Captain Babcock did "take a tumble to himself," stop cruising, follow the Maury track, and sail for San Francisco without further experimental cruises looking for wind; for the *Young America* arrived there after a passage of 110 days from New York, which is amazing considering the time wasted on the first half of the passage. That Captain Babcock of the *Young America* was guilty of wasting time on this passage, while wandering from the plotted ideal track "searching for wind," has been accepted as proven by the marine fraternity to this day based on the log of the *Windward*, but the author suggests that Captain Whiting, in his entry of September 2, 1853, mistook some other ship for the *Young America*. His official log admits that the identity of the ship that he signaled was not revealed by answering flags, and as the *Young America* reached San Francisco on September 29, it would have been impossible for her or any other ship to have sailed from Lat. 59° S., Long. 70° W. to port in only 27 days after being alongside the *Windward* on September 2. The all-time record from 57° S. Pacific to the Pacific equator is 17 days, made by the *Mary L. Sutton* in June-July 1856, and from the line to the Golden Gate the record is 12 days, made by the *Comet* in February 1856; both were phenomenal runs, and they aggregate 29 days. However, no single ship has ever sailed on a single passage from Lat. 59° S. to San Francisco in better than 36 days; hence the ship reported by the *Windward* on September 2, 1853, could not have been the *Young America*. It would seem that Capt. Comfort Whiting, Jr., mistook another vessel for the *Young America* when in Lat. 59° S., Long. 70° W. on September 2, even if the clipper ship that he sighted in the general vicinity of the Atlantic equator during the period July 8-21 was, as he says, the *Young America*—which is quite possible. It is suggested that the ship referred to in the *Windward's* log on September 2, 1853, might have been the *Gazelle* (under command of Captain Dollard), an extreme clipper of 1,244 tons built by Webb, New York, in 1851, which had left New York a day before the *Young America* and reached San Francisco on October 7, 1853, or eight days after her, following a passage of 119 days as against the 110-day run of the *Young America*. As the vessels were the product of the same builder, generally similar in rig, and both fast sizable ships, it would seem an easy matter to be confused at sea in regard to identity if signals were not exchanged. The only other fast sizable clippers that Captain Whiting, according to departure and arrival dates, might have sighted on September 2 in the position stated in his log were the *Messenger* of 1,351 tons, which reached San Francisco October 6, and the *White Swallow* of 1,192 tons, which passed through the Golden Gate on October 24 (or fifty-two days after September 2) and completed a very slow passage of 150 days. The *Windward* reported her arrival as of November 2, completing a "long passage" recorded as 155 days, her run from 59° S. to port requiring just two months. Cutler, in *GREYHOUNDS OF THE SEA*, says:

In spite of the *Young America's* excellent maiden run, Babcock seems to have missed several opportunities to shorten his voyage. His anxiety in the doldrums of the Atlantic seems to have led him off the recommended course more than once. . . . It seems altogether probable that if Babcock had

followed sailing directions more closely during the first half of the trip instead of trying to "raise a breeze," he would have made a shorter passage. . . . It was a similar impatience which in all likelihood cost Nickels and the *Flying Fish* the championship of the world a few months earlier.

Cutler admits that the log of the *Windward* "is the only record now available" which throws any light on the wasteful wanderings of the *Young America* on her 110-day passage of 1853; therefore, it is apparent that Captain Babcock was not as bad in his judgment on this passage as the log of Captain Whiting of the *Windward* would indicate, for it was obviously impossible for the *Young America* to spend some 83 or 84 days of her passage reaching a midway point well south of Cape Horn and then cover the other half of the passage, which included the completion of the rounding of the Horn, in only 27 days to anchor in San Francisco Harbor. The *Gazelle*, with a run of 84 or 85 days to the point south of Cape Horn, could not have covered the last half of the passage in 35 days, which would have been better than the record time; while the *Messenger*, which reached San Francisco October 6 after being 12 days off the California coast with the sea "as smooth as glass" and "within 600 miles of the Golden Gate for 17 days," could hardly have made the run from off the pitch of the Cape to anchor in San Francisco Harbor in 34 days. The *White Swallow*, however, with a run of 98 days to a point S.S.W. of Cape Horn and 52 days to port, would have qualified as being the possible clipper reported by Captain Whiting on September 2, 1853. Captain Lovett, on his arrival at San Francisco, reported having been 86 days to 50° S. Atlantic after leaving Boston on May 27 and 16 days rounding the Horn to 50° S. Pacific, which would place the *White Swallow* at that parallel on September 6; so it is probable that she was the ship that the *Windward* saw on September 2 in the position of Lat. 58° 58' S. and Long. 70° 02' W. as stated by Captain Whiting.

Other ships that might possibly have been in the vicinity of the Horn when the *Windward* was in those waters are the newly built *Juniper* of 514 tons and the *Grey Hound* of 536 tons (built at Baltimore in 1848), but neither of these small vessels could possibly have been mistaken for the big, fast *Young America*. The *Atalanta* of 1,289 tons, *Bonita* of 1,127 tons, and *Wild Ranger* of 1,044 tons are all possibilities, as they sailed eighteen or nineteen days after the *Windward* and made faster passages out; but the *Atalanta* reached San Francisco October 24 (the same day as the *White Swallow* and fifty-two days after September 2). The *Wild Ranger* arrived the following day and reported having had her mainmast sprung and being otherwise damaged in gales off Cape Horn, which was obviously not the same weather that the *Windward* experienced on September 2. Another clipper that might be considered is the *Flying Dutchman* of 1,257 tons, for she was a Webb production and her characteristics of model and rig were conspicuous in the design of the *Young America* and revealed an undoubted family resemblance. The *Flying Dutchman* sailed from New York thirteen days after the *Young America* and fourteen days after the *Gazelle* and received her San Francisco pilot when 104 days out, although she did not anchor in the harbor until October 7, completing a passage of 106 days. This is said to be the record for any vessel making the Pacific equatorial crossing in September. The *Flying Dutchman* was at 50° S. Pacific on August 20, when 58 days out, and on September 9 crossed the equator, so she could not possibly have been off the Horn with the *Windward* on September 2. The *Queen of Clippers* (2,361 tons) left New York on June 30, and the *John Bertram* (1,080 tons) sailed from Boston on July 1. They made passages of 119 days and 115 days, respectively, to San Francisco. The *Queen of Clippers*, on September 1, 1853, was at Lat. 50° S. and Long. 62½° W. and could not possibly have sailed half way around the Horn to 59° S. and 70° W. in a day. The *John Bertram*, which made a 115-day passage to San Francisco, to be at the point well south of the Cape on September 2, would have run to that point in 63 days and required 52 days for the run up the Pacific; for she reached San Francisco on October 24, the same day as the *White Swallow*, the *Atalanta*, and the last of the possibilities to be here referred to,

which is the *Contest*. However, the *John Bertram* reported a passage of much light wind and calms, with the best sailing in the South Pacific, and running from 50° S. to the line in 18 days, which fact does not rule her out as a possibility of being the ship sighted by the *Windward* on September 2 well south and slightly west of the Horn. The *Contest* (1,098 tons) is the only other clipper sailing within thirty-five days of the *Windward* that reached San Francisco in October, and the *Contest*, dropping her pilot off Sandy Hook July 8, was 108 days to San Francisco and reported a very fast run to 50° S. Atlantic and in the South Pacific. On September 2, this clipper would have been 56 days out, with 52 days to complete the passage, and as she claimed a run of 36 days to 50° S. Atlantic, it is not likely that she required 20 days to sail from that parallel to 59° S. and 70° W.

The above discussion bears upon the habit of several leading masters of feeling superior to Maury, the "Pathfinder of the Seas," and digressing from his suggested tracks by following hunches and banking on their luck as they went cruising to find the wind that would permit them to make quicker runs than the more conservative masters, who were willing to be guided by the consolidated and average experiences of the many who had traveled the same waters at the same time of the year as they were making their runs. Many clippers showed a high rate of speed in knots per hour as far as logged distances were concerned, but this did not necessarily mean that they made the fastest passages. It was thrilling to see a sharp-lined clipper reeling off 15 to 17 knots per hour or even more, but if this mileage was not taking her effectively toward her port of destination and to sections of the course where she was likely to find good winds and sailing conditions, then the high speed, while spectacular, might prove to be more harmful than beneficial. The proverb of the hare and the tortoise in some measure applies to ships. Many a clipper classed as a Cape Horner made higher speed in spurts than the *Andrew Jackson* and had a model capable of being driven through the water at a higher rate of speed under certain favorable conditions of wind and sea. Several ships could show a higher average rate of speed for an entire passage of three months or more, but the fact remains that no Cape Horner has as good a record for uniformly short passages as the *Andrew Jackson*. Part of the credit of the ship's wonderful performance at sea is due her plucky, resourceful, driving, yet conservative commander, Capt. "Jack" Williams, who capitalized to the full the manifold recorded experiences of others, followed Maury's tracks and sailing directions, and sought to follow a track of the minimum mileage that, according to past performance of the combination of ship, wind, currents, and seas, would make for the best passage, port to port. Capt. "Jack" Williams cared nothing about logged speed unless it was along a course in the direction of his goal. It was reported that when the *Andrew Jackson* made her record passage of 89 days 4 hours from New York to San Francisco, she traveled only 13,700 miles—or approaching steamship straight course distance—and averaged only about 6.4 knots per hour (but this mileage is not given in the ship's log and was not given by Captain Williams); whereas the *Flying Cloud*, on her reported run of 89 days 8 hours, gave her mileage as 15,091 miles and "an average speed of over 7 knots per hour." The *Hurricane*, however, in 1854 logged 17,384 miles on a passage from New York to San Francisco and averaged well over 7 knots per hour, but the length of this passage, port to port, was nearly eleven days longer than that of the *Andrew Jackson* and the reported mileage as logged 3,684 miles, or some 27 per cent, more. It is interesting to note that the mileage recorded for the *Andrew Jackson* on her record run is 1,600 miles, or over 10 per cent, less than the 15,300 miles estimated by Maury as the average distance logged by ships that endeavored to follow his track and directions throughout the year.

Some historians have criticized the *Andrew Jackson* because she made no spectacular day's runs or spurt speeds and have sought to discredit Captain Williams because of the low mileage courses followed, suggesting that he was a driver that merely followed a short course track and implying that he had no initiative or imagination. Howe and Matthews, in AMERICAN CLIPPER SHIPS, say that the *Andrew Jackson* "broke no records, either on a whole passage or over any of its sections," and this is positively untrue. The "*Jackson*" holds not only

the record from an East Coast U.S.A. port to San Francisco, which was universally accepted by the shipping fraternity in early 1860 when it was made (and acknowledged by the historians until recent years, when a deplorable era of "debunking" came upon us and the spirit of it developed to criticize the acknowledgment of American achievements and traditions and in a destructive critical vein attempted to rewrite American history) but also the record for a transatlantic westward "uphill" passage and that for a complete transatlantic voyage in days at sea, both eastbound and westbound.

The original log of the record outward passage to California is available and shows a departure of the *Andrew Jackson* off the Highlands at 1:00 P.M. on December 26, 1859, and a run to the equator of 20 days 12 hours in bad weather. Wind and current conditions were adverse and troublesome off Cape St. Roque and the northeast bulge of the South American continent, but when 43½ days out, Lat. 50° S. Atlantic was reached and Cape Horn sighted February 9, 1860, when 45 days out. Bad seas were experienced and some dirty weather when rounding the Cape, the ship running south to Lat. 57°, but the Pacific equator was crossed in Long. 113° W. Captain Williams wrote in his log on Tuesday, March 6: "73 Days to the Equator the Shortest but 3 on Record." On Friday, March 23, the log reads: "At 4 P.M. made the Farallons," and it ends with the words written boldly across the page:

"89 DAYS AND 4 HOUERS FROM NEW YORK"

When nearing the Golden Gate, light airs and calms were encountered, and the breeze died down in the afternoon. No pilot was available, and the ship lay practically motionless during the evening and night; but the breeze came up with the dawn, and Captain Williams wrote: "At 7 A.M. tuck pilot," following which the ship proceeded to pass through the Golden Gate and anchor in San Francisco Harbor, having made the best sea passage on record from New York to the San Francisco pilot grounds.

The time of 89 days 4 hours stated covered the entire sea passage of the *Andrew Jackson* under sail between the port of departure (New York) and the port of destination (San Francisco) and eliminated time spent on towing and influences that were outside the ship herself and beyond the control of her master. It bettered the time between the stated points reported by Captain Creesy of the *Flying Cloud* on both his 1851 and 1854 record passages of that fast clipper and created the all-time record between an East Coast or North Atlantic port and San Francisco. There is no question about the 1851 record of the *Flying Cloud*, and the clipper's time of 89 days 21½ hours was from New York to anchor in San Francisco Harbor. On the 1854 fast passage of the clipper, Captain Creesy claimed a record run of 89 days 8 hours from New York to San Francisco, but proof of this time was not presented. There is some uncertainty in regard to the actual time of the commencement of the passage, and the end of the run is shrouded in mystery and doubt. The customhouse records showed that the ship cleared New York January 19, 1854, but Captain Creesy reported that he sailed January 21 at noon in tow, at 3:30 P.M. discharged tug and pilot and made sail, and at 6:00 P.M. passed the lightship. The time that the *Flying Cloud* actually arrived at San Francisco is not ascertainable, and no one, apparently, has ever clearly known when and where this passage—time and place—started and ended. If we accept Captain Creesy's statements in regard to its commencement (which no one, it would seem, has shown any disposition to question), the same cannot be said of the end of the passage, for evidently Creesy never reported regarding the end of the passage or presented any statements that could be checked up and verified or disputed on the San Francisco end. He showed no log (as he did after his 89-day 21½-hour passage in 1851), but simply made the bald statement that the *Flying Cloud* had established a new record of 89 days 8 hours. It is known that the *Flying Cloud* had not arrived at a point off the Golden Gate and was not in sight at sea from high land or from any boat cruising off the San Francisco Heads when the sun went down during the evening of April 20; therefore, it is impossible for the clipper to have made a run of 89 days 8 hours from anchor in New York Harbor to anchor in San Francisco Harbor as has been claimed. When 89 days 6 hours

had elapsed and dusk approached to prevent vision, there was no sign of the *Flying Cloud* approaching the Heads and the Golden Gate.

There is but little contemporary printed matter that bears on this second 89-day passage of the *Flying Cloud*, and when, five years and eleven months later, the *Andrew Jackson* sailed through the Golden Gate with a clean-cut and proven passage of 89 days 4 hours from Sandy Hook to anchorage on pilot ground at the entrance to the Golden Gate, this record trip was accepted by the marine fraternity and authorities. They had and were given on the spot—and that promptly—every facility to check and verify. Not only was it the consensus of opinion that a new fine record had been made by a truly great ship but also, evidently, there was no dissenting voice. The people of San Francisco, the press, and both friendly and biased rival marine interests found the *Andrew Jackson's* log available for examination—as is the original today—in the handwriting (with its quaint spelling) of Capt. John E. Williams. The officers of the ship and pilots and people at shore stations were interviewed, and as a result of investigations, a committee of merchants and citizens honored the *Andrew Jackson* and her worthy skipper. The merchants' associations of San Francisco, by unanimous vote, presented Captain Williams with a commodore's pennant for "the shortest voyage from New York to the Golden Gate" and attempted "to parade him around the city in a victoria as well as tender a banquet in his honor." Following the ship's return to New York via Callao, Peru, on August 21, 1860, the owners presented him with a valuable chronometer watch bearing this inscription:

Presented by J. H. Brower & Co. to Captain J. E. Williams of the clipper ship *Andrew Jackson* for the shortest passage to San Francisco. Time 89 days 4 hours, 1860.

The press, in both the East and West, dwelt at length on the fine sailing performance of the *Andrew Jackson*, and the new record was accepted without any controversy and even without any doubting voice being raised by interests connected with the *Flying Cloud*, Donald McKay, and Boston's shipbuilding boosters. We are told: "Captain Creesy, late of the *Flying Cloud*, accepted the fact [the lowering of her record] gracefully as did the New York owners of that ship." It is significant that the owners, the contemporary shipping fraternity, and competent historians do not press for recognition Captain Creesy's claim for an 89-day 8-hour passage of the *Flying Cloud* in 1854, but feature the proven 1851 record of 89 days 21½ hours. The *Flying Cloud's* sailing in 1854 was magnificent, and she is fully entitled to acclaim, but it would seem that her command, builders, owners, and friends for a time waxed too enthusiastic. On both the around-the-Horn passage and the transpacific run that followed, there are differences in recorded and reported times that have never been satisfactorily explained. Captain Williams' records of the *Andrew Jackson's* sailing performances, on the other hand, are just as definite and convincing as those of Captain Creesy of the *Flying Cloud* during 1854 and thereabouts are ambiguous, uncertain, and unacceptable.

The honor won by the *Andrew Jackson* rested with her and her skipper for decades beyond their lifetimes, undisputed by rival contemporaries or nineteenth century marine historians. As late as 1892, Grinnell, Minturn & Company, owners of the *Flying Cloud*, stated in writing that the *Andrew Jackson* made a run in 1860 from New York to San Francisco "somewhat faster than that of the *Flying Cloud*." Over half a century after the *Andrew Jackson* made her record passage to California, the first real history of American clipper ships was published. This interesting, scholarly, and authoritative book, entitled THE CLIPPER SHIP ERA, did much to inspire the excellent, more detailed and elaborate works, AMERICAN CLIPPER SHIPS by Howe and Matthews (1927) and GREYHOUNDS OF THE SEA by Carl C. Cutler (1930). Written by Capt. Arthur H. Clark, an unquestioned authority to whom the people of the United States are under obligation for compiling such an admirable work, and dedicated "To the memory of a friend of my boyhood, Donald McKay, builder of ships" (designer and builder of the *Flying Cloud*), THE CLIPPER SHIP ERA gives the *Andrew Jackson* and her worthy skipper full credit not only for the all-time record outward passage to California of 89 days 4 hours but also for the all-time "superb record" of 98½ days for four

consecutive westward Cape Horn passages to California. Much more recently, Felix Riesen-berg, Jr., in his historical work, *GOLDEN GATE*, has written:

It was a Mystic-built medium clipper that startled San Francisco in 1860 by beating the time of the famous *Flying Cloud*. On March 23 the *Andrew Jackson*, Captain John E. Williams, was off the Heads, eighty-nine days and four hours from Sandy Hook. While this did not beat the anchor-to-anchor record, the city nevertheless feted the ship as its new champion. The *Jackson* had found no pilot off the Bay and was forced to wait overnight when the wind died.

It is a moot question as to whether the *Andrew Jackson*, even after lying off the Golden Gate fifteen hours during the calms of evening and light airs and calms of the night, did or did not make an "anchor-to-anchor record"; for the only substantiated run of this kind is evidently the 89-day 21½-hour passage of the *Flying Cloud* made in 1851.

In the minds of marine writers who should know better, much confusion has evidently existed between a vessel's ability to show high speed because of model sharpness and sail spread and a ship's practical achievements in making fast long-distance deep-sea passages. The *Flying Cloud*, with her sharper model and relatively larger sail spread (and bigger crew), was unquestionably a faster "spurt ship" than the *Andrew Jackson*, but the "Greyhound" of the Cape Horn route did not compare with the fuller-modeled, good revenue-making, and economically operated Mystic-built medium clipper in maintained deep-sea work, reliability, and uniform short length of passages over a term of years. Because of her larger carrying capacity and proven ability to make good uniform passages, the *Andrew Jackson* was operated profitably when it became necessary to withdraw the *Flying Cloud* from Cape Horn service and lay her up. In *AMERICAN CLIPPER SHIPS* (Howe and Matthews, Salem, Massachusetts, Marine Research Society, 1927), we read: "It appears that the fast passages of the *Jackson* were due to hard driving and also to a succession of winds favorable to her running near to a direct course, rather than to her ability to move through the water rapidly and there is no record of any great day's run to her credit." This is a sound and fair statement that should be considered as complimentary to the ship and her skipper rather than otherwise. The *Andrew Jackson* was not an extreme clipper, a "speed merchant," or a ship built merely to make fast runs; she was a vessel designed to carry well, be a good and reliable sea boat, make uniform fast passages, and be a good money-maker for her owners. There is no evidence that the command of the *Andrew Jackson* ever claimed any record between points during a passage or announced any big day's runs or high spurt speed by log, and in this respect her master, Capt. "Jack" Williams, differed greatly from the skippers of most of the extreme clippers—particularly those of "the vintage of 1851-1853." Capt. John E. Williams shunned publicity and notoriety; he was a modest, retiring man, and he made it a point "to keep out of the public print" and the limelight. It was said of him following his retirement: "He kept his mind on the time from port to port and then did no boasting, but let the records of departure and arrival speak for themselves." We do not know of the *Andrew Jackson's* biggest day's run, of any high speeds obtained by log, or of very fast runs made and recorded between points on any voyage. Captain Williams, like the owners of the ship and the shippers of freight, was interested only in the time of passage between ports and the reliability and economy of the ship as a carrier of cargo. However, no ship that was ever in company with the *Andrew Jackson* under canvas at sea ever passed her, and no ship that ever sailed in company with her ever equaled or closely approached the "*Jackson's*" time on a passage to the port of destination.

The *Andrew Jackson* not only made and holds the record of 89 days 4 hours over the difficult and "uphill" westward course to California but also, preceding this passage, had arrived at New York on August 21, 1859, completing a fast eastward Cape Horn run of 83 days from San Francisco (*New York HERALD*, August 22, 1859), which, with the outward passage that followed it, gave the "*Jackson*" an all-time record of 172 days at sea for combined eastward and westward runs in the Cape Horn trade. The comparative sailing performances of other of the early speed clippers that recorded fast combined runs at sea on return Cali-

ifornia voyages (running east in ballast) were: *Contest*, 180 days; *Flying Dutchman*, 189 days; *Northern Light*, 193 days; and *Comet*, 196 and 204 days. Therefore, the great superiority of the Mystic-built medium clipper's round-trip sailing performance over that of these famous extreme clippers is significant.

Three clippers that figured in the California trade are credited with very high day's runs of 400 miles or over: *Great Republic*, 413 miles (and 360 miles in 19 hours); *Flying Cloud*, 402 miles; and *Invincible*, 400 miles. Yet the *Andrew Jackson* had a better speed record in the California trade than any of these fast clippers. She was a better stayer and better sea boat in heavy weather than the *Flying Cloud* and a more uniform fast sailer than the spectacular and mammoth *Great Republic* as well as a much more practical vessel. When the *Andrew Jackson* raced the *Invincible* westward across the Atlantic, sailing in company from the Mersey on November 3, 1860, the "*Jackson*" arrived at Sandy Hook November 18 after a record run of 15 days and beat the *Invincible*, which arrived November 20 after "an excellent fast run of 17 days," by two full days; yet as far as sharp lines, high spurt speed, and big day's runs are concerned, the *Invincible* was the faster of the two ships. Moreover, taking all the westward Cape Horn passages of these three clippers made during their entire careers, the *Andrew Jackson*, with a recorded average of 106.1 days for seven passages made in 1855-1862 (and her actual, as reported, was less), beats them all. The *Great Republic* averaged 107.8 days for her six passages (1856-1865); the *Flying Cloud*, 115.7 days for her six passages, port to port, made in 1851-1856 under her original full spread of canvas; and the *Invincible*, 117.8 days for all her six passages, made during the years 1851-1866 inclusive.

The outstanding thing about the *Andrew Jackson's* sailing performance after her builder's spar plan was changed in 1856 (following her maiden voyage) by Captain Williams, with the full approval of her owners, John H. Brower & Company, of New York, is not that there is no record of any great day's runs or of fast spurt speed to her credit but the fact that the ship never made a mediocre, not to mention a slow, passage. Even if she was hard-driven, she apparently stood such driving well, for she was never required to put into any port en route for repairs, and there is no record of her having lost a spar at sea. Moreover, whereas the "*Jackson*" made no record or near record run over any section of the California course, she covered each section of the run repeatedly and consistently in fast time and never made a slow run over any part of the course. It was said: "When the *Andrew Jackson* sailed, her skipper and owners expected her to make a passage in about 100 days, taking about 40 days in the Northern and 60 days in the Southern Hemisphere, and this is about what she did." The *Great Republic* is credited with a record run of 16 days (15 days 18 hours) from Sandy Hook to the Atlantic equator, and the *Flying Cloud* covered this first section of the course twice in 17 days. However, any run under 22 days from port of departure to the line was considered fast, and the *Andrew Jackson* covered this part of the course in 18½ days. A run of 20 days from the Pacific equator to the Golden Gate was fast. The *Flying Cloud*, on her two fastest passages, covered the distance in 15 and 19 days, respectively, the best run of the *Great Republic* over this part of the course was made in 19 days, and the *Andrew Jackson* covered it in 16 days. The *Andrew Jackson* generally rounded the Horn in about 12 days, and on her record run she occupied 10 days. She never had the luck of the *Flying Cloud*, which, on her maiden record-breaking passage in 1851, ran "between the 50's" in 7 days and in 1853 made the traverse in 9 days, nor of the *Great Republic*, which, on her 92-day passage in 1856-1857 and later on her 1864-1865 westward run, rounded the Horn in 9 days. The *Flying Fish*, on her 92-day westward passage in 1852-1853, had a lucky break and rounded the Horn in 7 days and, on her 100-day passage the year before, had made it in the good time of 9 days; whereas the *Swordfish*, on her fast 91-day passage in 1851-1852, made the Cape Horn crossing in 8 days, and the *Herald of the Morning*, on her 100-day passage in 1855, the *Reporter*, on her 103-day run in 1861, the *Flying Dutchman*, when she made a passage of 106 days in 1853, and the *Red Rover*, on her 108-day run in 1855, were all favored with good luck beyond what the *Andrew Jackson* ever enjoyed and were able to make round-

ings of the Horn in 8 days. The *Andrew Jackson*, which "generally figured on reaching the parallel of 50° S. Pacific in 56 to 58 days," on one passage made it in 52 days and on another passage ran from 50° S. Pacific to within 700 miles of her destination in the splendid time of 36 days. The *Andrew Jackson* made four Cape Horn eastward passages, laden, from San Francisco to New York and averaged 94 days, her two best runs being made in 87 and 88 days, respectively.

Howe and Matthews, in AMERICAN CLIPPER SHIPS, give the average length of seven passages of the *Andrew Jackson* as 106 $\frac{1}{3}$ days (the length of runs being stated as 128, 105, 101, 103, 90 $\frac{1}{2}$, 103, and 114 days, respectively). The average of the seven passages of the *Flying Fish* is placed at 105 $\frac{5}{7}$ days, and that of the six passages made by the *Flying Cloud* is given as 103 $\frac{1}{3}$ days (this figure evidently is obtained by considering the *Flying Cloud's* passages as having been made in 90, 115, 105, 89, 108, and 113 days, respectively). The average stated for the *Andrew Jackson* is based on clearances and entries and understates the truth. The figures given for the *Flying Fish* are correct, but those set forth for the *Flying Cloud* are positively incorrect, for even if the reports of Captain Creesy regarding the length of his five passages are accepted, the sixth passage of the clipper was not made in 113 days as figured in preparing the average length of all her passages. Leaving New York under Captain Reynard on March 13, 1856, the ship put into Rio de Janeiro for repairs and arrived at San Francisco September 14 after a passage of 185 days from New York, of which 141 days were spent at sea and 44 days in port being conditioned so that she could complete her passage. The fact that Captain Reynard, figuring à la Captain Creesy, computed that the *Flying Cloud's* actual performance at sea was equivalent to 113 days on the course from New York to San Francisco may be interesting, but is immaterial; for the ship did not make the passage in that time, and figuring a ship's sailing performance on that basis would upset all comparative records. Captain Reynard had said that the *Flying Cloud* was in the latitude of Rio de Janeiro when she was 31 days out, and she later ran from Rio to the Golden Gate in 82 days; hence he estimated what Howe and Matthews state as "her actual passage, in sailing days from New York," as 113 days.

The *Andrew Jackson* has been handicapped in all comparisons of her passages with those of other clippers by having the length of her passages taken as clearance to entry; whereas the actual length of her runs from Sandy Hook to the Golden Gate or pilot to pilot or Sandy Hook to pilot grounds was often much less than the elapsed time. In this analysis and in Howe and Matthews' calculations, the passage of the "*Jackson*" made in November 1856-February 1857 is considered as occupying 105 days; whereas contemporary reports place it, as before stated, as 102 days, Sandy Hook to port, and as low as 100 sailing days, pilot to pilot. The *Great Republic*, sailing soon after the *Andrew Jackson*, left New York December 5, 1856, and reached San Francisco March 9, 1857, which would make the passage 94 days. However, Captain Limeburner reported that his ship did not discharge her pilot outside the lightship and actually commence her run until 3:00 P.M. on December 7, and Captain Limeburner's word was accepted and the big ship credited with a 92-day (instead of a 94-day) passage to San Francisco. The *Flying Cloud*, on her passage in 1854, reported as 89 days 8 hours by Captain Creesy and accepted as such by the marine fraternity without verification and documentary proof, cleared New York January 19; but it was said that the passage actually commenced at 6:00 P.M. on January 21, and there is no record of when the ship actually arrived at the San Francisco pilot grounds, passed through the Golden Gate, and anchored in San Francisco Harbor, although the date of arrival at San Francisco is given as April 20, 1854, and the claimed record run of 89 days 8 hours, which was accepted and held until the *Andrew Jackson* lowered it, was stated as the length of passage, "anchor to anchor." The previous year (1853) the *Flying Cloud* left New York on April 28 and reached San Francisco shortly after the *Hornet* on August 12; this was a 106-day passage, but Captain Creesy reported it as of 105 days.

The following is a record of the clipper ships making the fastest average on four, five, and six consecutive westward Cape Horn passages between Atlantic Coast ports and California (San Francisco):

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Name of Clipper Ship	Average Length of Westbound Cape Horn Passages on Consecutive Voyages in Days					
	Four Passages		Five Passages		Six Passages	
	As Recorded	Claimed	As Recorded	Claimed	As Recorded	Claimed
ANDREW JACKSON	98¾ (also 98½)	98	99½	99	102	101¼
FLYING CLOUD	100	99½	101¾	101¼	115¾	115, port to port 108 at sea 103¾ on course
WESTWARD HO	103¼	102	Made only four westward Cape Horn passages.			
FLYING FISH	103½	103¼	103¾	103½	104¼	104
GREAT REPUBLIC	106¾	106½	105¾	105½	107¼	107
SWORDFISH	107	106¾	112¾	112¼	Made only five westward Cape Horn passages.	

The *Andrew Jackson* was a medium clipper "built to carry well and make good passages"; whereas all the other five ships appearing in the above table were extreme sharp-modeled clippers, loftily sparred and carrying a big sail spread, having been designed primarily for speed. Moreover, the *Andrew Jackson* entered the Cape Horn service when the depression following the Gold Rush, shipbuilding, commercial, and shipping boom was being felt, and all her California voyages were made after July 1855 and ran into 1862 and the period of the Civil War. Throughout her years as a Cape Horner, the "*Jackson*" was subjected to the demands of great economy in operation, extreme competition, and low freight rates, high insurance premiums, restricted maintenance expenses, and small (and often inferior) crews. The *Andrew Jackson* and *Flying Fish* each made, all told, seven westbound passages to San Francisco (the *Flying Cloud* and *Great Republic* only six), but this number of passages for the *Andrew Jackson* includes the initial "try-out" passage in 1855 before the masts were re-stepped and the spars, sail and rigging plan perfected in 1856. The *Flying Fish*, moreover, made all her seven passages under her original full "extreme clipper ship sail spread" put on her when "speed was king," and this during the period between November 6, 1851, and January 20, 1858. During a period and under conditions that were not comparative, the *Andrew Jackson*, on her total seven westward Cape Horn passages to San Francisco (including her first trial run of 128 days before being properly rigged), averaged 105.7 days as recorded and 105 days as claimed; whereas the *Flying Fish*, operating under vastly superior conditions, averaged 105.6 days. The *Andrew Jackson* not only holds the record for the fastest four, five, and six consecutive westward passages from an East Coast U.S.A. port to California but also the record for the fastest single passage and for the lowest average for any two and three consecutive westward Cape Horn runs, as the following statistics show:

Number of Passages	Average Length of Best Consecutive Passages in Days						
	ANDREW JACKSON	FLYING CLOUD	FLYING FISH	WESTWARD HO	SWORD-FISH	SWEEP-STAKES	SEA WITCH
One	89⅙	89⅓	92⅙	100	90¾	94¾	97
Two	96	97½	96	100½	99	100	103½
Three	97⅔	101⅓	101⅓	102	102⅔	106	105

Number of Passages	Average Length of Best Consecutive Passages in Days						
	GREAT REPUBLIC	ROMANCE OF THE SEAS	DAVID BROWN	FLYING DUTCHMAN	YOUNG AMERICA	SURPRISE	HERALD OF THE MORNING
One	92	96¾	99⅔	102	107	96⅘	99½
Two	103½	105	101½	105	108½	106½	103
Three	105⅔	105⅓	108	111⅓	109	110⅓	112⅓*

*The HERALD OF THE MORNING showed an average of 112⅔ days for her first five consecutive westward passages to California, which is about the same as the average for her best three consecutive runs over the course.

The above table does not record the fastest single westward runs made by clipper ships in the California trade in their numerical order except for the *Andrew Jackson* and the *Flying Cloud*. The fastest eighteen westward Cape Horn runs to San Francisco from a North Atlantic port throughout the entire annals of merchant sail are set forth herewith:

Record No.	Name of Ship	Passage in Days and Hours	Record No.	Name of Ship	Passage in Days and Hours	Record No.	Name of Ship	Passage in Days and Hours
1	ANDREW JACKSON	89- 4	7	JOHN GILPIN	93-20	13	SEA WITCH	97
2	FLYING CLOUD	89- 8	8	SWEEP-STAKES	94-19	14	SIERRA NEVADA	97
3	FLYING CLOUD	89-21½	9	YOUNG AMERICA*	96 (Britain)	15	ANTELOPE	97- 7
4	SWORD-FISH	90-18	10	GLORY OF THE SEAS**	96	16	FLYING DRAGON	97- 9
5	GREAT REPUBLIC	92	11	SURPRISE	96-15	17	WITCH-CRAFT	98
6	FLYING FISH	92- 4	12	ROMANCE OF THE SEAS	96-18	18	SEMI-NOLE**	98

* A fast run from pilot to port on passage from Liverpool to San Francisco in 1872-1873.
 ** Half clippers built at East Boston and Mystic, Conn., in 1869 and 1865, respectively.

The *Swordfish* was an extremely fast ship, but small for a Cape Horner; yet on her maiden voyage in 1851-1852 she beat the splendid new Cape Horner *Flying Fish* in a race to San Francisco by about ten days, as she made the fourth fastest passage ever made over the course and was prevented only by bad luck from beating the 89-day 21½-hour record of the *Flying Cloud*, made in 1851. Not until her last passage in this service, in 1861, with cut-down spars, sails, and crew, did the *Swordfish* (which was a record-holder in the China and transpacific runs) make a slow passage (136 days under most adverse and turbulent sailing conditions), and whereas her lifetime average was raised to 112¾ days for five passages, it was 107 days for four, 102⅔ days for three, and 99 days for two consecutive runs.

The *Andrew Jackson*, on her maiden voyage in 1855, when badly sparred and out of balance, made her only slow or mediocre passage to California, but the only ship sailing over the course about the same time that beat her was the extreme clipper *Hornet* of 1,426 tons, which ran from New York to San Francisco in 115 days elapsed time. She made a passage reported as 113 days, with a splendid and lucky rounding of the Horn in only 7 days, and encountered favorable sailing conditions all the way to the Pacific equator that the "*Jackson*" never enjoyed. The *Hornet* had beaten the *Flying Cloud* in a real race in April-August 1853, the ships being in company off Sandy Hook. The *Hornet* reached the pilot grounds off the Golden Gate a day ahead of the "Greyhound of the Cape Horners," which in 1851 established a record over the course and held the honor of having made the fastest passage from an East Coast port to the Golden Gate until the *Andrew Jackson* made the all-time record of 89 days 4 hours in December 1859-March 1860. Whereas the *Hornet* never beat or even approached the time made by the *Andrew Jackson* in her subsequent passages to San Francisco (after Captain Williams had re-stepped the masts and re-rigged the Mystic-built medium clipper) and, on the only occasion when they sailed near together (1858-1859), was beaten twenty-six days by the "*Jackson*," yet that Westervelt New York-built extreme clipper has the distinction of beating both the *Andrew Jackson* and the *Flying Cloud* at sometime or other during their careers. The *Andrew Jackson*, on her trial passage in 1855 (when imperfectly sparred and rigged), beat the sharp-modeled clippers *Sirocco* and *West Wind* in elapsed time, port to port, and her 128-day passage was fast compared with the 148-day run of the *Thomas Wattson*, the 177-day passage of the *Golden West*, and the 161-day run of the *Spirit of the Times*, which sailed before her, but which the new Mystic-built medium clipper beat to port by from ten to thirty-two days.

MERCHANT SAIL

Records are available to show how the length of passage of the *Andrew Jackson* on her four westbound runs around the Horn to San Francisco during the clipper ship decade and after her rig was perfected (following her maiden voyage under a defective spar and sail plan) compares with the sailing performances of all the other clippers that sailed with her or a short time before or afterwards. In this record, no clipper ship sailings are omitted from the periods of sailings covered from any Atlantic port bound for California, which proves beyond a doubt that at all times, under all conditions, and against all sorts of competition the *Andrew Jackson* was an extremely fast and superior vessel.

Name of Clipper Ship	Tonnage	Built	Departure		Arrival at San Francisco	Length of Passage in Days		
			Port	Date		Elapsed	Reported	
<i>Westward Cape Horn California Passages, 1856-1857</i>								
				<i>1856</i>	<i>1857</i>			
BEAVER (formerly MISS MAG)	727	Farmingdale, Maine 1853	New York	Oct. 23	Mar. 2	130	129	
WAR HAWK	1,067	Newburyport, Mass. 1855	New York	Oct. 23	Mar. 2	130	128	
MORNING LIGHT (of Boston)	1,713	Portsmouth, N. H. 1853	Boston	Oct. 28	Mar. 2	125	124	
DEFENDER	1,413	McKay, East Boston 1855	New York	Oct. 31	Mar. 30	150	148	
ANDREW JACKSON	1,679	Mystic, Conn. 1855	New York	Nov. 15	Feb. 28	105	102	
FLYING MIST	1,183	Curtis, Medford, Mass. 1856	Boston	Nov. 15	Mar. 12	117	115	
<i>Westward Cape Horn California Passages, 1858</i>								
CHARIOT OF FAME	2,050	McKay, East Boston 1853	New York	Jan. 7	May 13	126	126-4	
OCEAN EXPRESS	1,697	Curtis, Medford, Mass. 1854	New York	Jan. 8	May 13	125	125	
RICHARD BUSTEED	662	Quincy, Mass. 1857	Boston	Jan. 10	July 8	179	178	
ANDREW JACKSON	1,679	Mystic, Conn. 1855	New York	Jan. 16	Apr. 27	101	99-18	
BLACK PRINCE	1,061	Newburyport, Mass. 1856	Boston	Jan. 19	July 6	168	158 sailing days	
EDWIN FORREST	1,141	East Boston 1853	New York	Jan. 25	June 8	134	133	via Rio de Janeiro
GOLDEN EAGLE	1,121	Medford, Mass. 1852	New York	Jan. 27	June 12	136	135	
A reputed clipper, the EDWIN FLYE (Captain Weaver), left New York Jan. 25, 1858, and reached San Francisco June 12 after a passage of 138 days.								
<i>Westward Cape Horn California Passages, 1858-1859</i>								
				<i>1858</i>	<i>1859</i>			
MIDNIGHT	962	Portsmouth, N. H. 1854	Boston	Dec. 2	Apr. 5	124	124	
STARLIGHT	1,153	Briggs, South Boston 1854	New York	Dec. 6	Apr. 3	118	118	
GOLDEN ROCKET	608	Brewer, Maine 1858	Boston	Dec. 8	May 18	161	158	
NONPAREIL	1,431	Frankfort, Maine 1853	New York	Dec. 11	Apr. 7	117	117	
COMET	1,836	Webb, New York 1851	New York	Dec. 15	Apr. 7	113	112	

(Continued on next page)

Name of Clipper Ship	Tonnage	Built	Departure		Arrival at San Francisco	Length of Passage in Days	
			Port	Date		Elapsed	Reported
<i>Westward Cape Horn California Passages, 1858-1859—Continued</i>							
				1858	1859		
NIGHTINGALE	1,066	Portsmouth, N. H. 1851	Boston	Dec. 17	May 18	152	148
ANDREW JACKSON	1,679	Mystic, Conn. 1855	New York	Dec. 23	Apr. 5	103	102
ASPASIA	632	Mystic, Conn. 1856	New York	Dec. 23	May 31	159	158
STORM KING	1,400	Chelsea, Mass. 1853	New York	Dec. 28	May 18	141	138
QUEEN OF THE SEAS	1,356	Curtis, Medford, Mass. 1852	Boston	Dec. 28	May 17	140	139
				1859			
DERBY	1,062	Chelsea, Mass. 1855	New York	Jan. 2	May 18	136	133
HURRICANE	1,608	Smith, Hoboken, N. J. 1851	New York	Jan. 8	May 30	142	142
HORNET	1,426	Westervelt, New York 1851	Boston	Jan. 18	May 28	130	128
<i>Westward Cape Horn California Passages, 1859-1860</i>							
				1859	1860		
SEA NYMPH (New Bedford)	1,215	Fairhaven, Mass. 1853	New York	Dec. 19	Apr. 23	126	126
JOHN STUART	1,654	New York 1851	New York	Dec. 21	Apr. 23	124	124
FLEETWING	896	Medford, Mass. 1854	New York	Dec. 23	May 1	130	130
SIERRA NEVADA	1,942	Portsmouth, N. H. 1854	Boston	Dec. 24	Mar. 31	98	97
ANDREW JACKSON	1,679	Mystic, Conn. 1855	New York	Dec. 25	Mar. 24	90	89-4
NEPTUNE'S CAR	1,616	Portsmouth, Va. 1853	New York	Dec. 31	Apr. 23	114	114
				1860			
MORNING STAR	1,105	Medford, Mass. 1853	Boston	Jan. 7	Apr. 22	106	105
GALATEA	1,041	Charlestown, Mass. 1854	New York	Jan. 14	May 27	134	133

Unlike practically all ships of clipper model and rig, the *Andrew Jackson* did some great sailing both eastbound and westbound on the North Atlantic. Favored by strong gales, many of the big, powerful, sharp-lined, heavily canvased extreme clippers made very fast runs eastbound on the Atlantic in the winter months, but the "*Jackson*" made even more outstanding and remarkable "uphill" runs homebound than she did sailing with the wind on the much easier outward run. When the *Andrew Jackson* crossed the Atlantic and reached New York on August 22, 1856, after a run of 23 days from Liverpool, the papers commented on this sailing performance by saying: "The *Andrew Jackson* is one of the most powerful and fastest clippers ever built, and a transatlantic midsummer passage of 23 days against prevailing light winds is splendid time. The fast transatlantic packets *Silas Wright* and *Fidelia*, which crossed at the same time, made passages of 33 and 34 days each." These packets, built expressly for the Atlantic trade (which the "*Jackson*" was not), took one-half as long again as the *Andrew Jackson* to make a passage under conditions that favored them.

The "*Jackson*" holds two transatlantic world's records of importance. One is the present mark of 15 days for a sailing vessel between Liverpool and New York, a course which "has

been traversed by more fine sailing ships than any other deep-sea route since the world began." The other is the round-voyage record from New York to Liverpool and return in only 30 days at sea (which included two days of calms). This fine, fast performance has never been equaled, much less surpassed, and making records of this nature over this much-traveled course is no small nor easy matter. The record transatlantic westward crossing for all time for any vessel propelled by sail was made in the fall of 1860. Under the command of Captain Johnson, the *Andrew Jackson* sailed from Liverpool November 3 and arrived at Sandy Hook on Sunday evening, November 18, having passed Cape Race on the 8th day out and Nantucket Shoals (only 200 miles from New York) on the 13th day. On this record crossing of 15 days, during which "strong head winds and seas" were encountered on a typical winter "uphill" North Atlantic passage, the *Andrew Jackson* left the Mersey in company with the large, powerful, and fast clipper *Invincible*, designed and built in 1851 by William H. Webb, of New York, and described by contemporaries as "the best clipper-packet afloat." The *Invincible* was a "big, fine-modeled, heavily sparred and canvased, able, fast and seaworthy" ship of 1,769 tons (length 238 ft., beam 43 ft., depth 25½ ft.). She was a sharper-lined and larger ship than the *Andrew Jackson*, being 16 ft. longer, with 3 ft. more beam, over 3 ft. deeper, and 90 tons larger tonnage measurement. When she sailed from the Mersey one hour ahead of the *Andrew Jackson*, Captain Hepburn of the *Invincible* jocularly sent a message to Captain Johnson of the "*Jackson*," saying: "Take a good view of our stern, for that is as much as you will see of the *Invincible* during this crossing." Notwithstanding the fine sailing record of the *Andrew Jackson*, the *Invincible* was evidently a better known and more popular ship with the public, and the betting odds on "the race" favored the *Invincible*, which had many outstanding sailing performances to her credit. Before the big Webb-built ship encountered the "unbeatable and incomparable" *Andrew Jackson* in a transatlantic passage, she had made a fast run from Portsmouth to New York (March 1853) in 21 days. She had to her credit two fast passages around the Horn westbound (1852 and 1853), made in 107 and 110 sailing days, respectively, and claimed a passage eastbound in 1854 from San Francisco to New York of 90 days. She had also run in 112 days from Whampoa to London in 1853 and in 115 days from Hong Kong to London in 1856. In October 1859, she sailed from Anjer to New York in 78 days. The *Invincible* had many high-speed performances to her credit over short runs, as well as long voyages, including a day's run of 400 miles at an average speed of 16⅔ knots per hour for twenty-four hours—and this in the California Cape Horn trade.

During the eventful transatlantic race of November 1860, the *Andrew Jackson* sailed true to form and once more conspicuously upheld her reputation that no sailing vessel afloat could outsail her side by side or, sailing in company, make a faster passage from a common port of departure to the port of destination. The *Andrew Jackson*, with a passage of 15 days, beat the *Invincible* by two days, but that ship made an exceedingly fast run of 17 days. The New York HERALD of November 20, 1860, referred to "the renowned ship" *Andrew Jackson* as making a record 15-day passage "with a full cargo" and further stated that she "also made the run to Liverpool, grain laden, in 15 days and on the voyage out and home has been only 30 days at sea, including two days of calms," at an average "rate of speed rarely if ever equaled continuously in a sailing vessel before." The westward record crossing of the *Andrew Jackson* of 15 days from Liverpool to New York was equivalent to a 13-day transatlantic westward run to Boston, for on the 13th day out from Liverpool the "*Jackson*" passed Nantucket, which is beyond Boston. On the round voyage, fully three days would have been saved if Boston instead of New York had been the American port of origin and terminus, as Boston, other things being equal, would have been a day's run nearer Liverpool than New York.

Another westbound transatlantic crossing of conspicuous merit made by the *Andrew Jackson* was the passage of 25 days in very heavy weather and head seas that ended at New York April 11, 1863. On this "boisterous crossing," which was her last voyage under the

American flag, the "*Jackson*" encountered a great deal of ice and "was obliged to stand to southeast for 24 hours to get clear."

Capt. John E. ("Jack") Williams, an experienced Atlantic packet shipmaster, was in command of the *Andrew Jackson* from her launching until 1860, when he was succeeded by Captain Johnson, who continued in charge until the vessel was sold to the British in 1863. Captain McCallum was then given command, and he continued in the ship until her loss in December 1868. Upon retirement from the sea, Capt. John E. Williams lived at Mystic, Conn., where the *Andrew Jackson* was built, until his death in 1905.

Because of the effect of the Civil War on American shipping, the *Andrew Jackson* was sold to go under the British flag upon her arrival at New York from Spain in April 1863. American shipowners at this time had evidently lost their nerve, feared Confederate raiders, and either laid up their ships or sold them abroad. The *Andrew Jackson* was only one of a large number of fine Yankee ships that went into British hands. Like many other fine American clipper ships, but little is known of the *Andrew Jackson* throughout the latter part of the Civil War. In October 1863, she was loading at St. John, New Brunswick. On December 3, 1864, she was reported clearing Soerabaya, Java, bound for Amsterdam, and she was off Dover on March 2, 1865, after a "run of 88 days." In September 1868, she was at Shanghai, and when bound for Britain the ship was run on a reef and wrecked in Gaspar Straits on December 4, 1868. At the time of her loss, when thirteen and three-quarters years old, the *Andrew Jackson* hailed from Glasgow, Scotland, and her managing owner was H. L. Seligman.

HERALD OF THE MORNING—a Clipper Ship Designed by Samuel H.
Pook, of Boston, to Carry Well and Make Fast
Passages in the California Trade

As the *Young America* was William H. Webb's idea of what a fast clipper should be if she was to sail fast and make money in the California trade, so was the *Herald of the Morning* Samuel H. Pook's design of a ship to meet the same requirements as a Cape Horner, and in the designing of clipper ships, these two men, of New York and Boston, respectively, were head and shoulders above any other technical naval architects in the United States in the 1850's. Donald McKay, it should be noted, was not a technical naval architect and could not draw the lines on paper and make the calculations needed in the design of a ship to qualify as such, but he was a wonderful shipwright and a whittler of models and as a builder of sailing ships rivaled William H. Webb. However, Webb was a much broader and more versatile man and was the leading builder of vessels in the world in his day—merchant and naval, sail and steam—but all of wood. He built great armored screw warships for foreign navies, and these in days (the fifties and sixties) when the British Admiralty as well as the U. S. Navy Department and the navies of the world generally preferred heavy wood rather than iron hulls for their fighting ships.

Samuel Harte Pook (1827-1901), the son of Naval Constructor Samuel Moore Pook, U.S.N. (1804-1878), was a technically trained naval architect and the first independent designer of vessels in New England. Many competent authorities consider "young Pook" (when in his twenties) as the greatest American naval architect of the wood clipper ship era. At twenty years of age, he made all the drawings and calculations and laid out the lines of the 300-ton twin-screw, double-engined, iron steamer *R. B. Forbes*, which became famous in Boston as a big seagoing ocean towboat. Later, in 1860-1861, he designed and superin-

tended the building at Harrison Loring's South Boston yard of four iron screw steamers (*Massachusetts*, *South Carolina*, *Merrimack*, and *Mississippi*) to run between Boston, Charleston and New Orleans; but the Civil War put a stop to this progressive development in iron screw merchant steamers and took young Pook into the navy, where he served the U. S. Government as a naval constructor until he retired from the service in 1889. Pook designed many merchant sailing vessels, freighting craft (both sail and steam, wood and iron), and yachts during the years from 1847 to the commencement of the Civil War, but we are particularly interested here in the clipper ships that he designed during the years 1850-1854 inclusive.

"Sam" Pook, being an independent naval architect (i.e., not connected with any one shipbuilding establishment), would design vessels of any type for any builder or owner. His first essay into the clipper field seems to have been the making of the drawings (lines, sail plan, etc.) in the winter of 1849-1850 for a little clipper bark to be built for I. Goddard & Company, Boston. Launched in June from the East Boston yard of Samuel Hall, this bark of 530 tons, christened *Race Horse* (length 125 ft., beam 30 ft., depth 16 ft.), attracted much attention by her beauty and fine-lined model. This model and the drawings of the craft caused the important New York shipowning firm of A. A. Low & Bro., primarily interested in the China trade (and owner of the famous New York-built early clippers *Houqua*, *Samuel Russell*, and *Oriental*), to place an order for a sizable clipper ship to be designed by Pook and also built at the Hall yard in East Boston under the young naval architect's supervision. Neither the small bark *Race Horse* nor the sizable clipper ship *Surprise*, which soon followed her, was designed by Pook or intended by the owners for the California trade, but each made important passages over the westward Cape Horn route.

Capt. David S. Babcock, who was to become famous as the master of the Webb-built New York clippers *Swordfish* and *Young America*, took command of the bark *Race Horse* and sailed from Boston for San Francisco August 4, 1850 (sixty-two days before Pook's first sizable clipper ship was launched). Captain Babcock's log shows that the bark was 20 miles south of Cape Horn when 52 days out, and on November 20 the log reads: "At 11 P.M. made the Farallones Rocks one hundred and eight days from Cape Cod Light. So ends." It was also reported that the run from land to land had been made in 94 days 14 hours. The date of the *Race Horse's* dropping anchor in San Francisco Bay was recorded as November 24, 1851, which would make the elapsed time of the passage 112 days, but the run seems to have been recorded and accepted as a passage of 109 days, which, it was said, equaled the record westward Cape Horn run of the *Samuel Russell* (957 tons). She had left New York January 15, 1851, and reached San Francisco May 6, and this run figures 111 days elapsed time, but was reported by Capt. Charles P. Low and accepted as a passage of 109 days. The *Race Horse*, however, upon her arrival at San Francisco November 24, 1851, had not tied the then existing record for an outward passage to San Francisco; for the marvelous *Sea Witch*, on July 24, seventy-nine days after the *Samuel Russell* had hung up a record of 109 days, had reached San Francisco in only 97 sailing days from New York (102 days, port to port, as the *Sea Witch* had sailed from New York for Valparaiso, where she stopped to discharge cargo, and then continued on to San Francisco). However, A. A. Low & Bro., of New York, whose ship, the *Samuel Russell*, on a January 15 departure from New York, had made a record run to California, sent the new Pook-designed and Boston-built *Surprise* to sea on December 13, 1851 (about eleven months after the "*Russell*" had sailed), and this clipper, under the command of the Maine skipper, Philip Dumaresq, arrived off the Heads March 18, 1851, and anchored the next day in San Francisco Harbor after a record passage of 96 days 15 hours from Sandy Hook to anchorage at destination.

The *Surprise* was, in fact, the first real clipper ship to be built in Boston and New England (if we except the small clipper bark *Race Horse* before referred to). The dates of launching, relative size, and place of building of New England's earliest clippers are as follows:

Name of Clipper	Tonnage	Date of Launching	Builder	Name of Clipper	Tonnage	Date of Launching	Builder
		1850				1850	
SURPRISE	1,261	Oct. 5	Samuel Hall, East Boston	JOHN BERTRAM	1,080	Dec. 9	Elwell & Jackson, East Boston
SEA SERPENT	1,402	Nov. 20	George Raynes, Portsmouth, N. H.	GAME COCK	1,392	Dec. 21	Samuel Hall, East Boston
STAG HOUND	1,534	Dec. 7	Donald McKay, East Boston	WITCH-CRAFT	1,310	Dec. 21	Paul Curtis, Chelsea, Mass.

Of the above-mentioned six clippers, the *Surprise*, *Game Cock*, and *Witchcraft* are known to have been designed by Samuel H. Pook. It is felt that through naval friends at the Kittery Navy Yard, Raynes obtained from Naval Constructor Pook a model of a clipper and some drawings that had been made by his son and that they were used in the production of the *Sea Serpent* and many other Portsmouth, N. H.-built clippers and particularly of the clipper ships built by Fernald & Pettigrew and Samuel Hanscomb (the *Nightingale*) as well as of other later ships built by George Raynes and associates.

The *Surprise* was said by contemporaries to have been well named, for the ship "surprised" the maritime world by her conspicuous beauty and speed at sea. Whereas the ship was undoubtedly a clipper, she was not as sharp in model and did not carry as much sail as some other clippers building in 1850-1851. The *Surprise*, modeled by Pook without interference from either owners or builder, had 30 inches deadrise; but Pook, although later compelled to design ships with more deadrise to meet the prejudiced demands of the shipping fraternity, also advocated flat floors and in a very few years saw the ideas that he had championed (which were in essence similar to those used by Capt. Nathaniel B. Palmer in the design of Atlantic sailing packets) generally adopted in the design of fast deep-sea American sailing ships—particularly those intended for the California, Australian, and transatlantic trades.

Carl C. Cutler, in *GREYHOUNDS OF THE SEA* (American clipper ships), has written:

Pook seems to have sensed very early the shortcomings of the Griffiths models as cargo carriers and devoted his efforts toward evolving a more burdensome and even swifter type of ship from the flat-floored packet lines. In the end his theories—or rather the theories he sponsored—triumphed, and with few exceptions the great racing prizes of the century were carried off by lineal descendants of the Western Ocean packets. After 1852 very few large American ships were built which did not embody the principles followed by Pook.

The *Surprise* was an outstanding success, speedy, and a good carrier. On her first voyage from New York to London via San Francisco and Hong Kong, which she covered in less than 250 days at sea, she paid for her initial cost and all operating expenses with about \$50,000 to boot. She was, however, built for the China trade, in which she made consistently fast passages, and only her first, third, and fourth outward passages were over the Cape Horn route to California. These three runs averaged 110.3 days, with the last two passages made in rather unfavorable weather, particularly in the southern latitudes and rounding the Horn. The *Surprise* was wrecked on the Japanese coast when in the hands of a pilot in February 1876 while bound for Yokohama; she was twenty-five and a third years old when lost through no fault of her own or of her command. Throughout her career, the *Surprise* was a smart and very popular ship as well as a money-maker.

The following is a list of clipper ships admittedly designed by Samuel H. Pook during the years 1850-1854, but there is no doubt that this brilliant young architect was responsible for the models and sail plans of many more ships for which the pages of history do not give him credit. It was said in the sixties: "Sam Pook is responsible for more fast clippers than any designer and builder in the United States and his ships are much more handsome and worthy specimens of naval architecture than those constructed by any builder from his own

designs with the possible exception of William Webb, of New York, who has always turned out beautiful and well-designed vessels."

Name of Clipper	Built (launched)	Tonnage	Builder	Owner	Remarks
RACE HORSE	1850 (June)	530	Samuel Hall, East Boston	I. Goddard & Co., Boston	Built for China trade. Made one (fast) California voyage.
SURPRISE	1850 (Oct. 5)	1,261	Samuel Hall, East Boston	A. A. Low & Bro., New York	Wrecked Japan coast, Feb. 1876. Made three California voyages.
WITCHCRAFT	1850 (Dec. 21)	1,310	Paul Curtis, Chelsea, Mass.	Rogers & Pickman, Salem, Mass.	Wrecked by going ashore near Hatteras, Apr. 1861. Made six California voyages.
GAME COCK	1850 (Dec. 21)	1,392	Samuel Hall, East Boston	Daniel C. Bacon, Boston	Condemned Cape Town, Feb. 1880. Made four California voyages.
TELEGRAPH	1851 (May)	1,078	J. O. Curtis, Medford, Mass.	P. & S. Sprague & Co., Boston	Burned, scuttled, and condemned, Jan. 1857. Repaired and renamed HENRY BRIGHAM. Sold to Peru, 1865. Made eight California voyages.
NORTHERN LIGHT	1851 (Sept. 25)	1,021	E. & H. O. Briggs, South Boston, Mass.	James Huckins, Boston	Sank after collision North Atlantic, Jan. 1862. Made five California voyages.
DEFIANCE	1852 (Mar. 8)	1,691	George Thomas, Rockland, Maine	William T. Dugan, New York	Condemned after accident at Canary Islands, Dec. 1856. Sold and became Spanish ship. Made one California voyage.
RATTLER	1852 (Oct. 15)	1,121	George Thomas, Rockland, Maine	Builder's account; sold to William Whitlock, Jr., New York.	Sold to Nicaragua in 1874, later to Costa Rica and when sold to shipbreakers in early 1890 was a British bark. Made eight California voyages.
BELLE OF THE WEST	1853 (Mar. 25)	936	Shiverick Bros., East Dennis, Mass.	Capt. Christopher Hall, East Dennis, Mass.	Sold at India in 1868 and put under British flag. Made two California voyages.
FEARLESS	1853 (July 28)	1,184	A. & G. T. Sampson, East Boston	William F. Weld & Co., Boston	Sold to Norwegians in July 1875 and renamed JOHANNE. Made eleven California voyages.
RED JACKET	1853 (Nov. 2)	2,305	George Thomas, Rockland, Maine	Seccomb & Taylor, Boston; promptly sold to British.	Sent to England and after charter sold to British. Never operated in American trade.
HERALD OF THE MORNING	1853 (Dec.)	1,294	Hayden & Cudworth, Medford, Mass.	Boston owners	Sold at Hamburg in 1875; to Norwegians, 1879; and to British, 1890. Made eighteen Cape Horn westward passages.
CHALLENGER	1853 (Dec. 19)	1,334	Robert E. Jackson, East Boston	W. & F. H. Whittemore, Boston	Sold to Peru, 1863. Made seven California voyages.
OCEAN TELEGRAPH	1854 (Mar. 29)	1,495	J. O. Curtis, Medford, Mass.	Reed, Wade & Co., Boston	Sold British in 1863; renamed LIGHT BRIGADE. Made eight California passages.
OCEAN CHIEF	1854	1,228	J. & C. Morton, Thomaston, Maine	Builder's account; sold abroad to James Baines & Co., Liverpool.	Never operated as an American ship.

Samuel H. Pook made the plans and supervised the building of three of the sixteen clippers built during the fifties (or the clipper ship decade) that made a passage of less than 100 days (i.e., "a two-figure passage") from an East Coast U.S.A. port to San Francisco with

departures during the years 1850-1859 inclusive. These ships and their passages were: *Surprise*, 96 days 15 hours (December 13, 1850-March 19, 1851); *Witchcraft*, 98 days (May 9-August 15, 1854); and *Herald of the Morning*, 99 days 12 hours (February 5-May 15, 1855). Another Pook-designed ship, the *Northern Light*, made the all-time record eastward Cape Horn passage from San Francisco to Boston in 76 days 8 hours (March 13-May 29, 1853). If all the facts were known, many other clippers making fast runs owe their models and prime characteristics to Pook, for his ideas were pirated outrageously without his obtaining fair remuneration for his originality and work as a naval architect. Moreover, in the fifties, American wood shipbuilders did not take graciously to paying a reasonable fee to an outside designer for a model and plans. Whereas they were accustomed to having a sea captain at their yards, presumably for inspecting construction as a vessel was built, such a man was paid by the owners and was generally of much help to them in sparring and rigging the ship; but they did not take kindly to a technical man's watching the building in a critical way and seeing, in the owner's interest, that only the best materials were used, in the proper way, and that the spirit and letter of the contract and specifications were followed. Samuel Hall, of East Boston, was fully as good a builder and "rule-of-thumb" designer as Donald McKay, but McKay was also very much of an egoist, was jealous of young Pook, and simply would not work co-operatively with him. Most builders would buy a model and sail plan only if they felt that they had to in order to build fast clippers to conform with the speed demand of owners and meet the competition of rival builders. McKay did not take kindly to the existence of a capable naval architect and his "hanging out his shingle" as a designer of ships and offering his services to anyone (owners and builders), and McKay wished that "young Pook would go into the navy or be employed as draughtsman by one builder"—as John W. Griffiths was by Smith & Dimon in New York. Pook was the cause of mediocre designer-builders' turning out excellent, fast ships that were equal to McKay's best in speed, but generally carried bigger cargoes in relation to registered tonnage and were much more beautiful vessels. Most builders sought to buy a model and sail plan from Pook and then copy the fundamentals of design in other vessels that they built. It would seem that as an independent naval architect, Samuel H. Pook was treated rather shabbily by New England wood shipbuilders, and the man who did so much to improve the quality of American ships and produce good clipper ships got "slim pickings" as a result of his work. It is no wonder, therefore, that young Pook, like his father before him, entered the Navy Department of the U. S. Government, for even geniuses have to live, and Pook certainly had cause to form a very low opinion of the morals and business characteristics of American wood shipbuilders in the fifties.

"Deacon" George Thomas, of Rockland, Maine, built three ships from Pook's designs, the first (the *Defiance*) under the direction of Capt. Isaac Taylor, of Boston, who purchased the design from Pook, and the third was the famous big *Red Jacket*, ordered by the firm Seccomb & Taylor, of Boston, which had the ship built "on spec" with the hope of selling her at a profit to itself to the British as an Australian packet. The Boston firm, knowing that it had to have an excellent, fast ship to carry through its plans, commissioned "Sam" Pook to design her and "overlook her building." The ship, after launching, was towed to Boston, where she was sparred, rigged, and completed under the direct personal supervision of Pook. Between the building of the *Defiance* and the *Red Jacket*, George Thomas himself built "on spec" the fast 1,121-ton clipper *Rattler*, using the Pook-made *Defiance* model as his guide, although later the "Deacon" said that he bought the model from Pook. The *Red Jacket* was considered by the British as the handsomest of all the large clippers, and many authorities consider her as the fastest as well as the most beautiful and the best designed (model, spars, and rig) of all the ships built in the American clipper ship era. The *Red Jacket*, on her maiden passage, went from New York to Liverpool in January 1854, making an all-time record of 13 days 1 hour 25 minutes and covering 413 nautical miles in one day. On her first voyage, she made a round trip from Liverpool to Melbourne and back in the unprecedented

time of 5 months 10 days 22½ hours, including port detention. She covered 28,743 miles and made a run out in 67 days 13 hours under sail, returning (with light weather in the Atlantic) in 73 days.

Of the fifteen before-tabulated Pook-designed clippers, which made eighty-two westward Cape Horn passages, two of them, the *Red Jacket* and *Ocean Chief* (built for service abroad under foreign flags), never operated in the California trade. The big *Defiance* and the little bark *Race Horse* made only one westward Cape Horn passage each. The "saucy" 936-ton *Belle of the West*, conspicuous for her beauty in any harbor she visited, was not designed or intended for the California trade and made only two westward Cape Horn passages, but on her last one, in 1859, she was in company with the *Young America* off Cape Horn and again spoke that ship off the California coast. Of the ten Pook-designed clippers that made seventy-eight Cape Horn passages and seventy-six outward runs to San Francisco, the *Herald of the Morning* is outstanding, for she made eighteen westward Cape Horn runs and sixteen passages from North Atlantic ports to California (two other passages being to Callao, Peru) in the twenty-year period 1854-1873 inclusive and holds the record in Cape Horn service for clipper ships, excluding the phenomenal long-service Cape Horners *Young America* and *David Crockett* (each with twenty-five westward Cape Horn passages made during the period 1853-1883) and the later fuller-modeled medium clipper *Black Hawk (II)*—built by Webb, of New York, in 1857, which made twenty passages during the years 1857-1880. The only clipper "of the vintage of 1850-1853" that challenged the *Herald of the Morning* for length of Cape Horn service, excluding the marvelous, consistent performers *Young America* and *David Crockett*, was the Rhode Island-built *Lookout* of 1,291 tons, launched October 4, 1853, which during the years 1853-1870 made sixteen westward Cape Horn passages to San Francisco. She averaged 135.6 days (and 128.2 sailing days), putting into Port Stanley of the Falklands in distress on her last run. The *Herald of the Morning* made eighteen Cape Horn westward passages, of which sixteen were to San Francisco. She made one of these (in 1874) from New York to Acapulco (with coal), where she unloaded most of her cargo of coal at the Pacific Mail S.S. Company's depot and then proceeded to San Francisco to discharge the remaining 350 tons. The average length of the clipper's fifteen direct outward runs to San Francisco was 124.9 days, and one of these passages was a run from Gibraltar (1872) in 124 days.

The *Herald of the Morning*, built by Hayden & Cudworth, Medford, Mass., and launched in December 1853, was such a good carrier that she has been called a "medium clipper," but she was a true clipper and resembled the *Young America* in being neither an "extreme" nor a "medium" clipper. She was designed to make good passages and carry well, but was a moderate type of fast clipper, and although it was reported that the "*Herald*" carried "close to 1,600 tons deadweight," yet she had fine lines. Whereas her original measurements gave her a registered tonnage of 1,294, this was reduced to 1,108 tons in 1865, when the new formula for calculating tonnage, based on the internal volume of a ship and not merely her prime dimensions, went into effect. The *Herald of the Morning* (203 ft. long bet. perp., 38 ft. beam, and 23½ ft. deep) was outstanding for her beauty, and she received praise from the marine fraternity and the press wherever she made port. Until she was cut down in spars and sail area following her 1860 voyage, she made fast passages, averaging 112.4 days on her first five Cape Horn westward runs to San Francisco. These passages included a long run of 132 days in 1857, when she experienced head winds and variables practically all the way and was 27 days rounding the Horn in severe weather. It was said that if the "*Herald's*" early luck in making good crossings from the Atlantic to the Pacific side had held during her 1857 passage, notwithstanding other unfavorable conditions, she would have averaged 107½ days for her five passages to San Francisco originating at East Coast ports during the years 1854-1860 inclusive. On three of her first five outward runs to California, the "*Herald*" rounded the Horn in 8, 8, and 7 days, respectively, which is amazingly fast—and lucky—work.

The following is a brief summary of the eighteen westward passages around Cape Horn made by the *Herald of the Morning* prior to her withdrawal from the California trade in 1875 and her sale and service in the North Atlantic under the American flag and later under the colors of Norway and finally of Britain:

Voyage No.	Departure		Arrival at San Francisco	Passage in Days	Voyage No.	Departure		Arrival at San Francisco	Passage in Days
	Port	Date				Port	Date		
1	Boston	Jan. 21, 1854	May 7, 1854	106	10	Boston	Oct. 16, 1864	Feb. 17, 1865	124
2	New York	Feb. 5, 1855	May 16, 1855	99½ (pilot to pilot)	11	Boston	June 3, 1866	Oct. 15, 1866	134
3	Boston to Callao and return to New York.				12	New York	June 13, 1867	Oct. 15, 1867	124
4	New York	July 6, 1857	Nov. 15, 1857	132	13	New York	May 6, 1868	Sept. 1, 1868	118
5	Boston	Nov. 22, 1858	Mar. 18, 1859	116	14	Boston	Apr. 14, 1869	Aug. 20, 1869	128
6	Boston	Feb. 7, 1860	May 25, 1860	108	15	New York	June 15, 1870	Nov. 9, 1870	147
7	New York	Mar. 23, 1861	Aug. 16, 1861	146	16	Gibraltar	May 2, 1872	Sept. 3, 1872	124
8	London to Callao and return to Queenstown, London, and Boston.				17	New York	May 20, 1873	Oct. 8, 1873	141
9	Boston	May 16, 1863	Sept. 20, 1863	127	18	New York to Acapulco and thence to San Francisco, arriving Nov. 26, 1874.			

The *Herald of the Morning* was an "out-and-out" Cape Horner, as she made all the outward passages via the Horn, and all the return passages were made by way of Cape Horn except two. On her second voyage, she ran home over a most peculiar track: San Francisco to Callao; thence to the Mauritius, Deal (London), and Boston. On her fifteenth voyage, the route after leaving San Francisco on the return was via Singapore, Rangoon, Akyab, Falmouth, and Marseilles. Therefore, the ship made thirty-four roundings of Cape Horn (eighteen westward and sixteen eastward) and only two of the Cape of Good Hope—both westward. On the return passage of eight of her first ten voyages, the "*Herald*" loaded guano; on her fourth voyage, she carried dye-woods from Mexico to London, and on the return passage of her seventh voyage (1861) she took her first cargo of grain from San Francisco to London. Commencing with her eleventh voyage in 1866, all her return passages were direct runs with grain to North Atlantic ports with the exception of the around-the-world course followed in 1871-1872 and the last one, which was by way of Tahiti and thence to Queenstown and Hamburg, where the ship was sold. The return leg of her seventeenth voyage in 1873-1874 was a very fast passage of 99 days from San Francisco to Liverpool.

The *Herald of the Morning* was operated steadily during her lifetime and is said to have been a profitable as well as a successful and popular ship. She was never laid up either in business depressions or during the Civil War, but during the sixties and seventies she was run with reduced spars, sail spread, and small crews, and economy was the word. In her later years as a Cape Horner, she was permitted to run down, and during her career she was never rebuilt or given a complete reconditioning. Off Cape Horn in 1859, she rammed an immense sperm whale, and the collision evidently "knocked out" the whale, but damaged the ship's bow and started leaks. In February 1866, she ran ashore when making the port of Boston, and in December 1871, when leaving Marseilles loaded with iron rails, she received an awful pounding in heavy gales, which caused her return to port for repairs. Nevertheless, she was generally a lucky ship, and she was far from being worn out when she was sold and retired from the Cape Horn route to trade in the turbulent waters of the North Atlantic. The end of the *Herald of the Morning* is not known, but in 1890, when in her thirty-seventh year, she was a British bark hailing from London.

*The HURRICANE—a Representative Large Extreme Clipper
Built in 1851 during the California Boom*

The *Hurricane* is selected as a typical ship of a certain period because she was a very sharp-lined extreme clipper built when "speed was king" and at a yard and by a builder, Isaac C. Smith, Hoboken, N. J., that had no former experiences in building fast sizable ships and whose output in speedy vessels launched during the years 1849-1854 inclusive was as follows:

Name of Vessel	Type and Rig	Tonnage	Year Built	Name of Vessel	Type and Rig	Tonnage	Year Built
MARIA GREEN	Small fast ship	397	1849	GRAVINA	China clipper	818	1853
HURRICANE	Large extreme clipper	1,608	1851	TEJORCA	Small fast bark	470	1854

After the completion of the little bark *Tejorca*, the Isaac C. Smith & Son yard at Hoboken, N. J., was closed, as the firm could not weather the shipbuilding depression and gloom in the industry that increased in depth as 1854 advanced and intensified throughout 1855. Many American shipyards suspended all operations during this period, and the sites never again were used for the building of ships. The owners of the *Hurricane*, C. W. & A. Thomas, of New York, were not well known, and there is no record of their owning or managing any other top-flight or prominent clippers other than the *Hurricane*. The commander of the *Hurricane*, Capt. Samuel Very, Jr., was a capable master and good navigator, but practically nothing is known of his career beyond the fact that he was born at Salem in 1815 and was a son of John Crowninshield Very, a Salem mariner, except during the few years (December 1851-September 1857) that he commanded the *Hurricane*. He did some fine work with her during three California voyages, on a record-making round voyage from England to Calcutta and return, and on several runs on the Seven Seas completing the clipper's voyages that began with outward passages to San Francisco. During the last three months of 1857 and throughout all of 1858, the *Hurricane* was laid up, as an extreme clipper of her type could not be operated at a profit due to low freight rates, her low cargo capacity, with a relatively high operating cost, and the prevailing general financial depression. When the *Hurricane* again put to sea and sailed from New York (January 8, 1859), on her fourth and last outward passage to California, Captain Sherman (late of the fast little *Stilwell S. Bishop*) was in command. It was said that the clipper had been put in commission merely to facilitate the selling of her, but there were no offers made for the ship in either New York or San Francisco. After crossing the Pacific, the *Hurricane* went again to Singapore, where she was sold to the British for the reported price of \$30,000.

After the California boom years, the experience of the *Hurricane*, a fine, fast extreme clipper of 1,608 tons (built in 1851), was quite similar to that of the more famous *Flying Cloud* of generally similar type, built the same year and measuring 1,782 tons. The *Flying Cloud* was laid up in April 1857 to save operating losses; the *Hurricane* in October 1857. The *Flying Cloud* was again commissioned and sent to England for charter and sale, leaving New York December 8, 1859, while the *Hurricane*—recommissioned so she could more readily be sold—sailed from New York January 8, 1859, bound for San Francisco, the Orient, and England. Both clippers were sold to the British, and the *Flying Cloud* was wrecked in 1874, when returning to a Canadian port to escape a gale; but the end of the *Hurricane* is unknown, as she appears in British registers as late as 1876. The *Hurricane* was in some

respects more extreme in model than was the *Flying Cloud*, and a comparison of the dimensions of the two ships is set forth herewith:

Name of Clipper	Launched 1851	Length in Feet					Registered Tonnage	Deadrise
		Over-all	Deck	Keel	Beam	Depth		
					<i>Feet</i>	<i>Feet</i>		<i>Inches</i>
HURRICANE	Oct. 25	230	215	206	40	22	1,608	41
FLYING CLOUD	Apr. 15	235	225	208	40 $\frac{2}{3}$	21 $\frac{1}{2}$	1,782 $\frac{1}{2}$	30

Some authorities maintain that the *Hurricane* was "the sharpest sailing ship ever constructed by any builder." But some owners who wanted fast, sharp ships pronounced that the model of the *Hurricane* was too extreme, with its long, very sharp, concave entrance, its big deadrise, and its fine clearance; for the ship "could not carry her registered tonnage in heavy cargo," and whereas they wanted speed, they could not entirely overlook a ship's ability to carry a reasonable amount of freight. It has been said that no model lines below water were "sweeter than those of the *Hurricane*, for, in her, resistance to driving through the water was reduced to a minimum." Nevertheless, as the years advanced, the ship was criticized for her inability to carry a sufficient amount of freight to make money. She was very fast and much more so than the length of her passages between ports would suggest, but not particularly lucky, and many slower ships carrying much more cargo made faster passages; so, all in all, the *Hurricane*, with all her beauty of form, became less and less popular and appreciated as the years went by.

The *Hurricane* made only four westbound around-the-Horn passages from an East Coast U.S.A. (or North Atlantic) port to San Francisco during her career, and a summary of these runs is set forth herewith:

Voyage No.	Departure from New York	Arrival at San Francisco	Length of Passage in Days			Remarks
			Elapsed Time Port to Port	Sailing Days	As Reported	
1	Dec. 17, 1851	Apr. 15, 1852	120	108	107	Was partially dismantled and put into Rio de Janeiro Jan. 28; sailed Feb. 9. From Rio, 66 days to San Francisco.
2	Aug. 9, 1853	Dec. 12, 1853	125	124	123	Nineteen days rounding the Horn; balance of passage light winds, with calms in Pacific.
3	May 26, 1854	Sept. 4, 1854	101	100 $\frac{1}{2}$	99 days 16 hours (pilot to pilot)	Within 1,040 miles of San Francisco when 85 days out, but required 15 days in light airs and calms to reach Golden Gate.
6*	Jan. 8, 1859	May 30, 1859	143	142	141	Sixty days in Atlantic; 20 days rounding Horn; 62 days in Pacific. Light winds generally, but calms North Pacific and westerly gales off the Horn.

*Voyage No. 4 was from London to Calcutta and return, Aug. 1855-May 1856. Voyage No. 5 was from London (June 1856) to Hong Kong; thence to San Francisco and eastward around Cape Horn to New York, arriving home Sept. 1857 after 258 sailing days.

The average length of the four passages as recorded is 121 days, port to port, or 118 sailing days, and the average of the first three runs under canvas is 110.3 days.

The *Hurricane* furnishes on her maiden passage a good illustration of extreme clipper ship sailing on the course to California in the early fifties. She lost her fore- and main-topmasts and mizzen-topgallant masts when 16 days out from New York in Lat. 18° N.; yet she crossed the line 27 days out and, sailing for Rio de Janeiro, made that port January

28, 1852, when 42 days out from New York. Repairs were evidently handled expeditiously (which is surprising), for after a port detention of only 12 days, the ship sailed again on February 9 and made a very fast run of 66 days from Rio to San Francisco. In 1856 the *Flying Cloud*, having put into Rio after dismasting and following a detention of 44 days for repairs, required 82 days to sail from Rio to San Francisco. On this fast run of the *Hurricane* from Rio to destination, the claim is made that the ship covered 400 miles in one day (New York HERALD, May 18, 1852), but this is questioned, and apparently Captain Very made no such statement. Yet the ship was fully capable of making such speed if the conditions were right, for the *Invincible* made 400 miles on this course during her maiden run, and although Captain Creesy, on five outward California passages in the *Flying Cloud*, never reported more than 374 miles in any one day, Captain Reynard, on his one disastrous and long passage to San Francisco in that clipper, claimed that the ship covered 402 nautical miles in one day.

On her third and shortest outward run to California made in May-September 1854, the *Hurricane* drew 21 ft. forward and 21 ft. 9 in. aft and had on board "1,700 tons of cargo weight and measurement," or materially less in deadweight than her 1,608 tons register. The length of passage from pilot to pilot as reported was 99 days 16 hours and as given by Capt. Samuel Very, Jr., was 100 days 12 hours from anchorage in East River, New York, to passing Heads of San Francisco Bay. The distance stated by Captain Very was 17,384 miles by log, an average of "7 $\frac{1}{6}$ miles an hour every hour since leaving home." He also added, "We have made (on straight lines from noon to noon each day) 16,357 miles and had off Cape Horn from five to fifteen hours of dead calm every day in succession for eleven days." (The log shows a mileage of 16,138 nautical miles for 100 days, an average speed of 6.72 knots per hour.)

On this passage, the *Hurricane* was reported as reaching the equator 22 days 16 hours from Sandy Hook, having covered 4,090 miles by log and 4,085 miles by course. She was off Cape Horn 47 days 16 hours from New York, having covered 8,106 miles by log and 8,199 miles by course. When 76 days 16 hours out, she crossed the equator in Long. 117° 36' W., and on the 82nd day she was 1,500 miles and on the 85th day was 1,040 miles from San Francisco. (The *Flying Cloud*, on her record-making passage to California, was 887 miles from San Francisco on her 85th day out.) Captain Very, in his log under date of August 20, wrote:

On this passage in the Atlantic Ocean the *Hurricane* entered the tropics on Saturday, June 10, at 4:00 P.M. Civil Time and left them again on Monday, June 26, at 9:00 A.M., having crossed them in 15 days and 17 hours and sailing on straight lines from noon to noon each day, in all, 3,087 miles, averaging 8 $\frac{1}{6}$ miles an hour. In the Pacific Ocean

we entered the tropics on Friday, August 4, at 9:30 A.M. and left them Sunday, August 20, at 7:00 A.M., being in them two hours less than 16 days and sailing (on straight lines from noon to noon each day), in all, 3,154 miles, an average of 8 $\frac{1}{4}$ miles an hour. I consider that these two portions of our passage have rarely, if ever, been equaled.

Captain Very reported making a good passage "with light winds and calms." The best day's runs were 288 miles (12 knots per hour) on July 5, 279 miles on August 6, 273 miles on June 23, 272 miles on June 4 and 12, 265 miles on August 5, and 263 miles on August 1. In the six days from August 1 to 6 inclusive, the vessel did her best steady sailing, covering 1,559 nautical miles—an average of 260 miles per day and 10.8 knots per hour. For nine days, the distance traversed was 2,247 miles, an average of 250 miles per day and 10.4 knots per hour; for ten consecutive days, 2,447 miles were covered, i.e., 245 per day and 10.2 knots per hour. Earlier in the passage, the *Hurricane* covered 1,052 miles in four consecutive days, an average of 255 miles per day and 10.6 knots per hour.

The four slowest days were in the vicinity of Cape Horn, during which only 277 miles were covered, an average of 69 $\frac{1}{4}$ miles per day. The next poorest four days of sailing were in the North Pacific approaching San Francisco, where only 284 miles were negotiated from August 28 to 31 inclusive, an average of 71 miles per day. (This was followed by two day's

runs toward the Golden Gate of 171 and 172 miles, respectively.) The smallest day's run was one of only 32 miles on August 21 when in the North Pacific Ocean; whereas the poorest day's run on the Atlantic side was 55 miles on June 16 as the *Hurricane* approached the equator and experienced the doldrums.

The mileage covered on each of the 100 days of the voyage has been arranged in groups as follows:

Distance Covered Nautical Miles per Day	Number of Day's Runs in This Group	Distance Covered Nautical Miles per Day	Number of Day's Runs in This Group
50 miles or less	2	100 miles or less	22
51 miles to 75 miles	9	101 miles to 150 miles	23
76 miles to 100 miles	11	151 miles to 200 miles	24
101 miles to 125 miles	10	201 miles to 250 miles	20
126 miles to 150 miles	13	Over 250 miles	11
151 miles to 175 miles	11	Total days	100
176 miles to 200 miles	13	100 miles or less	22
201 miles to 225 miles	11	101 miles to 200 miles	47
226 miles to 250 miles	9	Over 200 miles	31
251 miles to 275 miles	10	Total days	100
Over 275 miles	1		
Total days	100		

NOTE: 100 miles a day is equivalent to a speed of about $4\frac{1}{6}$ knots per hour; 150 miles a day, about $6\frac{1}{4}$ knots per hour; 200 miles a day, about $8\frac{1}{3}$ knots per hour; and 250 miles a day, about 10.4 knots per hour.

An outstanding feature of the *Hurricane's* passage was the most unusually uniform sailing throughout the entire voyage. This is exemplified by dividing the 100-day passage into ten periods of 10 days' duration each, as follows:

1854	Total Miles Each 10 Days	Average Miles Each 10 Days	Average Speed Knots per Hour Each 10 Days
May 27-June 5	1,782	178.2	7.42
June 6-15	1,938	193.8	8.01
June 16-25	1,779	177.9	7.41
June 26-July 5	1,808	180.8	7.53
July 6-15	1,060	106.0	4.42
July 16-25	1,150	115.0	4.79
July 26-Aug. 4	1,727	172.7	7.20
Aug. 5-14	2,046	204.6	8.52
Aug. 15-24	1,609	160.9	6.70
Aug. 25-Sept. 3	1,239	123.9	5.16
Total 100 days— May 27-Sept. 3	16,138	161.4	6.725

The best sailing time of the clipper *Hurricane* over each of the five prime sections of the course from New York to San Francisco was reported by Capt. Samuel Very, Jr., on the three passages that the ship made under his command, as follows:

	Fastest All-Time Records between Points (differ- ent ships)	ANDREW JACKSON'S Record Passage 1859-1860
(1) New York to Cape St. Roque..... 25 days (third voyage)	16 days	20 days
(2) Cape St. Roque to 50° S. Atlantic... 18 days (third voyage)	18 "	23 "
(3) 50° S. Atlantic to 50° S. Pacific.... 10 days (first voyage)	6 "	10 "
(4) 50° S. Pacific to equator (Pacific)... 19 days (first voyage)	15½ "	20 "
(5) Equator (Pacific) to San Francisco... 23 days (all three voyages)	12 "	16 "
Total	67½ days	89 days

The *Hurricane* is credited with some very fast passages over other trade routes on the Seven Seas, among which were:

San Francisco to Honolulu in 91½ days, passing Honolulu September 30, 1854.

Portsmouth, England, to Sand Heads, Calcutta, pilot to pilot, 84 days 12 hours, August 12-November 5, 1855 (also reported as a record run from the Needles to the mouth of the Hooghly River in 82¼ days that was not beaten or equaled for years).

Hong Kong to Singapore in 6 days 12 hours, anchor to anchor, November 21-27, 1854 (slightly under 10 knots per hour average speed).

Calcutta to Falmouth, England, in 83 days out and 79 sailing days from Sand Heads to pilot taken aboard April 2, 1856.

American Wood Merchant Sail of the Post-Clipper Ship Period in the California Trade—Half Clippers, Down Easters, etc.

The following is a list of ninety American wood sailing ships launched during the years 1860-1892 that engaged in the California Cape Horn trade. Some of the ships were half clippers or reputed medium clippers; others were described as fast sailers carrying good cargoes, and some were full-modeled cargo carriers with little or no pretensions for speed. The majority, however, were of the type known as "Down Easters," which was improved with the years until the finest specimens, built at Bath, Maine, in the early 1880's, rivaled the clippers of the fifties in short length of passages around the Horn and carried relatively very large cargoes, so that they proved profitable in operation until the end of the nineteenth century. The list includes most of the outstanding American wood ships built in the post-clipper period to the end of the construction of wood sail that were prominent as Cape Horners and concerning which data regarding the length of their passages in the California trade have been available. In the number and length of passages, only direct runs, port to port, have generally been considered, and the record is admittedly incomplete and not truly comparative, but evidently could not be made more so without complexity and more available detailed authentic records.

Name of Ship	Tonnage	Built (launched)	Westward Passages to California		Eastward Passages to North Atlantic Ports		Fastest Passages in Days	
			Number	Average in Days	Number	Average in Days	West	East
SUNRISE	1,219	East Boston Dec. 1860	7	160	2	133½	134	126
GENERAL McCLELLAN	1,518	Thomaston, Maine July 1862	14	145	14	128		
FAVORITA	1,194	Mystic, Conn. 1862	9	130	9	113	114	103
INTREPID	1,126	Bath, Maine Feb. 1864	5	156	2	124½	140	121
CALIFORNIA	1,413	East Boston 1864	6	166				
BLUE JACKET	1,339	Greenpoint, L. I., N. Y. Jan. 1865	8	146			131	
PACTOLUS	1,205	Thomaston, Maine Feb. 1865	12	130			114	100

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Name of Ship	Tonnage	Built (launched)	Westward Passages to California		Eastward Passages to North Atlantic Ports		Fastest Passages in Days	
			Number	Average in Days	Number	Average in Days	West	East
SEMINOLE	1,439	Mystic, Conn. July 1865	20	126	19	108	98	94
ST. CHARLES	1,166	Thomaston, Maine Sept. 1866	10	128	8	118	116	101
TWILIGHT	1,303	Mystic, Conn. Oct. 1866	8	147			136	109
DEXTER	1,257	Quincy, Mass. Oct. 1867	3	168	3	148	156	122
SONORA	1,535	East Boston Aug. 1868	6	125	1	109	114	109
SOVEREIGN OF THE SEAS	1,443	McKay, East Boston Nov. 1868	10	150	11	127	138	114
GREAT ADMIRAL	1,497	Jackson, East Boston Apr. 1869	10	120½	7	115½	111	111
GLORY OF THE SEAS	2,009	McKay, East Boston Oct. 1869	12	124	11	117½	96	103
ST. NICHOLAS	1,723	Bath, Maine Oct. 1869	15	130	12	127	125	106
ALEX McCALLUM	1,951	Thomaston, Maine May 1870	8	162		137		
COLUMBUS	1,854	Kennebunk, Maine July 1870	6	132	3	118	116	117
SAMUEL WATTS	2,035	Thomaston, Maine Oct. 1870	6	132			113	115
ERIC THE RED	1,580	Bath, Maine Summer 1871	4	133	4	137	111	128
NORTHERN LIGHT	1,795	Quincy, Mass. Dec. 1872	4	142	5	113	128	105
NORTH AMERICAN	1,584	East Boston Jan. 1873	5		11	119	108	95
W. R. GRACE	1,893	Bath, Maine 1873	12	136	12	123	115	109
TRIUMPHANT	2,046	Quincy, Mass. Jan. 1874		127	8	116	110	108
CONQUEROR	1,540	East Boston June 1874	6	130	4	113	111	104
OCCIDENTAL	1,534	Bath, Maine June 1874	6	138	6	130	126	105
GATHERER	1,509	Bath, Maine Aug. 1874	8	129	7	122		
ST. PAUL	1,824	Bath, Maine Sept. 1874	14	141	13	120	115	103
OCEAN KING	2,516	Kennebunk, Maine Oct. 1874	7	145	6	141	130	132
AMERICA	2,054	Quincy, Mass. Nov. 1874	8	120½	8	112¼	110	96
CONTINENTAL	1,668	Bath, Maine Jan. 1875	7	147	7	122	138	105
SACHEM	1,312	East Boston Apr. 1875	3	135	3	117	126	111
CHARLES DENNIS	1,652	Richmond, Maine May 1875		149		139	140	122
M. P. GRACE	1,863	Bath, Maine July 1875	19	132	18	114	102	101
BOHEMIA	1,663	Bath, Maine Sept. 1875	12	132	11	119	118	108
TAM O'SHANTER	1,522	Freeport, Maine Sept. 1875	10	130	12	117	110	107

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Name of Ship	Tonnage	Built (launched)	Westward Passages to California		Eastward Passages to North Atlantic Ports		Fastest Passages in Days	
			Number	Average in Days	Number	Average in Days	West	East
H. S. GREGORY	2,020	Thomaston, Maine Oct. 1875	5	130	5	128	119	118
SANTA CLARA	1,474	Bath, Maine Jan. 1876	10	138	10	122	122	107
SOUTH AMERICAN	1,694	East Boston Sept. 1876	5	119½	7	108	109	99
HARVEY MILLS	2,077	Thomaston, Maine Sept. 1876	7	137¾	6	120½	124	103
ORACLE	1,550	Bath, Maine Oct. 1876	5	127			109	109
ALAMEDA	1,474	Bath, Maine 1876	8	134	13	120	123	102
CASSANDRA ADAMS	1,083	Seabeck, Wash. Nov. 1876	5	115½	5	113	107	94
ST. STEPHEN	1,392	Bath, Maine Jan. 1877	8	127	7	113	113	101
BARING BROTHERS	2,090	Thomaston, Maine Jan. 1877	10	141	8	127	121	117
ALFRED D. SNOW	1,987	Thomaston, Maine May 1877	8	128	7	121	106	101
CHALLENGER	1,399	Bath, Maine June 1877	6	130	11	119	118	100
GOV. GOODWIN	1,459	East Boston July 1877	2	113½	5	117½	108	98
LLEWELLYN J. MORSE	1,325	Brewer, Maine Aug. 1877	8	132	7	118	121	105
ST. MARK	1,896	Bath, Maine Sept. 1877	13	132	12	118	111	101
ARMENIA	1,643	Bath, Maine Oct. 1877	10	139	9	124	118	108
ST. DAVID	1,536	Bath, Maine Oct. 1877	10	146	14	122	122	110
ALEX. GIBSON	2,121	Thomaston, Maine Oct. 1877	12	138	9	122	123	108
JABEZ HOWES	1,581	Newburyport, Mass. Oct. 1877	17	126⅔	18	110	106	95
FLORENCE	1,604	Bath, Maine Oct. 1877	15	130¼	15	120¾	106	104
L. SCHEPP	1,776	Kennebunkport, Maine Sept. 1878	7	143	7	131	121	119
J. B. WALKER	2,106	Thomaston, Maine Sept. 1879	9	135	9	127		115
MANUEL LLAGUNA	1,650	Bath, Maine Oct. 1879	9	137	9	119	122	102
THOMAS M. REED (2)	1,988	Bath, Maine May 1880	6	142	6	126	129	120
GEORGE STETSON	1,780	Bath, Maine July 1880	14	143	11	120	109	103
A. J. FULLER	1,782	Bath, Maine May 1881	10	128			116	105
TACOMA	1,739	Bath, Maine July 1881	12	147	11	118		105
E. B. SUTTON	1,758	Bath, Maine Aug. 1881	14	134		116	115	
CHARMER	1,881	Bath, Maine Sept. 1881	11	132½	10	121	114	103
JOSEPH B. THOMAS	1,851	Thomaston, Maine Oct. 1881	10	133		121	116	110
GENERAL KNOX	2,141	Thomaston, Maine Dec. 1881	8	133	8	130		

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Name of Ship	Tonnage	Built (launched)	Westward Passages to California		Eastward Passages to North Atlantic Ports		Fastest Passages in Days	
			Number	Average in Days	Number	Average in Days	West	East
RICHARD P. BUCK	1,491	Bath, Maine Apr. 1882	4	127	4	110½	113	99
ST. FRANCIS	1,898	Bath, Maine May 1882	8	146	8	120	136	106
HENRY FAILING	1,976	Bath, Maine May 1882	4	125	5	120	114	115
CYRUS WAKEFIELD	2,013	Thomaston, Maine Sept. 1882	13	131	12	113	101	91
ELIZABETH	1,773	Newcastle, Maine Oct. 1882	6	133	6	115	123	97
I. F. CHAPMAN	2,038	Bath, Maine Oct. 1882	13	139	11	124	119	110
W. F. BABCOCK	2,028	Bath, Maine Nov. 1882	11	138	10	120¼	122	109
CHARLES E. MOODY	1,915	Bath, Maine Nov. 1882	11	125		114	115	100
EDWARD O'BRIEN (3)	2,157	Thomaston, Maine Nov. 1882	10	137		126	113	110
JOHN McDONALD	2,172	Bath, Maine Dec. 1882	9	138		108	113	103
ARABIA	2,024	Bath, Maine Dec. 1882	11	137	11	122	126	96
S. P. HITCHCOCK	2,178	Bath, Maine Oct. 1883	12	129⅔	10	116	101 (2)	107
BENJAMIN F. PACKARD	2,076	Bath, Maine Nov. 1883		148		126	130	94
R. D. RICE	2,134	Thomaston, Maine Oct. 1883	7	133	7	117	127	98
SERVIA	1,773	Bath, Maine Dec. 1883	9	138	9	119¾	120	97
ROBERT L. BELKNAP	2,251	Rockport, Maine June 1884	5	132	5	122	120	110
HENRY B. HYDE	2,462	Bath, Maine Nov. 1884	1st 12 15	119⅔ 124	1st 9 11	103 106½	105	88
A. G. ROPES	2,342	Bath, Maine Nov. 1884	1st 10	120	11	114	104	93
FREDERICK BILLINGS	2,497	Rockport, Maine Aug. 1885	5	132½	5	119¾	122	112
WILLIE ROSENFELD	2,353	Bath, Maine Sept. 1885	8	131	8	123	114	113
SHENANDOAH	3,258	Bath, Maine Nov. 1890	9	134½	9	114¾	111	102
PARTHIA	2,371	Bath, Maine Jan. 1891	3	127	4	114½	125	96
SUSQUEHANNA	2,628	Bath, Maine Sept. 1891	7	128½	5	117¾	117	94
OLYMPIC	1,402	Bath, Maine 1892	4	122¼			112	

The table presented does not clearly and prominently set forth the fastest ships, as conditions were extremely variable during the latter part of the century, and at times the thorough incapacity of crews, added to unfavorable weather, made good runs impossible. The Queen of Down Easters, the *Henry B. Hyde* (built in 1884), during the years 1889-1893 (when from five to nine years old), averaged 108¼ days on four consecutive westward Cape Horn passages from New York to San Francisco—a sailing performance equaled by no other sailing ship over that turbulent course since the 1850's and the days of the clippers. Yet the "*Hyde's*" best westward passage of 105 days was beaten by a few fast Down Easters,

and her fastest run was seven and nine days longer than the best passages made by the half clippers *Glory of the Seas* and *Seminole*, built in the sixties. The best passages made in the California trade, both westward and eastward, by sailing ships built following the clipper ship decade and the Civil War were as follows:

Name of Ship	Year Built	Tonnage	Fastest Westward Passage in Days	Name of Ship	Year Built	Tonnage	Fastest Eastward Passage in Days
GLORY OF THE SEAS	1869	2,009	96	HENRY B. HYDE	1884	2,462	88; also 94 and 96 (Liv.)
SEMINOLE	1865	1,439	98	CYRUS WAKEFIELD	1882	2,013	91
S. P. HITCHCOCK	1883	2,178	2 at 101	A. G. ROPES	1884	2,342	93 (in ballast)
CYRUS WAKEFIELD	1882	2,013	101 (from Liverpool)	SEMINOLE	1865	1,439	94; also 96
M. P. GRACE	1875	1,863	102 and 102½	SUSQUEHANNA	1891	2,628	94 (Liv.)
A. G. ROPES	1884	2,342	104	BENJAMIN F. PACKARD	1883	2,076	94
HENRY B. HYDE	1884	2,462	105	CASSANDRA ADAMS	1876	1,083	94
ST. JAMES	1883	1,488	105	NORTH AMERICAN	1873	1,584	95 (Liv.)
FLORENCE	1877	1,604	106	JABEZ HOWES	1877	1,581	95
JABEZ HOWES	1877	1,581	106	GLORY OF THE SEAS	1869	2,009	96
ALFRED D. SNOW	1877	1,987	106	ARABIA	1882	2,024	96
HENRY B. HYDE made 3 consecutive passages that averaged 107 days. The A. G. ROPES, M. P. GRACE, CASSANDRA ADAMS, and VALPARAISO made 107-day passages (the latter from Wales).				AMERICA	1874	2,054	96 (Liv.)
				PARTHIA	1891	2,371	96 (in ballast)

The *S. P. Hitchcock*, with Capt. Joshua B. Nichols in command, averaged 111 days for five consecutive passages from New York to San Francisco. This excellent performance was largely due to the two spectacular runs of 101 days each, made under unusually favorable conditions, and a good maiden passage of 108 days. Capt. E. V. Gates, after a lapse of one voyage, took the "*Hitchcock*," and the average length of his seven westward passages to San Francisco in her was 143 days, the shortest being 130 days. As both Captain Nichols and Captain Gates were able navigators and drivers, it is apparent that the big difference in the length of passages was due to unfavorable sailing conditions experienced by Gates, who averaged 33 days rounding the Horn against 121½ days when the ship was under Nichols and 40 days running to the line in the North Atlantic; whereas Nichols had covered this part of the course on his five voyages in an average of 24½ days.

The *M. P. Grace*, launched at Bath, Maine, July 20, 1875, by Chapman & Flint and built for the California trade, was a good Down Easter and Cape Horner, and before she was sold on the Pacific Coast in 1898, she made twenty round voyages from New York to San Francisco with returns to North Atlantic ports. On her maiden passage, the *M. P. Grace*, under Capt. Robert P. Wilbur, ran out in 102½ days, covered 16,250 miles, averaged 159.3 miles per day (about 6⅝ knots per hour), made 300 miles in one day, and beat the fast half clipper *Seminole* by ten days. On her third westward passage, the "*Grace*" ran out in only 102 days, and in 1880 she was 107 days. The entire seven outward passages of the ship to San Francisco when under the command of Captain Wilbur averaged 115 days, the longest being runs of 125 and 132 days. The return passages eastward around the Horn averaged 112 days for these voyages, the shortest runs being 101 days to New York and 106 days to Liverpool. The *M. P. Grace* had an experience similar to that of the *S. P. Hitchcock* with a change of commanders. When Capt. Thomas C. Williams relieved Captain Wilbur as master and made six round voyages in her, the "*Grace*" had bad luck generally as to weather, and

the average length of the westward passages was 135 days due mostly to light winds and calms. On one run west around the Horn, Captain Williams reported being only 9 days between the Atlantic and Pacific 50° S. parallel, two days of which were spent in "dead calms." Running eastward, the *M. P. Grace*, under Captain Williams, averaged 116 days for her passages, the best runs being 106 days to New York, 110 days to Liverpool, and 111 days to Antwerp. Capt. John de Winter, the last master of the *M. P. Grace* while she was in the California trade, had much the same luck with her as had Captain Williams, and the average length of his five westward passages was 153 days; eastward, 115 days. On one of the runs west, he was 40 days rounding Cape Horn, and this followed 42 days in adverse weather in the North Atlantic in a run to the line.

The *Henry B. Hyde*, launched at Bath, Maine, November 5, 1884, was either commanded or dominated by Capt. Phineas Pendleton during the period of her first twelve westward passages. With Capt. Phineas Pendleton in actual command, the "*Hyde*" averaged 128 $\frac{3}{4}$ days on her first four westward passages to San Francisco and 100 $\frac{1}{2}$ days for her eastward runs, which, however, included a marvelous run of 88 days to New York and a good passage of 96 days to Liverpool. The performance of the "*Hyde*" on her next four voyages is a classic, for this big-carrying Down Easter, operated economically to make money in difficult times for American shipping, averaged only 108 $\frac{1}{4}$ days on her westward Cape Horn passages, the runs being made in 108, 108, 105, and 112 days, respectively. The average of the three eastward passages was 104 $\frac{1}{3}$ days, the two passages to Liverpool being made in 109 and 110 days, respectively, against N.E. trades in the North Atlantic and the one passage to New York in 94 days. (The return of the last of the first eight voyages—that of 1892-1893—was the ship's only venture in the South American nitrate carrying trade.) Capt. Phineas Pendleton (III) gave up the steady command of the *Henry B. Hyde* after his eighth voyage (his Uncle John had been skipper for a passage in 1888, when she ran east to New York in 88 days), but Captain Phineas made passages in her until 1897. With others of the famous Pendleton family of Searsport, Maine, including Captain Benjamin, Captain Phineas continued his financial interest in and management of the ship for her first twelve voyages. Voyages Nos. 9 and 10 averaged 121 $\frac{1}{2}$ days on the outward runs to San Francisco from New York and 106 days eastward to Liverpool. After the longest of her first twelve westward passages from New York, a run of 132 days under very unfavorable sailing conditions, the "*Hyde*," on her return in 1896, ran from San Francisco to Honolulu in only 9 days 4 $\frac{1}{2}$ hours, and she is credited with a very fast homeward run of 89 days from Honolulu to New York. On her twelfth voyage, with Capt. D. A. Scribner in command, the ship was handicapped by an outrageously incompetent crew. Because of such episodes as this, experienced shipmasters knew that the days of merchant sail were about over and that even the most economic wind-propelled deep-sea carrier that the world has ever seen—the Bath, Maine, perfected "Down Easter"—was doomed. The "*Hyde*" made a run out to San Francisco in 113 days, and Captain Scribner reported upon his arrival in December 1897 that he did not have a single sailor among his crew; all were Bowery toughs, lawless pugilists, desperados and racketeers. Every member of the crew was mutinous, and the captain and crew were at the mercy of the fore-castle hands for the entire passage, having authority only to navigate the ship and get her to the port of destination. Returning, the "*Hyde*" made her only slow passage on an eastward rounding of the Horn and was 135 days to New York. On these first twelve voyages under the Pendleton command and management, the *Henry B. Hyde* averaged 119 $\frac{2}{3}$ days on her westward passages to San Francisco, 106 $\frac{1}{4}$ days on her seven runs east to Liverpool, 91 days on her first two runs from San Francisco to New York, and 105 $\frac{2}{3}$ on all her three runs between these ports. The average of her ten eastward runs to North Atlantic ports during these years (1886-1898 inclusive) was 106 days and for the first nine, only a scant 103 days.

After the 1897-1898 voyage, the control of the *Henry B. Hyde* was taken over by Flint & Company, New York, and with the withdrawal of the Pendletons, of Searsport, Maine, from both ownership and management, the famous ship was a different vessel. She was put

in the coal trade, a cargo that the Pendletons had refused to carry in her, and the ship had some nasty experiences with fire. She was still very fast, but had few chances to show her speed and quality while engaged in the coal trade. Carrying coal from Norfolk to Honolulu in 1899-1900, the "*Hyde*" put into Valparaiso with her cargo on fire, and a port detention of seven weeks resulted. In 1902 she left Baltimore for San Francisco with coal, and off Cape Horn it was discovered that the cargo was overheated, so Captain McLeod decided to run with the wind to Cape Town, where 600 tons of the coal had to be discharged and salvaged. Following this, the ship ran to San Francisco in 82 days, taking only 15 days to cover the last section of the passage from the Pacific equator to the Golden Gate. This the last voyage made by the *Henry B. Hyde* was completed by an eastward run from San Francisco to New York in 110 days. During her career of over nineteen years of sea service, the "*Hyde*" made only one slow run, and that was a westward Cape Horn passage of 153 days from New York to San Francisco under Captain McLeod, who reported having had nothing but adverse winds throughout the passage, with a long spell of very heavy weather while rounding the Cape.

The half clipper *Cassandra Adams*, built at Seabeck, Wash., and launched in November 1876, was one of the very few deep-sea square-riggers built on the Pacific Coast. She was a small ship of only 1,083 tons, but was well modeled for speed and heavily sparred. During the years 1881-1885, the ship was put in the California Cape Horn trade and made a fine record on her five complete round voyages, making only one long passage. That was on her last eastward Cape Horn run from San Francisco to New York, which occupied 148 days due to encountering much light wind and calms, and as she approached her destination, she was detained by grounding on Rockaway Shoals. In 1883 the Washington State-built clipper ran from San Francisco to New York in 94 days and returned with a westward passage around the Horn in 107 days, making a complete round voyage in 201 days at sea—a wonderful sailing performance for a ship of her relatively small size. The following is a record of the Cape Horn voyages made by the *Cassandra Adams*:

Year of voyage.....	1881	1882	1883	1883-1884	1884-1885	Average
Eastward passages from San Francisco in days.....	114 (to Liver-pool)	105 (to Liver-pool)	94 (to New York)	104 (to New York)	148 (to New York)	104¼ for first 4; 113 for all
Westward passages to San Francisco in days.....	110 (from Liver-pool)	115 (from Liver-pool)	107 (from New York)	127 (from New York)	119 (from New York)	115.6
Days under canvas — round voyage	224	220	201	231	267	219 for first 4; 228.6 for all

On her first westward Cape Horn passage in 1881, the "*Adams*" was 32 days from Liverpool to the Atlantic equator and 61 days to the pitch of the Cape, where she was in company with the fast iron British ship *Golden Gate* and beat her by six days to port. The following year (1882) the "*Adams*" was within 1,000 miles of her destination when 99 days out, but calms and light winds reduced her speed on the course for the balance of the passage to 2.6 knots per hour; yet she beat the fast iron British ship *Ennerdale* by eight days and the fast American ship *South American* by six days in their runs from Liverpool to San Francisco made at the same time.

Among the Down Easters of average sailing performance, the *Robert L. Belknap* of 2,251 tons, launched at Rockport, Maine, was conspicuous because of her rig, as she had three sets of double topgallant yards and three skysail yards and was evidently the only American ship so sparred. Much was made by her commander, Captain Staples, of the fact that the "*Belknap*," leaving New York in February 1890 for San Francisco, made two outward Cape Horn passages and one eastward to Liverpool and completed the three passages,

including port detentions for discharging and loading cargoes at San Francisco and Liverpool, in only 1 year 2 months and 4 days. The runs at sea, while good, were not particularly fast, the two westward passages occupying 120 and 121 days, respectively, and the run to Liverpool, 113 days; the total was 354 days at sea, with 94 days port detention, a total of 448 days.

For consistently good sailing in the California trade, with short passages and quick turn-arounds in the ports at both ends, the performance of the *Valparaiso*, built by John Currier, Jr., at Newburyport, Mass., and launched in June 1863 (during the Civil War), is hard to beat. The *Valparaiso* was a small ship of 1,158 tons (length 190 ft., beam 37 ft., depth 24 ft.), but was a good carrier and a fast sailer, with a model and rig that should put her in the half clipper class. On her first westward passage from New York to San Francisco in 1863-1864, the *Valparaiso* put into Montevideo for repairs to spars and rigging, and on her last passage under the American flag, before she was sold to the Germans, she put into Rio de Janeiro when bound from San Francisco to New York to have a leak stopped. Between these passages, the ship maintained surprising regularity in her work as a Cape Horner and left the California trade only once to make a voyage from Cardiff to Hong Kong. Commencing with a departure from San Francisco in August 1868, the *Valparaiso* made four round voyages in 3 years 5 months and 11 days, making during this period passages as follows:

Year of voyage.....	1868-1869	1869	1870-1871	1871-1872	Average
Eastward passages from San Francisco in days.....	96 (to New York)	117 (to New York)	111 (to New York)	110 (to Liverpool)	108½
Westward passages to San Francisco in days.....	116 (from New York)	108 (from New York)	114 (from New York)	107 (from Newport, Wales)	111¼
Days under canvas—round voyage..	212	225	225	217	219¾

The *Valparaiso* made three round voyages from New York to San Francisco and return in less than nine months each, the best occupying only 8 months and 14 days. During the year 1882, the ship reached San Francisco twice on passages from Europe, and in that year she was 111 days from San Francisco to St. Nazaire, returning in only 106 days.

The Down Easters are not known for big day's runs, but the *Gatherer*, a 1,509-ton ship (launched at Bath, Maine, in August 1874), on her maiden voyage in the Cape Horn trade, after taking coal from Philadelphia to Honolulu on government account, went from Honolulu to the Columbia River in 14 days to load wheat for Liverpool. On this run north in the Pacific, she is credited with three day's runs of 375, 350, and 348 miles, respectively, which are very high for a ship of her type, even though she was obviously sailing light and in ballast. That the *Gatherer* could sail well if given wind to suit her is further indicated by a fast passage from Nanaimo to San Francisco in 1890, when she ran between the ports in 4 days and 10 hours and beat the steamer *Empire* by 1 day and 12 hours on the passage. Very few Down Easters ever made 300 nautical miles in a day, whether in ballast or loaded. However, the *Oracle* of 1,550 tons (built in Bath, Maine, in 1876), when she completed her first extended around-the-world voyage, which included a fast passage of 109 days from New York to San Francisco, thence 111 days wheat laden to Queenstown and a marvelous westward transatlantic run of only 14 sailing days from Liverpool to the Delaware Breakwater, reported having logged 35,837 miles at the very high average rate of 153 miles a day (about 6½ knots per hour) and having covered 318 nautical miles in one day. The half clippers of the sixties and seventies seldom reported day's runs of approaching 300 miles, but the *South American* on one occasion claimed 353 miles "by observation," and the *Great Admiral* once reported a day's run of 305 miles.

The last Sewall-built quartet of big wood sailing ships, the three largest of which were four-masted shipentines (i.e., fore-and-aft rig on the jigger, or spanker, mast), was not of

the Down Easter type, which reached its perfection in 1884 with the building of the *Henry B. Hyde* and *A. G. Ropes*, constructed by rival shipping interests but also in Bath, Maine, yards. Such full-bodied ships, depending on brute force and a big spread of canvas for pushing them through the water, could not be expected to show much speed; yet, while these big post-Down Easter wood ships did not show an average short length of passage, when conditions were to their liking they made some quick runs. The *Roanoke*, the biggest of the four and the largest wood sailing ship to operate on the Seven Seas (carrying 5,400 tons deadweight on a draft of 27 ft.), was a dull sailer on the wind and has only one fast complete passage to her credit; yet she sailed well before winds that suited her in both force and direction, and she made some fast runs on parts of several voyages and on one occasion actually reported a day's run of 320 miles. On her 1895-1896 passage to California, the big ship was favored with strong winds in the Pacific, and she ran from 50° S. to within sight of the Farallones in only 36 days, which is fast clipper ship time. Her one outstandingly good passage was a run of 102 days made in 1898 from San Francisco to New York, which was really fast, for the *Roanoke* was up to Sandy Hook when 99 days out and was then blown offshore; on this passage, the big shipentine ran from the Horn to the Atlantic equator in only 21 days and was at Sandy Hook when 47 days from the pitch of the Cape.

The *Shenandoah* was the second largest of the Sewall "Big Wood Four" (3,258 net tons). Under Capt. James F. ("Jim") Murphy, who was an able navigator and a great driver, she gained somewhat of a reputation for speed and on one occasion reported a day's run of 313 miles. On the return passage of her maiden voyage, which was a 109-day run from San Francisco to Havre (with 5,628 short tons of wheat aboard), the ship is credited with averaging 278 miles a day for twenty consecutive days—which is very fast sailing. This ship, like her sisters, was not really fast, although she moved well in favorable strong winds. On the outward passage of her maiden voyage, which was a run of 125 days from New York to San Francisco (reported as 124 days), the *Shenandoah* was overtaken and passed as she approached Cape Horn by the fast British iron ship *Old Kensington*; but shortly thereafter Cape Horn snorters were experienced, and the big American wood ship gained on her adversary. We are told by Lubbock, the British marine historian: "Whilst the Britisher was head-reaching under lower topsails and making very heavy weather of it, the powerful *Shenandoah* went foaming by her close-hauled under a press of canvas, clawing out to windward in magnificent fashion, and behaving splendidly in the face of the Cape Horn greybeards." The *Shenandoah* made a relatively good rounding of the Horn, completing her passage to San Francisco without suffering any damage to spars or hull; but Cape Horn proved too much for the faster British iron ship, and the *Old Kensington* had to put about and make for Port Stanley in the Falklands to have her damages repaired before she could continue her passage. In 1893, on a passage from San Francisco to Liverpool, the *Shenandoah* was only 15 days from the Golden Gate to the Pacific equator, passed Cape Horn on the 42nd day out, and was off the River Plate on the 50th day; but it took her 59 days to run from there to Tuskar Light in the Irish Channel. In 1896 the *Shenandoah* passed Cape Horn when 44 days out from San Francisco and ran from there to Liverpool in 58 days, making a 102-day passage. (Lubbock records the passage as 100 days.)

It would seem that the *Shenandoah's* best passage from San Francisco to New York occupied 108 days, port to port, but Lubbock credits her with a run of 98 days in 1898 and states, evidently on the testimony of Captain Murphy, that she was only 15 days from the Golden Gate to the Pacific equator and passed Cape Horn when 44½ days out. The previous year, however, the big shipentine had taken 46 days in making the run from San Francisco pilot to the line. Lubbock well says: "Whilst she was commanded by Captain Murphy, the *Shenandoah* gained a great reputation for speed, but this, I think, was entirely due to her master's daring methods of sail carrying, for the *Shenandoah* . . . was not a really fast ship, and certainly no faster than others of Sewall's big four-masters which had not her reputation for speed." Many of the *Shenandoah's* passages in the California trade were slow. Among

her outward runs were passages of 145 and 152 days from New York, 150 and 163 days from Baltimore, and a very strange and unfortunate passage from Baltimore to San Francisco in 1907-1908 with a cargo of 5,400 tons of coal. For some unaccountable reason, Capt. Omar E. Chapman, her skipper, decided not to take the ship over the usual Cape Horn course but to make the passage sailing eastward by way of the Cape of Good Hope. It is said that this decision was reached by the command because of "a very weak and inexperienced crew" that Captain Chapman felt could not handle the ship in Cape Horn snorters. However, the *Shenandoah* ran into abominable heavy weather, with a severe gale that lasted three days, when in the Roaring Forties well east of the African coast. The ship, being badly buffeted and strained, started to leak so much (she was then seventeen years old and had not been entirely overhauled and reconditioned since building) that Captain Chapman found it necessary to put into Melbourne for repairs. After a port detention of 60 days, the *Shenandoah* continued her passage and reached San Francisco 273 days out from Baltimore. On entering port in tow, the big shipentine grounded and was again badly damaged by pounding on the Potato Patch Shoal, but powerful tugs finally got her into deep water, and she anchored in the bay with six feet of water in her hold.

The decision of Captain Chapman to make a passage to San Francisco by way of the Cape of Good Hope and around the Australian continent was known to the owners and underwriters before the ship left her American port of departure. In 1887, however, the Maine-built ship *Louis Walsh* of 1,497 tons, then twenty-six years old, left Baltimore with a cargo of coal for San Francisco, and her skipper, one of the many Pendleton captains, of Searsport, after studying his crew and ship, with lading, decided he would not take a chance on a rounding of Cape Horn, but said nothing of his intent to anyone. The "*Walsh*" reached San Francisco 204 days out from Baltimore, and as no word of her had been received in the United States since sailing, she had been informally classed as overdue, grave fears were felt for her safety, and 85 per cent reinsurance had been paid. Captain Pendleton's intentions before he sailed as to the course to be pursued, with no information regarding his plans being given to interested parties, resulted in severe criticism and much unpleasantness, which was but natural, and led to a controversy as to "the right of a shipmaster to plan a long voyage over an irregular course without notifying insurance companies, or others interested, of his intention."

About four years later, the actions of the master of another Down Easter brought the rights of a skipper to plot his course and pursue an unusual and longer track, without notifying the insurance companies and owners, once more into the foreground. Capt. Horace Staples, in taking the *Robert L. Belknap* of 2,251 tons (built at Rockport, Maine, in 1884) from New York to Yokohama in 1892, for some unaccountable reason, decided to take his ship, after rounding the Cape of Good Hope, away around Australia instead of following the universal course of sailing across the Indian Ocean, the Sunda Straits, and the China Seas. The result was that the ship was not reported at Anjer. Prior to the time of the "*Belknap's*" arrival at Yokohama, 163 days from New York, the owners and insurance people had about given her up for lost, and "the underwriters lost considerable sums through reinsuring their risks at advanced figures." It is suggested that Captain Staples, while well acquainted with the California trade and North Atlantic and Pacific, was unacquainted with the China Seas and fearful of successfully navigating his big ship in dangerous waters with which he was not familiar. This theory is borne out by the fact that, leaving Yokohama in January 1893 under positive orders to take his ship to New York via the recognized track (China Seas, Straits of Sunda, and Indian Ocean), Captain Staples put his ship on a reef near Natunas Island in the South China Sea between the Malayan Peninsula and Borneo. The "*Belknap*" and her cargo became a total loss, although all hands reached Singapore in the ship's small boats. Later, the masters of the Sewall four-masted steel shipentines chose to take their big vessels to Japan with case oil via the Cape of Good Hope and around Tasmania to avoid a transit of the China Seas and, in doing so, admitted that they deliber-

ately added some 3,500 miles to the length of the course, but felt that, "all things being considered," their actions were fully justified. This fact, however, accounts for several long passages of the Sewall steel fleet in runs from East Coast U.S.A. ports to Japan.

Every part of the westward course from a North Atlantic port to San Francisco was at sometime difficult to cover in reasonably good time by any well-designed and built and ably handled sailing vessel. In the matter of making long runs over the various sections of the course around Cape Horn to California, the Down Easters and ships built in the United States after the Civil War made a respectable showing when viewed in relation to the sailing performances of clippers built in the 1850's. The three of the five prime sections of the westward course to California that have always been troublesome to "windjammers" are the first, third, and fifth (or the first, middle, and last). The first section, which is the run in the North Atlantic to the equator, is difficult because of its possible gales and heavy weather, and as the southern part of the run is reached, there is ever the likelihood of calms and light baffling winds. The third, or middle, section is the rounding of Cape Horn, or the run from Lat. 50° S. Atlantic to the same parallel in the South Pacific, and this is the worst and most generally turbulent stretch of water in the world for a sailing vessel to cover running to the westward against the prevailing westerly and southwesterly winds, often of gale force, with high seas. The fifth, or last, section of the course is probably the most erratic stretch of water in the world, particularly during the last thousand miles as the California coast is approached at the end of a 15,000- to 17,000-mile sea passage. Here, calms, light airs, baffling winds, and occasionally heavy adverse winds, gales or violent squalls are likely to be encountered, and many a splendid passage has been turned into a very mediocre run, port to port, within a very short distance, as the crow flies, of the Golden Gate. Sailing conditions over the course did not improve as the nineteenth century advanced, but Down Easters were generally of a more buoyant and seaworthy model than the speedier clippers of the fifties.

Over the first section of the course, the clipper ship record is about 16 days for the run from the U.S.A. port of departure to the Atlantic equator, and several runs were made to the line in 17 or 18 days. Among the later ships, the *South American* negotiated the distance in 19 days, the typical Down Easter *Alfred D. Snow* in 19 days, the half clipper *Seminole* in 21 days, and the reliable sailing Down Easter *Florence* in 22 days. But the clipper *Mameluke*, in 1857, made a record for a long run over this section of the course for a clipper ship when she required 60 days to run to the line, and the *Templar*, leaving New York September 14, 1878, taking 67 days to reach the Atlantic equator, established the long-run record for the fuller ships. The *Templar*, however, was not a Down Easter but a full-bodied heavily sparred sailing ship of less than a thousand tons, designed and built by J. T. Foster, of Medford, Mass., for T. B. Wales & Company, Boston, as "a good carrying, money-making ship that should make fairly good passages, deliver her cargoes in fine shape, and have a long sea life." Actually, the ship *Templar* was slow and very unlucky, but she had a long life. When her end came in 1895 at a Peruvian guano port, during a gale that broke her moorings and drove her ashore, she was thirty-seven years old, and her loss was not the fault of the ship or her builders.

Over the last section of the westward California course, the clipper ship record is 12 days from the Pacific equator to the Golden Gate, and eleven clipper ship runs over this part of the course from an East Coast U.S.A. port to San Francisco were reported in less than 16 days. Of the fuller later-built ships, the Down Easter *Cyrus Wakefield* of 2,013 tons, built in Maine in 1882, ran from the line to port in 15 days; while the *Seminole* covered it in 17 days and the *Florence* in 19 days. Moreover, the *Seminole* ran from 50° S. Pacific to the Golden Gate in 35 days and the *Cyrus Wakefield* in 37 days—each of these runs being in very fast clipper ship time. Several clipper ships required over 40 days to make the run from the Pacific equator to the Golden Gate, and the *Tornado*, in 1852, and *Thatcher Magoun*, in 1866, required 45 days because of very unfavorable sailing conditions. It would seem, however, that the all-time slow record of a run from the line to San Francisco was made in 1887

by the Down Easter *Invincible* of 1,394 tons, launched at Bath, Maine, in September 1873. On a passage from New York to San Francisco, she reached the Pacific equator when 111 days out and then required 69 days to complete the run from the line to port because of the exasperating, adverse, tedious, and unprecedented sailing conditions on this final leg of the passage, which changed an expected run of about 140 days to one of 180 days, port to port.

The Cape Horn section of the westward course from a North Atlantic port to California is likely to be tough to negotiate by any sailing vessel at any time. It would seem, however, that for a direct long passage and throwing out of consideration the several futile efforts to make a passage from the Atlantic to the Pacific via the Horn—with the abandonment of the project either temporarily or permanently—no Down Easter or post-Civil War American sailing ship took as long to round the Horn as the fast extreme clipper *Golden Eagle* of 1,121 tons. In 1859 she spent 90 days in battling the westerlies before she won her fight with the elements and crossed the parallel of 50° S. Pacific heading north. The big four-masted steel shipentine *Edward Sewall*, in March-May 1914, required 67 days to round the Horn from 50° S. Atlantic to the corresponding parallel in the Pacific; but it would seem that the longest time taken by a real Down Easter was registered by the 1,739-ton *Tacoma*, which, on a long 204-day passage from New York to San Francisco, was held between the two 50's fighting the westerly gales and high seas for 63 days. The following is a record of several ships built from the period after the Civil War to the last years of the era of merchant sail that required 40 days or more to round Cape Horn:

Name of Ship	Registered Tonnage	Built		Long Rounding of Cape Horn (50° S. Atlantic to 50° S. Pacific)	Remarks
		Place	Year (launched)		
EDWARD SEWALL	3,206 2,916 net	Bath, Maine	1899 (Oct. 3)	67	Steel 4-masted shipentine. Capt. Richard Quick. On passage from Philadelphia to Seattle via Honolulu in 293 days gross, port to port, fought to round the Horn from March 7 to May 13, 1914.
ST. JAMES	1,488	Bath, Maine	1883 (Sept.)	65	Wood Down Easter; 3-masted bark. On passage from New York to Columbia River in 1892, experienced terrific weather off the Horn that drove at least three vessels into Port Stanley for repairs.
TACOMA	1,739	Bath, Maine	1881 (July 21)	63	Wood Down Easter; 3-masted ship. A long 204-day passage from New York to San Francisco. Was at 50° S. Atlantic when 86 days out and at 50° S. Pacific when 149 days out.
UNDAUNTED	1,764 1,722 net	Bath, Maine	1869 (Nov.)	49	Wood Down Easter; 3-masted ship. In 1891, on passage from Cardiff to San Francisco via Rio de Janeiro, where detained ten weeks by yellow fever.
BARING BROTHERS	2,090	Thomaston, Maine	1877 (June 14)	48	Wood Down Easter; 3-masted ship. On her longest direct outward passage to San Francisco, which occupied 184 days.
TAM O'SHANTER	1,522	Freeport, Maine	1875 (Sept. 18)	43	Wood Down Easter; 3-masted ship. In 1882, from New York to San Francisco on a passage of 163 days, was at Staten Island 55 days out.
OREGON	1,430 1,364 net	Bath, Maine	1875 (Nov.)	42	Wood Down Easter; bark-rigged. On her longest run of 175 days from New York to San Francisco, had "42 days of violent gales from the westward in rounding Cape Horn."

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MERCHANT SAIL

Name of Ship	Registered Tonnage	Built		Long Rounding of Cape Horn (50° S. Atlantic to 50° S. Pacific)	Days	Remarks
		Place	Year (launched)			
HENRY VILLARD	1,552 1,475 net	Bath, Maine	1882 (May 17)		42	Wood Down Easter; 3-masted ship. On one of her longest passages, was 42 days rounding the Horn, being partially dismasted and forced to put into Valparaiso for repairs.
RICHARD P. BUCK	1,567 1,491 net	Bath, Maine	1882 (Apr.)		41	Wood Down Easter; 3-masted ship. On her third voyage, ran from New York to San Francisco in 148 days, but was a scant six weeks rounding the Horn.
J. B. BROWN	1,551	Kennebunkport, Maine	1874 (Oct.)		40	Wood Down Easter; 3-masted ship. On her maiden voyage, with an outward passage from Boston to San Francisco, met violent gales off Cape Horn and put back to Montevideo for repairs. Resuming passage, she was 40 days rounding Horn and finally reached Boston when 290 days out.

Rather full-bodied American Down Easters generally made good Cape Horners and have a rather good record in rounding the Horn over the difficult and turbulent westward course. At times, like the clippers, they were fortunate in encountering very favorable sailing conditions for their passages from the Atlantic to the Pacific. The big *Shenandoah* once made the run between the 50's in 9 days; the half clipper *Seminole* (built at Mystic, Conn., in 1865), on her twenty-one westward passages, never required more than 25 days and on one occasion covered this part of the course in 8 days. There were three wood Down Easters which reported marvelously fast runs of 6 to 6½ days rounding the Horn "between the 50's" which, if correct, equal the famous all-time record of the clippers *Young America* (6 days) and the *Thatcher Magoun* (6½ days), the runner-up. The following is a comparative record of the three extremely fast roundings of Cape Horn as reported by the commanders of Down Easters and accepted by the marine fraternity:

Name of Ship	Registered Tonnage	Built	Rounding the Horn (50° S. Atlantic to 50° S. Pacific)	Remarks
PACTOLUS	1,205	Thomaston, Maine 1865	6 days	From Lat. 50° S. (Atlantic) and Long. 64° W. to Lat. 50° S. (Pacific) and Long. 89° W. During passage from New York to San Francisco in 1877 (114 days); Capt. Theodore P. Colcord.
C. F. SARGENT	1,704	Yarmouth, Maine 1874	6 days 8 hrs.	During passage from New York to San Francisco in 1887; Captain Baker.
JOHN McDONALD	2,172	Bath, Maine 1882	6½ days	From Lat. 50° S. (Atlantic) and Long. 62° 40' W. (Dec. 2, 1895) to Lat. 50° S. (Pacific) and Long. 77° W. (Dec. 9, 1895). During passage from New York to San Francisco in 1895-1896.

The Down Easter *Kennebec* of 2,025 tons, built at Bath, Maine, in 1883, made moderately good passages for a ship of her model fullness; but on her longest westward passage, when she required 202 days to carry coal from Baltimore to San Francisco, this vessel actually

rounded the Cape and sailed from Lat. 50° S. Atlantic to the same parallel in the Pacific in only 8 days. The usual conditions were reversed during this passage, for she made the Cape Horn rounding in fine weather; whereas the ship encountered nothing but adverse winds and unfavorable sailing conditions throughout the remainder of a very tedious passage.

The *J. B. Walker*, a Down Easter of 2,106 tons built by O'Brien at Thomaston, Maine, in 1879, did some good sailing in the California trade for a ship of her fullness. On her first Cape Horn passage, she ran from Liverpool to Valparaiso in 75 days (68 days from St. George's Channel) and in 38 days from Valparaiso to San Francisco (34 to Bar—a supposedly record run). This passage figures 113 sailing days, port to port, and only 102 sailing days, pilot to pilot. The "*Walker*" then sailed from San Francisco to Liverpool in 119 days and returned to San Francisco in 109 days, making the round voyage in 218 days at sea and in 8 months 13 days (including port detentions), during which she carried and either loaded or unloaded 6,000 tons of cargo. In 1889, however, the *J. B. Walker* was 167 days making a passage from Liverpool to San Francisco, with nothing but light winds generally, but off the Horn she had heavy weather and was 36 days making the crossing between the two 50's.

The *Henry B. Hyde* made round voyages in the California trade, sailing from New York in 217, 218, and 219 days at sea, with returns to Liverpool, and 218 and 199 days, with returns to New York. The *A. G. Ropes*, in 1885-1886, claimed a record of 208 sailing days from San Francisco to Europe and return from New York to the Golden Gate and only 227 sailing days from San Francisco to Europe (104 days), Liverpool to New York (19 days), and New York to San Francisco (104 days), which is a splendid sailing performance. However, the 104-day passage from San Francisco ended at Cork in southwestern Ireland (Queenstown Harbor) and not at Liverpool, and the eastward passage was benefited thereby to the extent of two or three days (or even more), depending on the wind and sailing conditions during the run up the Channel and Irish Sea.

The 2,054-ton *America*, built by Thomas at Quincy, Mass., in 1874, made a round voyage, New York-San Francisco-Liverpool, of 213 days on her maiden trip (110 days out; 103 days return). On her third voyage, the ship beat this good performance by two days (211 days), with a 115-day run out and a return of only 96 days to Liverpool, in which she ran from the Golden Gate to the line in the splendid near record time of 13 days and was only 37 days to the Horn and 64 days to the Atlantic equator. On her fifth and sixth voyages, the time at sea on each of the round trips was only 219 days as reported, but the European end of the eastward Cape Horn passage was stated as Queenstown. Voyage No. 5 consisted of an outward passage of 110 days from New York to San Francisco and a return of 109 days from the Golden Gate to Queenstown; whereas Voyage No. 6 originated at Liverpool, with a run out to San Francisco in 111 days and a return to Queenstown in 108 days. The second, fourth, and seventh voyages occupied 258, 243, and 239 days, respectively, and her eighth voyage did not have a direct passage either way, as the *America* put into Port Stanley for repairs on the outward run and into Rio de Janeiro when bound east, but the sailing days for the round voyage were reported as 259.

The *Cyrus Wakefield*, a Down Easter of 2,013 tons built by Watts at Thomaston, Maine, in 1882, ran from Liverpool to San Francisco in 1887-1888 in the very fast time of 101 days, following which she returned to Liverpool in 116 days, completing the round voyage in 217 days at sea and in 8 months 2 days, including port detention. The following is an analysis of the splendid 101-day westward passage of the *Cyrus Wakefield*, giving the sailing performance over each of the five prime sections of the course compared with that of the *Alfred D. Snow* on her fast 106-day passage and the *South American* on her good 1876-1877 run of 109 days. For comparative purposes, data of the relatively long 134-day passage of the fast *M. P. Grace* are also stated, but it should be borne in mind that this Down Easter was one of the fastest of all Cape Horners and has two westbound passages of 102 and 102½ days, respectively, to her credit.

	CYRUS WAKEFIELD	ALFRED D. SNOW	SOUTH AMERICAN	M. P. GRACE
Where built	Thomaston, Maine	Thomaston, Maine	East Boston, Mass.	Bath, Maine
Date launched	Sept. 30, 1882	May 17, 1877	Sept. 1876	July 20, 1875
Tonnage	2,013 tons	1,987 tons	1,694 tons	1,863 tons
Years of passage.....	1887-1888	1885-1886	1876-1877	1889-1890
Port to line.....	24 days	20 days	19 days	27 days
Line to 50° S. Atlantic.....	22 days	26 days	24 days	31 days
Port to 50° S. Atlantic.....	46 days	46 days	43 days	58 days
Rounding the Horn.....	18 days	16 days	12 days	25 days
Port to 50° S. Pacific.....	64 days	62 days	55 days	83 days
50° S. Pacific to line.....	22 days	20 days	30 days	24 days
Port to Pacific equator.....	86 days	82 days	85 days	107 days
Line to port.....	15 days	24 days	24 days	27 days
50° S. Pacific to port.....	37 days	44 days	54 days	51 days
Total passage	101 days	106 days	109 days	134 days
Run in Northern Hemisphere.....	39 days	44 days	43 days	54 days
Run in Southern Hemisphere.....	62 days	62 days	66 days	80 days

On this passage, the *Cyrus Wakefield* made a very fast run up the Pacific at extreme clipper speed, and the time occupied in the Northern Hemisphere was very good. The *South American* had a good 12-day rounding of Cape Horn, which, together with a good run in the Atlantic, gave her a fine sailing performance to 50° S. Pacific. There her luck left her, and the run up the Pacific was slow, being three days slower than that of the *M. P. Grace* on her mediocre passage of 134 days, which was twenty-five days longer than the 109-day run of the *South American*. The *Alfred D. Snow*, on her 106-day passage, made four days better time to the Pacific equator than did the *Cyrus Wakefield* on her fast 101-day run; but the "Snow" had an ordinary run in the northern Pacific, whereas the "Wakefield" was very lucky and, with favorable winds and absence of calms, made a fast run from the line to the Golden Gate, gaining nine days on the "Wakefield's" time over this last and very erratic section of the course. A conspicuous feature of the mediocre 134-day passage of the fast *M. P. Grace* (which was a speedier ship under ordinary sailing conditions than either the *Cyrus Wakefield* or the *Alfred D. Snow*) was the uniformity of her sailing performance over all sections of the course; on this passage, the "Grace" was in poor luck throughout and suffered from lack of wind, having no good sailing chances during any part of the run.

The following is a comparison of the fastest runs made over each section of the westward course from an East Coast U.S.A. port to San Francisco by the average good Down Easter *Florence*, the fastest of the Sewall "Big Wood Four," the *Shenandoah*, built following the close of the Down Easter building era (which virtually terminated in 1885), and the half clipper *Seminole*, built in 1865 as the Civil War ended. Data are also included showing the length of the *Seminole's* longest as well as the shortest run of each vessel over each section of the course on all her passages, and the relationship is of interest.

	FLORENCE	SHENANDOAH	SEMINOLE
Where built	Bath, Maine	Bath, Maine	Mystic, Conn.
Date launched	Oct. 1877	Nov. 1890	July 1865
Tonnage	1,604 tons	3,258 tons	1,439 tons
Number of voyages considered.....	9 (under Capt. F. C. Duncan)	9 (direct)	21
Best passage	112 days	111 days	98 days
Slowest passage	153 days	163 days (direct)	155 days (20 direct)
Average length of passages.....	132 days	134½ days (direct)	126 days (20 direct)

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	FLORENCE	SHENANDOAH	SEMINOLE	
	Shortest Runs	Shortest Runs	Shortest Runs	Longest Runs
Port to line.....	22 days	26 days	21 days	50 days
Line to 50° S. Atlantic.....	25 days	22 days	22 days	35 days
Rounding the Horn.....	13 days	9 days	8 days	25 days
50° S. Pacific to line.....	15 days	19 days	18 days	33 days
Line to port.....	19 days	26 days	17 days	37 days
Total	94 days	102 days	86 days	180 days

The *Florence*, after a transatlantic voyage, made her maiden California voyage, leaving New York April 20, 1878. She made a good 106-day passage out, which was given much prominence because of the ship's splendid sailing while running north in the Pacific. The *Florence* ran from 50° S. Pacific to the equator in the record time of 15 days and, when only 28 days from 50° S., was within 670 miles of the Golden Gate—a performance never equaled by any extreme clipper ship in the days when "speed was king." With a bit of luck, the *Florence*, which had crossed the equator 78 days out, would have made a westward passage of 94 or 95 days, but light airs, calms, and fog held the *Florence* to a speed of about 1¾ knots per hour on the course during the last two tedious weeks of the journey to San Francisco. Returning east, the *Florence* ran to Liverpool in 104 days, and her first round voyage in the California trade, notwithstanding the discouraging slow ending of her run out, was completed in 210 days at sea. In 1887-1888, the *Florence* ran from San Francisco to Liverpool well laden and, after discharging, was dry-docked, repaired, caulked, and coppered; she then loaded a full cargo of coal and went back to San Francisco in 112 days, the time occupied by the entire round voyage, including port detention at Liverpool, being only 8 months 18 days. In the spring of 1893, nine ships left New York for San Francisco, and all made rather slow passages. The *Florence* beat them all with a run of 130 days; the *Baring Brothers* was second with 141 days, the *Joseph B. Thomas* next with 146 days, and the remainder of the fleet was beaten by from twenty-two to forty-nine days. On this passage, we are told by the New York press, a race was on between the masters of the *Florence*, *Baring Brothers*, and *Shenandoah*, and a bet of \$500 was up; but Captain Murphy, on arrival at San Francisco, was chagrined to find his ship beaten by twenty-two days by the *Florence* and eleven days by the *Baring Brothers*.

The Houghtons' Down Easter *Austria* of 1,300 tons, built at Bath, Maine, in late 1869, made a passage of 102 days from San Francisco to Liverpool in 1873-1874. Later, she took wheat from San Francisco to Queenstown in 111 days and, returning, ran from the distant port of Hull in the North Sea to San Francisco in 119 days, which is good sailing for a full-modeled ship. In 1881 the *Austria* loaded coal at Cardiff and sailed for Rio de Janeiro; she continued from there to San Francisco, making the entire run from Wales to California in 120 sailing days. Her run of 70 days from Rio de Janeiro to San Francisco is twelve days shorter than the run made between the same ports in 1856 by the clipper ship *Flying Cloud*, the acknowledged "Greyhound of Cape Horners."

The Down Easter *Benjamin F. Packard* of 2,076 tons, built at Bath, Maine, in 1883 by Goss, Sawyer & Packard, was a very slow sailer. The publicity in regard to this full-modeled ship's being a clipper is absolutely false, but may be due to the fact that this ship, in 1892, made a very fast run of 94 days from San Francisco to New York. On this passage, the "*Packard*" carried a general cargo, and she sailed in company with the fast *A. G. Ropes*, which was in ballast, and beat her by a day to New York after being delayed by taking the crew off the foundering British bark *Glenperis*, off Cape Horn, and going into Pernambuco to land the men. The 94-day run of the "*Packard*" was an amazing sailing performance for that ship; yet emotional propagandists and pseudo-historians have erroneously referred to it as a passage of 83 days. This 94-day passage of the "*Packard*" is twenty days shorter than her next fastest eastward Cape Horn run; her passages east averaged 126 days and those westward, 148 days. At about the time that the *A. G. Ropes* made her

passage east around the Horn in ballast, ships were experiencing trouble in obtaining cargoes at San Francisco for delivery at any North Atlantic port. Houghtons' big new ship *Parthia* of 2,371 tons register and 3,500 tons deadweight capacity (launched at Bath, Maine, in January 1891) arrived at San Francisco Christmas Day of 1892 on her second voyage, but could obtain no cargo, so had to return to New York in ballast. She was followed east by the Houghton ship *Servia* (1,773 tons), also in ballast, the ships leaving the Golden Gate within four days of each other and each making a fast run to New York, the *Parthia* in 96 days and the *Servia* in 97 days.

The California grain trade developed in the sixties and seventies, and this was a great boon to American ships, as it gave them a much needed return cargo at San Francisco. However, most of the demand for California wheat was for export, and in this trade of carrying grain from San Francisco eastward around the Horn to Britain and European continental ports, British iron ships had a great advantage over American wood ships, as they were benefited by the British Lloyd's, obtained much lower insurance rates, and were preferred as carriers by the biased, patriotic British merchants. When British ships were assured of a return cargo from San Francisco, they participated very heavily in the California trade, carrying such cargoes as coal out to the West Coast and cutting into the business for American bottoms on both the outward and homeward run. Moreover, a British ship carrying coal from Cardiff out to San Francisco and wheat on the return trip to Liverpool did not have the expense and delay of having to make a westward crossing of the Atlantic in ballast. This was required of American ships that could not get an outbound cargo in Britain and had to return to the United States to load for California, which many of them were required to do.

The California grain trade (primarily to Europe) was so important to American shipping in the early seventies that E. & A. Sewall, of Bath, Maine, decided to build a grain fleet. They designed, constructed, launched, and named four ships peculiarly for this trade, these vessels being the *Granger* of 1,527 tons (built in 1873), the *Harvester* of 1,494 tons (built in 1875), the *Reaper* of 1,469 tons (launched in January 1876), followed by the *Thrasher* of 1,512 tons, which was put in the water July 1, 1876. It is significant that the Sewalls never put the *Thrasher*, the fourth and last of their grain fleet, into the trade for which she was built; for when she appeared in service, grain freights were too low to permit of profitable operations, and the ship was diverted to other trades. The *Granger* made four round voyages in the California European grain trade before she was wrecked in the South China Seas in October 1877 on the outward passage of her fifth voyage, which was not direct to San Francisco or a U.S.A. West Coast port but carrying 2,000 tons of coal from Liverpool to Manila. By a strange coincidence, all the four Sewall ships named for the grain trade were at the port of San Francisco in January 1877. The *Harvester* operated for eight years in the California grain trade, following which she was transferred to the Pacific run, where she was engaged in the Puget Sound lumber export trade, usually returning with coal from Newcastle, N.S.W., Australia. She was wrecked in June 1900 by going ashore in Bass Straits when on a passage, in ballast, from Cape Town to Newcastle. The *Reaper* saw some service in the trade for which she was built, but she ran out from North Atlantic ports to San Francisco on only five of her fifteen westward Cape Horn passages. Returning, she usually carried grain from Astoria or Puget Sound, although at times she loaded general merchandise at San Francisco or sugar at Honolulu. In 1898 the *Reaper* entered the Pacific lumber and coal trade. She was destroyed by fire at Port Ludlow, Wash., in July 1906, when thirty years old.

A ship that has been confused by marine historians with the Sewall California grain fleet was the Down Easter *Gatherer* of 1,509 tons, launched at Bath, Maine, in August 1874. This ship, however, was built and largely owned by Albert Hathorn. Her first voyage was from Bath to New Orleans with hay, then to Liverpool with cotton, following which she crossed the Atlantic in ballast to Philadelphia to load coal for Honolulu on

government account; after discharging, the ship proceeded to the Columbia River and loaded wheat for Liverpool. She then made two voyages to Hong Kong with coal, after which she made several westward Cape Horn runs from North Atlantic to North Pacific ports, which averaged 129 days. Her seven return passages with wheat to Europe averaged 122 days. The *Gatherer* got in the news as a result of the inhuman treatment of the crew by First Mate Charles Watts on a passage from Antwerp to Wilmington, Calif., in 1881. One seaman was killed, two committed suicide to avoid further abuse, and a boy was so beaten about the head that he became blind. Surprisingly, Capt. John Sparks, although removed from his command, was not held responsible for the atrocious conduct of his mate and escaped punishment; the mate got off lightly with a sentence of six years in state prison. Henceforth, however, the vessel was branded as a "Hell ship" and became generally known as "the Bloody *Gatherer*."

The *Iroquois* of 2,121 tons, launched by Arthur Sewall & Company, Bath, Maine, in November 1881, was a rather full-bodied and big-carrying Down Easter that sailed well. Westward around the Horn, her best passage was 120 days from New York to San Francisco and her slowest 157 days from Liverpool to the same port. Running eastward, the *Iroquois* made four passages from Honolulu to New York or the Delaware Breakwater, which averaged 114 days, but one of these, sugar laden, was made in 93 days. The ship made runs of 105, 107, and 108 days from San Francisco to New York and one of 111 days from Astoria to the same port, which was good sailing for a ship of her model fullness and general type. The *Iroquois*, however, staggered the shipping fraternity when in 1886 she ran from Acapulco, Mexico, to Puget Sound in the amazing record time of only 16 days, which was much less than half the time taken on an ordinary fairly good run between the ports. Three years later (1889), on a passage from Baltimore to San Francisco, the *Iroquois* made a fast run up the Pacific, being 19 days from 50° S. to the equator and 20 days from the line to port. The total run of 39 days from 50° S. to destination was a creditable sailing performance for a clipper. The *Iroquois* was wrecked on March 20, 1902 (when over twenty years old), by striking an uncharted reef in passing from the Indian Ocean to the Java Sea through the Straits of Sapi; the ship, with her cargo, was a total loss.

The *North American* of 1,584 tons, launched from the East Boston yard of Curtis & Smith on January 3, 1873, was in reality a half clipper that engaged in trade generally on the Seven Seas, although during her career she made five westward Cape Horn passages to California and eleven eastward runs from San Francisco to North Atlantic ports with grain. On her maiden voyage, the ship went from New York to Melbourne; thence to San Francisco, where she loaded for Liverpool. She made a run to that port of 95 days 1½ hours (pilot off Point Lynas), logging on this eastward Cape Horn passage 16,919 miles—a stated average of 178 miles per day (about 7.4 knots per hour). Her best westward Cape Horn passage was 108 days from Philadelphia (or the Delaware) to San Francisco, but her most spectacular sailing was a run of 16½ days from 50° S. Pacific to the equator and 20 days thence to the Golden Gate—a total of 36½ days from 50° S. to pilot, which is close to the best time ever made over this part of the course by any extreme clipper. On another passage, the *North American* ran from the line to the Golden Gate in only 14 days, a run that has been beaten by only two clippers (*Comet*, 12 days; *Winged Arrow*, 13 days) and equaled by one (*White Squall*) and is one day better than the fastest sailing performance over this part of the course made by the clipper *Flying Cloud*.

The ship *Triumphant* of 2,046 tons, built by Thomas at Quincy, Mass., and launched in January 1874, was frequently referred to as a half clipper. Occasionally, she did some fast sailing, and it is claimed that leaving San Francisco for Callao on December 21, 1877, in ballast, she crossed the Pacific equator 11½ days out from pilot dropped off the Golden Gate. (It was also reported that on this run she was "in Latitude 30° South on the 22nd day," but this is inconsistent with the statement that the ship was bound for Callao, in

ballast, to load at that Peruvian port, as Callao, presumably her destination, is located at about Lat. 12° S.) We are also told that in 1887 the *Triumphant*, loaded with 3,200 short tons of wheat (2,860 long tons), went from the Golden Gate to the Pacific equator in 14 days and was in Lat. 28° S. on the 23rd day and that Captain Lawrence believed at that time that he had "a good chance of being up with Cape Horn in 30 days from the Golden Gate," but "a series of calms and head winds lasting 15 days" upset his calculations. The all-time record for a run from pilot off the Golden Gate to the Pacific equator is held by the clipper *Comet*, which in February 1853 covered this part of the course when running eastward to an Atlantic port in 11½ days. The clipper ship *Flying Dutchman* ran from the Golden Gate to the line in 12 days, also in February 1853, and when the *Comet*, during the end of 1853 and early in 1854, went over this first section of the course again in 13½ days, it was reported as a very fast, near record run. The all-time record for a run from the Golden Gate to Cape Horn stands at 35 days 7 hours and was made by the clipper *Comet* in 1853-1854. The clipper *Northern Light*, on her record run in 1853 from San Francisco to Boston, and the *Messenger*, on her record run from San Francisco to Philadelphia, are runners-up for second place honors, each covering the course from the Golden Gate to the pitch of the Cape in 38 days. Therefore, it seems decidedly improbable that the *Triumphant* had ever any more than a mere ghost of a chance of running, laden, from San Francisco to Cape Horn in anywhere near the hoped-for 30 days. The *Triumphant's* fastest eastward Cape Horn passage was a run of 108 days from San Francisco to Liverpool in 1875-1876, but on this occasion she is said to have beaten the *Glory of the Seas* and the converted steamer *Ericsson*.

Another ship that claimed a fast run in the North Pacific was the *Cremorne* of 1,091 tons, built at Mystic, Conn., in 1862. The ship was not a Down Easter, but she carried well and made good passages in the California trade, her five eastward runs from San Francisco to New York being particularly good. On a 106-day passage to New York, the *Cremorne* reported running from the Golden Gate to the Pacific equator in "near record time," and when 25 days out she stopped at Pitcairn Island, which is about Lat. 25° S. and Long. 130° W. The *Cremorne* came to a tragic end. She sailed from San Francisco June 1, 1870, loaded with wheat and bound for Liverpool, and neither she (nor any part of her) nor a single one of the twenty-three persons aboard was ever heard of again. The ship was about eight years old when she "went missing."

The *Jabez Howes*, a Down Easter launched at Newburyport in October 1877, was the 93rd vessel that John Currier, Jr., had built and his best ship. The vessel had good speed, made fast passages, and carried well. With a registered tonnage of 1,581 tons net, she is said to have carried coal cargoes of 2,250 tons in the Cape Horn service running west and wheat cargoes of 2,600 short tons (2,320 long tons) when eastbound to North Atlantic ports. The *Jabez Howes* was a Cape Horner, making nineteen westward roundings of the Horn (seventeen to San Francisco and two to Southern California ports), and on only one occasion (1887) did she make a Cape of Good Hope voyage, when she went from New York out to Melbourne (80 days) and returned, loading at Manila. The "*Howes*" made her last westward passage in the California trade in 1889. From 1900 to 1907, she was in the Pacific lumber and coal trade, and following a voyage with lumber to South Africa in 1907, she was purchased for operations in the Alaska salmon cannery trade. She was wrecked at Chignik in April 1911, when thirty-three and a half years old. The *Jabez Howes* averaged 124 days for sixteen of her seventeen westward passages to San Francisco, and including her long run of 169 days from New York (made under very unfavorable sailing conditions), the average of the entire seventeen passages is 126.7 days; her best runs were made in 106 and 109 days, respectively. Eastward, the ship averaged 110 days for eighteen passages from San Francisco to North Atlantic ports, which is fast work, her four fastest runs being made to New York in 95, 97, 100, and 101 days, respectively. In 1881 the "*Howes*" ran from San Francisco to the Falkland Islands

in 40 days, experiencing many days of tremendous gales (favorable as far as direction was concerned), with the ship under water a good part of the time; but she made good time and suffered no damage. Captain Baker reported that in the heavy seas the ship was "superb." Under generally similar conditions of wind and sea in the same place (off Cape Horn), the big extreme clipper *Great Republic*, on her first eastward rounding of the Horn, did not fare so well, for the seas pounding on her deck broke several deck beams, large quantities of water got below, and the ship had to go into Port Stanley of the Falklands for repairs before she could proceed to Britain with her cargo of guano.

The *St. James* of 1,488 tons, designed and built by John McDonald (builder of the *Henry B. Hyde*) and launched at Bath, Maine, in September 1883, was a Down Easter rigged as a bark. This vessel was a good carrier, loading 2,100 tons deadweight, and she was known as both a fast and very seaworthy craft. On her 105-day passage from New York to San Francisco in 1902, the *St. James* ran from the Atlantic equator around the Horn to the Pacific equator in only 56 days. When ten years before that (in 1892), while on a passage from New York to the Columbia River, she had been 65 days rounding the Cape and sailing from 50° S. Atlantic to 50° S. Pacific in exceptionally severe weather, Captain Burnham wrote that his big bark, although deeply laden, "rode the huge billows like a duck" and sustained no damage to hull or spars in terrific westerly gales and mountainous seas. Three other vessels that the *St. James* was for a while in company with during this battle with the elements—the ships *San Joaquin* and *Annie H. Smith* and the bark *Adolph Obrig*—sustained such damage that they were required to turn back and put into Port Stanley (Falkland Islands) for repairs. In 1900 the *St. James* made the last passage by a sailing ship from New York to San Francisco around Cape Horn, loaded with a general cargo, and in 1901 she loaded at Puget Sound the last full cargo of canned and pickled salmon to go forward to an American Atlantic port. During the first World War, the *St. James*, rigged as a barkentine, was wrecked on Oeno Island in the South Pacific on December 16, 1918, while carrying lumber from Vancouver to South Africa; she was thirty-five and a quarter years old when lost through no fault of her own.

The *Agenor* of 1,414 tons, built at East Boston in 1870, was a good sailer and is credited with a fast run of 30 days from Callao to San Francisco and with crossing the Pacific from Kobe to San Francisco in 27 and 29 days. Her best westward Cape Horn passage was made in 120 days, and her best eastward run was 113 days from the Golden Gate to Antwerp. However, the *Agenor* enjoys distinction not so much because of any fast passages but because in October 1872 she obtained the highest rate of freight ever paid a wooden ship in the grain trade—£5-12-0 a ton from San Francisco to Liverpool. There is another side to this story of high freight rates and prosperity for American ships in the California European grain trade, for competition became keen, famine demands seldom occurred, and the trade was soon over-tonnaged with British iron ships enjoying preferentials. When the *Agenor* arrived at San Francisco in October 1891, she lay idle in that port for twenty-one months, or until July 1893, waiting to pick up any kind of cargo that would warrant her again putting to sea. During this period, many fine American ships sailed from San Francisco in ballast to try their luck in obtaining a paying cargo at some other port on the Seven Seas.

An average good Down Easter engaged in the Cape Horn trade was the *Charles E. Moody* of 1,915 tons, launched by Goss & Sawyer, Bath, Maine, on November 9, 1882. She was destroyed by fire on June 28, 1920, at Bristol Bay, Alaska, when over thirty-seven and a half years old. Prior to her sale to San Francisco owners in the winter of 1898-1899 for a good sum, the "*Moody*" had made thirteen westward Cape Horn passages (eleven to San Francisco and two to Puget Sound), seven originating at New York, four at Liverpool, and one each at Philadelphia and Baltimore. The average length of the eleven passages to San Francisco was 125 days, but the uniformity of her sailing performance is conspicuous, as the range from the shortest (115 days) to the longest (135 days) passage is only

twenty days, and the average of all the passages was at mid-range. On her eastward runs, the ship averaged 114 days, making the same average time to Liverpool (best, 102 days; longest, 121 days) as she did to New York (best, 100 days; longest, 121 days). The *Charles E. Moody* was well built and kept up and well operated; she must also have been lucky, for during her career in deep-sea work, she suffered no damage to hull, spars, or rigging worthy of notation in her log books. The "*Moody*," like most other American square-riggers, was greatly handicapped toward the end of the nineteenth century by the inability to obtain crews. On a run from Norfolk to Honolulu in 1899, Captain Woodside had to make the passage with only eight white sailors in the forecabin, and they were old and of very mediocre quality. Yet the captain affirmed that it took three of the fifteen Japanese that he had shipped to round out his crew to do the work of one white man. When Captain Woodside was in the vicinity of the Horn and one of his white sailors had been washed overboard, he felt it wise not to attempt to round the Cape with his incompetent crew, so he turned tail to the westerlies and headed for Honolulu via the Cape of Good Hope, logging about 30,000 miles before he reached his destination.

The attempt of Donald McKay to come back as a shipbuilder after the clipper ship decade and the Civil War would have been pathetic if he had stopped after building his Cape Horner *Sovereign of the Seas* in 1868, but fortunately for his reputation, he persevered and built a second ship, the *Glory of the Seas*, a year later. This second and last square-rigger built by McKay during or after the Civil War was a good-sailing and carrying half clipper that competed well with ships of her period and class, although she was not the reliable and consistently fast sailer, big carrier, and money-maker that the *Henry B. Hyde*, the "Queen of Down Easters," and her contemporary, the *A. G. Ropes* (both built at Bath, Maine, in 1884, or fifteen years after the *Glory of the Seas*), proved to be. A comparison of the dimensions and sailing performances of McKay's *Sovereign of the Seas* (2) and *Glory of the Seas* is presented herewith:

Name of Ship	Launched	Tonnage	Dimensions in Feet and Inches			Passages in Days—California Trade					
			Length	Beam	Depth	Westward Runs			Eastward Runs		
						Number	Average	Best	Number	Average	Best
SOVEREIGN OF THE SEAS	Nov. 1868	1,443	199-5	41	23-9	11	150* (10 direct)	138	11	127	114
GLORY OF THE SEAS	Oct. 1869	2,009	240-2	44-6	28	12	124	96	12	117½**	103

*Does not include a disastrous passage in 1872, when the ship left New York March 1, was badly damaged by gales and high seas when 2 days out, returned to New York in 10 days for repairs, and after sailing again was badly battered and mainmast damaged in Lat. 33° S.; she put into Rio de Janeiro for repairs, where the detention was about six weeks, and finally reached San Francisco 215 days from her second sailing from New York and 100 days from Rio de Janeiro.

**Includes a run in 1881-1882 from San Francisco to Havre, on which the ship put into Valparaiso for repairs and was detained in port three months, the passage being considered as 131 sailing days.

Both of these ships were built for the California grain trade, which, with its volume and possibilities for developing a great export business, boomed American shipbuilding for a while in the last half of the sixties and first half of the seventies. The *Sovereign of the Seas* was either laid down for Lawrence Giles & Company, New York, or acquired by this firm before launching, but the *Glory of the Seas* was built by Donald McKay "on spec" (as were so many of his ships), and it was not until she had demonstrated good sailing qualities (which the *Sovereign of the Seas* did not possess) that McKay was able to sell her, and then he had to dispose of her at a loss to J. Henry Sears, of Boston. A press item referring to the *Glory of the Seas* says: "She is built of solid oak; her timbers are 11 inches square and only 4 inches apart; 6-inch planking outside and 4-inch ceiling inside make an almost solid oak hull 21 inches thick. . . . The *Glory of the Seas* was assuredly well built, so well

built that she made a bankrupt of her builder, McKay." The *Sovereign of the Seas* was a notoriously slow sailer, and her lack of speed in the trade for which she was built is emphatically illustrated in the following remarks made by Hobart Bosworth, who served in her:

I remember once off Staten Island counting fifty-seven ships in sight at one time, all westward bound, from the fore-topgallant crossrees. It was extraordinary because not a sail had we sighted the day before, and not a sail was visible the day after, nor did we meet another vessel until we put into Juan de Fernandez for fresh water.

The "*Sovereign*" did not gain upon and pass all these vessels, but they evidently out-sailed her, for the ship was so long on her passage that she had to put into Juan de Fernandez for water. The average length of the ship's direct westward passages to San Francisco is stated at 150 days, but the average of all her runs around the Horn to Pacific Coast ports is said to have been 156 days. On her last voyage as an American ship in 1883-1884, she was 160 days from New York to Astoria and 141 days thence to Queenstown, proceeding from there to Antwerp to discharge, at which port she was sold cheap to the Germans. Later, the ship was cut down to a tow barge, and she foundered off New York in 1902, when about thirty-three and a half years old. The best that can be said about the *Sovereign of the Seas* is that she was well and strongly built and carried well.

The *Glory of the Seas* was designed by McKay to be a half clipper and have fair speed while carrying good cargoes, and she was intended to be a larger and improved *Seminole*, which had been built four years before at Mystic, Conn. In this connection, it is interesting to note that these two half clippers were the only ships to make westward passages to California after the clipper ship decade of 1850-1860 in less than 100 days. The *Seminole*, on her maiden voyage in 1865-1866, ran from New York to San Francisco in 98 days, and the *Glory of the Seas* made a run over the same course in 1873-1874 in 96 days. Both of these ships carried in deadweight about fifty per cent more than their registered tonnage. Neither made any big day's runs or did any fast spurt sailing, but each made average good passages around the Horn. Whereas the *Glory of the Seas* showed up somewhat better on the westward run than her adversary, the *Seminole* had a much superior record sailing to the eastward. Her best passage was nine days shorter than the later-built McKay half clipper, and her average for nineteen eastward Cape Horn runs was nine and a half days better than the average of the eleven similar passages made by the *Glory of the Seas*. However, only three of the *Seminole's* eastward passages were to Britain; whereas all the return runs of the *Glory of the Seas* were to Liverpool, Queenstown, or Havre; this gave an advantage of several days to the *Seminole* because of the direction of prevailing winds, which favored outbound and handicapped home-ward runs north of the equator in the British trade as compared with runs to and from American ports. Both the *Seminole* and *Glory of the Seas* were very lucky ships in the weather encountered during their careers as Cape Horners, and the one fast westward passage made by each was somewhat fluky as the following comparison of all their westward Cape Horn runs shows:

Name of Ship	Number of Direct Westward Passages	Average Length of These Passages in Days	Length of Passages in Days			Percentage of Passages	
			Shortest	Second Best	Longest	Under 114 Days	From 120 to 130 Days
GLORY OF THE SEAS	12	124*	96	114	153	16.6	50
SEMINOLE	20	126	98	112	155	20	45

*One of these passages (the last) ended at San Pedro, Calif.

In a comparison of the length of the outward passages of these two ships, the *Glory of the Seas* had a decided advantage in the port of origin, for she made eight of her twelve westward passages from British ports (six from Liverpool and two from Cardiff), which has usually an advantage of several days in the length of a passage to the bulge of the South

American coast and, therefore, to San Francisco as compared with a passage originating at an East Coast U.S.A. port; all the westward passages of the *Seminole* were from New York to San Francisco. It is surprising that the fastest runs to San Francisco made by both the *Glory of the Seas* and *Seminole* were from New York and not from a British port. The record of the twelve outward and return passages of the *Glory of the Seas* is set forth herewith:

Outward Passages to San Francisco												
Years	1870	1871- 1872	1872- 1873	1873- 1874	1874	1876- 1877	1877- 1878	1878- 1879	1880	1881- 1882	1882	1885
Port of departure..	New York	Cardiff	Liverpool	New York	Liverpool	Liverpool	Liverpool	Liverpool	New York	Cardiff	New York	Liverpool
Length of passage in days	120	120	120	96	131	114	144	153	118	120	120	121 (San Pedro)

Eastward Passages from San Francisco											
Years	1870	1871- 1872	1872- 1873	1873- 1874	1875- 1876	1876- 1877	1877- 1878	1878- 1879	1880	1881- 1882	1885
Port of arrival...	Queens-town	Liverpool	Liverpool	Liverpool	Liverpool	Liverpool	Liverpool	Queens-town	Queens-town	Havre	Liverpool
Length of passage in days	112	112	128	118	133	103	107	111	120	131 s.d.*	117

*The ship put into Valparaiso for repairs and was detained three months. The length of passage stated is in sailing days and not the elapsed time, port to port.

It has been said that the *Glory of the Seas* was not a clipper and that the length of her passages was "about midway between those of the clippers that preceded her and the Down Easters of a later period." In substance, this should have been correct, but as a consistently fast sailer the half clipper *Glory of the Seas* falls far short of equaling the record of the Bath-built Down Easter *Henry B. Hyde*, launched fifteen years after the "*Glory*." However, as far as uniform good passages in the California trade are concerned, the *Henry B. Hyde* beat not only the *Glory of the Seas* but also all the other half clippers of the sixties and seventies. The relative sailing performances, both westward and eastward, around the Horn are illustrated by the following comparative data of the averages of the best consecutive passages of the Bath-built Down Easter *Henry B. Hyde* (launched 1884) and the Boston-built half clippers *Glory of the Seas* and *Great Admiral* (both launched in 1869) and the *South American* (built in 1876):

Name of Ship	Average Length of Consecutive Westward Passages in Days					Average Length of Consecutive Eastward Passages in Days				
	Best Two	Best Three	Best Four	Best Five	Best Six	Best Two	Best Three	Best Four	Best Five	Best Seven
GLORY OF THE SEAS	108	115.7	115.3	116.2	117	105	107	110.2	114.4	117.1
GREAT ADMIRAL	111	116.3	117.5	119	118.2	111.5	113.7	115.7	115.2	115.6
SOUTH AMERICAN	116	115.3	116.7	119.4	Only five	102	106.3	104.7	107.2	108
HENRY B. HYDE	106.5	107	108.2	112.4	112.5	100	96	100.5	102.2	102.1

All of the westward passages of the *Henry B. Hyde* were from U.S.A. ports, and five of the seven eastward passages here referred to were from San Francisco with grain to Liverpool. Five of the six westward passages of the *Great Admiral* here mentioned were from American ports and one from Liverpool, and all the seven eastward passages were grain runs from San Francisco to Europe (three being to Queenstown). Three of the five westward passages of the *South American* in the California trade originated at Liverpool

and two at New York, but all of her eastward runs were in the grain trade to British ports (three to Queenstown, three to Liverpool, and one to Dublin).

The Down Easter *Henry B. Hyde* was relatively a bigger carrier, a more economic vessel to operate, a more successful money-maker, and of a better design than the half clipper *Glory of the Seas* and the other Massachusetts- and Connecticut-built ships of her type. Moreover, the "*Hyde*" operated under less favorable trade conditions than did the "*Glory*," which was laid up at San Francisco in late 1882 as "unprofitable to run" and was out of commission for this reason when the "*Hyde*" was built and commenced her successful career. The *Glory of the Seas* was acquired by Capt. Joshua S. Freeman and friends in early 1885, but after making one round voyage to Liverpool and return to San Pedro, Calif., the ship was withdrawn from the Cape Horn run and used until 1902 in the Pacific coastwise coal trade. The vessel then changed hands several times. Her last voyage under canvas was made in 1907-1908, when she was some thirty-eight years old, and in 1911 she was sold to satisfy creditors. After some service as a floating refrigerator connected with the salmon fisheries, the *Glory of the Seas* was laid up and, in May 1923, was burned for her metal near Seattle, Wash.

The *Great Admiral* of 1,497 tons, a half clipper built by Robert E. Jackson and launched from his East Boston yard on April 10, 1869, some six months before Donald McKay put the *Glory of the Seas* in the water, was a well-designed vessel both in hull and rig and of superior construction. She was built to the order of William F. Weld & Company, of Boston. The *Great Admiral* made no spectacular fast runs, but she was a consistently good sailer and carrier, and in the California Cape Horn trade both her westward and eastward passages averaged better than those of the *Glory of the Seas*, which was a 512-ton bigger ship and one that McKay boasted would "beat the Weld ship [sailing under the famous Black Horse flag] in speed, carrying, and in making money"—a prophecy that was not realized, although both ships proved to be splendid vessels and highly creditable to their designers, builders, and owners. The *Great Admiral* was a very uniform sailer; her best westward Cape Horn passage was made in 111 days, her slowest run was only 133 days, and the average of all her ten outward passages was 120½ days. On her seven eastward passages, all made in the California-to-Europe grain trade, uniformity was even more conspicuous, the best runs being made in 111 days (to Queenstown) and the longest in 126 days (to Havre); the average was 115½ days—only four and a half days longer than her fastest run.

The *South American* of 1,694 tons, launched by Smith & Townsend at East Boston in September 1876, was built to the order of Henry Hastings & Company, of Boston, and was generally similar to the half clipper *North American*, launched by Curtis & Smith at East Boston in early January 1873 for the same owner. The *South American* was 110 tons larger than the earlier built ship, being a little longer, beamier, and deeper. The *South American* was wrecked near Cape Agulhas (the tip of South Africa) on September 15, 1889, when sugar laden and bound for Boston. She was thirteen years old when she came to a tragic end. The *North American* was wrecked two years and ten months later, in July 1892, on the Japanese coast, and she was nineteen and a half years old when lost; so the *North American* had a life about fifty per cent longer than the later built and larger ship, which was constructed to be her superior. It is debatable as to which of the ships was the faster or the better vessel, and neither was exclusively a Cape Horner but rather a general trader on the Seven Seas. The *South American* ran from New York out to San Francisco in 109 days on her maiden voyage in 1876-1877, but she returned to the United States (Boston) by way of Manila. Her first round voyage in the California trade was in 1878, when she went from New York to San Francisco in 123 days and then carried wheat from there to Cork (Queenstown) in 99 days. This is recorded as her fastest eastward passage, but in reality it is slower than the two runs that she later made in 1882 and 1884 (each of 100 days) from San Francisco to Liverpool. The vessel's longest passages eastward were 120 days to Dublin in 1884-1885, 117 days to Cork (or Queenstown) in 1882-1883, and 115 days to Liverpool in 1881;

the average length of her seven eastward Cape Horn passages, all grain laden to British ports, was 108 days, which covered the period of 1878 to 1885 inclusive. Westward, the *South American's* initial Cape Horn passage of 109 days was her fastest; this was followed by runs of 123, 114, 120, and 130 days, respectively, the last, which was the longest, being made in 1883-1884, and the average of all the five runs was 119½ days. The range between minimum and maximum length of passage was twenty-one days (three weeks) on both the five outward and the seven eastward Cape Horn passages. On her four round passages from a North Atlantic port to San Francisco and return to some British port, the total time at sea was as follows:

Year	Passage in Days			Year	Passage in Days		
	Westward	Eastward	Total		Westward	Eastward	Total
1878	123 (from New York)	99 (to Cork)	222	1882- 1883	121 (from Liverpool)	117 (to Cork)	238
1882	114 (from Liverpool)	100 (to Liverpool)	214	1883- 1884	130 (from Liverpool)	100 (to Liverpool)	230

In November 1883, the *South American* left San Francisco and was 100 days to Liverpool; she then went from Cardiff to Hong Kong in 89 days and from Hong Kong to San Francisco in 42 days. She arrived in San Francisco in October 1884 after an absence from port of 10 months 17 days, during which she had circumnavigated the globe sailing eastward and had spent only 231 days under canvas on her three main passages. On her maiden passage to San Francisco in 1876-1877, the *South American* was said to have beaten the *Seminole*, which sailed over the course about the same time, by sixteen days. On November 29, 1884, the *South American* sailed from San Francisco for Dublin, and nine days later the *Down Easter R. D. Rice* (of 2,134 tons; built in 1883) left port for Liverpool. The ships spoke each other just north of the Atlantic equator and then sailed for thirteen days in company, being apparently of even speed under the conditions of wind and sea experienced. Following this, they separated, and the *South American*, being favored during the latter part of the passage by wind, reached Dublin five days before the *R. D. Rice* (which got into some very severe weather) arrived at Liverpool; but the entire passage of the *South American* was 120 days and of the *R. D. Rice*, 116 days.

Down Easters were almost universally three-masted square-rigged wood ships, although very occasionally a sizable Down Easter type of carrier was bark-rigged. All of the clipper ships built in the United States, with the exception of the big *Great Republic* (launched at East Boston in October 1853), were three-masters, but McKay's leviathan had a fourth mast carrying a fore-and-aft rig and was America's first shipentine. In October 1874, Capt. Nathaniel L. Thompson launched the first Down Easter to be given four masts and rigged as a shipentine; i.e., square-rigged on the fore, main, and mizzen and fore-and-aft-rigged on the jigger, or spanker, mast. This vessel, named the *Ocean King*, registered 2,516 tons, had three decks, and was 250½ ft. long, 42¼ ft. beam, and 30 ft. deep. Whereas the model was sharper than that of the usual Down Easter, the vessel was a slow sailer. It was the general opinion at the time that a ship of 2,500 tons or over should be given four masts, and when Carleton, Norwood & Company, Rockport, Maine, launched the *Frederick Billings* of 2,497 registered tons and 4,100 tons deadweight capacity in August 1885, it was seen that the new big ship was to be shipentine-rigged—the first vessel of this type to be built in the United States following the *Great Republic* (whose rig during part of her career was changed to that of a three-masted ship). The *Frederick Billings* proved to be a good carrier and an average sailer, making uniform passages, neither fast nor slow, but considering her model and cargo capacity, they were deemed "most satisfactory." The "*Billings*" was destroyed by fire and explosions and quickly became a total loss while completing the loading of nitrate at Pisagua on July 29, 1893, when the vessel was about eight years old.

When Arthur Sewall & Company built its "Big Wood Four" in 1890-1892, the first of the quartet, the *Rappahannock*, was a giant three-masted ship of 3,054 net registered tons (3,185 tons gross), which, launched January 6, 1890, was soon proven to be too big a ship for three masts, and from the start the ship had a great deal of trouble with her crews. The remaining ships of the "Big Wood Four," all rigged as four-masted shipentines, were the *Shenandoah* of 3,466 gross tons, launched November 1890, the *Susquehanna* of 2,744 gross tons, launched September 1891, and the colossal *Roanoke* of 3,539 tons (the largest wood ship ever built), launched into the Kennebec River September 30, 1892.

A real four-masted bark—evidently the only one of its kind—was built at Bath, Maine, during the last years of wood merchant sail. This vessel, the *Olympic*, constructed in 1892, was of 1,469 tons gross and 1,402 tons net. She was square-rigged on the fore and main masts and fore-and-aft-, or schooner-, rigged on the mizzen and spanker (or jigger) masts. The only other four-masted deep-sea square-riggers built in the United States after the completion of the Sewall "Big Wood Four" were the eight steel shipentines of from 2,998 to 3,381 gross tons built by Arthur Sewall & Company during the years 1894-1902, five for the firm's own account as managing owners (*Dirigo*, *Erskine M. Phelps*, *Arthur Sewall*, *Edward Sewall*, and *William P. Frye*) and three for the Standard Oil Company (*Astral*, *Acme*, and *Atlas*) referred to elsewhere. The Sewall-built fleet of eight steel shipentines and the three-masted steel bark *Kaiulani* (1,570 tons gross and 1,430 tons net; launched by the Sewalls December 2, 1899, for Hawaiian and San Francisco owners) were the last sea-going square-riggers built for the United States merchant marine and America's last contribution to its fleet of deep-sea square-rigged merchant sail. The last wood square-rigger built in the United States was the *Aryan* of 2,123 tons gross and 2,017 tons net, launched into the Kennebec from the yard of C. V. Minott, Phippsburg (Bath), Maine, July 14, 1893. She was a typical Down Easter of moderate size and followed the larger *Parthia* of 2,495 tons gross and 2,371 tons net, built by the Houghtons in 1890-1891, and the mammoth three-masted ship *Rappahannock* of 3,185 tons gross and 3,054 net, built in the winter of 1889-1890 by the Sewalls as their last three-masted ship.

The Sewall Fleet of Steel Shipentines in the California Trade

The fleet of American steel square-riggers, all built during the years 1894-1902 by Arthur Sewall & Company, Bath, Maine, engaged to a greater or less degree in the Cape Horn California trade, but carried very few general cargoes. Coal was carried out to West Coast Pacific ports at times, and the return cargoes were either grain from San Francisco or Puget Sound ports or sugar from Honolulu and Hawaiian Island ports. The U.S.A.-built Sewall fleet of five four-masted steel shipentines (*Dirigo*, *Erskine M. Phelps*, *Arthur Sewall*, *Edward Sewall*, and *William P. Frye*) made twenty-two passages, all told, from North Atlantic ports to San Francisco, which averaged 145.9 days, and eleven passages from San Francisco to North Atlantic ports, which averaged 138.8 days. In comparison with the sailing performances of wood Down Easters, this was very poor sailing.

The *Dirigo* made five westward Cape Horn runs from U.S.A. East Coast ports to San Francisco, which averaged 158 days. Three were from New York, and all were long runs of 153, 171, and 166 days, respectively, an average of $163\frac{1}{3}$ days; two were from Baltimore and occupied 138 and 162 days, respectively, an average of 150 days. Eastbound around the Horn from San Francisco, the *Dirigo* made two runs to New York in 136 and 143 days,

respectively, one to Liverpool in 162 days, and one to Queenstown "for orders" in 110 days. The average length of the four eastward passages to North Atlantic ports originating at San Francisco was $137\frac{3}{4}$ days.

The *Erskine M. Phelps*, the fastest sailer of the Sewall quintet, showed up poorly on the California run, as her two westward passages to San Francisco were one from Baltimore in 149 days and one from Philadelphia in 137 days, an average of 143 days for the two. Eastward, the "*Phelps*" made only one passage from San Francisco, and that occupied 146 days (although she made a good run of 104 days from Puget Sound to Norfolk, Va.). It was in the Honolulu run, both eastward with sugar and westward with coal, that the "*Phelps*" showed real sailing ability, made some fast runs, and had a low average for all her six outward and nine homeward passages ($114\frac{2}{3}$ and 113 days, respectively).

The *Arthur Sewall* made only one voyage in the California trade, and whereas this vessel was generally slow, she made the outward passage from Philadelphia to San Francisco in 127 days and the eastward passage from San Francisco to Gravesend (London) in 128 days, which is good sailing for a ship of her type, deep laden. Her sister ship, the *Edward Sewall*, made seven westward passages from East Coast U.S.A. ports to San Francisco. One from New York was made in 127 days and one from Newport News, Va., in 124 days; three from Philadelphia occupied 129, 148, and 154 days, respectively, and two from Baltimore required 208 and 133 days to complete, the former via Montevideo in 162 sailing days. The average of the seven passages was 146 days, port to port, and $139\frac{1}{2}$ sailing days. (The stop at Montevideo on the long passage was due to fire in her coal cargo.) Eastbound, the *Edward Sewall* made two passages around the Horn to North Atlantic ports, one a run of 110 days to New York and the other a run of 141 days to Liverpool—an average of $125\frac{1}{2}$ days for the two passages.

The *William P. Frye* made seven westward Cape Horn passages from East Coast U.S.A. ports to San Francisco, and only one of them, a run of 121 days from Baltimore, was made in good time. Three runs originated in Baltimore and averaged 135 days (121, 139, and 145 days, respectively); two from Newport News or Norfolk were made in 142 and 151 days, respectively, one from New York in 143 days, and one from Philadelphia in 144 days. Of the seven passages, all but one were of 139 days or more; four were made in 142 to 145 days and the longest in 151 days. The average of all these seven westward passages to San Francisco was $140\frac{5}{7}$ days. Eastward, the "*Frye*" made three runs from the Golden Gate to North Atlantic ports, and all were to New York, the passages being long and made in 148, 141, and 162 days, respectively, an average of $150\frac{1}{3}$ days.

The first metal ship owned and operated by Arthur Sewall & Company was the British-built *Kenilworth*, constructed in 1887 and bought by the Sewalls at San Francisco after she had been burned and scuttled in August 1889. The *Kenilworth* was of a half clipper model and the fastest of the Sewall fleet. This ship made five westward Cape Horn passages from New York to San Francisco in 119 (reported as 116), 144, 115, 118, and 103 days, respectively, an average of $119\frac{4}{5}$ days. The run of 103 days made in 1899 was exceptionally fast. The *Kenilworth* made four other westward runs to San Francisco from North Atlantic ports. These were runs of 131 and 128 days from Liverpool, 139 days and 579 days (423 days at sea) from the Delaware (Philadelphia). The latter was a disastrous "heart-breaking" run via Montevideo and Rio de Janeiro, as she was twice required to put back from the Horn for repairs. This last unfortunate passage caused the average length of all the ship's nine westward Cape Horn runs to San Francisco, port to port, to rise to 175 days, and the average for the other eight passages is $124\frac{5}{8}$ days. Sailing eastward from San Francisco around the Horn to North Atlantic ports, the *Kenilworth* averaged 114 days for four passages to British ports, the fastest being a 101-day run to Liverpool.

