

## THE DEVELOPMENT OF THE CLIPPER SHIP

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IT HAS been said that during the fifteen or twenty years which came exactly in the middle of the 19th Century, America was the mistress of the seas. If such a statement means that the American flag was to be seen in every port of the world, that American bottoms commanded the highest freight rates, that American vessels held all records for speed, that American ships were unexcelled in size, in beauty, and in seaworthy qualities, and that American captains were unequalled in skill and daring, the statement is a true one.

The type of vessel by means of which this supremacy on the ocean was attained is known as the Clipper Ship. That designation must be understood as a technical one. A clipper is a vessel designed for speed at the expense of carrying capacity, such design taking the form of sharpness and slenderness of hull with clean, flowing, graceful lines that offer the least possible resistance to the water at the bows, that create the least possible drag or inrush of water under the stern, and that create the smallest possible wake or swell as the vessel moves ahead. In other words, a clipper is a vessel so carefully designed as to move through the water with the least possible commotion, hence with the greatest ease. A ship is a vessel rigged with three masts, and with square sails on each mast. This rig at the time of which we are speaking was considered the standard rig for ocean going vessels.

A clipper ship therefore is a three-masted square-

rigged vessel whose hull is sharp and sweetly designed, with a view to speed as the prime consideration. She represents the highest refinement, the supreme achievement of the science of naval architecture. By that is meant that although yachts, pleasure craft, racing machines, have been designed that would easily out-sail a clipper ship, yet when these constant factors have been considered, namely, that enough cargo has to be carried to make the vessel pay, that enough body has to be retained in the hull to support the great weight of spars and canvas of the full ship rig, and make the vessel seaworthy in all kinds of deep sea weather, and enough structural strength has to be secured to prevent either hogging or sagging in the hull and to resist the multiplicity of fugitive strains and twists to which a heavily loaded hull is subjected on the constantly shifting ocean surface, the American clipper ship of the 1850's is the highest attainment in naval architecture yet reached.

The American Clipper has permanent significance for two reasons. First, as already stated, it was the type of vessel by means of which our country rose to her brief period of supremacy upon the high seas. Second, it is one of the most, if not quite the most characteristic expression of our peculiar aesthetic sense which we have as yet produced. It accurately embodies our ideas of beauty, which insist upon thorough utility, the most perfect functionality possible, the greatest possible economy of mere mass, bulk, material, without sacrifice of structural strength, and perfect co-ordination to the environment and the purpose in view. The American artistic genius has created nothing that embodies these indigenous canons of beauty more perfectly than the clipper ship.

The story of the development of this creation is one which reveals in a striking way those qualities of adaptability, alertness, enterprise, and ingenuity which we like to think are characteristic of American manhood. The story begins with the launching of

the *Blessing of the Bay*, on the fourth day of July in the year 1631. This vessel, owned and built by Governor John Winthrop, enjoys the distinction of being the first vessel to be built by our New England forefathers. Aside from the fact that she was a little barque of about thirty tons burthen, we can say nothing about her except that she would float and sail. Governor Winthrop used her for visiting his island in the harbor, for pleasure, possibly for visiting nearby settlements at Braintree, Weymouth, Hingham and New Amsterdam.

The chief significance of the *Blessing of the Bay* was that she started the ball rolling. With an abundance of the best material, oak, ash, pine, spruce, growing at their very backdoors, with a natural aptitude for all forms of craftsmanship, and with the sea just before them offering them a ready livelihood in fishing, offering them a means of rapid and easy communication for purposes of trade, it would have been strange indeed if our forefathers had not followed their Governor's example and turned their attention to the possibilities in a sea-faring life. Professor Morison tells us that by 1678 there were no less than four hundred and thirty of these little home-built and home-rigged vessels plying the coastal waters of New England. Of these, one was a ship of four hundred tons, a huge vessel for the times. The greater part were small craft of fifteen to two hundred and fifty tons, rigged as sloops, topsail schooners, and brigantines. In the construction of these vessels our forefathers were helped by skilled labor from England. Trained shipbuilders came over in ever-increasing numbers, so that it looked as though something would have to be done to check this industry in New England and keep the ship carpenters at home in Old England. Yet it is hard to think that all our American vessels were built by imported labor. The trained ship carpenters were numerous enough to teach their trade to the colonists and to establish certain of the more fundamental traditions

and conventions of their craft. But there was still room for experiment, originality and innovation from those who learned the trade on this side of the water. Thus from the very first, the art of ship design and ship construction was characterized by a certain freedom from convention, a certain elasticity which was to prove of great value to its later development. In the year 1642 Puritanism gained the political upper hand in England, and the migration of disaffected spirits to New England ceased, and even began to set the other way. This fact was of the utmost consequence to New England, as it threw our colonies upon their own resources, and warned them they must make their own living or starve. This necessity forced them into foreign trade. All kinds of lumber, and especially spars for vessels could find a hungry market in the West Indies, and could be exchanged for the molasses and coffee and spices which were no less in demand here. Salt codfish was always in demand in Catholic Europe. Here then was a most lucrative trade just waiting to be developed. As this trade expanded both in volume and variety, it resolved itself into a sequence of experiences which taught our shipbuilders, with a rather striking coincidence of emphasis, one repeated lesson—that was, the advantage, the economic value of speed. Even in those early days markets did fluctuate, and the vessel that could get her cargo to the market while it was still good was the profitable vessel. Owing to the Navigation Laws then in force, much of the West Indies trade was illicit. Smuggling was so generally practiced as to be almost respectable. But the successful smuggler had to be a swift sailing vessel. At a time when policing the high seas was relatively unknown, pirates were to be encountered on every hand. The buccaniers of the Spanish Main, the Sallee Rovers of Northern Africa, the Algerian and Barbary Corsairs of the Mediterranean, and the robbers of the Yellow Sea were known and dreaded by every skipper of experi-

ence. And it was only the vessel which could either fight off or outsail these pests that escaped the danger. Here was another grim reminder of the value of speed. Moreover, the nations of Europe were almost constantly at war with one another, which meant that neutral traders frequently had to slip into blockaded ports—and the blockade runner must be a swift vessel.

Almost from the moment that shipbuilding became an outstanding American industry, our ship designers were put under the necessity of considering speed as of great importance. For this necessity they were prepared by their relative freedom from conventions. But the incentive to speed was offset by the economic necessity for cargo space. After all, a vessel could not pay just because of her speed. She must have carrying capacity, and carrying capacity meant size and beam and a full bodied design—just the characteristics that militated against speed. Between these two opposing necessities there was the balance, the line of neutrality. We shall find that this line of neutrality always determines the type of vessels that were produced. They were as sharp and swift as they dared to be without encroaching too far on carrying capacity, and they were as full-bottomed as they had to be without sacrificing too much speed. We shall find that as economic conditions fluctuated, as special occasions called for specially designed vessels, our shipbuilders, owing to their alertness and adaptability, were ready with their answer. It was the operation of these forces that produced the majestic clipper ship of 1850, and it was the operation of the same forces that drove the clipper off the seas after her brief term of glory.

The Revolutionary War sadly interrupted a very flourishing young American trade, but it had one beneficial result. With the great French fleet which came to our assistance there came also a number of small French luggers—to be used possibly as despatch boats. These luggers had but one function, to go fast.

They were not only sharp and slender, they were sweetly modelled. They were an object of great admiration to our builders in New England and Baltimore. Their lines were copied for future reference. Their characteristics were remembered.

After the Revolution, trade sprang up again with all parts of the world—the West Indies, the Azores, the Mediterranean Ports, China, India, the northwest fur trade. Scores of staunch little merchantmen were built all up and down the Atlantic seaboard around the turn of the century. A typical vessel of the times was the famous *America*. She was launched in Salem in 1804. Her dimensions were, length 114', 31' beam, 14' draft, tonnage 473, square-rigged throughout, the largest, fastest, most fortunate vessel of her day. Her best speed was thirteen knots and her best day's run two hundred and twenty-five miles. Every ship had to be able to take care of herself and the *America*, in addition to her sailing qualities, had the protection of a heavy armament. During the War of 1812 the *America* was re-rigged as a privateer, with a ship's company of one hundred and sixty-eight souls all told, and an enormous press of canvas. In this capacity she was never outsailed. She captured over a million dollars worth of prizes. She was in no sense a clipper, but she was designed with intelligence and propelled by an abundance of sail area and attended by good luck.

With the War of 1812 came the demand for vessels of special design to run the British blockade. The famous Baltimore Clippers at once appeared to meet this demand. In their design we see the influence of the French Luggers of the Revolutionary War. They sacrificed everything to sailing ability. Small in size, to be quick in stays, usually schooner rigged to work well to windward, of low free board to reduce visibility, with tall raking masts and generous sail spread, sweetly modelled to reduce water resistance, these Baltimore Clippers won a lasting fame. They were so

successful that the blockade was little better than a joke. They also left their influence and taught their lesson in the practical possibilities of speed for merchant vessels.

This lesson was emphasized in a still more striking way in the case of the ship *George* of Salem. Built in 1814 for the special purpose of privateering, by a company of ship carpenters whom the war had thrown out of work, she was still unlaunched when the Treaty of Ghent was signed and the war came to an end. At once she was transformed into a merchantman by the addition of another deck and sold to Captain Joseph Peabody of Salem. It required some daring to put this vessel into the merchant trade. She was designed as a privateer, being of about the same length and draught as the *America* and four feet less beam. In other words, where the *America* was three and one-half times as long as she was wide, the *George* was a full four times as long as she was wide: a noticeably sharper vessel built for speed. But Captain Peabody knew what he was about and the *George* became one of the most successful and trustworthy of the fleet of Salem merchantmen. She ranked first in the fleet for speed and reliability. For twenty-two years she plied between Salem and Calcutta with the regularity of a packet. In fact, Captain Arthur Clark tells us that she earned herself the nickname of the Salem Packet. Not only did the *George* prove by her performance the possibilities for success that lay in a swift vessel, she has an added significance as revealing the kind of men who went to sea in those days. For the ambitious Yankee boy who did not see his opportunity on the farm but who was bound to get ahead there were but scant openings at that time. It might be said with safety that the ministry and the sea were about all the outlets he had for his ambition. At all events, the same type of young man who to-day goes into the law, or medicine, or engineering, or banking, or big business, in that

day went to sea. The ship *George* always counted a generous proportion of this kind of youth among her humblest foremast hands. They were given the chance to study navigation. In the course of her twenty-two years' service the *George* graduated forty-five foremast hands into the rank of captain, twenty into the rank of first mate, six into the rank of second mate. She was virtually a training ship for the merchant marine.

If a sharp vessel like the *George* could do so well in the carrying trade, the fact must be taken into serious consideration. It was taken into consideration. It was still further emphasized by the next episode in our maritime history. Shortly after the War of 1812 the transatlantic packet lines began to appear. A packet line is simply a fleet of vessels who ply between stated ports and sail at regular stated intervals. An ordinary merchantman sails when her cargo is made up. A packet sails when her day for sailing comes, whether her hold is full or empty. The packet lines were the precursors of our Cunard and White Star lines. In 1818 the Black Ball line of packets was organized to run between New York and Liverpool. In 1821 the Philadelphia line and the Red Star line appeared. In 1823 the Swallowtail line and in 1836 the Dramatic line were added to the service. Each line boasted from four to eight exceeding staunch, seaworthy little vessels of about five hundred tons burthen. Their eastward passage averaged twenty-three days, and the homeward passage forty days. Of recent years our aviators have claimed to discover that the prevailing wind currents across the Atlantic set from west to east. Any packet ship captain could have told them that one hundred years ago.

With these packet lines there appeared the inevitable competition and the inevitable sporting rivalry. It meant money in the pocket of the line which could claim the fastest ships. It meant more business and less commissariat expense. The rivalry occasionally



took the form of a wager. In 1837 the *Columbus* of the Black Ball line and the *Sheridan* of the Dramatic line raced each other from New York to Liverpool for a purse of \$10,000. The *Columbus* won in sixteen days. Here was another practical object lesson in the value of speed. The lesson seemed so obvious that in 1832 a Baltimore merchant, Mr. Isaac McKim, actually took the plunge. He designed and launched a full-sized, full-rigged ship in the hull of which he had incorporated all the characteristics of a Baltimore Clipper—sharpness, reduced carrying capacity, a V-shaped bottom, and sweetly modelled under-water lines. He argued that such a vessel would retain all the speed of the small blockade runner, and by the increased frequency of her voyages would more than compensate for her limited cargo space. The vessel was named for his wife, *Ann McKim*. She was one hundred and forty-six feet long—among the largest vessels of her day. She justified her builders' hopes in one respect, but not in the other. She was the fastest vessel of the times, but she did not pay financially because economic conditions did not yet warrant so complete a sacrifice of carrying capacity. Richard H. Dana in "Two Years Before the Mast," several times mentions the *Ann McKim* as one of the crack ships of the 1830's, but her profits were not sufficiently impressive to bring her type into general favor. She was fully ten years before her time.

If the *Ann McKim* represented the false dawn of the Clipper Ship decade, the true dawn was not long delayed. In 1831 three or four swift little English schooners were making fabulous sums of money transporting opium from India to China. This business soon attracted the attention of certain American merchants in China, and as it was beyond the restrictions of England's navigation laws, there was no reason why American vessels should not enter the rivalry. Six or eight exceedingly swift, yacht-like clipper schooners were built especially for this opium

trade and, in competition with the English vessels, had in every way the best of it and captured the bulk of the business, making large sums of money for their owners. Of these opium clippers, as they were called, the largest and most famous was the little brig *Antelope*, three hundred and seventy tons, built by Samuel Hall of East Boston. This vessel, commanded by Captain Philip Dumaresq, still has the reputation of being the only square-rigged vessel that could beat up the Formosa Channel against the northeast monsoon. All these vessels had to be swift sailers and heavily armed in order to contend with the tides and currents of those waters, and to protect themselves from pirates. Yet the trade was so profitable that the idea occurred to one fertile brain that a larger vessel built upon the lines of a clipper could make even greater profits. Moreover, the opium trade had provoked the so-called opium war between England and China in 1839, and this opium war had resulted in China's having to open four new ports to foreign trade in addition to Canton. A large swift vessel, therefore, built for the opium trade could fall back, if the opium trade proved a failure, upon the new and enlarged trade between China and America which was to be confidently expected as a result of opening these four new Chinese ports. It was the mind of Captain Nathaniel B. Palmer which prognosticated these developments. Captain Palmer hailed from Stonington, Connecticut. He was a most successful packet ship designer, and captain. In 1843 he was in command of the *Paul Jones* homeward bound from Canton. One of his passengers was Mr. William H. Low, junior member of the firm of A. A. Low & Brother. The two men, both profoundly interested in the subject, beguiled the tedium of the voyage with long discussions. Captain Palmer even went so far as to whittle out a model of the enlarged opium clipper he would like to have built. Reaching New York, the senior partner of the firm was inter-

viewed and convinced. On November first the contract was signed, and in May 1844 the first of the real clipper ships was launched from the yards of Brown & Bell in New York. She was a sharp, easily modelled full-rigged ship, of seven hundred and six tons, one of the largest of the day. She was named the *Houqua*, after a beloved Chinese merchant with whom our American merchants had many dealings. She forthwith proceeded to justify all expectations, both as a sailer and a money maker. Her maiden voyage was a splendid run of eighty-four days to Hong Kong. She never entered the opium trade, but instead helped to inaugurate the even more profitable general trade between America and China which was made possible by the opening of the four new Chinese ports. Her best homeward passage was eighty-eight days from Shanghai to New York.

It so happened that while the *Houqua* lay on the stocks in the yard of Brown & Bell during the winter of 1843, another clipper ship, representing a wholly independent line of experimentation was undergoing the slow process of construction in the neighboring yard of Smith & Dimon. This was the famous *Rainbow*, built by Howland & Aspinwall, well-known merchants and engineers of New York. It seems that in 1841 or 1842 a very famous Yankee skipper, Robert B. Waterman, returned from eastern waters bringing with him the model of a so-called Singapore Fast Boat, which he had picked up in the course of his travels. This model now hangs on the walls of the Pratt School of Naval Architecture in Cambridge and is referred to as the parent model of the extreme clipper ship developed by John Willis Griffeths and Donald McKay. There are no documentary evidences of the part this model played in developing the Griffeths-McKay clippers. The matter is largely conjectural. All we know for certain is that the most striking features of the Singapore Fast Boat—the hollow water lines at the bow, the pronounced dead

rise amidships, the greatest breadth of beam well aft of the midship point and the general sweetness and exquisite grace of the counter section are all to be found in the later Griffeths & McKay clippers. The theory is therefore that Captain Waterman was so impressed by the beauty of his Singapore model, and so convinced of the possibility of incorporating some of these features in a large vessel that he took Mr. Griffeths into his confidence, Mr. Griffeths being the editor of a nautical journal and a trained ship designer. Moreover, he was hand in glove with Smith & Dimon the ship builders and enjoyed the respect of Messrs. Howland & Aspinwall. At all events, there is the model of the Singapore Fast Boat: there is the fact that in 1843 Mr. Griffeths induced Howland and Aspinwall to build a clipper ship of his design: there is the fact that in 1845 the *Rainbow* was launched, incorporating the features of the Fast Boat—hollow water line, dead rise, greatest beam abaft the center: and there is the still further fact that in 1846 another and a larger clipper ship built on exactly the same lines was launched and given over to the command of Captain R. B. Waterman. Putting all these things together it seems a safe conjecture that the Singapore Fast Boat did serve as the parent model for this particular type of extreme clipper. The *Rainbow* was another remarkably handsome, fast, and successful vessel. On her maiden voyage she reached Canton in ninety-two days, and back in eighty-eight, bringing home the first news of her own arrival in Canton. Her commander, Captain John Land, boasted that she was not only the swiftest vessel afloat but that a swifter vessel would never be built. So pleased were her owners with her performance that the next year they launched another extreme clipper of the same type—the *Sea Witch*. This is the one referred to above as commanded by Captain Waterman. The *Rainbow* was 750 tons burthen, the *Sea Witch* 890, being 170' in length. The increase in size from now

on is very rapid. The *Sea Witch* had the reputation of being the handsomest vessel sailing out of New York. Low in the water, with raking masts and a towering pile of snow white canvas, manned by a crew of picked men, and commanded by one of the boldest and most skillful sail carriers who ever trod the quarter deck, she created a sensation. Her performance was remarkable—seventy-seven days from Canton to New York in 1848 being her best record. Her best single day's run was three hundred and fifty-eight miles. When we compare these figures with the one hundred and thirty-five days from Canton to New York by the *Empress of China* in 1784, and with the two hundred and fifty-six miles which was the best day's run of the *America* in 1814, we get a good idea of the improvement in sailing qualities of these clipper ships.

The *Houqua* and the *Rainbow* represent two independent lines of experimentation, both of which proved their worth by actual performance, and both of which were carried out in other vessels. The *Houqua* was followed by the *Samuel Russell* and the *Oriental*, and the *Rainbow*, as we have seen, by the *Sea Witch*. Meanwhile, still a third line of experimentation was being followed out, howbeit in a quiet fashion, by our own Boston designers. Interest in the new types of vessel was universal. Shipping circles were aroused to a high pitch of excitement. Our own builders were alive to the trend of the times, but preferred to make haste slowly and be sure of their ground before adopting the innovation. The *Akbar* of 1839 by Samuel Hall and the *Paul Jones* of 1842 by Waterman & Elwell were noble little vessels. They could hardly be called clippers, but they did represent earnest efforts to improve sailing qualities without the sacrifice of carrying capacity. Perhaps it is fair to say that the leading figure among our local designers was Mr. Donald McKay of East Boston. Born in Nova Scotia in 1810, he came to New York at the age of sixteen, worked in the Brown & Bell yard, removed

thence to Newburyport, became in time junior partner in the firm of Currier & McKay. This firm built a number of splendid packet ships for Mr. Enoch Train's Liverpool Packet line. Mr. Train was so impressed by Donald McKay's thoroughness and mechanical ability that he induced him in a happy day to set up his own yard in East Boston, promising to be his financial backer. This was done, and as an independent builder Donald McKay was free to indulge his own remarkable native talent for ship design. In him we find no external influence to serve as a stimulus, but just the quiet working out of a natural instinct for ships. He was an exceedingly intelligent man with a strong artistic sense, and a gift for handling workmen. He loved his ships as a mother loves her child, and gave his best to everything he touched.

The *Courier*, of 1842, a little vessel of three hundred and eighty tons, was the first ship Mr. McKay himself designed. She was not a clipper but proved a wonder for speed, outsailing everything she met. She was employed in the coffee trade from Rio Janeiro, and went far to establish Mr. McKay's reputation as a designer. With a man like Donald McKay established in his own shipyard in East Boston, with a free hand, and a mind thoroughly awake to the present achievements and future possibilities of his craft, and just waiting for his chance, we have the stage all set for the great day of the American clipper. That day came with the year 1848. Two events of the utmost significance occurred in that memorable year. The first of these was the repeal of the English navigation laws. Up to that time no foreign ship might engage in a trade which involved an English port, either as port of clearance or as port of entry. The repeal of this law meant that the lucrative tea trade between China and England was thrown open to American ships. It meant furthermore that as the young tea was a commodity that deteriorated at sea, the swiftest

vessels would be the ones first chosen to carry these tea cargoes. And the swiftest vessels of the day were the new American clippers. England, guarded from competition by these navigation laws, had not felt the pinch of necessity, and had made little if any progress in the art of ship design. The repeal of the navigation laws left her in a position of great disadvantage. She had no vessels with which to compete with the new American clippers. It was a sober day for England when the American clipper ship *Oriental*, having discharged her regular cargo in China and having picked up a cargo of tea, discharged that cargo in London, on her return trip, to its English owners. That happened in 1850. It was the first time in history that a foreign ship brought a cargo into an English port, consigned to an English firm. The *Oriental* made a great excitement as she lay in the Thames River. Never had those thousands of people who went down to inspect her seen so large, so handsome, so clean-cut a vessel. Her lines were taken off by the Admiralty, and her beauty and speed were described in leading editorials. Her exploit also created a stir in America, because she proved the possibility of making the return voyage from China as profitable as the outward bound voyage. She proved moreover that a clipper could command £6 freightage per ton for a perishable commodity like tea, whereas the old full-bottomed tea ships were glad enough to accept £3, s.10 per ton. On that single return trip the *Oriental* made \$48,000.

In conjunction with the opening of this tea trade to American ships, there came in that same momentous year of 1848 the discovery of gold in California, and the consequent rush to the gold fields. Whereas, in 1848 only thirteen vessels entered San Francisco harbor, in 1850 seven hundred and seventy-five vessels cleared from Atlantic ports for San Francisco. Such a swarming of gold hunters in a hitherto placid and undeveloped region created an ephemeral but ravenous

market for all the necessaries of life. No modern bootlegger would dare to hope for such prices as were freely offered in San Francisco in the early 50's. With beef, pork and flour at \$40.00 to \$60.00 a barrel, tea, coffee and sugar at \$12.00 a pound, and other commodities in proportion, it made little difference how limited in carrying capacity a vessel might be. If she could get there quickly before the market broke she could make fabulous profits. Here then was just that abnormal and evanescent conjunction of economic opportunities which rendered the swiftest of clipper ships not only permissible but imperative. Such a vessel could clear from New York or Boston with a cargo of supplies for California. She could cross the Pacific in ballast and load a cargo of China tea for England. She could cross the Atlantic in ballast; and do it right over again. And each time she circled the globe she could reasonably expect to clear 150% upon her original investment of building and loading. It does not surprise us to read that in the next four years about one hundred and sixty beautiful clipper ships were launched. To mention them all would be manifestly impossible. It must suffice us for the purposes of this paper to speak of a few of the more prominent ones and let them stand as representatives of the rest. Of the thirteen clippers launched in the year 1850, one of the first and most successful was the *Surprise*, built by that master craftsman Mr. Samuel Hall of East Boston. The *Surprise* was of 1362 tons burthen, 190' long, 39' beam. She was masted and rigged before launching, and as she slid off the ways with her yards crossed off and colors flying she presented a beautiful sight. Speculation was rife as to her ability to support all the weight of her top hamper without any ballast in her hold. But she took the water and rode to her anchor on a perfectly even keel, thereby giving eloquent testimony to the care with which her weights, displacement and stability had been calculated. She was a most successful ship and proved a veritable mine



of wealth to her owners, A. A. Low and Company of New York. She served these owners for over twenty-five years, and finally met her end by striking a sunken rock in Yokahama Bay, February 7, 1876.

The *Staghound* has especial interest for us because she was the first extreme clipper ship to be designed and built by Mr. Donald McKay. Her owners were Samson & Tappan of Boston. She was launched on a bitter cold December day, in the presence of twelve thousand people to an accompaniment of church bells pealing their welcome to the largest vessel afloat on any waters. She was 215' in length, 40' beam, 1535 tons burthen. She and the *Surprise* were both among the more enterprising ones, who, not content with the California trade, habitually crossed the Pacific in ballast and doubled their profits for the voyage by freighting tea from China to England. This racing across the Pacific in ballast brought out some of the best sailing of which the clippers were capable. The *Staghound* covered the distance from San Francisco to Honolulu in nine days. The *Game Cock* made an unprecedented run of nineteen days from Honolulu to Hong Kong. The *Southern Cross* made the complete run from San Francisco to Hong Kong in thirty-two days. After twelve years of service in the California and China trades the *Staghound* caught fire off the coast of Bazil in 1863 and was a total loss, her United States ensign being the only relic. This flag her captain brought off and returned to her owners.

In 1851, thirty-one clipper ships were launched for the California trade. With few exceptions they were all ships of larger tonnage, ranging from 1500 to 2000 tons register. In those days of rapid development, a reputation for being the largest, swiftest, most beautiful vessel afloat was of short duration. Hardly had the *Staghound* claimed this distinction than she lost it through the appearance of a still more majestic rival. Six of the 1851 ships made records for fast sailing that have never been lowered, and probably never will be.

Foremost among them we are fain to remember the famous and beloved *Flying Cloud*. She was a McKay clipper, originally intended for Mr. Enoch Train. But before she was launched Mr. Train was induced to do a thing which he regretted the rest of his life. He sold her to Grinnell & Minturn of New York, under whose house flag she sailed for a number of years. The *Flying Cloud* was 225' length, 40' beam, and registered 1783 tons. It was natural, indeed inevitable, that with all these crack sailers constantly making the same identical run, from New York or Boston to San Francisco, an intensive rivalry should spring up between them for the record. To say that these three or four years of active traffic with California constituted a single gorgeous regatta, over a course of 15,000 miles, with a fleet of the finest ships ever built as the contestants, would not be saying too much. The course was divided up into sections—from Sandy Hook to the equator, from the equator to Latitude South 50 in the Atlantic, from Latitude South 50 in the Atlantic to Latitude South 50 in the Pacific, from Latitude South 50 in the Pacific to the equator, from the equator to the Golden Gate. Different ships established records for each portion of this run, and if we add up these best performances for different parts of the run we find the record time for the total run to be sixty-seven days, which compares favorably with the best performance of the modern steam freighter. It would be too much to expect any single vessel to make the entire run in that time. It would require an impossible conjunction of the best conditions over the whole course and within a single two months' period. As a matter of fact anything under one hundred days was considered a record run. One hundred and ten days was an exceptionally good normal run. The best single passage was made by the *Andrew Jackson* in 1860, eighty-nine days, four hours. The best average time for four consecutive passages was made by the *Flying Cloud*, which covered the course twice in less

than 90 days, once in 105, and once in 108 days—average  $97\frac{3}{4}$  days. The *Andrew Jackson* was a close second, with four runs of 89, 100, 102, 103 days, average  $98\frac{1}{2}$ . Thus on the score of consistency of performance the record for the California passage is generally conceded to the *Flying Cloud*. In 1863 the *Flying Cloud* was sold to James Baines, the Liverpool merchant, and eleven years later, in 1874 she was destroyed by fire in St. John, New Brunswick, after twenty-three years of faithful service. Few ships have been the objects of such universal pride and love. Her commander in her palmy days was Captain Josiah P. Creesy of Marblehead. Captain Creesy typifies the best traditions of his profession, and stands as a noble representative of his class. And these clipper ship captains were a noble class of men—combining great strength of nature with gentleness, great hardihood with genuine culture and an instinctive refinement. Their world-wide travels rendered them most interesting companions, patient, broad-minded, liberal in judgment, while their constant dealing with unruly human nature and unruly elements gave them a quiet self-reliant dignity which is the mark of real power. They were autocrats on their own vessels. The weather side of the quarter-deck was sacred to them. They were not to be spoken to until they themselves had first spoken. The honorarium for a single California passage was \$3000. If they made the run in less than one hundred days they received a bonus of \$2000. Many of them took their wives with them on their voyages. Mrs. Creesy always accompanied her husband, and was said to be as good a navigator as he. Some charming stories are told concerning these captain's wives. They were a humanizing influence on board ship, a comfort and solace to their husbands in the loneliness of that exalted office. In one case, at least, the presence of the captain's wife saved the situation in a very practical way. The *Neptune's Car*, with Captain

Joshua Patten in command, sailed from New York and plunged at once into a sequence of hard luck. What with an insurgent first mate, an illiterate second mate, a mutinous crew, a succession of head winds, a shortage of provisions, and a bitterly cold and stormy passage around Cape Horn, it is not strange that Captain Patten should succumb to weeks of double duty, exposure and anxiety, and suffer an attack of brain fever. In this dilemma the ship's only salvation lay with Mrs. Patten. She was a mere slip of a girl, barely out of her teens, and but three years married. But she had studied navigation with her husband on previous voyages, and now took command of the ship. In the course of the next fifty-two days she brought the *Neptune's Car* safely into San Francisco harbor.

The largest clippers of 1851 were the New York ships *Challenge* and *Comet*. The *Challenge* was a magnificent vessel of 2006 tons register, 230' x 43'. Her commander was our old friend Captain R. H. Waterman. On the first voyage of the *Challenge*, he had the misfortune to ship a large but very poor crew, most of them ruffians of the lowest type who pretended to be ordinary seamen so as to beat their way to California. During the voyage five of them died of a loathsome disease. Though they had been disarmed, Captain Waterman one day found four of them attacking his first mate with knives. Two of these Captain Waterman killed outright with an iron belaying pin. Off Cape Horn three more of his precious crew were killed by falling from aloft in a squall. As a result of these mishaps the *Challenge* made a fair run of one hundred and eight days to San Francisco. Captain Waterman was charged with undue brutality, but insisting upon an investigation he was entirely cleared of the charge. It is always well to remember when we hear stories of the brutality of these captains, that a certain amount of brutality was the only language some of their crews could understand.

The *Comet* was of 1836 tons register, 229' x 42'. On her maiden trip she was badly crippled off Bermuda by a terrific southeast hurricane. She was, however, entirely repaired at sea and reached San Francisco in one hundred and twelve days. Later she was sold to an English firm, and renamed the *Fiery Star*. In 1865 she was burned at sea while on a voyage from Australia to London.

The *Witch of the Wave*, built in Portsmouth for a Salem firm was one of the outstanding ships of this year. She gave proof of her sailing qualities on the first day of her existence. As she was being towed down to Salem with a large party of two hundred ladies and gentlemen on board the three topsails, one jib, and a staysail were set. At once the *Witch of the Wave* ranged up alongside her tug, which was doing nine knots. We do not wholly appreciate the speed of which these beautiful ships were capable. Under favorable conditions, no steamers of that day, and few of this could compete with them. In the files of the "Boston Daily Advertiser" for 1852 one may find an eloquent bit of evidence to the speed of the clippers. An old-fashioned, full-bottomed ship of burden left Boston that year for San Francisco. Passing down the harbor her captain noticed the *Winged Arrow*, an unfinished clipper still on the stocks in a South Boston shipyard. Entering San Francisco harbor some months later he found the *Winged Arrow* riding to her anchor almost ready for her return voyage to Boston.

The *Northern Light*, an exceedingly sharp Briggs Clipper, of only 1021 tons, built in 1851, holds the record for the return passage, San Francisco to New York, in seventy-six days. This is only nine days more than the hypothetical best passage of sixty-seven days, made by adding the best sectional runs of a number of ships. The *Nightingale*, named in honor of Jenny Lind, was a small vessel of 1066 tons, built for the World's Fair in London, and most luxuriously fitted. She never went to the World's Fair but after

an astonishing diversity of fortunes, first as a profitable California and China trader, then as a Brazilian Slaver, then as a respectable United States cruiser during the Civil War, then as a humble tramp freighter, she was last seen limping about the high seas in 1884, and disappeared from the shipping lists. She began her life as the prettiest flapper on the street.

Of the thirty-three clippers launched in 1852 it must suffice to mention but one, the largest, sharpest and swiftest of them all. This was the McKay masterpiece, *Sovereign of the Seas*. Registering 2421 tons, 258' x 44', she combined the grace and beauty of the smaller vessels with immense strength and power to carry sail. Her commander was Lachlan McKay, brother to Donald, and himself an expert builder and rigger. Under him was an enormous crew of one hundred and five men and boys—all needed to handle the extra heavy spars and sails which the great size of the ship rendered necessary. She made but one trip to California, one hundred and three days, a passage which would doubtless have been shorter but for the serious accident which befell shortly after rounding Cape Horn, when in a tornado she carried away both fore and main topmasts and foreyard. Nothing daunted by this calamity her captain put her under jury rig and kept his crew on the jump for the next two weeks riggering the vessel. She entered San Francisco harbor in spic and span condition, and cost the underwriters not a cent. Proceeding thence to Honolulu, she picked up a cargo of sperm oil and returned to New York. When she struck the westerly trades in the South Pacific, she showed what sustained speed she was capable of. In eleven consecutive days she covered 3562 miles, an average of  $13\frac{3}{4}$  knots, or 330 miles a day. She next crossed the Atlantic, making the entire run from dock in New York to anchorage in the Mersey River in just under fourteen days. Subsequently she was sold to a Hamburg firm and wrecked on Pyramid Shoals in the Straits of Malacca only seven years

after her launching. Under the American flag she was a household word, especially here in Boston. She is mentioned with obvious pride in Emerson's Journals.

The year 1853, with forty-eight launchings, with the wild excitement of building, owning and racing these ships must stand as the very pinnacle of the clipper ship decade. After that year we see a steady decline in number of clippers launched and in amount of profits made. Although twenty ships of the extreme clipper type were built in the following year of 1854, we begin to see as early as 1853 indications of the change in trade conditions which rendered the extreme clipper an obsolete ship. It was in that year that Donald McKay produced his last extreme California clipper, the *Romance of the Seas*. In that year also the *Sweepstakes*, the last extreme clipper from the Westervelt yards made her appearance. And in that year Mr. William H. Webb, the famous New York builder, bade permanent farewell to the extreme clipper by producing his masterpiece, the *Young America*. This vessel of 1962 tons almost rivals the *Flying Cloud* in the amount of confidence, pride, and affection she received. She served her owners for thirty years in the California trade, rounding Cape Horn fifty times. She holds the record of six days for that section of the run from Latitude South 50 in the Atlantic to the same parallel in the Pacific which represents the actual passage of the Horn. In 1884 she was sold to an Austrian firm, her name changed, and four years later she foundered in mid-ocean with all hands, for all the world as though her heart was broken.

The year 1853 is, however, memorable for two reasons. It was in that year that Donald McKay launched the largest, most daring, most majestic, and most ill-fated of all clippers, the *Great Republic*. Perhaps the passion for building these vessels got the better of his judgment. Perhaps the prospect of a lucrative trade with the newly opened Australian gold fields gave reasonable ground for the venture. At all

events, the *Great Republic*, which it was fondly hoped would be the swiftest, finest, largest, most successful of all clippers, was laid out and built. On October 4 of that year, with schools and banks closed, with a gallery of 30,000 spectators on hand, with bells pealing all over the city, at exactly twelve o'clock the last block was knocked away and the great hull, swiftly gathering headway, took the water with a rush that left the ways scorched and smoking from friction, and required two anchors and a tug to snub. She was a notable vessel—335' long, 51' beam, 4555 tons register. She had four decks and four masts: really a four masted barque. Her main mast was 44" diameter at the deck: her main boom 120' long, her sails would cover an acre and a half, her standing rigging 5" through. She was towed to New York and loaded with wheat for Australia. Just before she was to sail a fire broke out on shore dead to windward. The sparks began to fall upon her deck, and despite every effort it was not long before her sails and rigging were aflame. To save the hull, she was then dismasted, but the fore-topmast in falling broke in two, and one end of the great stick struck her deck end on and stabbed down through three of her decks. Two days later it was discovered that this falling mast had carried the fire down into the hold and that her cargo of wheat was burning. She was then scuttled, the fire drowned out, a coffer dam built, and her hull pumped out. The wheat, swollen by salt water, had so increased in bulk that the knees and beams of the lower hold had started and the hull was badly strained and buckled. She was condemned and sold for a song to A. A. Low & Company. They spent a year and a half in rebuilding her, cutting her down to three decks, reducing her sail plain, dividing her topsails to the Forbes rig and installing a donkey engine to help in making sail. Even so she retained much of her original splendor. On her maiden trip she crossed the Atlantic in thirteen days, one hour. She served in the



Australian trade, also as a troop ship in the Crimean War, and a cruiser in the Civil War. In 1872 she foundered in a hurricane off Bermuda. She was really too large for her times, and as a sailer she must ever remain a mystery, a promise unfulfilled, for never once did she try herself out in the form and with the sail plan which her builder had designed for her.

The other event which makes the year 1853 memorable was the building by certain of our American shipyards of six or eight famous extreme clippers for English firms. The *Red Jacket*, 2006 tons, built at Rockland, Maine, for Seacomb and Taylor of Boston, was one of three chartered by the White Star line for their Australian trade. She holds the record of one hundred and forty-two actual sailing days from Liverpool to Melbourne and back, around the world. Orders were also placed by James Baines with Donald McKay for four extreme clippers, of generous tonnage, the smallest of 2084 tons, the others 2450, 2500 and 2600 tons. Three of these were delivered in 1853, one of them, the *James Baines*, establishing a record run of twelve days, six hours, across the Atlantic which has never been lowered. She was known as the most perfect ship that ever entered the Mersey. The last and smallest of the four was the *Lightning*, which sailed from Boston for Liverpool in February, 1854. On this maiden voyage she also set a record for a single day's run. For on the first of March, as she reached that portion of the North Atlantic known as the Devil's Hole, just west of the Irish Coast, she ran into a strong southerly gale which put her on her best point of sailing. All that day she tore along, the log showing a speed in excess of eighteen knots. She carried away her fore-topsail and lost a jib, her lee rail was under water and her lee rigging slack. But at the end of the twenty-four hours she had traveled four hundred and thirty-six miles, which still stands as the record day's run for a sailing ship.

A study of the model of the *Lightning* gives one as

vivid an idea of the characteristics of the extreme clipper as can be had by those who cannot see the vessel herself. Mr. McKay had adopted and developed the Waterman-Griffiths theory of concave water lines, and many of his most famous clippers were designed upon that theory. Although the theory has been exploded by actual tests in the great tank down in Washington, we cannot gainsay the unrivalled performance of the record holders which incorporated that theory. In the case of the *Lightning* the concavity in the water lines was 16". There was a 20" dead rise at half floor, a graceful tumble home, and a long clean counter. As she slipped down Boston Harbor it was observed that there was not so much as a ripple under her cut-water, the water did not break at a single place along her sides, and her wake was straight as an arrow. When we remember that she was not a racing machine but a 2000 ton freighter, 244' long and 44' beam and drawing 22' of water, it seems incredible that the science of ship-modelling could have reached such refinement.

Many fantastic theories have been advanced to explain the disappearance of the clipper ship. One of the favorite explanations is that they were driven off the seas by the *Alabama* and other Confederate cruisers during the Civil War. It is true that the *Harvey Birch* was destroyed by the *Nashville* in 1861, the *Jacob Bell* by the *Florida* in 1863 and the *Contest* and the *Winged Racer* by the *Alabama* in the same year. It is also true that the *Nightingale*, in 1860 under the Brazilian flag, was captured by a northern gunboat with her hold full of slaves, and that the *Sunny South* flying the Chilean flag was captured by the British man-of-war *Brisk* in the same embarrassing predicament. That happened in 1860, in the Mozambique Channel. Every one of these captures, however, was due to the failure of the wind. When we consider that upwards of 150 of these clippers were plying the seven seas at that time, the percentage of captures by

steam cruisers appears negligible. With any sort of wind stirring the clipper had nothing to fear from the steamers of that day.

The causes that really banished the clipper were the very causes that brought her into existence—trade conditions. As we have seen, she was the answer to an exceptional and wholly abnormal conjunction of trade opportunities which made her speed of infinitely greater economic value than her carrying capacity. As soon as this exceptional opportunity expended itself and normal trade conditions returned, the clipper had to give place to the medium clipper, and then to the still more economical and roomy steam freighter. She simply could not pay sufficient dividends on her cost to make herself a source of profit.

Nowadays one may search the seas in vain for a clipper ship. England, to be sure, found that in her China tea trade and her Australian wool trade she could make profitable use of clippers long after they had ceased to be built in America, and by adopting her composite construction, which calls for teak wood planking over steel frames, England produced a fleet of beautiful clippers, swift and long-lived. Several of these, the *Cutty Sark*, *Thermopylac*, *Titania* were still in commission up to within a dozen years ago. But a glance at any ocean today will reveal the great preponderance of steam. Occasionally an old square rigged hooker under Norwegian or Italian colors will be seen creeping about the high seas. At one time there was the prospect that the Standard Oil Company would use the four or five masted barkentine in their long haul runs. These vessels, with their square rigged foremasts, can present a great solid wall of canvas to a following wind, and with their schooner rig on the remaining masts can lie much closer to the wind than the five and one-half or six points which was the best the clipper ship could do. But even this possible development of the barkentine was nipped in

the bud by the perfection of the crude oil internal combustion motor. So that we find the stately packet whose name was on everybody's lips, and whose exploits were the subject of song and story, replaced by the prosaic "ram-you, damn-you liner with her brace of bucking screws." We find the wild clipper with her sharp cut-water and stabbing bowsprit, scending into a head sea and drenching herself with spray which the setting sun made into rainbows of mist over her weather bow, replaced by the lumbering, ungainly tramp steamer with an incongruous forest of cargo derricks disfiguring her decks and suggesting her need of a haircut. We find the humble coasting schooner, loaded to the scuppers with coal and bearing in her patched sails and mended booms a mute testimony to the battering of the sea, crowded to the wall by the business-like ocean-going tug with her string of coal barges. We find even the dainty little Gloucester fisherman fighting hard for life against the steam trawler. All things point to the disappearance of sails at sea, and with genuine regret, we say, "Alas, Ichabod, a glory hath departed from the face of the waters." Yet we may rest assured that romance is with us still. We shall still detect the Boy God's elusive countenance howbeit disguised in wholly different forms.

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