REVISITING THE GREAT EASTERN

BY EDWARD MUELLER

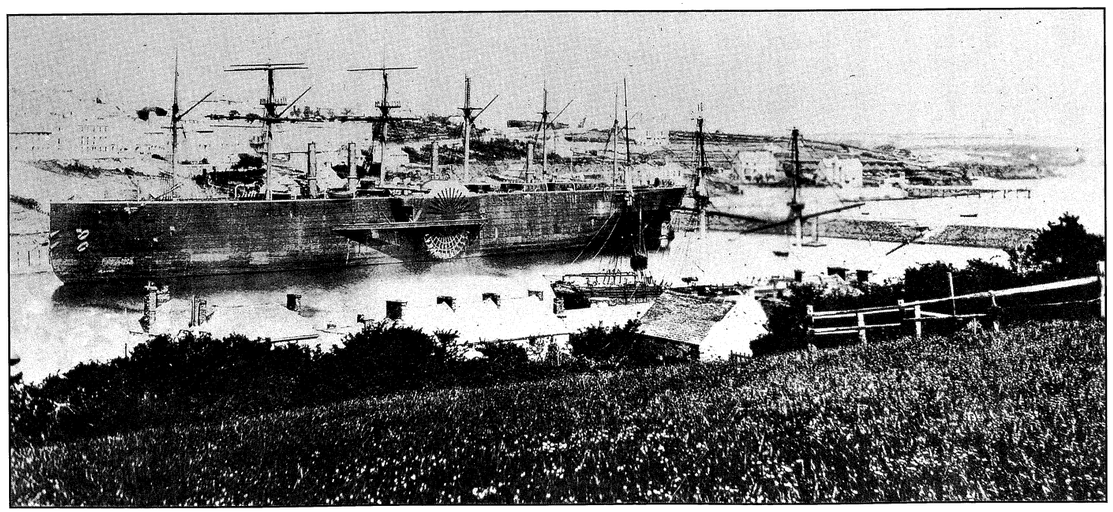
Webster defines "leviathan" as something that is large and awesome. Certainly that is an apt description of the GREAT EASTERN steamship or LEVIATHAN as she was initially named and often described. Essentially a British creation, she played a large part in American maritime activity also.

The GREAT EASTERN resulted from the efforts of the Australian Royal Mail Company to establish steamship service to Australia. The company originally desired two steamships for a fast service between Great Britian and Australia and commissioned Isambard Kingdom Brunel, a renowned engineer and promotor of bold transportation ideas, to accomplish this. Brunel in turn had John Scott Russell, a naval architect and shipyard owner, build two iron steamers, the ADELAIDE and VICTORIA, 3,000 tons each. The single screw of these ships could be disengaged when service under sail only was desired. The ships were designed to average about ten knots and to make a 60-day voyage. Sailing vessels carrying coal would refuel them enroute.

Even before these vessels were laid down and operating in 1853, Brunel made calculations and sketches to show how a large iron vessel could successfully carry enough fuel, passengers and cargo to make a round trip, England to Australia, without refueling. Brunel communicated his ideas to John Scott Russell and it appeared that a vessel of 18,000 tons, 600 feet long and with a speed of fourteen to fifteen knots would be suitable. In considering propulsion for the giant ship, more than six times as large as the abuilding ADELAIDE and VICTORIA, Brunel by March1852 had decided on a single screw and a set of side paddlewheels.

Brunel wrote a paper on his concept, and Russell presented the ideas in it to the recently formed Eastern Steam Navigation Company, which was interested in carrying mails to Australia and India. The company decided to undertake the project in December 1852 and spent much of the next year in raising money, estimating cost, and similar matters that would bring the concept to fruition. The initial idea was to establish a 30-day service to Ceylon, at which point other vessels would carry on to various ports in India, the Orient and Australia. Two ships were originally contemplated. The work would commence when 800,000 English pounds of capital had been realized. Some 40,000 shares at twenty pounds each were authorized.

Bids were called for and Russell submitted the only bid of £332,295. The work would be done at his Isle of Dogs shipyard on the Thames River, a few miles seaward from London. The hull



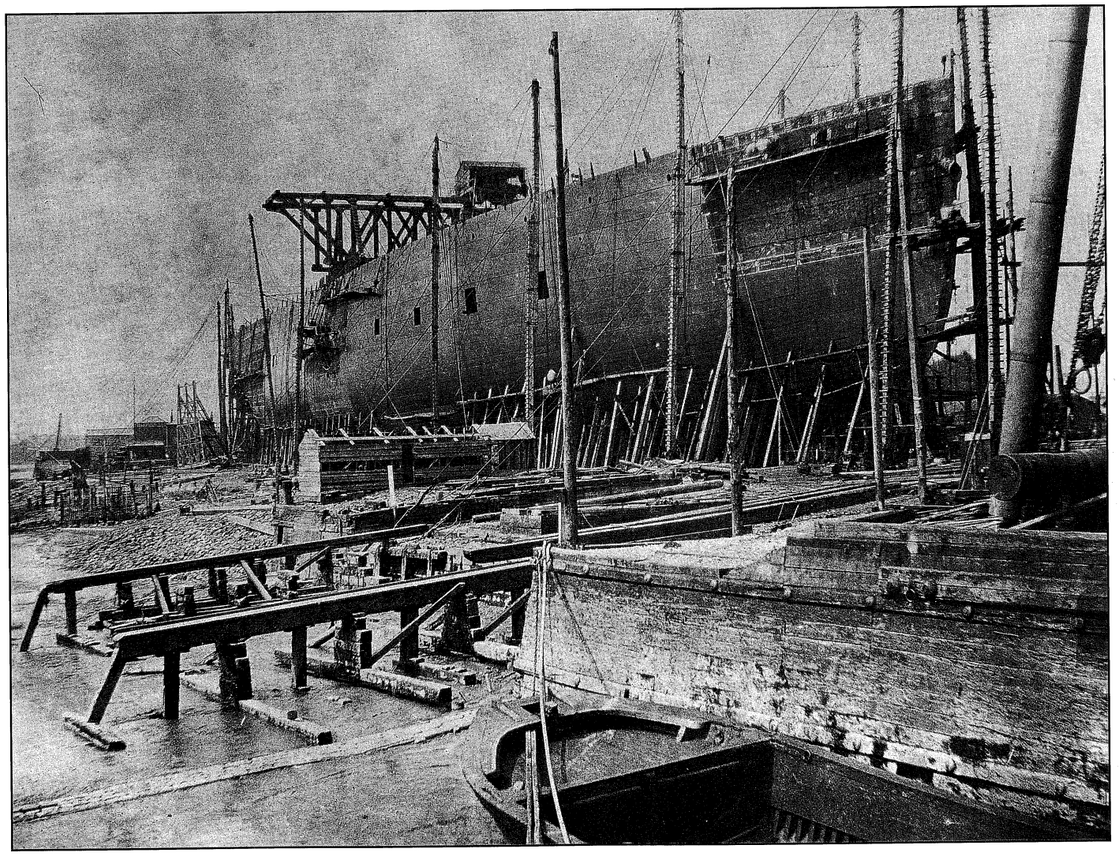
GREAT EASTERN laid up at "gridiron" at Milford Haven, her home port - Author's collection.

was bid in at £275,200. One fourth of the payment would be made in shares of stock of the company. The size of the ship was to be 692 feet by 83 feet by 58 feet depth. She would be of 22,500 tons and would have a speed of fourteen knots. The screw engines were to be built by the James Watt Company at Birmingham, the paddle engines by Russell. Brunel even expected to construct two such ships for no more than £500,000 each. The underestimating of cost and difficulty of construction were unprecedented as events were to show.

Brunel was the superintending engineer responsible for getting the ship built, construction measured for payment, and was responsible for review and approval of what went into the ship. The construction was unique for the time and the ship had a double bottom separated by longitudinal iron girders and transverse bulkheads. It could be termed "cellular." This design enabled the immense weight of the cast iron engines to be carried without hogging the ship. The engines had to be placed in the ship before launching, thus adding a great deal of weight to the launch. Cranes and dockyard facilities did not exist that were of a size to install these massive components after the launch.

The launch was to be broadside to the Thames, and the site was prepared with a large number of 24-foot-long piles driven into the ground. Some were left protruding four feet above ground to serve as the support for the hull plates. Russell leased part of the adjacent David Napier shipyard so as to have enough room for the launch and in May 1854 started the hull construction, above the high water line. The vessel was expected to be launched in eighteen months (October 1855).

Due to the unprecedented task of building such a large iron ship using the cutting edge of technology (or beyond it in some cases) and the approval of every drawing and changes by Brunel, delays were frequent, most of which Brunel accepted as his fault. The immensity of the task may be understood when the hull alone took 30,000 iron plates, many of which were 10 feet by 2.75 feet by 1 inch; each of these was shaped on a hand operated roller and cut by steam shears. Rivet holes were punched using a steam punch; some three million rivets were used. All of the plates and rivets were "man-handled" and block and tackle gear used to place the plates into position.



The great ship under construction at Isle of Dogs, Thames River, England - Courtesy Smithsonian Institution.

Six months after the start of construction, the chief financial backer of the Eastern Steam Navigation Company, Charles Geach, died. He was also a backer of Russell's company. This precipitated a financial crisis augmented by the Crimean War which caused an inflationary spiral in the wages of those who toiled on the ship. In mid-1855, Russell was forced to ask for an additional £40,000 to get the ship in the water; much of this was due to work noted as "extra" as advocated by Brunel.

All of the above, plus a recession in late 1855, the increasing demand for more productivity by Brunel, and the rapidly eroding value of shares of stock in the company, brought about the financial downfall of Russell. In early 1856 Brunel advised the company to seize the ship as she stood because of breach of contract (which was done). This action financially embarrassed Russell even more, and he was virtually bankrupt. The Eastern Steam Navigation Company was also in arrears up to £150,000.

An arrangement was made to continue the ship using Russell's services. Brunel also had a role and the work progressed. By February 1857, some £457,000 had been actually spent, and the financial affairs of the Eastern Steam Navigation Company were in a dire state. Many doubted that the vessel would ever be launched, as now scheduled for August 1857.

The launch was to be a controlled one, and sloping ways about one foot in twelve were built to ease the ship into the water. Two cradles supported the ship, and heavy drums with chains were fastened to these to restrain movement. Four vessels with windlasses would anchor in the Thames and then by cables running to the ship could exert 600 tons of pressure to pull her free. Brunel calculated that 300 tons would be sufficient.

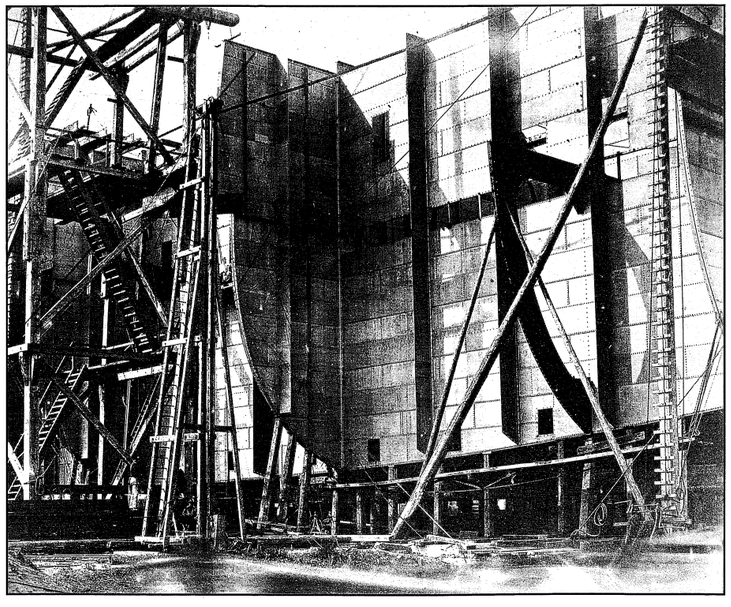
The August launch date was not met, but the first attempt was made on a spring tide on November 3, 1857. Just after noon the ship was officially christened LEVIATHAN and launching operations commenced. By great exertion she moved a few feet, but all further efforts failed and the launch had to be called off. At least 3,000 tickets had been sold by the company to those wishing to view the proceedings.The amount of power necessary to move the vessel had been woefully underestimated.

Hydraulic rams were called into play, more force was found, and launching operations continued on November 19, 28, 29 and 30 and December 3 (a good tide time) and on December 4 and 5. Some 2,000 tons of force was mustered on December 16, and the vessel moved only three feet with much of the gear being broken in the attempt. So far the cost of the launch, originally estimated at a mere £14,000, was near £100,000 and the LEVIATHAN, a name she was not destined to long use, was not in the water.

January 1858 saw attempts being made on the 5th and 6th and the 11th and 12th. These efforts seemed to assure that she could finally be floated. The scheduled launch date was set for Saturday, January 30, but weather and river conditions postponed the launch until the next day. Finally in early afternoon on January 31, she floated free and was taken in tow by two tugs. The rejoicing was mitigated by the financial sorrow; the launch had cost £170,000, the company was £90,000 in the "red" and a sum of £120,000 had to be found to get her ready for sea.

While financial and planning arrangements were being contemplated and help sought from all quarters, the vessel lay patiently moored in the Thames in an incomplete state. The given name of LEVIATHAN had fallen from favor, and she was now referred to as the GREAT EASTERN. In July 1858 she was proposed as a cable layer for the Atlantic Cable venture but this was not to be. The Atlantic Cable had been laid using two sailing ships, but was of short-lived duration. The year of 1858 was a dismal one for shipping; interest had faded in the Indian and Australia trade and had instead focused on North America, partly due to the increased prospect for trade there.

In the fall of the year, a recapitalization was accomplished and a new company formed, The Great Ship Company. Capitalized at £330,000, it would purchase the GREAT EASTERN for £160,000 and let a contract to Russell for £125,000 to complete the vessel. It was calculated that she would make eight voyages a year to America and return fifteen percent on the investment. The vessel was to be ready for a summer 1859 crossing. Brunel was sickly and wintered away from the ship for four months in early 1859. August saw her virtual completion with a VIP banquet held on board. In September 1859, she set out on a short trial trip down the Thames. An explosion that destroyed one of the funnels and killed several stokers was further disastrous news and greatly hastened Brunel's death on September 15. The damage was repaired and in October she again had steam up and another trial trip or two was taken. In the late fall she moved to Southampton to wait out the winter.



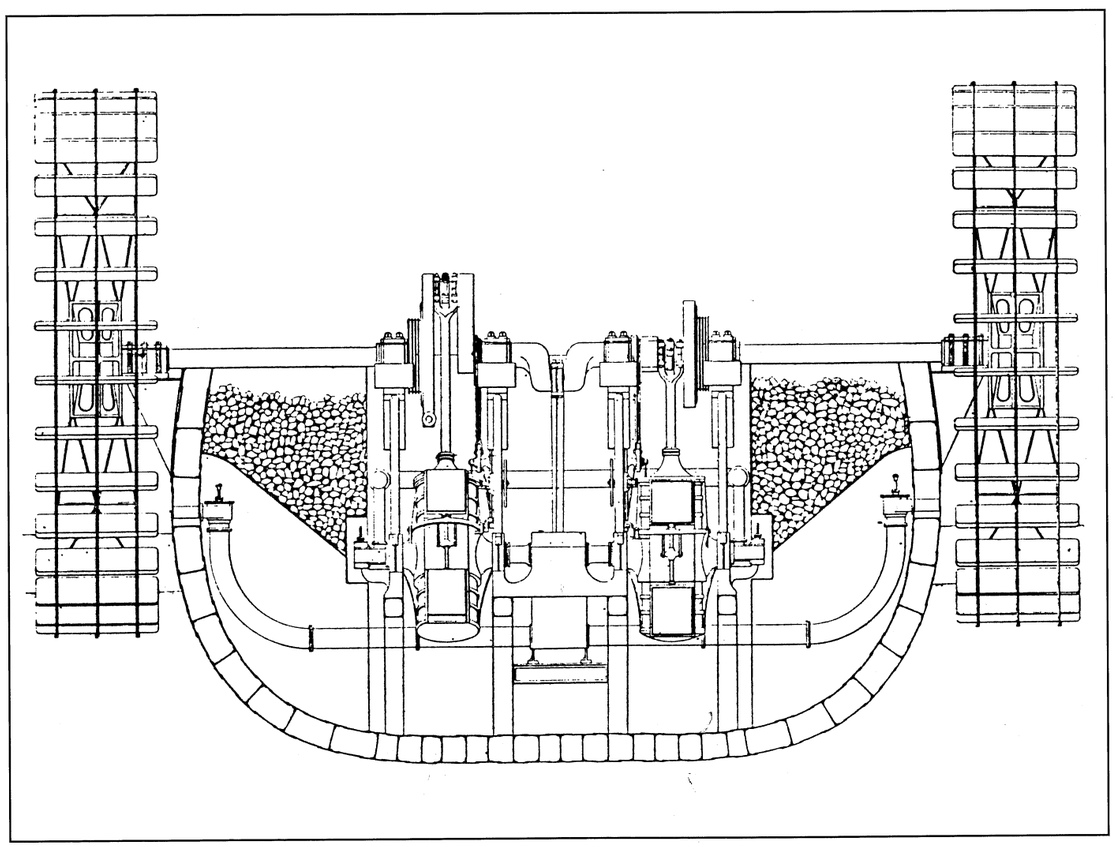
The framing and construction of the bulkheads of GREAT EASTERN - Courtesy Smithsonian Institution.

The financial troubles of the Great Ship Company came to a head in January 1860, when after considerable badgering at a meeting of the company, a further authorization of £100,000 was passed, much of which would be used to get her off to the United States - Portland, Maine, then being considered to be the port of call.

In January 1860, the GREAT EASTERN lost her esteemed captain, William Harrison, who was drowned as he was making his way to the great ship in a small boat that capsized. His successor was the experienced John Vine Hall who took over and prepared the iron behemoth for a June departure to the United States. Passengers were scarce as the departure date was frequently changed, but on June 17 some 38 passengers and eight guests departed for New York City, which had replaced Portland as the favored port. Even then, the departure was a day late due to drunken crew members. The trip took ten days and nineteen hours. Some 3,188 miles were steamed at a cost of 2,877 tons of coal. Her longest day's run was 333 miles on June 26 and she reached New York on June 28.

The GREAT EASTERN anchored off Sandy Hook to await a favorable afternoon tide. Ships circled around her, and the various points of land from which one could view her were crowded with spectators. The ship's band played and bands on shore returned the favor. She slowly made her way to moorings at Hammond Street, where she tied to the shore. This was indeed the apogee of her tumultous career to date, the tribulations all but forgotten. The next several days saw a sideshow atmosphere shoreside when tents, booths for refreshments, shooting galleries, exhibition of trained bears and the like were erected. The Great Ship Company meanwhile made preparations for public viewing starting on Tuesday, July 3 so as to properly celebrate the American Fourth of July.

Several thousands came to observe the GREAT EASTERN, but only 1,700 were willing to pay the required dollar admission fee. The charge was deemed excessive, but when the tariff was reduced to 50 cents some 18,000 made it

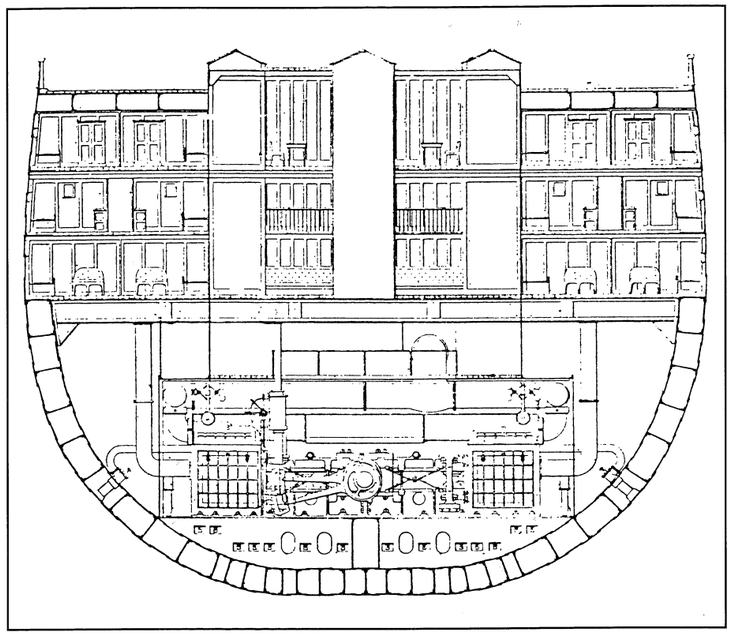


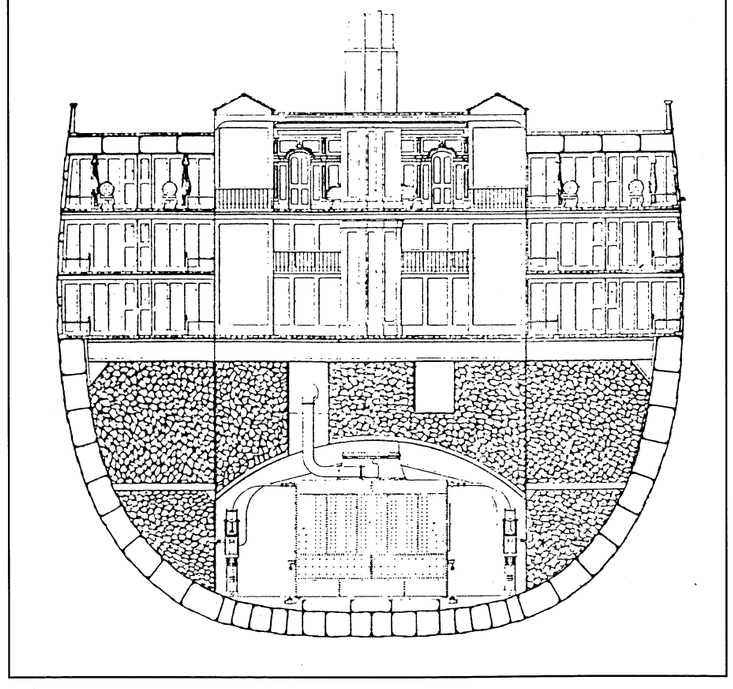
Cross section through the paddle engine room -*International Marine Engineering*, Sept. 1909.

aboard in one day. The directors of the Great Ship Company evidently liked the reception their vessel received, and they decided to arrange excursions to show her around. Two excursions were arranged but turned out to be less than successful.

On July 31, the GREAT EASTERN departed at 3 p.m. for Cape May, New Jersey. The lodging arrangements consisted of providing mattresses for the men while the staterooms were reserved for the ladies. Food and refreshments were made available on board at moderate prices. Dodsworth's Band provided the music. Some 1,500 persons bought excursion tickets. However, the dining arrangements were entirely inadequate, and the situation worsened by the low caliber of the waiters especially employed for the occasion. Service was dismal, food was not often available, and worst of all the ice water supply gave out. Dancing and revelry continued until midnight. The mattresses were employed by the sleepers on every available part of the ship, and the degree of pleasant slumber may be imagined. The next morning those sleeping outside found themselves coated by a layer of fine soot and ash, which mingled with a heavy dew or light rain to make a fine black scum upon the exposed sleepers and their mattresses. Water for washing the grimy throng was in short supply also. The great ship had to anchor six miles offshore from Cape May at 7 a.m. and await tenders to carry passengers ashore for several hours. The same lateness and other difficulties prevailed in the afternoon. Steamers brought excursionists from Philadelphia and points on Delaware Bay to view and visit the ship. The GREAT EASTERN returned to New York on August 2, and the press made the most of the ill-fated happenings to deride the trip, the ship and those in charge.

The next excursion was to Chesapeake Bay, and some 105 embarked for Annapolis and Hampton Roads on August 3. Fares were $8.00 to Annapolis and $6.00 to Hampton Roads. The number was greatly reduced due to the price of the excursion, but 105 people were easier to cater to than 1,500. It only took 24 hours for the GREAT EASTERN to reach Hampton Roads, where four salutes were fired from her signal gun, being answered by eleven from Fortess Monroe, whereupon the GREAT EASTERN fired thirteen more. Some 4,000





(Top) Cross section through the screw engine -*International Marine Engineering*, Sept. 1909. (Bottom) Cross section through the boiler room -*International Marine Engineering*, Sept. 1909.

persons at 50 cents each boarded the vessel on August 4 (Saturday). The next day, Sunday, the GREAT EASTERN entered Chesapeake Bay and anchored off Annapolis. While there the Old Bay Line took visitors to and from the ship and also saw that a gift of 2,500 tons of coal was transferred to her. Some of the GREAT EASTERN excursionists took a side trip to Baltimore.

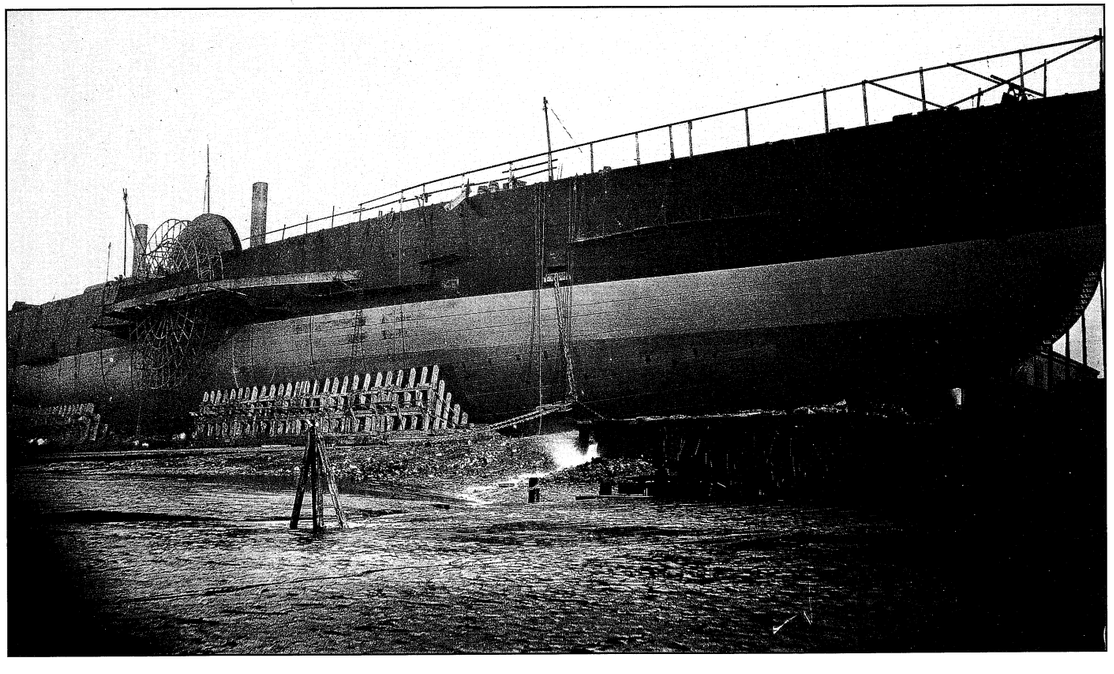
On the 9th (Thursday), President Buchanan visited the great iron ship for two hours, being greeted by a 21-gun salute and "Yankee Doodle." Finally on Sunday, August 12, she returned to New York with 34 passengers at $20.00 each thus indicating how the interest had declined.

A few days later, on August 16, the GREAT EASTERN went to sea again bound for Southampton via Halifax, Nova Scotia, with 56 passengers for England and 46 for Halifax. The ship's officers were extremely discouraged by their experiences in the States. The ship had been viewed by 165,000 people, and £20,000 had been realized, but it was all too obvious that the trans-Atlantic demand was not such as to ever be a profitable operation for a vessel so large. The ship was considered to be a jinx by some and certainly had a bad press. The directors of the company also thought the officers were not capable of managing their large challenge.

The trip to Halifax was made in 46 hours, only a few hours off the record, and the GREAT EASTERN departed early the next day, vexed by exhorbitant port charges. A total of 72 passengers were on her last 1860 voyage, and she was laid up at Milford Haven, it being suspected that her bottom was foul (which was not the case). The company then had to consider its future. Chief disappointment was the average speed of only fourteen knots, although since this had been a maiden voyage the engines were not put to a maximum test. During the layup the main propeller bearing was renewed, and her temporary pine deck, laid over iron plating, had two-inch pine planking placed upon it, with pitch as the joining agent. A variety of bills due, law suits, claims and the like were handled and additional financing sought for her 1861 travel to America.

On May 1, eluding possible law suits and with a new master, Captain W.B. Thompson, the great ship with 7,000 tons of coal sailed from Milford Haven, her 100 or so passengers having been brought to her by tender and small boats. Four days out she suffered damage from a storm but made New York safely. Her return passage was without event and she was about to set out upon her greatest feat to date.

Great Britain was apprehensive about its Canadian possession and relations with the United States as the Civil War had broken out and English sympathies were definitely with the seceding states. To bolster up her Canadian defenses, England chartered the largest and most suitable ship around, the GREAT EASTERN, and in July some 2,400 troops, 200 horses, and dependents and some paying passengers departed from Liverpool for Canada. In all, 3,400 persons were aboard under a new skipper, James Kennedy, borrowed from the Inman Line. A good passage was made as the GREAT EASTERN sped recklessly without fear of consequence through fog and ice field alike, narrowly missing the ARABIC on one occasion, it was claimed.



In January 1859, the GREAT EASTERN was ready for launching - Courtesy Smithsonian Institution.

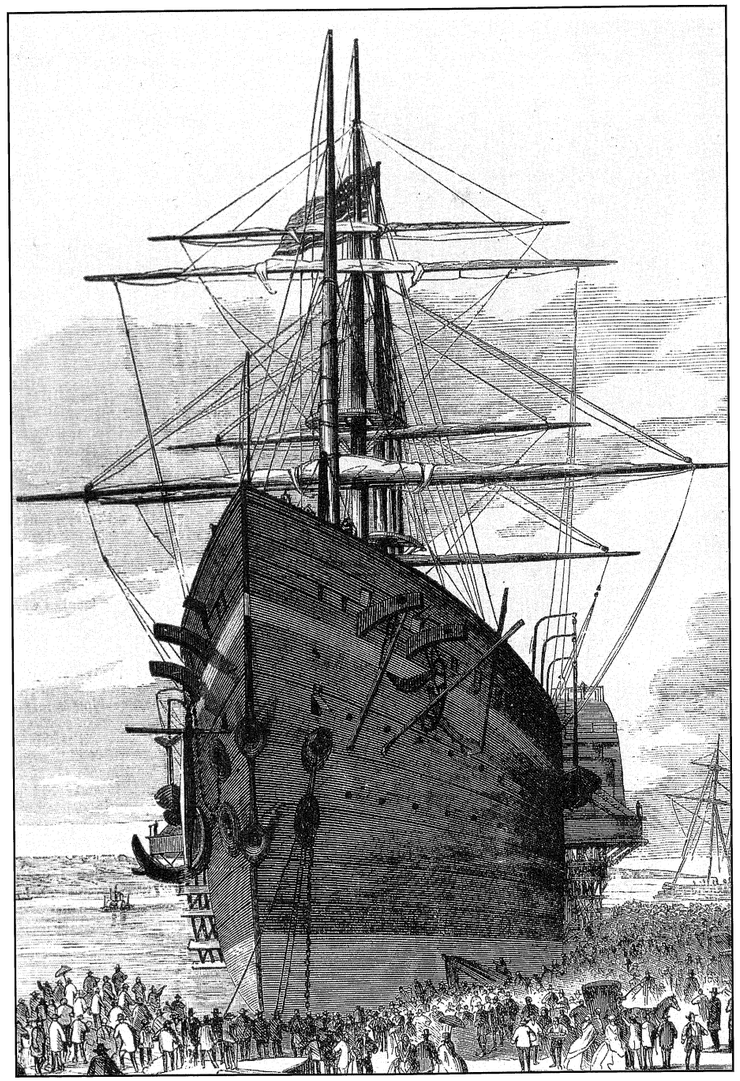
Successfully landing her assembled souls in Quebec, she returned to Liverpool with 500 passengers without event a few weeks later. The company officials again had the GREAT EASTERN on view for the Canadian public, extracting a fee for the privilege.

Apparently the GREAT EASTERN had won her spurs, and in early September, with a complement of 400 passengers and her best cargo to date, she left Liverpool for New York. At least 100,000 persons were assembled to see her off with her new master, James Walker, who came aboard only the day before sailing. Captain Kennedy had left for another task.

Fares varied from 20 to 28 pounds first class and seven to ten pounds steerage. The voyage commenced auspiciously under full sail and steam and thirteen to fourteen knots was achieved. The second day out a gale commenced and one lifeboat had to be cast adrift, the paddle engines being stopped to avoid breaking the wheel. The rudder head fractured in the resulting manuever, and in a continuing gale the ship lost eight lifeboats. Over a period of several hours, the great ship lost all the floats on the paddlewheels and the screw engine had to be stopped. Efforts to rig sail for steerageway were fruitless. By Friday, September 13, the worst was almost over but the ship was rolling violently and all loose gear was making its own way below decks, smashing everything in sight. Water got into the luggage area, and the baggage became a sodden, unrecognizable mass.

Finally a temporary steering arrangement using chain held by blocks enabled the GREAT EASTERN to maintain headway using her screw engines, and on Sunday with calm upon the water the ship turned toward Ireland, some 300 miles distant. The GREAT EASTERN finally made Queenstown, lying offshore until a suitable anchorage could be obtained. After necessary immediate repairs were accomplished, she was escorted by a tug to Milford Haven, her usual "home," where she spent the winter being repaired and made ready for her 1862 voyages. Three sailings were scheduled under her new captain, Walter Paton.

Her first voyage saw 31 cabin and 107 steerage passengers on the westbound trip and 173 cabin, 216 steerage on the eastboard trip. This latter saw as much freight carried as she could handle, and she made the trip to Liverpool in nine days, twelve hours, the fastest time on record by twelve hours. Her next trip saw 376 passengers to the United States and 200 cabin and over 300 steerage passengers on the return passage. Her August trip was more dramatic. She had departed with 820 passengers on August 17, and when nearing Long Island she struck an unchartered reef off Montauk Point. This obstruction was later called the Great Eastern Rock, and the striking resulted in a fracture 80 feet long and up to four feet wide at the place on her hull near the turn of the bilge. Because of her double bottom she was not in any danger of sinking. Captain Paton engaged two New York consulting engineers, Edward and Henry Renwick, to effect a repair using a cofferdam-type patch over the area. The work was supposed to be done in two weeks; it took three months



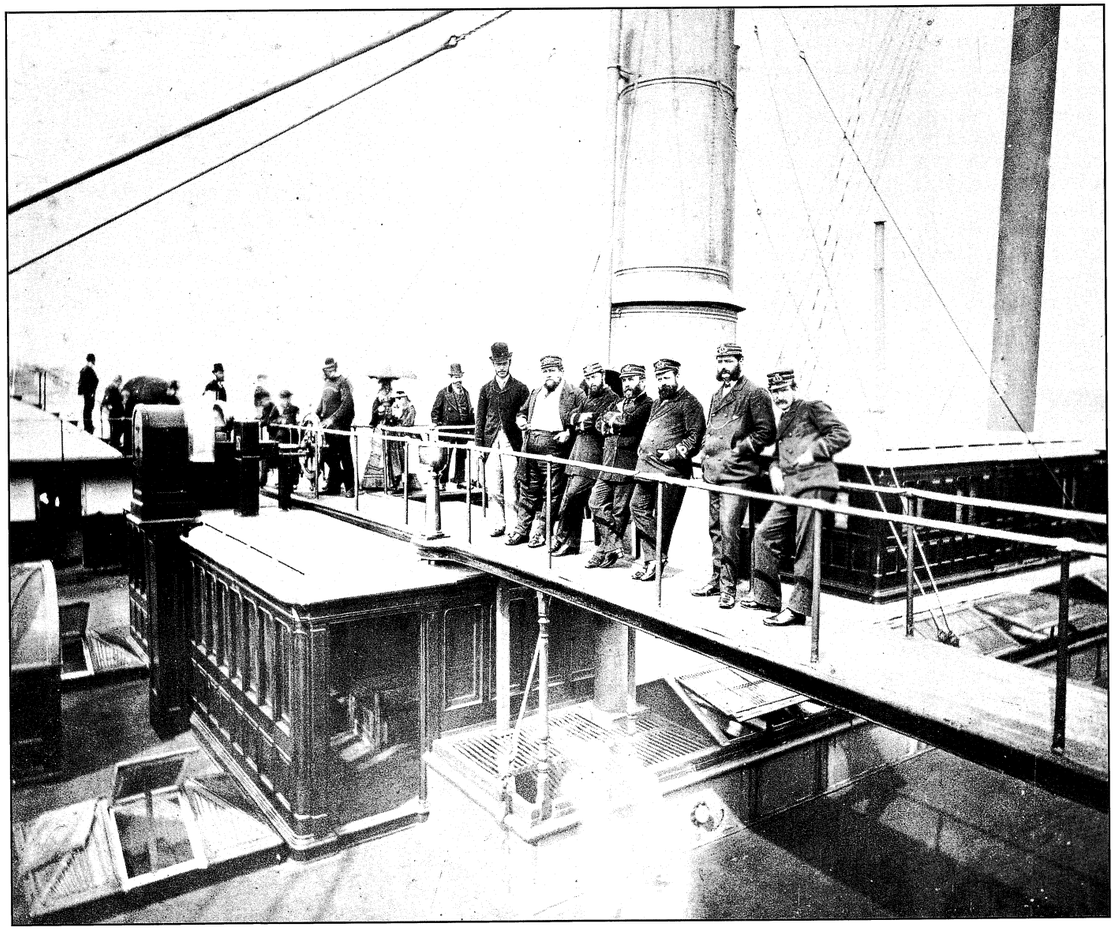
An illustration in the September 17, 1859, issue of *Frank Leslie's Illustrated Weekly* depicts the launching. Tickets were sold to watch the event - Author's collection.

as there was a shortage of iron plates in the United States due to the war.

The GREAT EASTERN finally arrived in Liverpool in mid-January after sailing on January 6, 1863, with a cargo of 3,000 tons of wheat and several hundred passengers. The cost of repair had been over $350,000. She was beached and permanent repairs effected together with the fixing of several other gashes in the area. Finally, in May 1863, she set out for New York once again, carrying in all for that summer, 2,700 passengers to New York and 950 to Liverpool.

Financially the company had just recovered from the disaster off Montauk Point, and the last trip westbound had seen another bad storm, which had carried away one of the GREAT EASTERN's paddlewheels. She was delayed for repairs in the United States but returned to Liverpool in September. Despite the record number of passengers the year saw a loss of at least £100,000. Fares had had to be lowered due to Cunard and Inman Line competition, and in January 1864 the company gave up and the creditors took over. At an auction in Liverpool on January 14, a bid of £50,000 was made, but since £130,000 were owed, it was not acceptable and the auction concluded without action.

Entering into the picture at this dismal time for the GREAT EASTERN was Cyrus W. Field. Mr. Field, a retired American paper manufacturer, was the advocate of laying telegraphic cable across the Atlantic Ocean and was proprietor of the Atlantic Cable Company which had attempted a partially successful cable laying in 1855-1857. He long had thought of the GREAT EASTERN as being the ideal vessel needed for success. Enlisting British men of wealth, Thomas Brassey, John Pender and Daniel Gooch (Gooch and Brassey were also bond holders in the GREAT EASTERN), they founded the Great Eastern Steamship Company. They bought out enough of the other holders of Great Eastern bonds to have her up for auction again, and the



Officers of the GREAT EASTERN and guests pose on the deck - Author's collection.

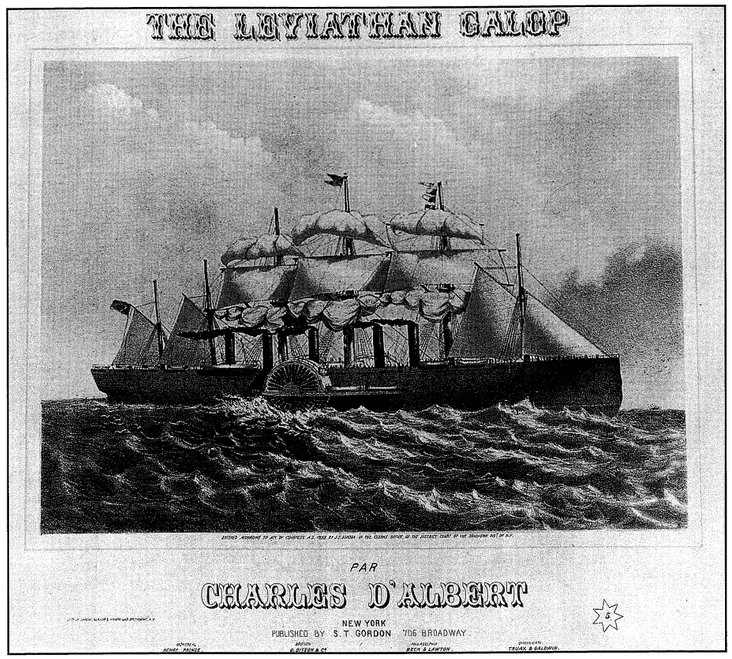
Great Eastern Steamship Company was able to buy her for £25,000. The irony was that they were prepared to go to £80,000 if needed but no other bids were forthcoming.

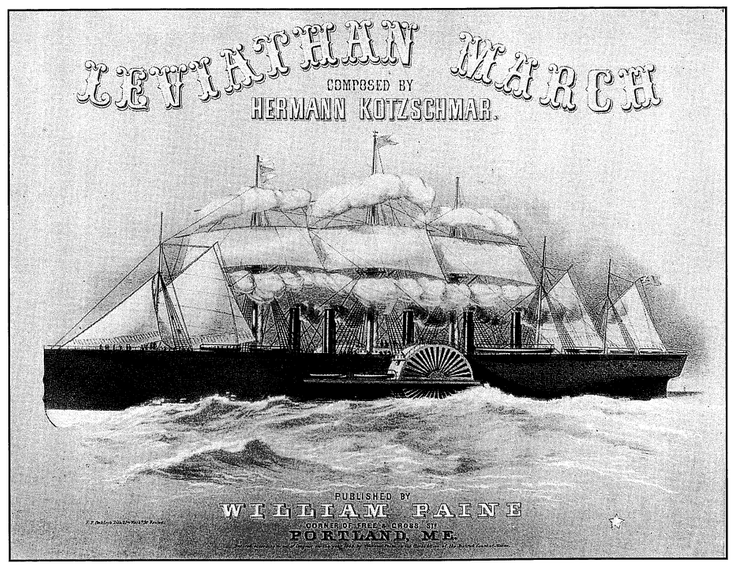
The Great Eastern Steamship Company then chartered the ship in April 1864 to a newly formed company, the Telegraph Construction Company, for £50,000 in cable stock shares. The GREAT EASTERN at last was to realize her destiny and achieve historical greatness.

The Great Eastern Company provided the only vehicle in the world then capable of carrying enough telegraph cable to get across the Atlantic in one trip. To do this, however, the fourth funnel and two of the ten boilers were removed, and saloons, cabins and holds were removed and replaced by three large tanks that were constructed to hold the immense quantity of the cable wire. The tanks were filled with water and the cable was slowly drawn out and moved by a system of pulleys to the vessel's stern where a payout apparatus served to drop it gently into the ocean. Electrical testing of the cable went on continuously as this was being done. Most of 1864 and half of 1865 was spent in making the necessary vessel changes, manufacturing the cable and obtaining personnel and supplies.

On Saturday, July 15, 1865, the GREAT EASTERN loaded on an extra 1,500 tons of coal and the last of her personnel and set off from the Thames River to Valencia on the south coast of Ireland - the origination point for the cable to Heart's Content Bay in Newfoundland. After picking up the shore end of the cable and splicing it to cable in her tanks, the great ship set off at around a four-knot speed for Newfoundland. Some 745 miles of cable had been payed out with only minor difficulties when a major electrical fault was detected and corrected. All again went well, some 1,200 miles of cable had been run out, and Newfoundland was only 600 miles away. Then on August 2 another flaw was noted and the cable chafing resulted in its parting. The decision made was to grapple for the lost cable even though it was two and a half miles down. Several attempts resulted in finding the cable and partially raising it, but the grappling and raising gear finally collapsed or was lost. So on August 11, the GREAT EASTERN headed east and abandoned all attempts for that year.

Cyrus Field was undaunted, and he and Gooch formed another firm called the Anglo-American. A year later, in July 1866, the GREAT EASTERN steamed away to repeat the attempt, with adequate grappling equipment on board. On Friday, July 13, she joined the shore end off Valencia and steamed away; fourteen days later, without incident, she was off Heart's Content Bay in Newfoundland. The connection with the land cable was made. Then in August the GREAT EASTERN, replenished with coal and 600 miles of cable, steamed away in an attempt to bring up the 1865 cable and splice onto it. It took two weeks and 30 attempts, but the lost cable was raised and found to be in good order. It was spliced to the end of the 600 miles on board, and the GREAT EASTERN then slowly steamed westward, laying the cable as she went. Two telegraph cables now spanned the Atlantic. The GREAT EASTERN was the hero of the hour, and the Great Eastern Steamship Company declared a dividend of 70 percent. How times had changed.





Some of the many musical compositions written in 1858 in honor of the great event - Author's collection.

PARTICULARS OF THE VESSEL

Length between perpendiculars	680 feet
Breadth	83 feet
Breadth over paddlebox area	120 feet
Height (keel to deck)	58 feet
Gross tonnage	18,914 tons
Displacement	27,384 tons
Speed	14.5 knots
Floats (30)	3 x13 feet
Immersion, light	2.5 feet
Immersion, laden	16.5 feet
Diameter of screw	24 feet
Pitch of screw	44 feet
Number of blades	4
Weight of propeller	36 tons
Iron in hull	6,250 tons
Woodwork in hull	2,500 tons
Paddlewheels	54' diameter
Masts	6
Sails	6,500 square yards

ENGINE CHARACTERISTICS

	Paddle engines	Screw engines
Weight	836 tons	500 tons
Cylinders	4	4
Stroke	74"x14'	84"x48"
Coal consumption per hour	5.12 tons	10.8 tons
Mean steam pressure	24 psi	18.1 psi
Coal consumption	11# per NHP	15.12# per NHP
Coal consumption	3.12# per IHP	6.08# per IHP
Average speed of vessel	13 knots	13 knots

BOILERS AND FURNACES

	Paddle	Screw
Number	4 double-ended tubular	6 double-ended tubular
Length	17 feet	18', 4 3/4"
Width	17.75'	17.5'
Height	13.75'	14'
Furnaces	40	72
Pressure	24#	25#

From *The Greatest Iron Ship — S. S. Great Eastern.*

Toward the end of March she sailed with 123 passengers including Cyrus Field. The passage took fourteen days due to heavy weather and gradual breaking-in of the engine bearings. Bookings on the return trip were adverse due to delay and only 191 took passage. The French company became disheartened and gave up; bankruptcy was its fate. Another "French connection," a French cable company, took up the ship and chartered her to lay a cable between Brest and Newfoundland. In mid-July 1869 the GREAT EASTERN, once again experiencing the usual minor concerns when laying cable, threaded her way successfully across the Atlantic to Heart's Content. Her captain was now Robert Halpin, who had been First Mate on her under the successful cable captain, James Anderson. James Anderson was now a director of the French company and Halpin succeeded him on the GREAT EASTERN.

Upon her return to England the GREAT EASTERN was used to successfully lay another cable, this one from Suez to Bombay, which she completed, sailing easterly from Suez in January 1870. At last the GREAT EASTERN had

been placed on the route for which she was designed, if only for a single voyage. Upon her return to England she was idle for two years and lay at anchor in the Mersey awaiting employment.

Again, in May 1873, she was called upon to lay an Atlantic cable, this one between Valencia and Heart's Content. It was for a French company that combined their efforts with the English concern operating the prior cables. On the GREAT EASTERN's return trip to Great Britain she searched (unsuccessfully) for the 1865 cable which by this time was no longer operative. Then in the summer of 1874 she laid yet another Atlantic cable, this time from west to east, starting at Heart's Content Bay.

No other cables were proposed, and the status of ocean-going commerce was such that the GREAT EASTERN was not seriously considered, probably due to the high cost of providing new sets of engines. Also in 1874 a new custom cable ship, the FARADAY, was launched and the GREAT EASTERN was sent to Milford Haven in 1876 to be left there to see what circumstances would develop. The yearly cost of maintenance was a nominal sum shared by the Great Eastern Steamship Company and the cable company.

Over the years propositions for her surfaced. In 1881 she was offered for sale at £75,000 but only £30,000 was offered. In 1883 a contract was apparently entered into for £40,000 to Edward De Mattos to purchase the vessel, but it went to litigation when the purchaser backed out. Finally the vessel was offered up for charter, supposedly for the New Orleans Exposition of 1884 where she would have been a gigantic gambling ship. This fell through, and the ship came up for auction once again in 1885.

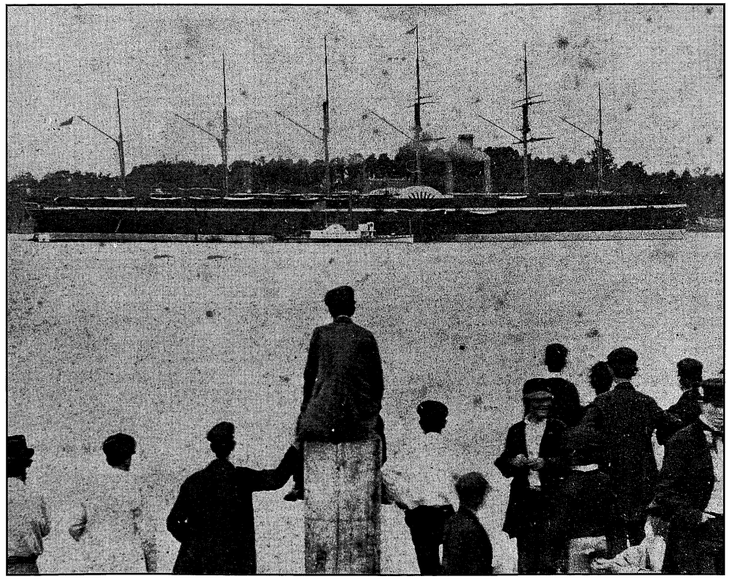
At this auction held in late October, Edward De Mattos, who had briefly owned the ship before for £40,000, found himself again the purchaser at £26,200. When the financial transactions were settled, the stockholders received only 60 cents on their 100 dollar shares. London Traders, Limited, was the name of De Mattos' company, and it was their intention to move the GREAT EASTERN to Gibraltar for use as a coal hulk.

Mr. Louis Cohen, Managing Director of Lewis's Emporium, a sort of limited department store chain of the day, had bid on the ship at £20,000, his financial limit, but had lost out. He approached De Mattos after the auction and proposed to charter the ship for a year. This was accepted, and in late April 1886 preparations were made to move the great ship from Milford Sound to Liverpool, where at anchor in the Mersey she would start another career, that of a giant showboat, advertising billboard and amusement center. Financially this might have been the most successful event of her career. She was moved to Liverpool on her screw engines only; they were still operable albeit needing a few minor adjustments. At that time her hull had 300 tons of marine growth upon it up to six inches in depth.

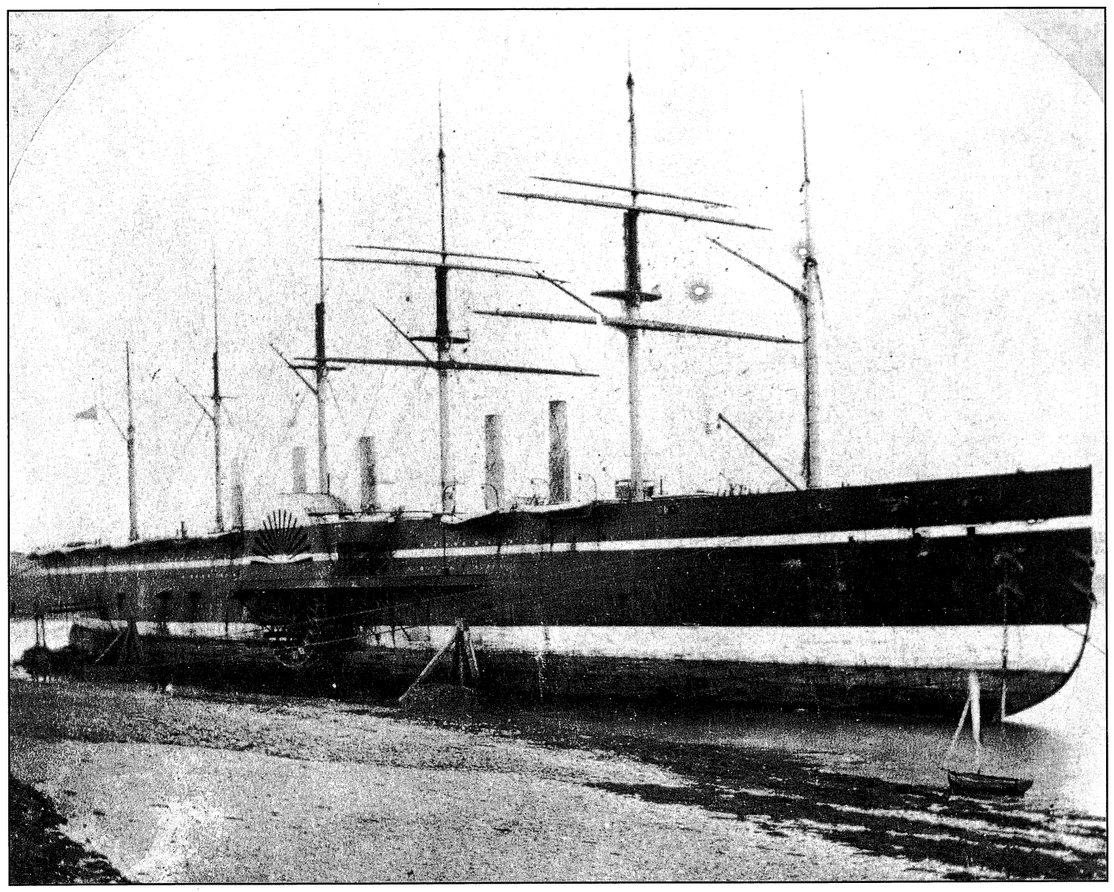
The GREAT EASTERN was a grand success at Liverpool. Lewis's gained all the attention of the summer with their acquisition. The GREAT EASTERN was moored to floating landing stages for access as the tidal fluctuations were up to 30 feet. Admission was charged and more than 50,000 people were admitted during the first month for a shilling and 20,000 in just four days over a June bank holiday. On board were freak shows, buffet restaurants, souvenir shops, orchestras, shooting galleries - all in all what one could expect to find in a good side show or carnival. There was even a trapeze act between two of the masts of the great vessel. The chief attraction may well have been the massive engines, however, which could also be viewed by the public.

By the end of the summer, the novelty on the Mersey had run its course after attracting thousands, and the GREAT EASTERN was off to Dublin, Ireland, for the winter under a new owner, as the Gibraltar coal hulk proposition had come to naught. Supposedly she was purchased for £26,000. In April 1887, the GREAT EASTERN once more appeared on the Mersey where she again was a sideshow attraction. However, she had worn out her welcome and had become an eyesore, so in August she departed for Greenock, Scotland, and the Clyde. There until fall set in, she was the object of attention.

In October she was sold for the last time, for £16,500 to Henry Bath and Sons of London and Liverpool. They were dealers in metals and the intent was to scrap her. She was taken back to the Liverpool area in August 1888, and an auction was held for her accoutrements, which realized some £38,000 in November. People are still dealing with these in antique shops today.



New Yorkers line the shore of the Hudson River to view the GREAT EASTERN on one of her first calls to the port - Author's collection.



The GREAT EASTERN in 1865 during her first effort to lay the Atlantic cable - Courtesy The Mariners' Museum.

In early 1889, the wrecking of the great iron ship started near Birkenhead, England. It was well into the middle or end of 1890 when the laborious task was finished. What we now know as the steel wrecking ball was devised to loosen the rivets and plates by striking repeated blows.

In retrospect the GREAT EASTERN can be viewed only with total fascination. Even the screws of the QUEEN MARY are not as large as the single screw of the GREAT EASTERN. The first ocean "liner" to exceed the GREAT EASTERN's length was the 1889 OCEANIC of the White Star Line, and the first one to exceed her in displacement tons was the Cunard Line's LUSITANIA of 1907. Had she employed steam pressure of 200 psi (instead of 15 to 25 psi) and used expansion of steam techniques she could have made 25 knots!

John Scott Russell once wrote of her. "(She) fell into the management of amateur directors, among them men who had commanded ships, but not steamships; among them men who had made money by ships, but not by steamships; among them men who had built engines, but not marine engines ... the GREAT EASTERN, the largest of all Brunel's conceptions, has read us all a lesson."

The author has used information for all of the above from material found in two excellent books on the GREAT EASTERN. The imagination of the general public was first caught in 1953 when James Dugan's *The Great Iron Ship* was published by Harper Brothers. It was an instant best seller and Book-of-the-Month-Club selection. A more recent and fine technical work is George S. Emmerson's *The Greatest Iron Ship - S.S. Great Eastern,* published by David and Charles, London and North Pomfret, Vermont; it is highly recommended. ⚓