

THE s.s. "GREAT BRITAIN"

The s.s. "Great Britain", the first propeller-driven ocean liner, was launched in Bristol on 19th July 1843, and made her first transatlantic voyage from Liverpool to New York in 1845. She was in passenger service until 1876, when she was converted to a cargo-carrying vessel in 1882. She was damaged by heavy weather and put into the Falkland Islands in 1886 where she remained as a storage hulk for many years until finally abandoned.

In 1970 the ship was salvaged and brought back to Bristol where she is being restored in the dock where she was built, and is open to the public daily from 10.00a.m. until 6.p.m.

This is a brief history of the s.s. "Great Britain. We will now look into this great ship in more detail.

A committee has been set up to study the history, return, renovation and future of the steam ship "Great Britain".

The s.s. "Great Britain" was designed by Isambard Kingdom Brunel. It was the first iron constructed and screw propulsion ship. The keel of what was then the largest ship in the world was laid on July 19th 1839 in a dock which was specially excavated beside Bristol's Floating Harbour in which she could be floated out rather than launched. This took place on July 19th 1843 when Prince Albert having travelled from London to Bristol on Isambard Brunel's railway (the Great Western Railway) performed the ceremony.

The atmosphere of the day can best be gauged by referring to the report published the following day in the Bristol Mirror. The reporter recorded that "large crowds started to gather early in the day including many people who had travelled to Bristol to see the spectacle. There was a general atmosphere of anticipation as the Royal Emblem was unfurled. The processional route had been cleaned up and Temple Street decorated with flags, banners, flowers and ribbons. Boys of the City School and girls of Red Maids were stationed in a neat orderly formation down the entire length of the Exchange. The route was a mass of colour and everybody was out on the streets as it was a public holiday. The atmosphere of gaiety even allowed thoughts to drift away from the problems of political dissension in London".

Prince Albert arrived at 10 a.m. at the Great Western Railway Terminus. The Royal Train, conducted by Brunel himself, had taken two hours and forty minutes from London. Two sections of the Terminus platform were boarded off for the reception and it was noted by the Bristol Mirror that parts were covered with carpets from the Council House. The Prince Consort dressed as a private gentleman, was accompanied by his Equerry in Waiting, Personal Secretary, the Marquis of Exeter, and Lords Wharncliffe, Liverpool, Lincoln and Wellesley.

Introductions were made, followed by the "Address to His Royal Highness the Prince Albert" by Mr D. Burgess the Town Clerk. The reply given by His Royal Highness was short and spoken in low tones. Honours were then bestowed on him by the Society of Merchant Venturers, and there were various speeches from members of the Bristol Clergy. The Royal Party then had breakfast, and after twenty minutes reappeared to board horse drawn carriages. Prince Albert was in the leading coach with the mayor. At Prince Albert's request the cortege stopped unexpectedly opposite Sion Spring so that he could admire the view of the Gorge.

At twelve o'clock the Prince arrived at the Great Western Steamship yard only to find the ship already "launched" and waiting for the Royal inspection.

Prince Albert boarded the ship, took refreshment in the elegantly decorated lounge and then commenced his tour of inspection. The Prince was most impressed and asked Thomas Guppy, the superintending Civil Engineer, a great deal about the method of construction.

The actual christening was performed by Mrs Miles, mother of Bristol's M.P. and a local company director, and when the appropriate time came she stepped forward, grasped the champagne bottle and swung it towards the towering bows. Unfortunately the steam packet "Avon" had started to tow the ship into the harbour too early and the bottle fell about ten feet short of its target and dropped unbroken into the water. A second bottle was rapidly procured and the Prince himself then hurled this against the iron hull of the "Great Britain". In her haste the "AVON" had also started her work before the shore warps had been released. The tow rope snapped and due to the resultant delay the Prince was obliged to return to the station and miss the end of the programme.

After the ceremony the "Great Britain" remained in the floating harbour for fitting out and the installation of her engines. It was not until almost a year later, in April 1844, that she was ready for sea trials and an attempt made to tow her from the floating harbour into the outer basin. The decision by the Steamship Company to install the engines whilst she was still in the floating harbour rather than in the basin, led to the imprisonment of the ship for a long period. Eventually, in December 1844, the great iron ship passed successfully through the first set of lock gates. The second set, leading to the River Avon, nearly brought about a major calamity. The ship jammed on her passage through the locks on a falling tide and it was only the remarkable seamanship of Captain Claxton that enabled her to be pulled back and severe structural damage avoided.

The following night an army of workmen, under the personal supervision of Brunel, took advantage of the slightly higher tide, removed the outer lock gates and allowed the tug "Gampson" to tow the "Great Britain" safely into the River Avon.

After the drama of her passage through the locks the initial trial voyages of the "Great Britain" were completed without undue incident. The first trial took place on 12th December 1844 with further test runs on the 10th and 20th January 1845. Although the first two trials were undertaken with engines running slowly the owners were fully satisfied with the performance of the vessel and on 14th January 1845 the "Great Britain" was formally registered. On the third trial, to Ilfracombe, the engine speed was increased and 12½ knots achieved. As soon as these early trials were completed the "Great Britain" left for a five month visit to London. In spite of heavy weather on this journey she logged 839 miles in 39 hours at an average speed of 12½ knots. The weather in the Bristol Channel in particular, was very severe and some superficial damage to her deck was sustained whilst passing Lundy. Her stay in London was marked mainly by the thousands of people who visited and inspected her and by the visit of Queen Victoria in April 1845. Her Majesty, during the course of the three quarters of an hour spent on the ship, inspected the passenger accommodation and engines and met Brunel and various directors of the Great Western Steam Ship Company. There is no doubt that Her Majesty was greatly impressed by the size and concept of the steam ship and was heard to remark, in particular, on the beauty of the dining room and the "Great Britain Carpet", made in Bristol by Messrs Mogg.

The "Great Britain" left London on 12th June 1845 and then spent three weeks on a leisurely tour along the coastline to Liverpool. She sailed on her first real voyage on July 26th 1845 to New York. The trip took 14 days, 21 hours, and was achieved at an average speed of

9½ knots. It is interesting to note at this stage the nature of the passenger accommodation and fare structure. The main luxury accommodation consisted of 26 state-rooms with single beds and 113 state-rooms with twin beds. The fare for the Atlantic crossing in a state-room varied between 20 guineas and 35 guineas. There is no record of how many passengers were carried on this first voyage but it is clear that her total cargo was in the region of 600 tons.

The "Great Britain" arrived in New York on 10th August and received a tremendous welcome. Some Americans were critical of her low rig and number of masts but nevertheless over a thousand people per day visited the ship during her stay of 20 days. The "Great Britain" arrived back in Liverpool on September 15th after a 15½ day voyage. She left Liverpool again on 27th September on her second voyage with 102 passengers. She arrived in New York on 15th October but during the course of the voyage was damaged by westerly winds of gale force. When she arrived in New York she was immediately put into dry dock. It was found that apart from the known loss of her foremast serious damage had been caused to her propeller. Nearly all the rivets had worked loose and two arms and one blade were missing completely. After another blade had been removed to even the balance the "Great Britain" left New York on 28th October with only a small number of passengers. She sustained further propeller trouble on the return voyage but finally limped into Liverpool on 17th November 1845.

These early voyages showed that certain aspects of her design needed revision and during the course of the winter a general overhaul was completed and what remained of the original six bladed propeller replaced by the spare four bladed propeller. Numbers one and two masts were retained but number three removed completely and number four replaced by a square rigged mast. The third voyage commenced on May 9th 1846 but after four days the failure of an air pump led to further problems. Although the rest of the trip was completed either under sail or at reduced power the new rigging plan enabled a speed of between 9½ and 12 knots to be maintained. The voyage took 20 days. After repairs in New York the "Great Britain" left on the return journey on 8th June with 42 passengers. This second stage of the voyage proved to be far more encouraging as she completed the passage entirely under steam in 13½ days at an average of 231 miles per day and 12 knots.

The fourth voyage also proved to be satisfactory as she completed both legs of the voyage in 13½ days, and this in spite of being delayed by fog and scraping her bilge keel on a reef off Newfoundland during the course of the outward journey. The next voyage, number five, was to prove disastrous. She sailed at 11 a.m. on 22nd September 1846 with her highest number of passengers. Unfortunately during the course of the northerly passage around Ireland, Captain Hoskin mistook the St. John's light for a light in the Isle of Man and the ship ran aground in Dundrum Bay, Northern Ireland. One of the most incredible things about this disaster was that no-one on board had any idea where they had gone aground. Brunel suspected that the iron hull might have affected the ship's compass but a new chart issued to Captain Hoskin was subsequently held responsible. Protected by a safety belt designed by Brunel the "Great Britain" survived the winter without appreciable damage and in so doing probably did more to forward the cause of iron ship building than even the original construction. Any wooden ship would have broken-up and become a total loss.

The task of re-floating the "Great Britain" began in the spring of 1847. The first stage consisted of using a series of levers and counter-weights, consisting of long stout timbers driven under her bilges and piles of stones used as fulcrums, eventually this proved successful. It was not until mid-August that it was possible to move the ship a short distance on to a ridge of rocks. After further

repairs the "Great Britain" was towed to Belfast and then, on 29th August across the Irish Sea to Liverpool.

The Great Western Steamship Company was not in any financial position to meet the estimated repair cost of £22,000 and three years later, in 1850, she was sold to Gibbs, Bright and Company for £18,000.

In her new guise the "Great Britain" sailed from Liverpool on June 4th 1852 on another voyage to America. She returned to Liverpool and then sailed on her first voyage to Australia in August 1852 with 600/700 passengers and a crew of 178. Her cargo included gold and silver to the approximate value of £1 million sterling. All went well until she ran short of fuel when steaming 850 miles off Table Bay, South Africa and had to put back a thousand miles to St. Helena to re-bunker. Having refuelled she proceeded south again and arrived at Melbourne after a total passage of 82 days. After visiting Sydney she returned to Liverpool in April 1853. It was at this stage that the "Great Britain" received her final re-arrangement as a steam-ship, One of the funnels was removed and the boilers which had proved to be unduly extravagant, partly rebuilt. Number one mast was removed entirely, the mizzen mast made square-rigged, a new jib boom and bowsprit fitted and the original hawse-pipes removed and new ones fitted at a higher level. Minor alterations were made to the passenger accommodation.

The second voyage to Melbourne, via St. Vincent, was made in 67 days. For the third voyage, John Gray was promoted from his former position as Second Officer to be Captain. Command of the "Great Britain" was regarded as one of the best appointments in the Merchant Service and so careful were the owners in choosing their Captains that throughout his first voyage Captain Gray remained under the overall command of the former Master.

With her new rig and under the command of Captain Gray, the "Great Britain" travelled faster. On this third voyage in 1854, she reached Melbourne in 65 days. It was during this voyage that an epidemic of smallpox broke out aboard among the 1000 passengers. The ship was not allowed into Melbourne harbour and the passengers and crew had to be satisfied for three weeks with the quarantine arrangements available at a shore station some distance from their destination. At the end of the quarantine period the "Great Britain" celebrated her relief by firing her two cannon as she entered Melbourne harbour. This gesture proved to be somewhat untimely as the Crimean War was at that time in progress and it had already been strongly rumoured that the Russians had despatched a naval force to attack Australia. On hearing the "Great Britain" cannon many other ships in the harbour responded by firing their own guns or by setting off rockets and the inhabitants of Melbourne, the Army and the Defence Volunteers thought the Russians had actually arrived.

Whilst in Australia the "Great Britain" had been transferred to the ownership of the Liverpool and Australian Navigation Company of which Gibbs, Bright and Company were managers. This transfer had little immediate effect as she was pressed for trooping to the Crimea immediately upon return to Liverpool. She underwent a refit and her accommodation was enlarged to carry 1650 infantry and 30 horses. On March 7th 1855 she sailed for the Crimea.

In June 1856 she completed her trooping duties and returned to Liverpool for refitting. However this respite from military duties was short lived for after completing voyage eleven to Melbourne in 62 days she was requisitioned for trooping duties in connection with the Indian Mutiny. These duties involved one voyage number 12, from Cork to Bombay. She left Cork on October 8th and finally returned to Liverpool on 10th April 1857. After further refitting she made voyage 13 to New York, voyage 14 to Melbourne, voyage 15 again to

New York and voyage 16, in late 1859, she made the first of thirty-two voyages to Australia. During this period most passages to Australia averaged between 55 and 60 days.

During the next fifteen years she became a very popular ship and although there are no official statistics available, it is clear that she probably carried more emigrant passengers to Australia than any other ship in the 19th century. Apart from passengers she also carried large sums of money, so much so that at times she was referred to as a floating bank.

The "Great Britain" arrived back at Liverpool on 1st February 1876 after completion of her final voyage, number 44, to Melbourne. She was laid-up at Birkenhead and, in spite of being on offer for sale enjoyed several years of enforced idleness. At an auction in 1881 she was withdrawn at £6,500, she was finally sold privately, in 1882, to Antony Gibbs and Sons. The new owners then undertook the final major structural alterations to the ship. She was stripped of her machinery and turned into a straightforward full-rigged sailing ship. At the same time her iron hull was sheathed with wood. It was assumed that the wood sheathing work was commissioned to prevent damage to lighters when they came alongside to load and unload coal. In her new form the "Great Britain" registered 2735 tons gross, 2640 tons nett and was capable of carrying 3000 tons of bulk cargo.

In her new sailing trim the "Great Britain" made two voyages from Liverpool to San Francisco, out with coal and back with wheat. On the first occasion she set out from Liverpool on the 9th November 1882, but had to put back on the 25th November to repair numerous leaks. After repairs she set sail again on 2nd December and finally, after meeting heavy weather in the South Atlantic and putting in to Montevideo, reached San Francisco on 2nd June 1883. The outward passage had taken 205 days but by returning in 153 days she recorded a considerable improvement. It was not until July 1885 that she made her next voyage. This voyage was to the same destination, was without incident and involved an outward passage of 160 days and return passage of 150 days.

The last voyage of the "Great Britain" number 47, began on February 6th 1886 and involved the transit of a consignment of coal from Penarth to San Francisco. All went well until April 16th when she encountered a gale off Cape Horn. Nearly a month later she was still trying to round the Horn and when a fire occurred in one of her cargo holds the Captain decided to return to the Falkland Islands to effect repairs. Unfortunately the repair facilities in the Falkland Islands were limited and after some attempts to repair the fire damage and her leaking decks she was finally declared a constructive total loss. She was sold to the Falkland Island Company as a wool-and coal storage hulk and remained in that service from 1886 until 1933. In due course her decks deteriorated and when she was no longer of use as a wool and coal warehouse part of her decking was torn up and used for a bridge over the Fitzroy River and a jetty at Port Stanley. Eventually, in 1936, the hulk was towed to Sparrow Cove 3½ miles north of Port Stanley and scuttled.

Although an attempt was made in 1936, immediately prior to her final scuttling, to raise funds to preserve the "Great Britain" it was not until 1968 that any tangible progress was made towards mounting a salvage operation. The recently formed Brunel Society decided that a salvage feasibility study should be undertaken and on Saturday 4th May 1968 a meeting took place in Bristol that was to signpost the way to the eventual return of the steamship in mid 1970. The meeting was attended by representatives of the National Maritime Museum, the Society for Nautical Research, the Falkland Islands Company, the Pacific Bridge and Engineering Company of San Francisco and Messrs Burness, Corlett and Partners.

The "Great Britain" was found to be lying on a sloping bed of hard sand and small stones with some build-up on the starboard side and some erosion on the port, particularly at the stern. In spite of lying in tidal waters there was no sinkage into silt. The ship was still in surprisingly good condition considering her extreme age and the fact that she had been abandoned to the mercy of wind and water for the last thirty years.

Unfortunately during her years as a wool and coal store an entry port had been cut forward of amidships on the starboard side to gain access to the holds. The cutting of this port, together with a growing tendency for the aft section of the hull to sag to stern and to port, had resulted in a crack 7" wide, developing at this point and the two decks moving slightly out of alignment. There were a number of other holes in the hull through which water poured as the tide rose and fell. The main ones appeared to have been deliberately caused when the ship was beached and can easily be repaired. It was difficult to assess whether there were any other holes at, or below the waterline as the rivets and general underwater condition were obscured by heavy marine growth.

The "Great Britain" was the first ship to incorporate watertight bulkheads and comprehensive pumping arrangements. The present state of the bulkheads varies considerably but those fore and aft of the original engine room are definitely sound whilst those that have been altered in the past to provide additional warehouse space will need attention.

The masts above the waterline are in reasonable condition and date back to the 1853 rigging alterations. The main mast goes back to 1852 and may possibly be the original Brunel mast. The mizzen mast was left in the Falkland Islands as a memento for the Islanders and the others were taken down and stored during the return salvage journey.

The s.s. "Great Britain" was officially a Crown wreck. As such she could only be released by the Governor of the Falkland Islands acting in consultation with his Executive Council. The successful conclusion of these negotiations enabled the Project Committee to make specific arrangements for the return salvage operation.

After considerable trouble the damaged sections of the "Great Britain" were repaired and strengthened, the main hull pumped out and the vessel refloated. A pontoon was then submerged by allowing water to pass into her compartmented structure, alongside the "Great Britain", the ancient iron ship towed over the pontoon and the water then forced out of the compartments again. In this way the "Great Britain" weighing 1400 tons was lifted out of the water and secured by steel wires and chains on the top of the pontoon. The pontoon with the steam ship appearing to be somewhat precariously balanced on her back, was then towed to Port Stanley and made ready for the homeward tow of 7,600 miles.

The return tow code name "Voyage 47" began in April 1970. The first 5,000 miles of the tow completed, involved a bunkering call at Montevideo and subsequent passage across the South Atlantic towards Cape Verde Islands. The last part of the tow followed the normal shipping lanes past Madeira and northern Spain and finally into home territorial waters, to Avonmouth. After removal from the pontoon and certain minor repairs the "Great Britain" completed her passage up the Avon on the high tide of July 5th 1970, and amid local celebrations. The great iron ship had returned to the floating harbour and the Great Western Dock.

Bristolians have now witnessed the final chapter of one of the most remarkable salvage operations ever attempted. In many ways, the

return of the ship to Bristol is only the end of the beginning.

During recent months it has become clear that restoration of the ship is a practical proposition and that when completed she will be an asset to Bristol in many ways.

The "Great Britain" is of historic importance and will be a permanent reminder of the traditional links Bristol has with maritime trade and ship-building. Its tall masts will be a fitting memorial to the long history of the City Docks. In January 1972 it was announced that the ss "Great Britain" Project would henceforth consider only the Great Western Dock in Bristol as a suitable permanent home for the ship.

Since July 1970 work on preservation and restoration has been steadily going forward in the dock in which she was originally built.

The aims and objects are to restore the Brunel ship to its original appearance of 1843 and enough of the interior to enable the visitor to visualise what life was like on board this famous Victorian liner.

The restoration will include :-

- a. Provision of six masts, funnel and deck fittings, and decorative work on the bow and stern.
- b. Restoration of the first-class public rooms in the after part of the ship.
- c. Restoration of up to six cabins.
- d. Construction of a facsimile of the engine, the great driving chain and the original six-bladed Brunel propeller.
- e. Reconstruction of the officers' and crew's quarters.

Special attention has been given to the bows of the ship, the external appearance of which has now been almost fully restored. The fascinating figurehead and trailboards in their original colours, topped by the 42 foot bowsprit jutting out over the harbour. Another major landmark to be completed is the installation of the funnel which has been manufactured by Messrs Beaumont's of Warminster as a gift to the Project.

Before we leave this ship some of you might like to know the original construction data:-

HULL.	Length.	322 ft.
BEAM.	Width.	50 ft 6 inches.
HEIGHT.	Main deck to keel.	32 ft 6 inches.
WEIGHT.		3,270 tons. (unloaded 1,930 tons).
COST OF CONSTRUCTION.		£117,295.
ENGINE.	Actual rated horse power	1,000
	Actual developed.	600
Total Weight.		340 tons.
Cylinders.	4 cylinders. Inverted 'V'	88" Diameter.
Stroke.		6 ft.
R.P.M.	Maximum	20 R.P.M.
Main Crankshaft.		17ft long 28" diameter.
PROPELLER.		15 ft 6 inches six blades.
R.P.M.		55.
WEIGHT.		77 cwt.
Fuel capacity.		1,100 tons coal
Water capacity.		200 tons.
Cargo capacity.		1,200 tons.

Passenger accommodation 360 including 26 staterooms with one bed.
113 staterooms with two beds.

Crew complement 130

Maximum speed 12½ knots.

The largest vessel afloat.

TECHNICAL INNOVATIONS.

The first ocean-going ship to have :-

- a. an iron hull
- b. a screw propeller
- c. a six bladed propeller.
- d. a semi-balanced rudder.
- e. wire rigging.
- f. an electric log.
- g. a double bottom.
- h. watertight bulkheads.
- i. folding masts.
- j. a hollow wrought iron propeller shaft.
- k. hinged anchor.

31 times around the world.

37 times around the Horn.

1½ million miles.

Visitors are always welcome every day from 10 a.m. until 6 p.m. and the revenue from admission and sales of souvenirs makes a valuable contribution towards the cost of restoration which will amount to £250,000 spread over the next six years.