

THE LIFE, DEATH AND RESURRECTION OF THE ss *GREAT BRITAIN*

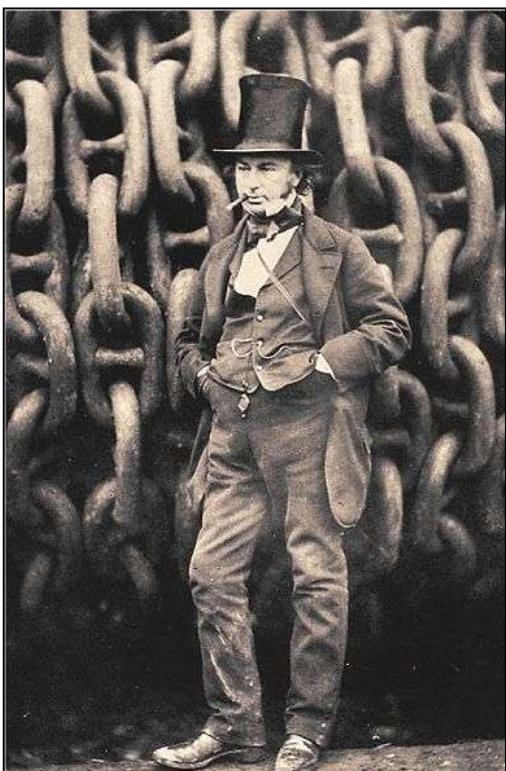
By Ken McNaughton

This is the story of two men and a ship. **Isambard Kingdom Brunel** was chief engineer for the great Western Railway from London to Bristol, and designer of the Clifton Suspension Bridge and the ss *Great Britain* (Fig. 1). The ship had a long and productive career, was scuttled in the Falkland Islands in 1937, towed back to Bristol in 1970 and has since won a string of awards as an outstanding museum. I visited the ship in June 2008. **John Ross McNaughton** was a working-class Scot who left for Australia with his wife and one-year old daughter in 1838, started a dynasty in Melbourne, and returned to the United Kingdom with his wife and 14-year old son on board the ss *Great Britain* in 1874. He was my great great grandfather.



Figure 1. The ss *Great Britain*, with six masts and one funnel, on 26 June 2008 in the dry dock where she was launched by Prince Albert on 19 July 1843.

ISAMBARD KINGDOM BRUNEL



Isambard Kingdom Brunel (Fig. 2) was born 9 April 1806 to Sophia Kingdom and Sir Marc Isambard Brunel [1]. At age 20 he was appointed chief assistant engineer of the Thames Tunnel—his father's greatest achievement—which still runs beneath the river from Rotherhithe to Wapping. In 1830, when he was only 23, Brunel's design was adopted for the Clifton Bridge, to span the deep gorge of the Avon River and unite Bristol in the east with the country to the west (Fig. 3). Work started in 1831 but was not completed until 1864 due to lack of funds. Spanning over 700 ft (213 m) and nominally 200 ft (61 m) above the river it had the longest span of any bridge in the world at the time of construction.

Figure 2. Isambard Kingdom Brunel against the launching chains of the *Great Eastern* in 1857 (photo by Robert Howlett).

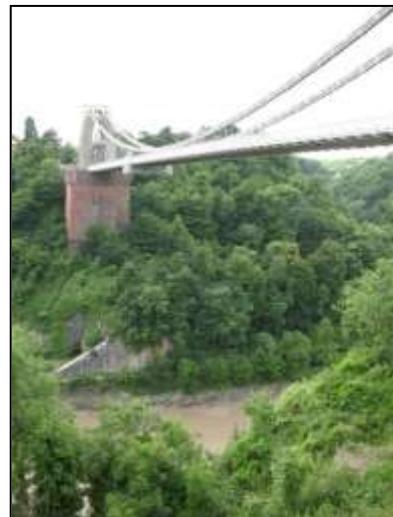
In 1833 at age 27 Brunel was appointed chief engineer of the Great Western Railway to link London with Bristol and he surveyed the entire length of the route himself. The railway contained a series of impressive

achievements, including soaring viaducts, specially designed stations and vast tunnels, including the Box Tunnel, which at 1.8 miles long (2.9 km) was the longest railway tunnel in the world at

the time. The London-to-Bristol rail line opened in 1841; Brunel designed the present Paddington station, which opened in 1854.

Figure 3. The Clifton suspension bridge across the Avon Gorge.

Despite all this expansion westward, Brunel had bigger things in mind—trans-Atlantic shipping. He used his prestige to convince his railway company employers to build the *Great Western*, at the time by far the largest steamship in the world. Built of wood and powered by sail and paddlewheels, she first sailed in 1837 and cut the time to New York in half. Next came the *Great Britain*. Much larger, she was the first iron-hulled propeller-driven ship to cross the Atlantic Ocean.



GREAT BRITAIN 1843-1875

A lock had been built in the Avon River at Bristol, along with a bypass channel, to create a floating harbor. The dock was completed in 1839 and was the first place in the world where all the processes associated with modern iron ship-building came together on one site. It was here that the Great Western Steamship Company (GWSSC) decided to build a dry dock to construct the world's first great ocean liner [2]. At the heart of the ship was the great engine, which supplemented the power of sails on six masts and made scheduling trips much more reliable. Stokers worked in four-hour shifts, each shoveling about a ton of coal into the boilers, which generated steam to drive four huge pistons and turn a giant wheel (Fig. 4); this motion was geared to turn the propeller shaft (Fig. 5).



Figure 4. Steam drove four pistons to turn this giant wheel in the *Great Britain*.

In 1850, the GWSSC sold the *Great Britain* to Gibbs, Bright & Co. Gold was discovered in Victoria in 1851 and, in 1852, the *Great Britain* set sail on its first voyage from Liverpool to Melbourne, while 630 passengers waved goodbye to friends and family (Fig. 6). The trip was supposed to take 60 days. The company made several changes to adapt the ship for sailing to Australia. They replaced the original rudder, propeller and engine and added a second funnel (until 1857). By building a deckhouse to cover the entire top deck, they increased capacity to 700 passengers. In 1857 a device was fitted to lift the propeller out of the water to reduce drag while under sail. Paintings of the ship between 1852 and 1882 show the masts reduced from six to four to three. Between 1856 and 1858 she carried troops for the Crimean War and the Indian Mutiny.

JOHN ROSS MCNAUGHTON

John Ross McNaughton was born in Edinburgh in 1814 [3], and set out for Australia with Agnes Stirling and their one-year-old daughter Jane in 1838. They settled in Melbourne, where John worked at various trades and raised a large family [4]. By 1874, he was a well known figure in town but his health had deteriorated. John decided to take a trip back to Scotland with his wife and 14-year-old son, Colin, who was to be educated for the medical profession in Edinburgh [5].

They sailed on the *Great Britain* on 6 February 1874, bound for Liverpool, with provisions for 390 adults [6].

Figure 5. See the people center bottom to gauge the size of the 15-ft (4.6-m) diameter propeller.

In 1852 the *Great Britain* broke her trip to Australia at Cape Town to load coal and this was the route that John took from Greenock to Australia in 1838. However, there is a painting of the *Great Britain* rounding Cape Horn on her way home from Australia in 1873. We are told that the *Great Britain* made 32 trips to Australia and “sailed around the world 32 times,” so it is most likely John and his family sailed from Melbourne to Liverpool via Cape Horn.

The “clipper route” was the traditional route sailed by clipper ships between Europe and Australia. It ran from west to east through the Southern Ocean to make use of the strong westerly winds of the Roaring Forties. Many ships and sailors were lost in the heavy conditions along the route, particularly rounding Cape Horn. The clipper route fell into commercial disuse with the introduction of steam ships and the opening of the Suez (1869) and Panama Canals (1914). However, it remains the fastest sailing route around the world and is still used for some yacht races.



The route from England ran down the east Atlantic Ocean to the Equator, which took about 21 days, but an unlucky ship could spend an additional three weeks crossing the doldrums. The route continued south through the western Atlantic, passing close to the easternmost portion of Brazil then curving south east to cross the Greenwich meridian at about 40 degrees south, 6,500 miles (10,460 km) from Plymouth. A good time for this run would be 43 days. Once into the forties, a ship was also inside the ice zone, where there was a significant chance of encountering icebergs. The Great Circle from Cape of Good Hope to Australia curves down to 60 degrees south, where the winds are also strongest, so ships' masters would go as far south as they dared.

Figure 6. The sign on the wharf by the *Great Britain* in Bristol today advertises the trip to Melbourne, 12,489 miles (20,100 km) away.

The return passage continued east from Australia, usually staying north of the latitude of Cape Horn, 56 degrees, apart from dipping further south at this point. The strong winds and currents that flow perpetually around the Southern Ocean are funneled by the Horn into the relatively narrow Drake Passage. Coupled with turbulent cyclones coming off the Andes and the shallow

water near the Horn this creates violently hazardous conditions for ships. We have no record of what the McNaughtons saw on this voyage; one can only imagine.

Figure 7. Steerage accommodations.

The McNaughtons returned steerage on the *Durham*, arriving in Melbourne on 17 March 1876 [7], so it's possible the trip from Melbourne to Liverpool was also by steerage.

There were 345 passengers in second and third class mid steerage on the trip to Liverpool (Fig. 7). They arrived on 16 April [8], after a trip of 70 days.

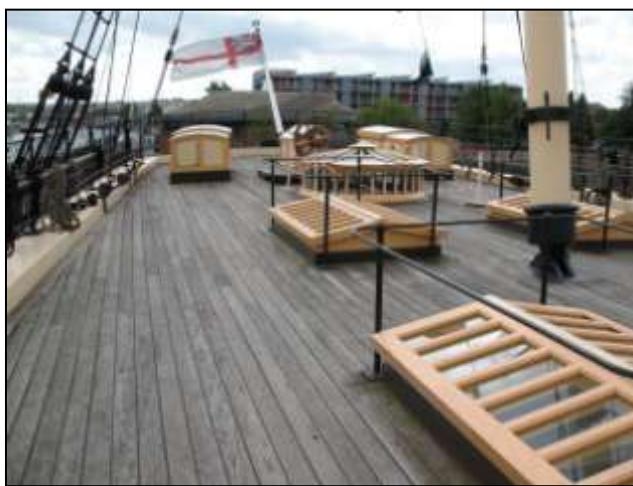


Figure 8. Only first class passengers could roam aft of the main mast to the helm.

In 1852 a steerage passenger wrote: "Our berths are pretty well ventilated, but very confined and dark. The ... (r)oom ... allotted to us holds four persons. The distance between our berths for the purpose of dressing is 2 ft broad (0.6 m) and 6 ft long (1.8 m), so confined that only one can dress at once, and even in this small space we have to build part of our luggage." Steerage passengers were allowed on deck but only first class passengers were allowed aft of the main mast (Fig. 8).

In October 1873 the steerage fare from Liverpool to Melbourne was 15 guineas.

There were all sorts of privileges for first class passengers, including a beautiful promenade deck, an indoor seating area with skylights and a view of the ship's wake, and a large dining room with a luxurious menu. In 1864 a passenger listed all the animals carried on board for food—one cow (Fig. 9), 30 pigs, 500 chickens, 400 ducks, 100 geese, and 50 turkeys.

Figure 9. A cow was kept on deck to provide milk for the tea of first class passengers.



GREAT BRITAIN 1875-2008

The *Great Britain* completed her last voyage as a passenger ship in 1875, from Liverpool to Melbourne. Anthony Gibbs and Partners bought her in 1882, removed the engine and funnel and converted her to sail only, leaving three masts. Now a windjammer, the *Great Britain* made the first of three voyages to San Francisco. She was damaged off Cape Horn in 1886 and sheltered in the Falkland Islands, but repairs in Port Stanley were considered too costly and she was sold to



the Falkland Islands Co. to store coal and wool. During the First World War she supplied British warships with coal but by 1933 she had become too old even to be used for storage. The *Great Britain* was towed to a remote cove, scuttled in a shallow seabed and abandoned.

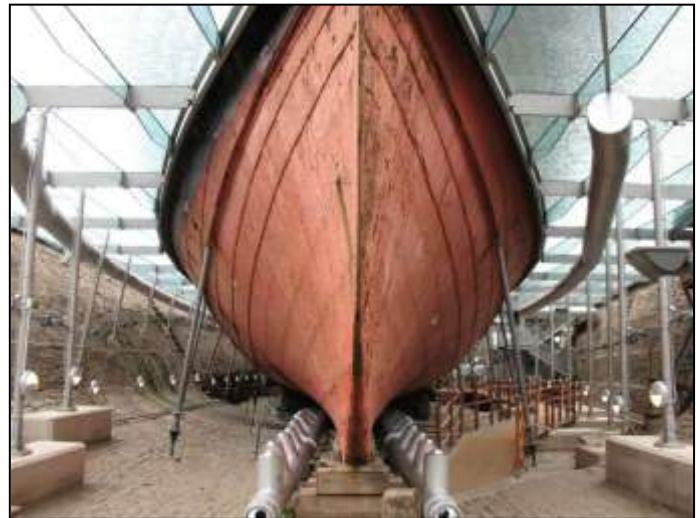
Figure 10. The restored *Great Britain* appears to be floating on the water-covered glass ceiling of her climate-controlled dry dock.

In 1969 plans commenced to salvage the *Great Britain* and on 13 April 1970 she was re-floated to be towed 8,000 miles (12,875 km) back to her birthplace in Bristol. The restoration took 35 years.

To preserve the corroding hull,

the portion below the waterline was encased with a glass ceiling covered in water. This gives the illusion the ship is floating on water (Fig. 10), while the entire hull below the waterline is surrounded by dry air (Fig. 11).

Fig. 11. The lower portion of the hull is encased with a glass ceiling and dry air is supplied through the silver ducts.



CONCLUSION

I discovered details on twelve ships that brought my ancestors from England and Scotland to Australia in the 19th century but was not able to find paintings or photographs of any of them (Fig. 12). It was thrilling to find the ship that carried my great great grandfather back to his home country in 1874 (Fig. 13) is not only alive and well but she won the biggest arts prize in the United Kingdom—the Gulbenkian Prize for Museum of the Year in 2006.

Fig. 12. The intrepid author flew the Atlantic to rendezvous with the *Great Britain* 26 June 2008.



REFERENCES

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7. Shipping records at Public Records Office, City Search Room, Melbourne, Fiche 342, 1996.
8. Cruikshank, Tom, private communication, 23 December 2011.

Figure 13. This painting shows what the *Great Britain* might have looked like under sail in 1874.

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