

## Henry Marc Brunel – Engineer

Henry Marc Brunel was the younger son of Isambard Kingdom Brunel (Brunel) and his wife Mary, née Horsley, (Mary) and a grandson of Marc Isambard Brunel (Marc) and Sophia, née Kingdom. Henry had an older brother, Isambard, (Isambard) born on the 21<sup>st</sup> May, 1837, he himself was born at 18 Duke Street, Westminster on the 27<sup>th</sup> June, 1842. The third sibling was Florence Mary who followed some years later. Henry was christened at St. Margaret's Church, Westminster Abbey just a few minutes walk from the Brunel's home. The house, which looked out over St. James' Park, has long since been demolished. Duke Street now lies beneath the Treasury and Foreign Office buildings.

The Brunel's home, which doubled as an office, was ideally sited: it was just around the corner from Great George Street, the nexus of the engineering profession. Thomas Telford, Robert Stephenson, John Hawkshaw, William Barlow and many others over the years had their offices, and frequently their homes, there.

Marc was an agnostic, possibly an atheist, despite his Catholic roots in Normandy. As the second son of a farming family, he was originally intended for the church but such a vocation was not for him: he became an engineer. There is no evidence of any religious affiliation after he arrived in England in Marc's diaries or letter books. On the contrary, he seems to have been, if anything, a humanist. He attended the occasional dinner of the Humanist Society.

Brunel married a devout Anglican. Mary brought a very Protestant ethos to the family, which was reflected in Henry's private life and in his brother's public one. Isambard became an ecclesiastical lawyer who later in his career became Chancellor of the Diocese of Ely.

This account of Henry Marc Brunel's life begins in 1858, shortly before he left Harrow School. By then he was already showing an interest in his father's work. During school holidays, and on occasion in term time, he accompanied Brunel on his travels, particularly in the West of England and South Wales. He saw the bridge at Chepstow being built, he was present when the first span of the Tamar Bridge was lifted into position in January, 1858, also he acted as a "runner" and messenger between Duke Street and Millwall during the struggles to launch the Great Eastern. Brunel had other business to deal with in Westminster which meant he could not be at the dockyard all the time. Henry kept him abreast of what was happening in John Scott Russell's shipyard where the vessel was being built.<sup>1</sup> On a Sunday father and son would go together to Millwall after lunch to see how the "Great Ship" was getting on.<sup>2</sup> Later in January, again on a Sunday, not only were Brunel and Henry at Millwall but also Mary and Sophia Hawes, Henry's aunt. The tide was particularly high, the hull was pumped out of water and the hydraulic rams were put to work. The Great Eastern was finally launched sideways into the Thames. Not only had Brunel designed the largest ship ever built, he also decided to launch it sideways into the river, unprecedented for any ship of magnitude, because of its great length relative to the width of the Thames.<sup>3</sup> Henry left Harrow in the summer of 1858 and went to Geneva to improve his French. Unlike his father and grandfather, he was not fluent in the language.<sup>4</sup>

By this time, Brunel's health was deteriorating rapidly. The family went to Egypt in the hope that a warmer climate might help Brunel recover his health. They returned to England in the early months of 1859 by way of Naples and Rome, arriving back in Duke Street in May.<sup>5</sup>

After their return Henry spent more time with his father at Millwall where problems with the Great Eastern persisted, the difficulties went beyond the circumstances surrounding the launch, and at Saltash where the Tamar Bridge was being finished out. Brunel got no better: he died on the 15<sup>th</sup> September, 1859. He was only 54 years old: Henry's 17<sup>th</sup> birthday had been the previous June. Henry could not have lost his father at a worse time. The emotional impact of the loss was to colour and influence his life for many years to come.

If anything, the loss of his father strengthened Henry's desire to become an engineer. His lack of French barred him from getting a technical education in France like his father and grandfather. In the 1850s Britain was far behind France in the academic training of engineers, although what Great George Street could offer an aspiring young man was without equal in continental Europe. Engineering training in Britain was, however, less theory based, being decidedly "hands on" when compared with France.

Henry started attending lectures as an unmatriculated student at King's College, London studying subjects related to engineering. In addition, he took private tuition in mathematics. None of this work was intended to lead to a formal qualification such as a degree, although there were examinations to pass if he was to progress.<sup>6</sup>

Once he had completed his first term's study, he was free to take a holiday. He travelled by train from Paddington on the 28<sup>th</sup> June, 1860 to spend a fortnight with William Froude and his family at Paignton in Devon.<sup>7</sup> Froude had been one of Brunel's closest colleagues. He had supervised the construction of part of the South Devon Railway and conducted rolling tests on a model of the Great Eastern. He shared this status with Daniel Gooch, Chief Locomotive Engineer of the Great Western Railway and Robert P. Brereton a talented civil engineer who contributed much to the design, amongst other projects, of the two major rail bridges, one over the Wye at Chepstow and the other, which has already been referred to, over the Tamot at Saltach. All three were to figure in Henry's career as an engineer, but Froude was much more than that. He replaced Brunel as Henry's father figure and became his informal professional tutor. This link with Froude was the most important personal relationship in his life: Henry never married. He also formed friendships with members of the Froude family, in particular Edmund (Eddie) and Isobel (Izy), two of Froude's offspring.

Henry punctuated his studies at King's with visits to sites and occasions of engineering interest. Such events could provide useful contacts as well as professional instruction. The launch of the Warrior, the Royal Navy's first iron warship, on the 28<sup>th</sup> December, 1860 was followed by celebrations at which Henry met Sir William G. Armstrong, an old friend of his father's, who was prospering as a manufacturer of guns as well as hydraulic equipment. He had factories at Woolwich and at Elswick, Newcastle-on-Tyne.<sup>8</sup>

Henry was with Froude at the Institute of Naval Architects when he lectured on the rolling of ships. He visited Woolwich Arsenal following his meeting with

Armstrong, a gunpowder mill at Waltham Abbey and the Royal Dockyard at Chatham where he saw the Royal Yacht, the Victoria and Albert, among other vessels.<sup>9</sup> Froude often accompanied him and it is certain that Henry benefited from his advice.

Henry left King's in the summer of 1861 and on the 14<sup>th</sup> June, 1861 he went with his mother, Mary, to see Sir William Armstrong at Newcastle. The purpose of the visit was to arrange his premium apprenticeship at Armstrong's Elswick works.<sup>10</sup>

The Great Steamship Company offered Henry and Froude free passage from Liverpool to Quebec. This was an opportunity too good to miss. The two of them joined the ship at Liverpool. The Great Eastern slipped her moorings on the 27<sup>th</sup> June and set sail for Canada. Froude and Henry kept records of the ship's speed, the revolutions per minute of the paddle wheels and the screw, steam vacuum and barometer pressures, the coal consumption and the rolling characteristics of the vessel.<sup>11</sup> After sightseeing in Canada and the United States, Henry visited Niagara Falls, Toronto, Philadelphia and Boston, he returned to England by ship from New York in time to start his premium apprenticeship at Elswick on 13<sup>th</sup> September.

The apprenticeship was to be a conventional training course with periods spent in the pattern shop, foundry, machine shop, assembly shop, drawing office and a time on outside erection that is assembling equipment on the customer's premises.<sup>12</sup>

Although when he was at Elswick Henry put in a reasonable day's work, he was easily distracted. One of his abiding interests was the Great Eastern. He followed the ship's every move. Setbacks, they were numerous in the ship's

career, whether of an engineering or commercial nature, always drew a response from him. Even her presence in port was sufficient to justify downing tools in the factory and visiting the ship in Liverpool or elsewhere.

A newspaper report that the Great Eastern was in harbour at Cork having lost both her paddles and steering gear drew an immediate response, even though Henry had only started at Elswick three days earlier, was sufficient to get him to go to Ireland to find out what was going on. He was away for more than two weeks and was not back in Newcastle until the 7<sup>th</sup> October.<sup>13</sup>

Henry's training continued as he moved through the various workshops in the factory. At Christmas and on other occasions he took extended holidays at Duke Street and, more particularly, in Paignton. Over the Christmas period in 1861 he was away from his work bench for just one day short of two calendar months. His interest in the Great Eastern was sustained and he continued to visit her whenever he could.<sup>14</sup> If his physical presence was not possible, he maintained contact by letter. He followed up a letter in the Globe newspaper that the Great Ship was being repaired on a gridiron with a letter to determine exactly what was being done, adding that he was concerned that Captain Walker had been replaced.<sup>15</sup> Henry found certain aspects of factory life were not to his liking. A fellow premium apprentice, Mat Atkinson's conversation was "not that of a gentleman .....I do not mean that it is not what I have heard often at school and in a less degree I am ashamed to say joined in, but it certainly is more undesirable in men of our age. Instead of being "Yea" or "Nay" it is "Yes or no you b.....r".<sup>16</sup> Armstrongs was his first experience in the world of manual work in an industrial environment. One would not be

surprised if his fellow apprentices and workmates saw Henry as a “stuck up prig”.<sup>17</sup>

<sup>1</sup> Henry Marc Brunel Diary, University of Bristol Library, Special Collections Department, 5<sup>th</sup> January, 1858. “Diary”

<sup>2</sup> Diary 10<sup>th</sup> January, 1858.

<sup>3</sup> For more detail of the construction and launch of the Great Eastern see Isambard Kingdom Brunel, L. T. C. Rolt, ch. 13, 234 – 245, ch. 14, 266 – 298 in the Readers’ Union edition, 1957; Diary 31<sup>st</sup> January, 1858.

<sup>4</sup> Henry Marc Brunel draft obituary, DM 1307. 2V, University of Bristol Library, Special Collections Department 1 “Draft obit.”

<sup>5</sup> Draft obit. 1.

<sup>6</sup> Draft Obit 1; Diary 27<sup>th</sup> June, 1860, 1.

<sup>7</sup> Diary 28<sup>th</sup> June, 1860.

<sup>8</sup> Diary 28<sup>th</sup> December, 1860.

<sup>9</sup> Diary March, April 1861, 37; 23<sup>rd</sup> January, 18861, 60; 24<sup>th</sup> January, 18861, 60; 25<sup>th</sup> January, 1861, 60; 28<sup>th</sup>, 29<sup>th</sup> January, 1861, 62.

<sup>10</sup> Henry Marc Brunel Letter Book, University of Bristol Library, Special Collections Department 02099 HMB to Froude 18<sup>th</sup> June, 1861. “Letter Book”

<sup>11</sup> Letter Book 02111 HMB to Isambard 27<sup>th</sup> June, 1861; 002113 HMB to ? 5<sup>th</sup> June, 1861; Diary various dates between 17<sup>th</sup> June and 11<sup>th</sup> July, 1861; 119 et seq.

<sup>12</sup> Diary 14<sup>th</sup> September, 1861.

<sup>13</sup> Diary 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup> September, 1861, 187, 188, 189; Letter Book 02156 HMB to Isambard 18<sup>th</sup> September, 188888861.

<sup>14</sup> Letter Book 0223 4HMB to Mrs. I. K. B. 8<sup>th</sup> December, 1861; Diary 19<sup>th</sup> February, 1862, 39.

<sup>15</sup> Diary 18<sup>th</sup> February, 1862, 39, 24<sup>th</sup> February, 1862, 42; Letter Book 02292 HMB to T. Bold 24<sup>th</sup> February, 1862, 02297 HMB to J. Rorison 27<sup>th</sup> February, 1862, 02301 HMB to T. Bold 12<sup>th</sup> March, 1862.

<sup>16</sup> Diary 12<sup>th</sup> March, 1862, 51, 52.

<sup>17</sup> < Reference Lost >