

# Wargrave Local History Society

Latest News - February 2025

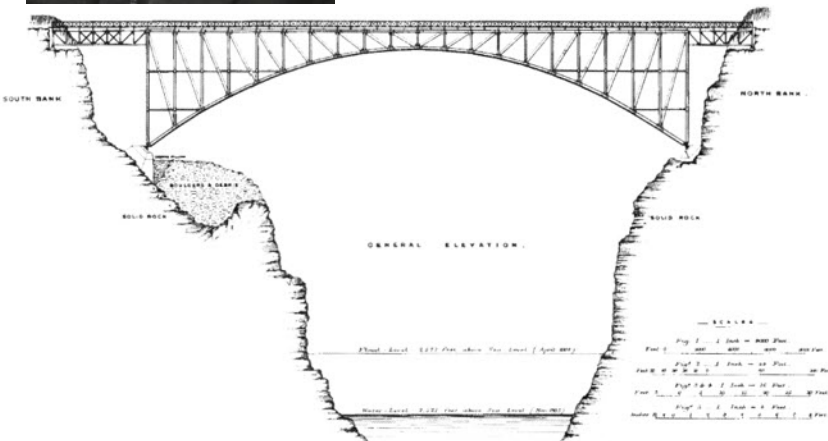
## The Life and Travels of the Wife of a Bridge Engineer - Julia Freeman

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*The Life and Travels of the Wife of a Bridge Engineer* was the fascinating subject when member Julia Freeman gave a presentation to the Wargrave Local History Society's February meeting. Her husband Anthony Freeman was the third generation of bridge builders in the highly respected firm, Freeman, Fox and Partners, with many notable projects worldwide.

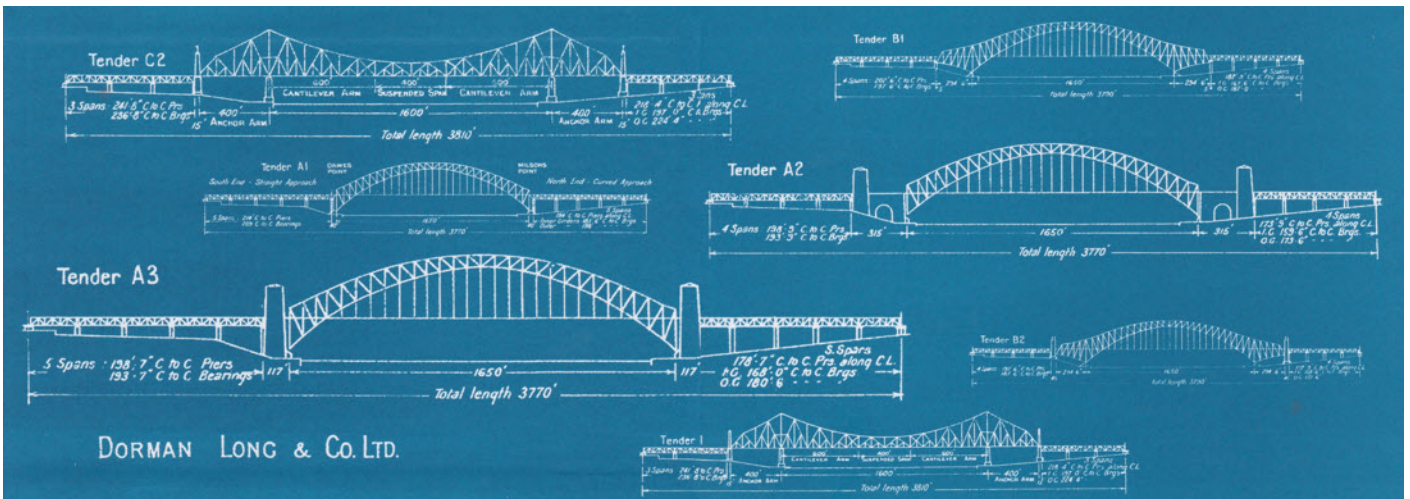


Julia began by outlining the family's heritage as civil engineers. Anthony's grandfather, Ralph Freeman (*left*) was born in November 1880, in North Finchley, London, and following his schooling there attended the City & Guilds College to study engineering. In 1901, he joined Douglas Fox and Partners as assistant engineer. It was a prime time to join the profession, as there were lots of interesting things happening across the world, each having its own challenges. One of the first that Ralph was involved in was the Victoria Falls bridge, in what was then known as Rhodesia (now Zimbabwe), where his task was to make the calculations needed in the design of the structure. It was a complex scheme (*below, left*), with the bridge span set high above the gorge, the method used being a braced steel arch over the Zambezi river (*below right*).



Bridge building in this kind of location is not without its hazards, and one of the engineers had a nasty fall into the gorge whilst carrying a steel rope over it using a 'flying fox' apparatus. Ralph, however, was much more interested in the calculations needed to ensure the completed bridge was safe to carry the load - in this case a railway line - over the top. It was whilst working on the Victoria Falls bridge that he was also appointed as a consultant to the Beit Trust, who were to build further bridges in Rhodesia and South Africa. He became the engineer for the Otto Beit bridge, which opened in 1939 (another crossing of the Zambezi), the Beitbridge over the Limpopo and the Birchenough Bridge, which crosses the River Sabi.

In 1921, Ralph became senior partner of Douglas Fox & Co, and was assigned to Dorman Long and Co as the consulting engineer for the Sydney Harbour Bridge. The idea for a crossing at this point had been put forward by an Australian engineer, John Bradfield. Many proposals had been prepared as part of the tendering process, but it was Ralph Freeman's design that was chosen (although John Bradfield later claimed it to be his design - he had not made the calculations, but just checked them - the Australians being reluctant to admit an Englishman had designed it!).



The bridge (*the design A3 above*) took 8 years to build, and opened in 1932. During the time it was being built, Ralph's son (also called Ralph) was studying at Worcester College, Oxford. He was desperate to see the work when the gap was closed in the arch, and was able to get a special dispensation from the college to do so. In those days that involved travel by boat, taking about 3 weeks each way - the aerial photograph (*left*) shows it at this stage, before the deck was suspended below it. Julia recalled that in 1986 (long before the bridge became a tourist attraction) she and Anthony were able to visit Sydney, and having contacted the resident engineer, "scramble over the bridge".

The company became Freeman, Fox and Partners in 1938, and Ralph Freeman (senior) was knighted in 1947. He died in 1950. Meanwhile, his son Ralph (*right*) (born in 1911), had graduated in 1932, then spending 7 years in South Africa and Rhodesia on various projects. When war broke out in 1939, he returned to the UK, and became attached to the Royal Engineers, where he designed temporary bridges (similar to Bailey bridges), for which he was awarded the MBE for Military Services in 1945. His son was born the following year, but the boy's mother said it was too confusing to have yet another Ralph in the family, so he had to have another name - Ralph Anthony Freeman. Ralph Freeman (jun) (who Julia knew as 'Dad') became a partner in Freeman Fox and Partners in 1947, and was then appointed by George VI as a consultant to the Sandringham estate, which continued on Queen Elizabeth's accession - Ralph saying that he was "the Queen's plumber"!



He was asked to help with the design of the Festival of Britain, which took place in 1951, and for which he was awarded a CBE, and this was followed in 1964 by a CVO - he had become senior partner of Freeman Fox in 1963. Ralph was at the forefront of the design of many suspension bridges - being described as 'a lovely man, kind and gentle, but ever so clever' - his son taking after him. The suspension bridges included the first Severn Crossing, which opened in 1966, having a span of 998 metres, and the second Severn Crossing, 30 years later. That is a cable stay bridge, and whilst the overall span is 1200 metres, the main span is slightly less than the earlier bridge. This was followed in 1981 by the Humber bridge - its 1410 metre span making it the longest pure suspension bridge in the world. Overseas projects also featured in his work, with the Auckland Harbour Bridge in New Zealand and both the first Bosphorus bridge in 1973 and the second one



*The first Severn Crossing (left) and the Humber Bridge (right)*

12 years later. However, Ralph's work was not just in the design of bridges, one of his other projects being the cross harbour tunnel in Hong Kong (*right*). This provided a vital connection, as although there were also ferries, which provide a cheap form of transport, the passage was slow. He became President of the Institution of Civil Engineers, and his expertise was called upon in 1970 when the box girder bridges at Milford Haven and over the river Yarra at Melbourne, Australia, both collapsed during their construction. Despite the extreme pressure he was under, Ralph still found time to sit and talk with members of the family.



Ralph Anthony Freeman (*left*) was working on the Avonmouth bridge - part of the present M5 just west of Bristol, when he and Julia met on the steps of Redland parish church. She admitted that at the time she did not know what a civil engineer did - but it was not long before she picked it up - and when in 1970 she met with nursing friends in Cambridge, and the bridge collapses were current news, one of them commented that Julia 'seemed to know a lot about bridges' - she just said that she had heard 'from this chap at church'!

Box girder bridges were made in sections that were then lifted into place, and members of the family were able to scramble inside, Julia said. Her scrapbook includes Anthony's letter of appointment as assistant engineer at a salary of £1500 per year - a little later the steel erectors went on strike for more pay, and managed to get £80 per week - substantially more than the engineer.

In 1974, they moved to London, to work in the office at Freeman Fox, and it was during this time that their first daughter, Sarah, was born. There were several suspension bridges being built at the time, and Julia had been able to get to the top of the tower in 'a cranky crane', and then walk down the cable with only a netting to the side, and 'not much below'. On another occasion, driving into London over the Paddington flyover, the car screeched to a halt at the side of the road. Anthony had worked on the bridge after leaving university, and had put a magnet on it to measure the expansion at one of the joints, and wondered if it was still there. He leaned over the parapet - yes - so he retrieved it!

He was, however, anxious to get onto a site, and so Freeman Fox arranged for him to go to Hong Kong, where he worked on the elevated section of the mass transit railway. Hong Kong was a lovely place to live with their 13 month old daughter- although when Julia and Anthony went for 3 weeks to visit family members in Capetown, and Sarah spent time with Julia's mother in England, she seemed somewhat uncertain who Anthony and Julia were when they returned! Whilst in South

Africa, they had been able to visit Rhodesia and make a triangular trip in a light aircraft to visit several of the bridges that Anthony's grandfather had worked on.

The Hong Kong placement was fairly short, as Anthony was already committed to work in Germany, at Mainz. It was here that their son Ralph Mark (Julia referred to him as their Deutsche Mark) was born. The family then returned to the UK, where the old Britannia bridge from Wales to Anglesey was having to be rebuilt following a fire in 1970. The box girders were being replaced by steel arches to carry the railway, but Anthony's job was to add a deck above that to carry a road (*right*). The work had to be done at night or weekends, when the team could take possession of the railway. The family were here for 2 years - but Julia did not learn any Welsh, although Sarah's teacher, Miss Jones, said that it was shame when they had to leave, as Sarah could ask questions in Welsh - as the rest of the family could not, it did not help much!



After the Welsh contract, the family moved back to London, and Anthony set up his own engineering company. His work was not only on bridges, and for example included a colliery headframe (*left*). It was a serviceable, if not particularly attractive, installation at Thorne, near Doncaster. Anthony would travel there to work during the week, returning to London for the weekends. Apart from his work, he was an innovative designer, suggesting a way to increase the storage in the ceiling of their 2 bedroom flat. Julia was not keen on this at first, but Anthony went ahead and the ingenious solution worked, keeping the shelves at the proper angle. By this time, their second daughter, Anna, had arrived, and for the children he developed a perspex play area which the children could access out of the bedroom window, and make as much mess as they liked. The area below this perspex area even provided shelter for their bicycles! After 2 years in London, the family moved to Wargrave, Anthony working for Mabey & Mabey, who specialised in Bailey type bridges.

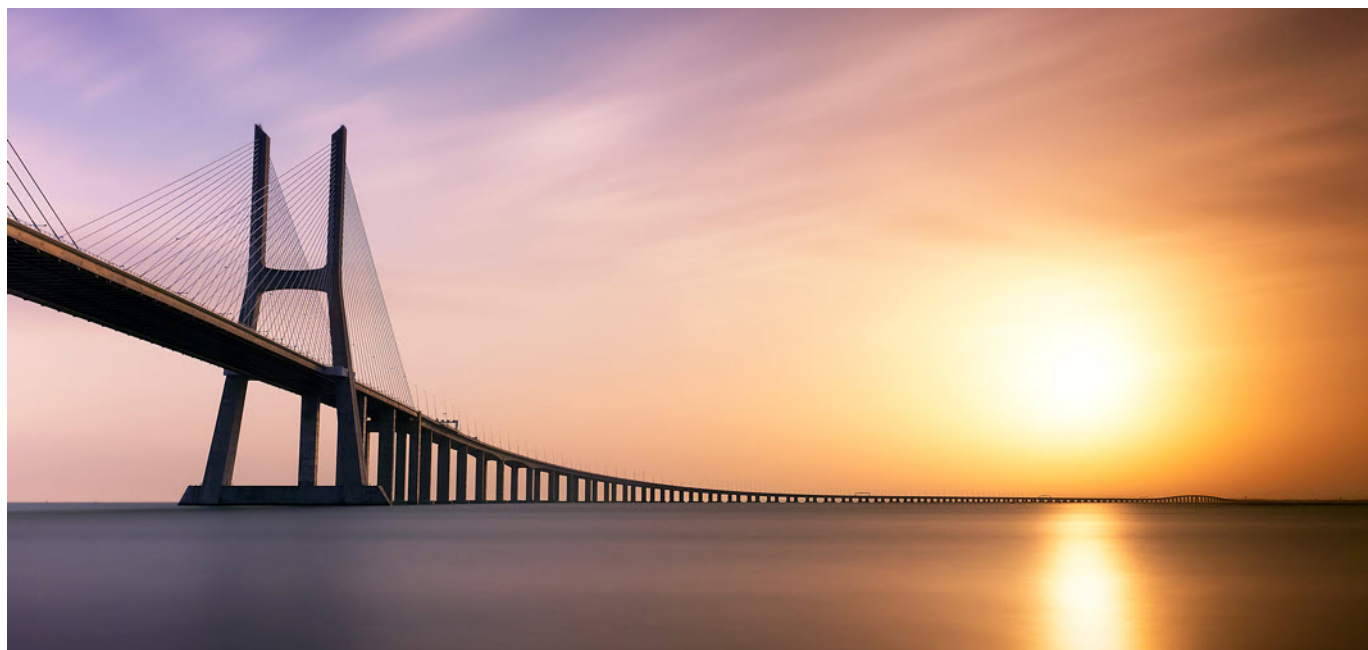
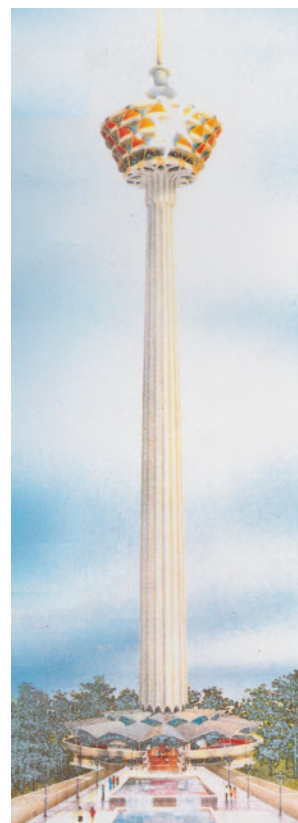
In 1985, with 3 children in tow, the family moved to Bangkok. Anthony's project there was the Rama IX bridge - one which (*right*) brought the ultra-modern architecture of the bridge close to the traditional Thai styles. It was the longest single stayed bridge, with a span of 450 metres. In 1986, Julia's brother got married in Sydney, and as they were already 'part way there', they were able to go, and Anthony was able to see the Sydney Harbour bridge for the first time, and Julia could have a private visit. They subsequently visited Australia each year from 2003 to 2020.



Anthony was proud of the 2 generations of his family who had preceded him as civil engineers, and so named his company 3F Engineering. It did well, and he was asked to help with the Hooghly bridge in Calcutta. It had already taken 27 years, and he was assigned to get the work moving – and managed to get it completed in 2 years.

Following that, he concentrated for a while on heavy lifting equipment. One example was a Roman amphitheatre at Nimes, in France. A temporary roof was to be put into place each October, so that operas etc could be performed during the winter months, and then removed in April for bull-fighting and similar events to take place, and Anthony designed the set of specialised cranes to enable this to happen. Whilst there he had a fall, injuring his head and breaking a leg. He was air-lifted back to Basingstoke - where he soon set up an office in his hospital bed! Another lifting assignment was in Malaysia, to lift the panels for the top of the tower in Kuala Lumpur (*right*), which the family then visited. Later, television cameras up there for the Commonwealth Games showed a bird's eye view of the city - Anna being able to say "We've been there".

Anthony was then lured back to England, from where he would oversee the building of a large bridge in Portugal, the Vasco da Gama (*below*) over the river Tagus. He was not happy with the safety conditions there, and went to Lisbon in February 1997, when it was a lovely time to go swimming in the sea. On April 10th he sent a telex to say a new procedure was being introduced and he was going to check it. Unfortunately, the workmen had not been careful enough, and had allowed rubble to impede the gantry. Several died in the resultant accident, and Anthony had severe brain damage. After 2 weeks intensive care, he was air-lifted back - first to Oxford, later the Royal Berkshire Hospital, and then Townlands, but he never recovered.



Julia said that she had been left with many happy memories of a man who liked his work and was never happier than when 'designing stuff', and wanted to share that memory with others.

For more information about the society, visit our website at <https://www.wargravehistory.org.uk>

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