

## The Tale of a Tunnel

It's no secret that the Severn Tunnel remains a vital link between England and Wales. But less familiar, perhaps, is the story of how the entire project was threatened by the waters of a subterranean spring, and was only rescued from disaster by the bravery of a Scottish diver and the inventiveness of an English music-hall artiste. Yes, the fate of this great enterprise once depended on a performer who shared the billing with a performing dog! This is how it came about.

When construction commenced in 1873 the Great Western Railway fully anticipated difficulties from the geology, and even foresaw the occasion irruption of water from the Severn. They certainly did not anticipate, however, the events of 18<sup>th</sup> October 1879 when suddenly the entire workforce fled the rock face and only just managed to escape to the surface at Sudbrook, as a torrent of fresh water suddenly burst in. Fortunately, nobody was killed, but the heading itself was entirely submerged. And so it was to remain until somebody could figure out how to retrieve the situation.

At this point, the board of the Great Western Railway brought in a dynamic contractor to oversee the construction: Thomas Alexander Walker. Walker brought new energy, and also a new work force to the project. He commandeered Cornish beam engines to pump out the waters of the Great Spring, and was determined to drain the access shaft in order to tackle the flooded heading. But beyond that he was stumped.

In the panic to escape the Great Spring a sluice door had been left open. The only way to seal it, and finally drain the tunnel, was to send a diver down. In an era when the words 'health and safety' remained two abstract nouns, Walker secured a volunteer for this perilous mission - a Scottish diver called Alexander Lambert. And so on 4th November 1880 Lambert, dressed in a brass helmet and heavy diving suit, and dragging his heavy rubber air hose behind him, attempted to walk 1,000 feet in complete darkness, clambering over rocks and debris, until he reached the door. Tantalisingly, Lambert came within 100 feet of the sluice and then had to turn back after his air-hose became snagged. And so Walker must look elsewhere for a solution.



Royal Naval Exhibition, 1891. Alexander Lambert is in the centre.

As it so happens, in 1880 the music halls of London were thrilled by a new novelty act: a sort of human whale called Henry Fleuss. With his new patent diving dress Mr Fleuss could stay underwater for two hours at a time without any need for external air tubes. 'Fleuss the Man Diver' performed twice daily at various music halls, including the London Aquarium at Westminster, and at Alexandra Palace, where he shared the bill with a performing dog.(1) For a small fee, members of the public could write messages to the diver, who would sharpen his pencil and write them a reply, which they could read through the aquarium glass. Sometimes members of the public would throw him coins to retrieve. Fleuss claimed that if only he could only eat underwater he would be able to stay submerged for many hours.

Intrigued by Fleuss's invention, Thomas Walker sent him a message (presumably by telegram, rather than through the wall of a fish tank!) and Fleuss was delighted to journey down to Monmouthshire, for it was a splendid opportunity to use his invention in earnest. Unfortunately, Fleuss was a more skilled as an inventor and entertainer than as a diver, and he too was thwarted by the Great Spring. But that was no reason for Diver Lambert not to give it a try.



On November 10<sup>th</sup> 1880, after the briefest introduction to the workings of the apparatus, Alexander Lambert donned Fleuss's mask and flimsy knapsack- his air supply - and plunged into the chill waters of the heading, amidst dire warnings not to scrape his knapsack on the ceiling of the heading, or bend one of his fragile copper pipes. With incredible bravery, Lambert proceeded through the watery darkness and finally reached the offending sluice door, and eventually managed to close the sluice. Walker must have shared Lambert's relief when, one and a half hours later, the diver returned to the surface, mission accomplished. At last Thomas Walker could drain the heading, and get on with the job of constructing the tunnel!

There followed an undignified spat between Walker and Fleuss as to who had played the greater part in saving the Tunnel. But in truth, it needed all three men to save the Severn Tunnel that day. And there's no doubt that history was made that day, when Fleuss's diving dress (the antecedent of mine rescue gear, and submarine escape equipment) allowed a brave man to achieve the impossible.



The Severn Tunnel finally opened in 1886, but the battle against the Great Spring continues. And although steam has long since given way to electricity, the pumping engines must work constantly to keep the tunnel dry. For if they ever failed, the water would reach track level in a mere 20 minutes (2) – one of the less well publicised secrets of the Severn!

(1) according to *The Times* the dog was called 'Now Then'!

(2) figure supplied by Network Rail engineers during site visit in 2007

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