

MAGNIFICENT WOMEN:

Hertha Ayrton

Hertha Ayrton, engineer, physicist, mathematician and inventor, was a pioneer in the application of science to practical engineering problems and was one of the first women to work in electrical engineering in the UK.



28 April 1854 – 23 August 1923

Early life and education

Ayrton, born Phoebe Sarah Marks, received an usually excellent education for her time. Her mother, a widowed seamstress, thought that girls needed a good education because they would have harder lives than boys. She studied with an aunt who ran a school in London, and then attended Girton College, Cambridge to read mathematics. Known to her family as Sarah, she changed her name to Hertha, inspired by a Swinburne poem.

After passing the examinations (she wasn't awarded a degree as Cambridge didn't give degrees to women at this time), Hertha returned to London to teach. She was awarded a BSc degree from the University of London and took out patents on a line divider, one of numerous inventions she would patent in her lifetime. Hertha also attended classes at Finsbury Technical College, where she met her future husband William Ayrton.

The hissing electric arc

Ayrton continued her scientific research after marriage, which was possible thanks to a legacy from her mentor Barbara Bodichon. Ayrton's work on the electric arc lamp would lead to her election as the first woman member of the Institution of Electrical Engineers (now the IET). She proved that the hissing noise made by the lamps (which worked by passing an electric current between two carbon rods) was due to oxygen coming into contact with the rods. *The Electric Arc* was published in 1902.

Although Ayrton published her results, she was not allowed to read her paper to the Royal Society in 1901 because she was a woman. She

applied for membership in 1902 but was turned down – for being a married woman. She was eventually allowed to read her own paper on sand ripples in 1904 and was awarded the Royal Society's Hughes Medal two years later.

In the First World War, Ayrton invented a fan based on her research into the movements of water and air. It was used to expel gas from the trenches, and after a struggle to get it accepted thousands were issued to soldiers on the front line.

Hertha Ayrton battled against injustice all her life, both to get her own work recognised and to enable women to take their place in society.

Further information

- www.theiet.org/resources/library/archives/biographies/ayrtonh.cfm
- en.wikipedia.org/wiki/Hertha_Marks_Ayrton

Votes for Women

Hertha Ayrton was an enthusiastic supporter of the campaign to give women the vote: she took part in the suffragette marches and looked after hunger strikers in her home. She was a friend of Marie Curie and vehemently opposed rumours that Curie's work had been carried out by her husband, stating 'an error that ascribes to a man what was actually the work of a woman has more lives than a cat.'