



# Towards a Longer History of British Women in Engineering

**Elizabeth Bruton** and **Graeme Gooday** discuss women in engineering before, during, and after the foundation of the Women's Engineering Society in 1919.

In 2019, the UK's Women's Engineering Society (WES) will celebrate the centenary of its foundation with events and activities, including an HLF-funded Centenary Trail that commemorates WES's interwar origins. But women's involvement in engineering in Britain pre-dated the foundation of WES in June 1919 by the aristocratic Lady Katharine Parsons and the upwardly mobile Caroline Haslett. Instead, then, we draw attention to the somewhat longer but less visible history of women working in British engineering.

Patricia Fara's recent book *A Lab of One's Own: Science and Suffrage in the First World War* (2018) very effectively looked at how pre-World War I campaigns for women's votes also generated opportunities for women in science and technology during the First World War. Fara gives three brief examples of women in wartime engineering: Rachel Parsons, Hilda

Hudson, and Victoria Drummond. These women's participation undeniably helped to meet the wartime manpower shortages that temporarily overrode traditional gendered assumptions about who could serve as an engineer. Yet our story begins a whole generation before the advent of the so-called Great War.

## Pre-war Female engineers

Family and kinship were important factors enabling women's contribution to engineering in the late Victorian period, and most obviously in the exciting new terrain of electrical power and lighting. The female spouse in a number of electrical engineering couples worked in supporting the electrification of the home from the 1880s, either directly in collaboration with their male engineer partner or in some cases semi-independently. Among these electrical engineering couples, women's

work was rarely given much public credit. Important exceptions arose, however, when these partnerships wrote published books together.

For example, Alice Gordon was credited as the main author of *Decorative Electricity* (1891) in the guise of 'Mrs J. E. H. Gordon', with her husband James Edward Henry Gordon contributing a chapter on fire risks, and credited as Director of and Consulting Engineer to the Metropolitan Electric Supply Company. In this book, Alice Gordon not only established her reputation for aesthetics and domestic economy in electrical lighting, but the concluding chapter 'Some Personal Experiences' gives a rare glimpse of how an 'engineering wife' could be integrally involved in the expert management of machines, employees, and innovative practices.

Similarly, Maud Lancaster co-authored *Electric cooking, heating, cleaning, etc: being*



a manual of electricity in the service of the home (1914). While the British edition gave authorial credit to “Housewife” (Maud Lancaster), the contemporary US edition was credited more directly to Maud Lancaster. Each version was ‘edited’ by Lancaster’s husband, electrical engineer Edward W Lancaster. Both *Decorative Electricity* and *Electric cooking, heating, cleaning, etc* are rare examples of publicly-credited women’s creativity in engineering, even within the bounds of marriage. However, the gender dynamics changed over the next few decades.

## Changing dynamics

Some women who gained early access to the field of electrical engineering through spousal connection were subsequently involved in the Women’s Engineering Society. In 1899, Hertha Ayrton (born Phoebe Marks) became Britain’s first female member of the Institution of Electrical Engineers (IEE) in recognition of her original research in improving the performance of the electric arc light. While not directly involved in WES’s launch two decades later, she was one of its early members, and correlatively Ayrton was a keen supporter of increased opportunities for women in science and technology, helping to launch the International Federation of University Women in 1919, and the National Union of Scientific Workers in 1920.

More directly involved in WES’s foundation were the women closely connected to Charles Parson’s shipbuilding and steam turbine works on Tyneside. His spouse was Lady Katharine Parsons, who was



**Above-left** Rachel Mary Parsons (1885-1956). **Opposite Page** Hertha Ayrton lecturing to the Institution of Electrical Engineers, as pictured in *The Graphic*, 1 April 1899, p. 392.



**Above-right** Caroline Haslett (1895-1957). **Opposite Page** Hertha Ayrton lecturing to the Institution of Electrical Engineers, as pictured in *The Graphic*, 1 April 1899, p. 392.

heavily involved in engineering work and, accordingly, an Honorary Fellow of the North East Coast Institution of Engineers and Shipbuilders. Their daughter Rachel, a mechanical engineer in her own right, was the first President of WES in 1919-21, with Lady Parsons succeeding her in 1922-25.

Another woman closely involved in the founding of WES and from a working class background was Caroline Haslett. Having joined the Cochran Boiler Company in a clerical role before the outbreak of hostilities in 1914, she received an engineering training there during the First World War. In a succession of increasingly responsible engineering roles, Haslett became WES’s first secretary in 1919 and later its President in 1941, her service thus spanning both World Wars.

For her important work in supporting the industry, and women’s participation in it, Haslett was awarded a CBE in 1931, and became a Dame Commander in 1947. Haslett’s career epitomises the way that the opportunities created by the First World War broadened the opportunities for women in engineering beyond that of familial and spousal relationships, and indeed beyond that of the middle and upper classes.

## Women’s participation

WES was founded in 1919, after male engineers returned to their pre-war work and largely to protect women’s continued participation in engineering. Now less privileged working-class women were entering the profession through changing education and employment roles nurtured in wartime.

With these too-little-heard stories of women engineers from a century ago, we can challenge the myth that Britain has no substantive long-term tradition of women in engineering. The UK currently has the lowest participation levels of women in engineering in Europe – with less than 10% of the UK’s professional membership being women. The WES centenary, then, is an opportunity to change the atmosphere in which 21<sup>st</sup>-century female engineers still report that they do not feel they have a well-established position in the profession. One major factor in the ‘leaky pipeline’ of so many women leaving the engineering profession after qualification may thus be addressed with a better historical understanding of the way that women have in fact been long-term participants in British engineering. •

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## Further Reading

Bruton, Elizabeth, [article on Hertha Ayrton], *Science Museum Group Journal* issue 10 (forthcoming Autumn 2018) via [journal.sciencemuseum.ac.uk](http://journal.sciencemuseum.ac.uk).

Gooday, Graeme, *Domesticating Electricity: Technology, Uncertainty, and Gender, 1880-1914* (2008).

———, ‘The Authoritative Hertha Ayrton’, *Viewpoint* 109 (2016), pp. 9-10.

Rosalind Messenger, *The Doors of Opportunity, A Biography of Dame Caroline Haslett* (1967).

See also the WES’s own resources at [www.wes.org.uk/content/history](http://www.wes.org.uk/content/history).

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