Electrifying Women: Understanding the Long History of Women in Engineering

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The Electrifying Women Project

• Who we are
  • Professor Graeme Gooday (Professor of History of Science and Technology, University of Leeds)
  • Dr Elizabeth Bruton (Curator of Engineering and Technology, Science Museum)
  • Dr Emily Rees (Research and Engagement Assistant, University of Leeds)
    Working with the UK Women’s Engineering Society, founded in 1919

• Project aims
  • To share the long history of women in engineering with the broader public
  • Encourage a great future participation of women in engineering

• Today: sharing historical examples of engineering women in Wales
Welsh women in engineering in 1800s

1841 Census: two Welsh counties show women in engineering
- **Flint**: 2 engineers/engine workers, 1 engine/machine maker
- **Glamorgan**: 3 engineers/engine workers (1 under the age of 20)

**Lucy Thomas** (born Williams) 1781 – 1847
- Family-owned colliery at Waun Wyllt, near Abercanaid, south of Merthyr Tydfil
- Took over business from husband, Robert Thomas, after he died in 1833
- Welsh businesswoman colliery owner: ‘Mother of the Welsh steam coal trade’
- At the Coal Exchange in Cardiff: “My coal is equal to any man’s!”
Lady Eleanor Shelley-Rolls 1872-1961

Rolls family estate at The Hendre, Yr Hendre, near Monmouth

All adventurers with new travel technologies, e.g. famous Charles Rolls (dies in aeroplane accident)

Lady Eleanor a keen balloonist – also learns to fly planes and in airships with Lord Shelley-Rolls

Great personal wealth & promotes women’s rights

Co-founder in 1919 of Women’s Engineering Society
Twentieth century: Joan Curran (nee Strothers) 1916 – 1999

Lancaster dropping “Window” over Duisburg Oct 14th 1944

Window (strip of metal foil) was invented by TRE scientist Joan Curran to disrupt the signals from enemy radars and so protect the bombers.

Images courtesy of MALVERN RADAR AND TECHNOLOGY HISTORY SOCIETY at https://mraths.org.uk/?page_id=540
Joan Curran (nee Strothers) 1916 – 1999

• **1916:** Born in Swansea
• **1934:** Awarded scholarship to study physics at Cambridge
• **1939-1940:** Initially worked on a type of proximity fuse before moving to Langton Matravers, a top-secret radar research centre
• **1940-1944:** Transferred to Telecommunications Research Establishment and devised Window (or Chaff), strips of metal scattered from bombers to fool enemy radar - still in use today
• **1944-1945:** Moved to US to work on the nuclear physics behind the Manhattan project to develop the first atomic bomb
• **More information:** *Stuff You Missed in History Class* podcast episode on Joan Strothers Curran and Radar Countermeasures

Joan Curran (nee Strothers) at Newnham College, Cambridge, 1937.
Source: Newnham College Archives
Henrietta (Hettie) Langdale Bussell 1917 – 1996

• Britain’s first woman railway engineer
• 1917: Born in London but moved with her family to Newport, Monmouthshire when Hettie was 12
• 1933-1934: first female temporary tracer in Great Western Railway
• 1938: Made a permanent member of staff
• 1942: Promoted from tracer to Junior Technical Staff (first woman)
• 1942-1971: Great Western Railway, later British Rail, eventually Senior Engineering Assistant (Management Grade 1)
• 1976-1977: President of the Women’s Engineering Society (WES)

Henrietta (Hettie) Langdale Bussell
Source: Magnificent Women blog at https://www.magnificentwomen.co.uk/engineer-of-the-week/15-hettie-bussell
Veronica (Ronnie) Milligan 1926 – 1989

- First woman trained by electricity supply industry in South Wales
- **1926:** Born in Pontypridd, South Wales
- **1945:** Married Francis Milligan and joining him and her brother, Maitland, in studying part-time for an HNC in electrical engineering
- Later became paid graduate trainee for the South Wales Electricity Board (SWEB) and so the first female engineer in SWEB
- **1959:** Gained her chartered engineer status with Institution of Electrical Engineers (now IET), and moved to planning electrification schemes
- **1961:** Setup CivLec Industrial Advisory Services, a consultancy with her husband
- **1978-1979:** President of Women’s Engineering Society (WES)
- Does not have a Wikipedia page (yet!)

Veronica (Ronnie) Milligan
Source: Magnificent Women blog at https://www.magnificentwomen.co.uk/engineer-of-the-week/78-veronica-milligan
Thank you for listening!

Time for questions
Keep in touch

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