

@electrifyingwmn
#electrifyingwomen



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Electrifying Women: Understanding the Long History of Women in Engineering

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University of Leeds

Electrifying Women Project

- Who we are
 - Dr Emily Rees (Research and Engagement Assistant, University of Leeds)
 - Professor Graeme Gooday (Professor of Science and Technology, University of Leeds)
 - Dr Elizabeth Bruton (Curator of Engineering and Technology, Science Museum)
- Project aims
 - To highlight the long history of women in engineering
 - To share it with as wide an audience as possible
 - Increased participation - creative writing, discussions and wikithons

Which of these were engineers?



Which of these were engineers?



Gertrude Entwisle
Mechanical
engineer



Amy Johnson
Aeroplane Pilot



Beatrice Shilling
Mechanical and
electrical engineer



Verena Holmes
Mechanical
engineer

What is an Engineer?

What do engineers do?

Write a phrase down on a post-it note



What is an Engineer?

What do engineers do?

Some *possible* answers:

- Design engines and systems
 - Build and maintain technologies
 - Trouble-shoot practical problems
 - Make inventions of practical benefit
 - Use science and maths for improvements
-
- Would you like to be an engineer?
 - Why – or why not?

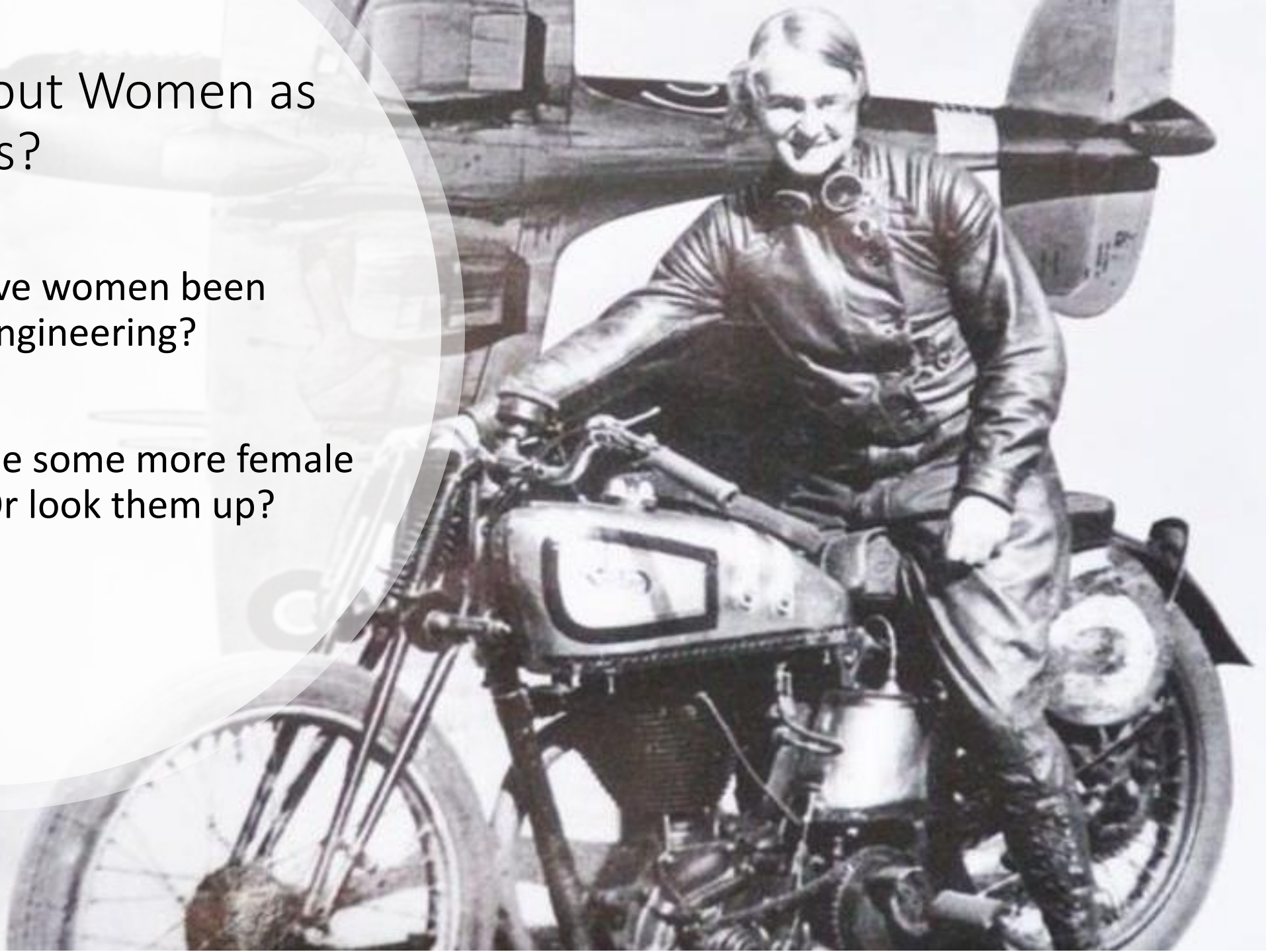


Different Kinds of engineering

- Civil
- Mechanical
- Electrical
- Aeronautical
- Chemical
- Naval
- Computer

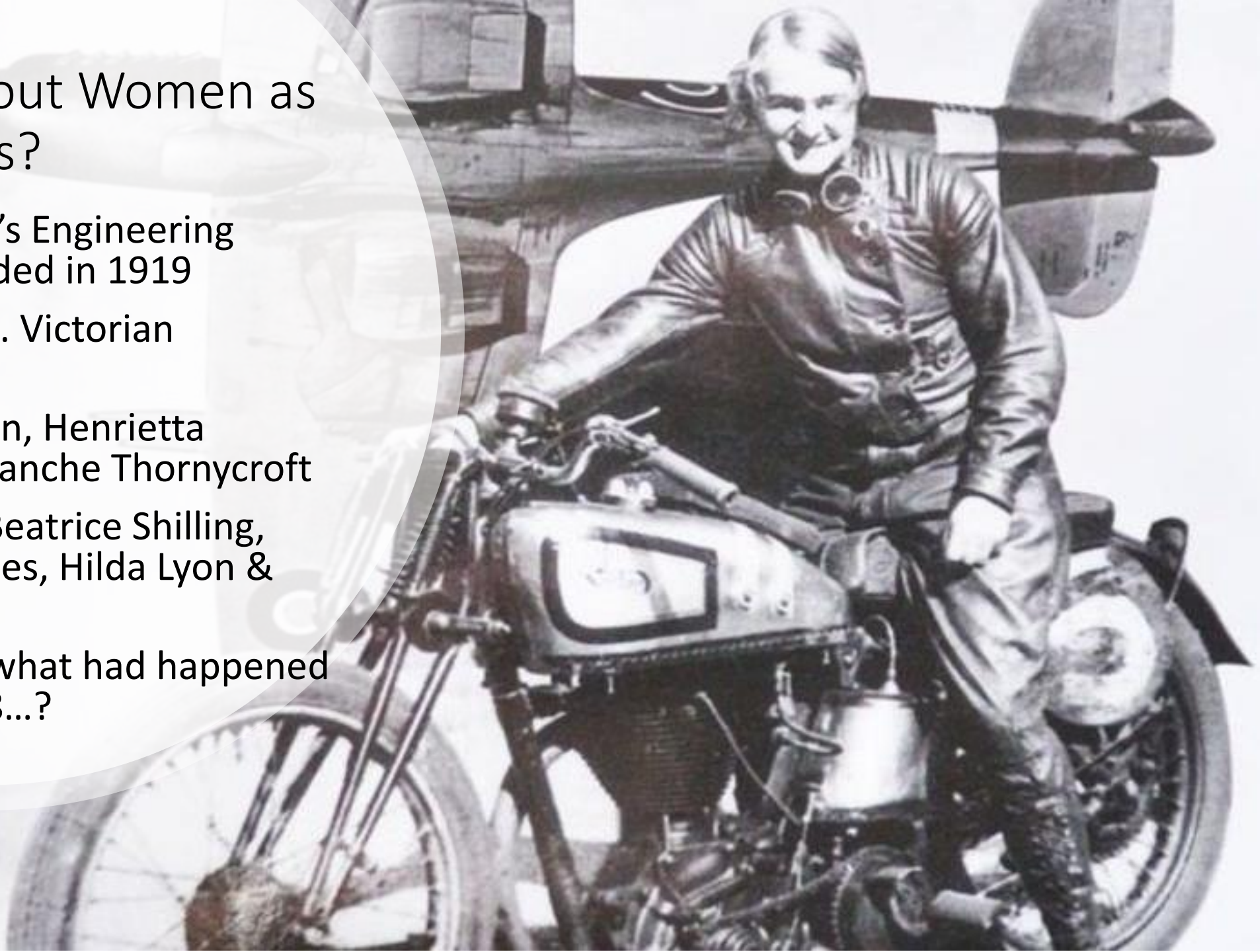
What about Women as engineers?

- How long have women been involved in engineering?
- Can you name some more female engineers? Or look them up?

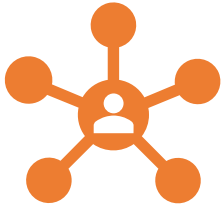


What about Women as engineers?

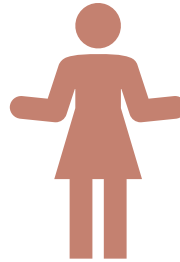
- UK's Women's Engineering Society founded in 1919
- Before then... Victorian engineers!
- Hertha Ayrton, Henrietta Vansittart, Blanche Thornycroft
- After 1919: Beatrice Shilling, Verena Holmes, Hilda Lyon & many more
- Why then – what had happened in 1914-1918...?



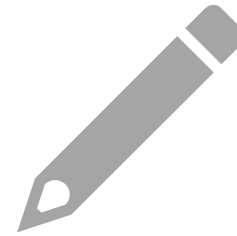
Why are women engineers so little known?



Idolisation of the individual hero – collaboration and teamwork not taken into account



Successes often attributed to men
e.g. husband



Men write the history of engineering

How do we find out about them?

- Historical sources
 - Patents
 - Biographies/autobiographies
 - Census data
 - Newspapers
 - Archives e.g. Women's Engineering Society

Why does it matter?

- Only 12% of engineers are women in the UK

THE WOMAN ENGINEER

THE ORGAN OF THE WOMEN'S ENGINEERING SOCIETY (Incorporated 1920).

VOL. I., No. 10.

MARCH, 1922.

PRICE 6D.



Photo: KADEL & HERBERT, N.Y.

MRS. CARLIA S. WESTCOTT,
THE FIRST AMERICAN WOMAN MARINE ENGINEER.

(See page 138.)

THE "WOMAN ENGINEER" IS ISSUED QUARTERLY—PRICE 6d.

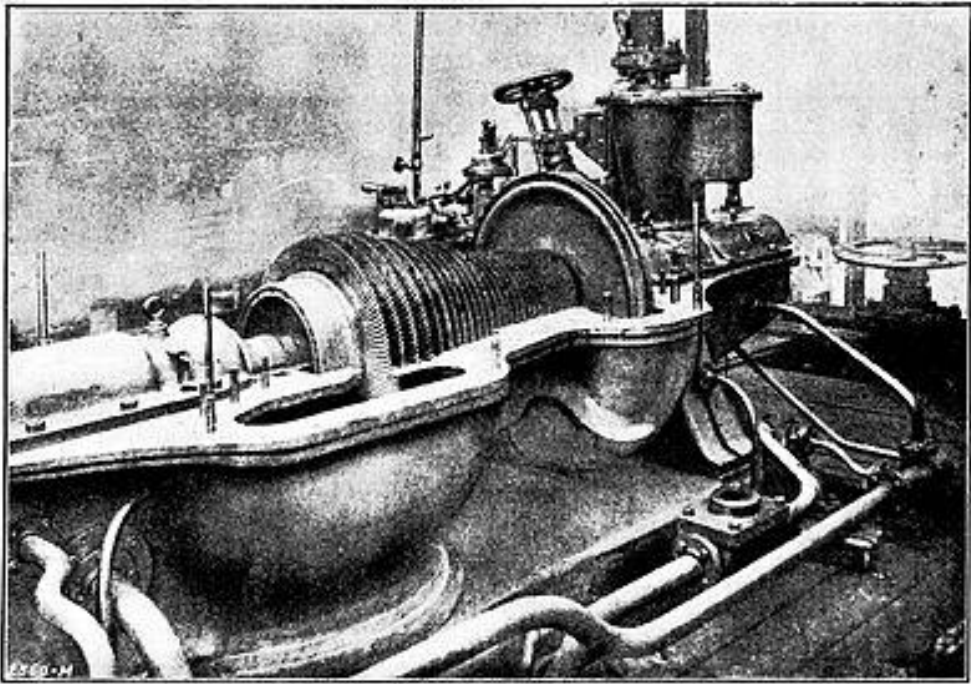
The Parsons Family

What do you know about the Parsons company?



Hon. Charles Parsons & Lady Katharine Parsons – spousal partnership

Steam turbine & 'Turbinia'
c.1894



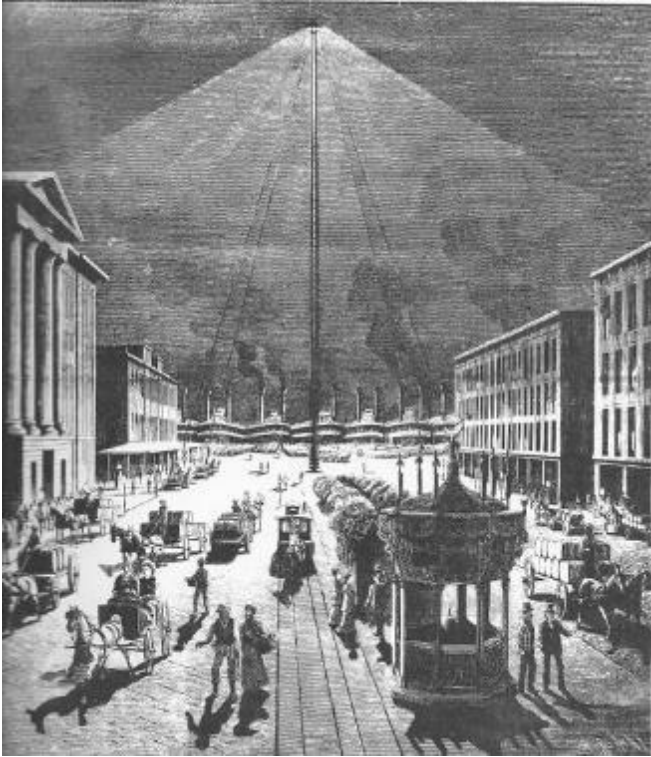
Hertha Ayrton: First Female Electrical Engineer in the UK

- Feminist, mathematician, inventor, patent holder physicist, electrical engineer, and suffragist
- **1854:** Born into an impoverished immigrant family
- **1876:** Studied Mathematics at Cambridge University
- **1899:** Elected first female member of the Institution of Electrical Engineers

Right: Portrait of Hertha Ayrton, Girton College, University of Cambridge painted by H  lena Ars  ne Darmest  ter (nee Hartog) [Ayrton's first cousin once removed]; supplied by The Public Catalogue Foundation



1899: HERTHA AYRTON



Top Left: Moonlight lamps aka electric arc lighting, late 19th century; top right: Ayrton flapper fan, courtesy of IWM.

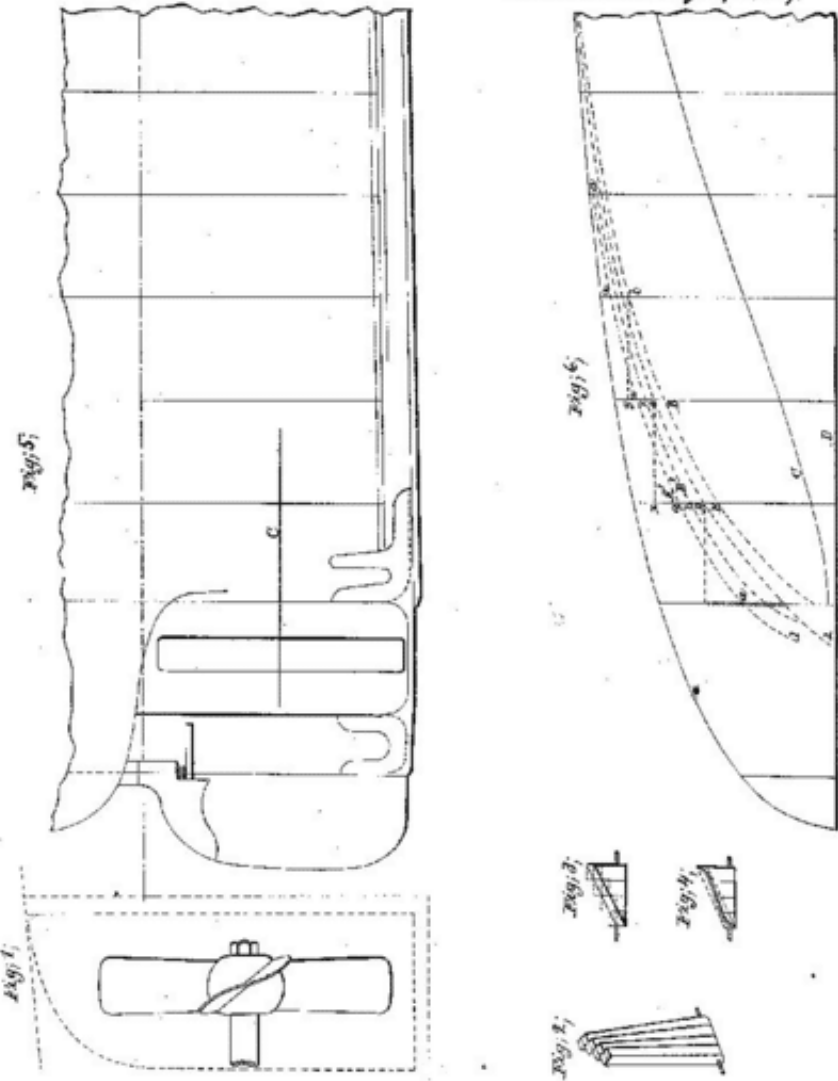
Right: Illustration of Hertha Ayrton from STEM: The Game by George Doutsopoulos, freelance illustrator.



H. Vansittart
Screw Propeller

No 89,712.

Patented May 4, 1869



Witnesses:
J. R. M. M. M.
P. B. D. D. D.

Inventor:
Henrietta Vansittart
per M. M. M.
Attorneys

Henrietta Vansittart (1833-1883)

- Engineer and inventor
- Described herself as self-trained
- Worked with her father and took over his company when he died
- Patent for screw propeller
- Similarities to story of Blanche Thornycroft (1873-1950), another female engineer working with ships, considered the first female naval engineer

Verena Holmes

- Worked building propellers for planes during World War 1
- Studied at Loughborough Technical College
- 12 or more patents for medical and safety devices
- 1924: first woman to be admitted to membership of the Institution of Mechanical Engineers
- President of Women's Engineering Society 1929
 - the first President to be a practising engineer



Beatrice Shilling

- Studied engineering at Manchester University
- Scientific officer at the Royal Aircraft Establishment, research and development agency of the RAF, retiring in 1969.
- Famous for inventing R.A.E restrictor to solve a serious problem with Merlin engines in WW2 Spitfires – engines stalling on nose dive, crashing.
- Nicknamed 'Miss Shilling's orifice' by RAF pilots. Replaced by pressure carburettor in 1943
- A Wetherspoons pub in Farnborough is named after her....





THE TILLY SHILLING

FREE HOUSE

WETHERSPOON

THE TILLY SHILLING

WETHERSPOON

THE TILLY SHILLING

WETHERSPOON



What have you learned today?

Write it on a post-it note

Keep in touch



Email:
electrifyingwomen@gmail.com



Website:
<https://electrifyingwomen.org/>



Twitter: @ElectrifyingWmn