

STORIES OF WOMEN IN SCIENCE

Throughout history, women's contributions have often been overlooked or claimed by others. This zine celebrates those who deserve recognition.

by

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MARGARET HAMILTON

JOCELYN BELL BURNELL

ELLEN FETTER

LISE MEITNER



Broadening Impacts in Physics

This zine was made for the UN international day of women and girls in science 2026



 **Socials**

@drawnbygravity
@uf_swip
@ufsp
@nsbpgator

EDWARD LORENZ IS KNOWN AS THE FATHER OF CHAOS THEORY. IN THE 1960S, HE USED THE LGP-30 COMPUTER TO SIMULATE FUTURE WEATHER.

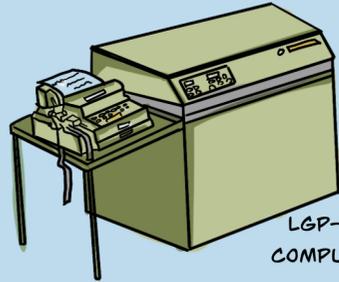


EDWARD LORENZ

THIS LED TO THE DISCOVERY OF THE BUTTERFLY EFFECT. SMALL CHANGES IN STARTING CONDITIONS CAN LEAD TO DRASTICALLY DIFFERENT OUTCOMES.



LIKE A FLAP OF A BUTTERFLY'S WINGS CAN CAUSE A TORNADO ELSEWHERE.



LGP-30 COMPUTER

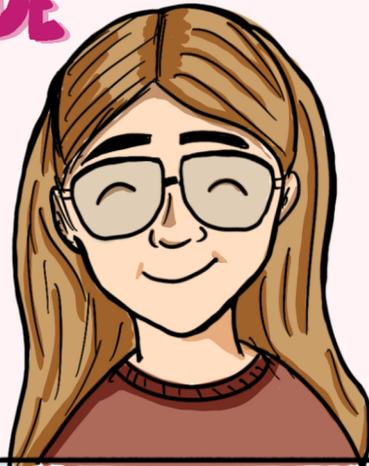
IN 1963, LORENZ PUBLISHED HIS FINDINGS WHICH BECAME HIGHLY CITED SEMINAL PAPER IN PHYSICS.

BUT LORENZ DIDN'T WORK ALONE. HIDDEN IN THE PAPER'S ACKNOWLEDGMENT WERE TWO BRILLIANT PROGRAMMERS : MARGARET HAMILTON AND ELLEN FETTER. THEY WERE THE ONES THAT RAN THE MACHINE AND ARE THE ARCHITECTS BEHIND THE CODE THAT BIRTHED CHAOS THEORY.

THE WOMEN BEHIND THE CODE

ELLEN FETTER

MARGARET HAMILTON



THE LGP-30 WAS LOUD, BULKY AND SOUNDED LIKE A PROPELLER PLANE.

TO TALK TO IT YOU HAD TO FEED IT STRIPS OF BINARY PUNCHED PAPER TAPE.

TO FIX ERRORS QUICKLY, MARGARET WOULD ROLL THE TAPE ACROSS THE HALLWAY, USE A PENCIL TO POKE NEW HOLES (1S) AND USE SCOTCH TAPE TO COVER THEM UP (0S).

THE HOLES REPRESENTS BINARY "1'S AND SOLID TAPE REPRESENTED "0'S.

ELLEN FETTER, WHO SUCCEEDED MARGARET IN THE ROLE, WORKED ON COMPLEX COMPUTATIONS AND PREPARED THE ICONIC FIGURES THAT WERE FEATURED IN THE SEMINAL CHAOS THEORY PAPER.

MARGARET LATER JOINED NASA WHERE SHE WORKED ON APOLLO MISSION. HER LIFE SAVING CODE HELPED IN THE FIRST EVER MOON LANDING. SHE ALSO WORKED ON SKYLAB, THE FIRST US SPACE STATION.

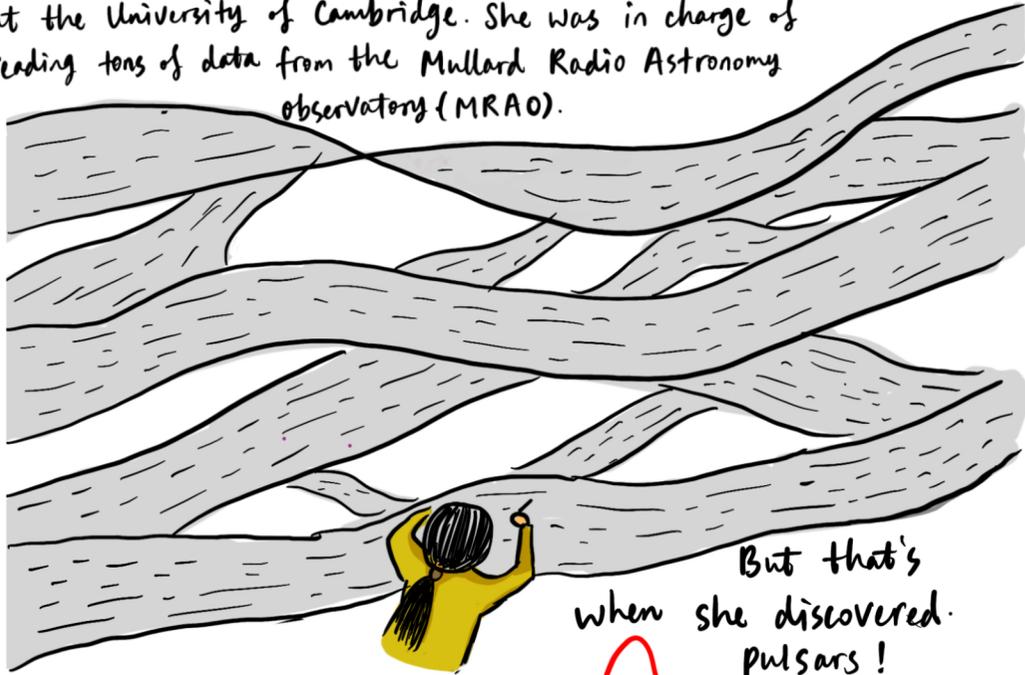
MARGARET HAMILTON WENT ON TO RECEIVE THE PRESIDENTIAL MEDAL OF FREEDOM IN 2016.

MARGARET STANDING NEXT TO THE STACK OF APOLLO FLIGHT SOFTWARE THAT SHE LED IN WRITING.

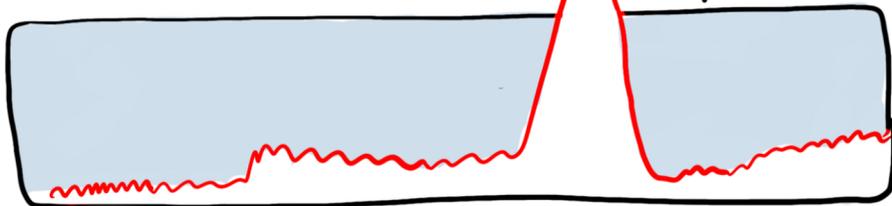
SCIENCE IS NOT A SOLO ACT, IT IS A TEAM EFFORT. HISTORY HAS OFTEN OVERLOOKED THE WOMEN BEHIND GREAT DISCOVERIES. LET'S SPREAD THEIR STORIES AND BRING SCIENCE'S HIDDEN HEROINES INTO THE SPOTLIGHT.

THE SIGNAL WAS REAL!

In 1967, Jocelyn Bell Burnell was a PHD student at the University of Cambridge. She was in charge of reading tons of data from the Mullard Radio Astronomy Observatory (MRAO).

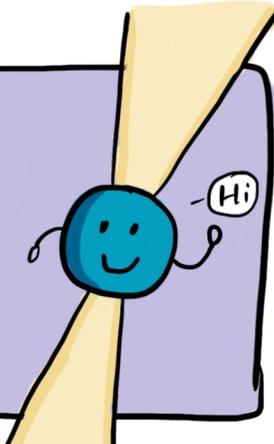


But that's when she discovered pulsars!



IT APPEARED EVERY 1.337 SECONDS!
"On Nov 28 1967, it came again, a string of pulses one-and-a-third seconds apart."

pulsars are neutron stars that spin VERY fast and emit beams of electromagnetic radiation. They are formed when stars run out of fuel and collapse causing a massive explosion called a supernova.



CLAIRE CHEN



However, since she was a woman, the 1974 Nobel Prize was awarded

to her PhD Supervisor Antony Hewish and Martin Ryle, the leader of the MRAO.

In 2018, her contribution was finally recognized. She was awarded the Special Breakthrough Prize in Fundamental Physics. She donated the entire prize money to the Institute of Physics to fund women underrepresented minorities, and refugee students in physics.



I'm not quite sure why this happens...



Otto Hahn had successfully created isotopes of Barium from Uranium by neutron bombardement but was unsure about the underlying physics.



MEITNER DESCRIBES FISSION

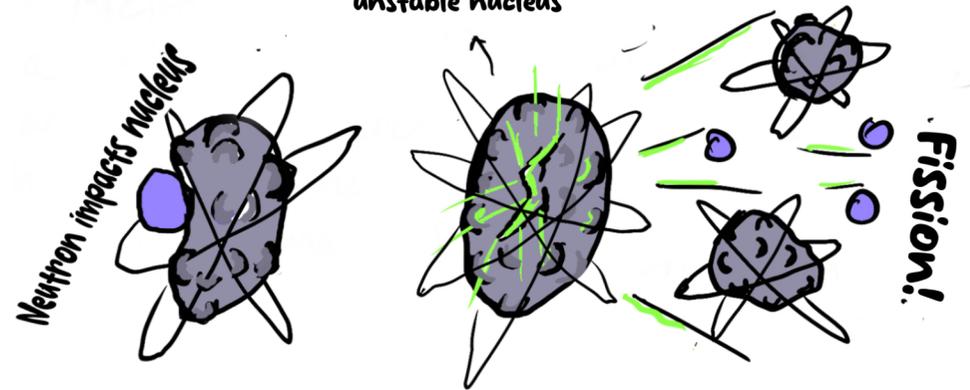
I'm quite sure this is why it happens



Lise Meitner was the first person to correctly explain the physics behind fission and she would be the scientist to name the process.

Meitner was the first woman to be a full professor in Germany. However, the anti-Jewish Nuremberg Laws would cause her to lose her positions and **flee** from Germany to Netherlands.

Neutron combines to form unstable nucleus



Despite her contributions to the science of fission, Meitner was excluded from the Nobel Prize for fission. She would be nominated for the Nobel Prize over **30 times** but never won.

