Henrietta Leavitt

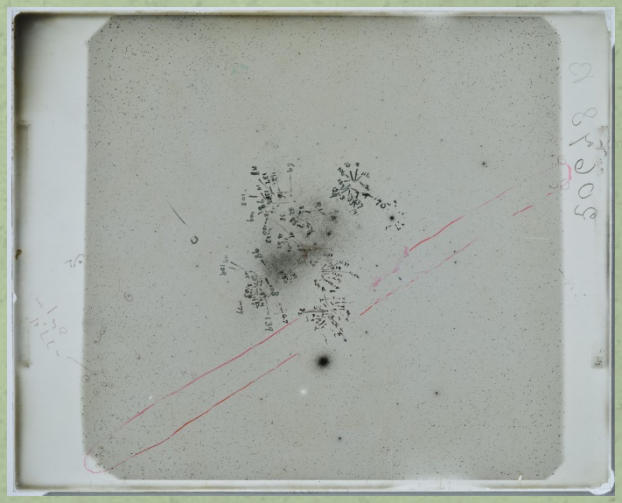
(1868-1921)

American astronomer - "The woman who discovered how to measure the Universe"

She discovered the relation between the luminosity and the period of Cepheid variable stars.

A graduate of Radcliffe College, Leavitt started working at the Harvard College Observatory as a "computer" in 1893, tasked with examining photographic plates in order to measure and catalog the brightness of the stars. Leavitt's assignment was to identify variable stars, which are stars that change in brightness over a few hours, days, or weeks.

Leavitt along with the rest of women "computers" at Harvard College Observatory



It's believed that Plate B20678 is the plate Henrietta Leavitt used to study variable stars in the Small Magellanic Cloud. (Courtesy Lindsay Smith)

Leavitt worked on the variable stars in the Magellanic Clouds – a distant star cluster. She discovered 1,777 variable stars, led to her introduction to the astronomer. But what she noticed in about 25 of these stars changed astronomy forever.

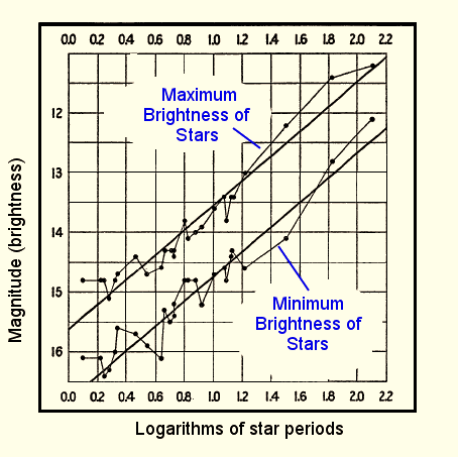
Variable star RS Puppis

The Small and Large Magellanic Clouds
Image courtesy of ESA

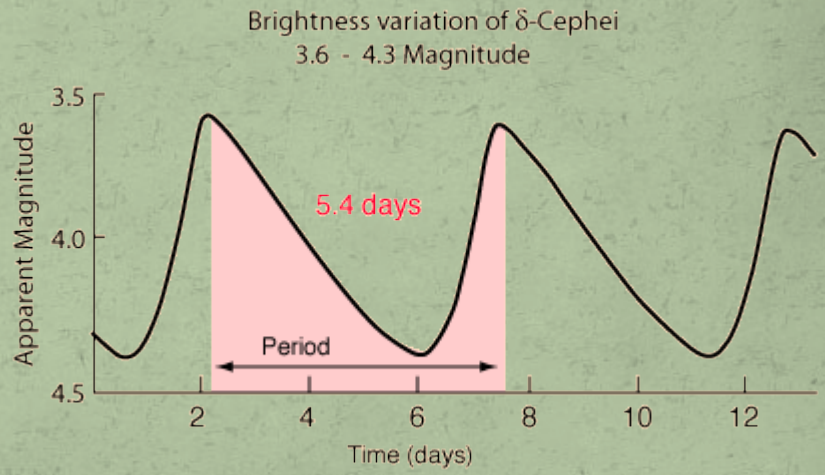
She found that a certain type of star, the Cepheid variable, pulses at a rate that's related to its brightness. The amount by which the star's brightness is dimmed by distance allows the star's distance from the earth to be calculated.

Her discovery, is known as the "period–luminosity relationship" or "Leavitt's law".

Leavitt published her first paper on the period-luminosity correlation in 1908, and four years later she published a table of the periods of 25 Cepheid variables. Nine years later, in 1921, she died of cancer at age 53 in Cambridge, Massachusetts.



Leavitt's graph of data from 25 Cepheids in the Small Magellanic Cloud.



Leavitt's work was pivotal to the development of astronomy, astrophysics, and cosmology. Magnus Gösta Mittag-Leffler of the Swedish Academy of Sciences tried to nominate her for the 1926 Nobel Prize in physics, but discovered that she was no longer alive.

By discovering the distance key, Henrietta Swan Leavitt made possible all of the subsequent discoveries in astronomy of the 19th and 20th centuries.

Hubble used Leavitt's law to establish that the Andromeda Nebula is actually another galaxy. Image courtesy NASA/JPL

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Cepheid variable

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