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| **Henrietta Leavitt**  **Born July 4, 1868 – Died December 12, 1921**  Henrietta Swan Leavitt studied distant stars that dim and brighten. She was able to determine how bright these stars were and how far away they were. Her work greatly helped other **astronomers**. They were able to measure huge distances in space, find new **galaxies**, and begin mapping the Universe. Leavitt was a minister’s daughter. Her family moved frequently. She went to the Society for Collegiate Instruction of Women. It was her dream to attend. In her senior year, she found that she loved astronomy.  At the Harvard College Observatory  After graduation, Leavitt became a volunteer at the Harvard College **Obser­vatory**. She worked as a computer. At that time “computers” were women who looked at tiny dots on photographs of the night sky. They kept detailed records of the stars and planets in notebooks. Leavitt was then hired at 30 cents an hour. She worked at the observatory for the rest of her life.  Using Cepheid variables  One of Leavitt’s jobs was to examine variable stars. These stars change their brightness. Most stars don’t.  Leavitt discovered 2,400 new variable stars. Some variable stars dim and brighten on a regular schedule. This is called their “period.” This period can range from one day to four months. Leavitt studied thousands of photographs of these stars. They were called **Cepheid variables**. She discovered a way to figure out how bright they were and how far away they were. She found that the longer a star’s period, the brighter it was. Leavitt com­pared how bright a star appeared, and how bright it actually was. She could estimate how far away the star actually was this way. Leavitt published her first paper on the period-brightness relationship in 1908. Four years later, she published a table of the periods of 25 Cepheid variables. In 1921, she died of cancer at age 53 in Cambridge, Massachusetts.  Leavitt’s Legacy  Before Leavitt, astronomers could only measure distances up to 100 light years away. Her discovery improved their ability. They were now able to pin­point some objects at 100,000 light years away. These objects were farther away than anyone had imagined. It meant they could not be within our Milky Way galaxy. Edwin Hubble was studying Cepheid variables near Los Angeles. He used Leavitt’s findings and a new telescope to find Cepheid variables that were extremely far away. They were so far away that they could not be in our galaxy. By 1925, most astronomers agreed that our galaxy is just one of many. Leavitt’s work faced challenges. Her first director at Harvard only wanted his staff to collect information. He didn’t want them try and put the information together as a theory. Another director tried to take some credit for her work after her death. Yet today, Leavitt is seen as someone who helped us understand the size of the Universe. |

**Vocabulary Word Bank**

**Astronomers**: Scientists who study space, stars, and planets.

**Galaxies**: A large group of stars held together by gravity.

**Observatory**: A building that houses a large telescope used to examine space.

**Cepheid Variable Stars**: A star that fluctuates in brightness and provides astronomers with a reference they can use to measure great distances in the Universe.

