Lowell Milken Center for Unsung Heroes
ARTEFFECT

Impact Statement

Laila Castel Philips, Grade 8.
***A Star in the Field of Space Science**,* 2020.
Mixed media, 16 x 20 Inches.
St. Mildred's-Lightbourn School, Oakville, Ontario, Canada
Unsung Hero: Henrietta Swan Leavitt

I found Henrietta Swan Leavitt's remarkable story to be both fascinating and inspiring. Henrietta discovered that a certain type of star's pulse rate is related to its brightness, a discovery that opened the door to a huge expansion in the size of the known universe and how to measure the distance to galaxies. I was incredibly inspired not only by her exceptional intelligence but also by her perseverance, courage and resilience, as a woman working in a male-dominated field. I was drawn to Henrietta's story, as I am extremely passionate about STEMR (Science, Technology, Engineering, Mathematics and Robotics), and it was very meaningful for me to learn about a woman who made groundbreaking discoveries in this field. Further, my cousin and his spouse are aeronautical engineers at NASA, and after I visited the US Space and Rocket Centre in Huntsville, Alabama with them a few years ago, I became intrigued by space science. It was therefore interesting for me to learn about a female unsung hero, Henrietta Swan Leavitt, whose discoveries shaped the study of astronomy and space science.

Henrietta Swan Leavitt was born on July 4, 1868, in Cambridge, Massachusetts. Initially, she studied music and art at Oberlin College, but subsequently became passionate about space science after taking an astronomy course at the Society for the Collegiate Instruction of Women. Henrietta volunteered at Harvard College Observatory for 14 years before being hired as a "computer". Her boss, who was low on funding, hired Henrietta and 19 other women, since he did not have to pay them as much as men. The other women were paid 25 cents an hour, however, Henrietta was paid an additional 5 cents an hour as her work was considered to be very valuable even at the start of her career. Her job as a computer was to examine photographic plates to measure and document the brightness of stars. Henrietta ultimately discovered that Cepheid stars' luminosity and pulsation periods were directly related to their distance from earth. This discovery shaped the future of astronomy and how scientists measure the universe. To this day, Henrietta's discovery is known in astronomy as Leavitt's Law: the pulse rate of a Cepheid immediately yields its true brightness.

I arrived at my artistic interpretation, as Henrietta's story reminded me of the movie Hidden Figures, about female computers/mathematicians who worked at NASA, in particular a scene of the movie where one of the lead characters was working out complex equations on a chalkboard. This inspired me to have Henrietta writing her calculations and theories on a chalkboard in my artwork. I envisioned Henrietta working long hours late into the night. I also imagined Henrietta being inspired by gazing at the stars. As such, I portrayed her working beside a window with stars shining in the background.

My artwork is on a canvas, and the background is painted. On the chalkboard, I recorded some of the actual formulas and charts which Henrietta invented. I put Henrietta on a ladder, writing with chalk onto the chalkboard. Both Henrietta, and the ladder are made out of clay. I portrayed

Henrietta in old fashioned clothes, as she lived in the 1800s, and based on the pictures of her online, I depicted her wearing a white blouse and a long dark skirt. Since Henrietta's discovery relates to the stars, I created a large window with clay. Through the window, you can see that it is nighttime, and there are a lot of stars in the sky as well as the moon. I made the stars and moon with clay and glitter. I thought it would be best to portray that Henrietta was working at night, to reflect the long, late hours she must have worked to make such an important discovery. I added a desk and chair below the window. They are made with clay. I put three books on the desk, as well as an open notebook, with a feather pen and ink. I made the books and pen out of clay and paper.

I learned from Henrietta Swan Leavitt's story that although the field of astronomy and space science may be male dominated, there have been groundbreaking discoveries made by women, including at a time when there were few women at the workforce. Henrietta's story has also inspired me to research other influential women scientists who are not well known. Henrietta Swan Leavitt, and other women scientists and inventors, are wonderful role models for young girls like me who aspire to work in the field of STEM. I look forward to sharing Henrietta's remarkable story with my family, classmates and friends, as well as at my school's art gallery.

Sources:

"Henrietta Swan Leavitt: The Woman Who Measured the Universe: About the Hero." Lowell Milken Center, 3 Jan. 2019, www.lowellmilkencenter.org/programs/projects/view/henrietta-swan-leavitt-the-woman-who-measured-the-universe/hero.

The Editors of Encyclopaedia Britannica. "Henrietta Swan Leavitt." Encyclopædia Britannica, Encyclopædia Britannica, Inc., 10 Jan. 2020, www.britannica.com/biography/Henrietta-Swan-Leavitt