Lowell Milken Center for Unsung Heroes
ARTEFFECT

Impact Statement

Hailey Sim, Grade 11
Messages from Beyond, 2025
Acrylic, Pen, Watercolor, Paper on paper, 21.457 x 31.024 inches
Independent Study, Seoul Foreign School, Seoul, Korea
Unsung Hero: Henrietta Swan Leavitt

I have a passionate love for astronomy that stems from the sheer scales of the universe that are beyond what we can fathom. Henrietta Swan Leavitt is an American astronomer who was able to discover the laws that directly contributed to quantifying the size of our universe. I admire her work because she was able to draw groundbreaking conclusions residing in realms outside of our reach from just observing a fraction of the messages of light sent out from the far corners of the universe to our planet. Leavitt created the rule in which we can quantify the distance between certain stars through their periods and luminosity. By observing the periodic changes in brightness of Cepheid stars, Leavitt was able to discover a relationship between its period and luminosity, comparing it to different stars and their relative distance, allowing other scientists to use her work to measure lengths of entire galaxies and even a theoretical value for the universe itself. I wanted to portray her silent determination as she worked in darkness under the cover of the night sky, illuminating the way for modern astronomers and shifting our understanding of the universe. I posed her in the background sketching the Harvard College Observatory in which she worked and created Leavitt's Law in order to reveal how her steady efforts amounted into a grand achievement. However, the style of monochromatic pens used for both the observatory and her figure show how she was never able to be fully realized for her works as she died before being recognized as a Nobel Prize winner, and her legacy was unable to quite surface to the top and join the rest of the great astronomers in history in the dazzling sea of stars. Despite this unfortunate end to her story, I wanted to illustrate a scenario in which perhaps she is watching the ripple effects of her discoveries until today. This is illustrated in the colored full body of Leavitt as she emerges from the nebula folds and gazes at her legacy at the observatory and the work she did in the past.

The sine graph pattern weaved into the galaxy references her graphical analyses of the luminosity over time. Stars illuminate the path as bright orbs of light, representing the importance of the unique pulsating luminosity found in the Cepheid stars. The diagrams below all deal with a star's luminosity, such as an explanation for how apparent brightness can help us find the power output of a star, which was a crucial formula Leavitt used in her observations of the Period-Luminosity Relationship.

Leavitt's story motivates me to continue on my path of dual interests in both Physics and Fine Arts, as her beautiful unraveling of the nature of the universe inspires both my art

and my passion for physics as I use both as a means to understand the universe I am existing in. Her story encourages me to live out an active existence-- always asking questions and making connections both within my individual subjects and between them as well as I work to create my own understanding and method of combining science and art. I hope to include this piece in my portfolio to share with others my interest in physics and how I combine it within my work as it is part of my identity. I am also inspired to continue to pursue physics at higher levels after my high school graduation, and perhaps I will make such a contribution as hers one day as we get on step closer to understanding the nature of existence.