Lowell Milken Center for Unsung Heroes
ARTEFFECT

Impact Statement

Aleksei Yin, Grade 11
The Brightest Star, 2026
Acrylic, colored pencil on paper, 9 x 12 inches
Palos Verdes Peninsula High School, Rolling Hills Estates, California, USA
Unsung Hero: Henrietta Swan Leavitt

Henrietta Swan Leavitt (1868-1921) was a very impactful and underappreciated astronomer who helped identify thousands of stars, as well as establish the true scale of the universe. Leavitt's education included both the arts and sciences, which made her especially relatable to me as someone who enjoys both creative and analytical work. My own interests in drawing and coding also require creativity, meticulousness, and problem-solving. Furthermore, Leavitt's contribution to humanity's understanding of the universe struck me as a grand feat, one not appreciated enough. Henrietta worked at the Harvard College Observatory as a human computer: she examined astronomical photographs, measured stars, and compared data. Women like Leavitt were restricted from many opportunities given to male astronomers and were instead analyzing data, for which she earned about 30 cents an hour. Henrietta never received fame proportional to her impact; instead, she remained persistent, fulfilling important jobs necessary for discovery. Her humility, work ethic, and intellectual curiosity are qualities I strive to develop.

As a Harvard computer, Henrietta studied variable stars, ones that change in brightness over time. She compared photographic glass plates with bright stars appearing as large and dark spots, in order to identify around 1,777 variable stars in the Magellanic Clouds, with a total of 2,400 variable stars ultimately discovered. Because the stars in the Small Magellanic Cloud were all extremely distant from Earth, Leavitt could treat them as being at roughly the same distance and focus on differences in their brightness. With this information, other astronomers could thus measure a Cepheid's period (variables with longer periods are more luminous), infer the actual luminosity, and estimate the distance. This made Cepheids useful as standard candles for measuring astronomical distances. Most notably, astronomers including Edwin Hubble used these Cepheids to determine the immense distance to other galaxies; with this information, Leavitt's work helped establish the true scale of the universe and provided a measuring tool still used today.

To accurately represent Leavitt's story with the limited 9x12 format, I determined the composition must lean toward the vast cosmos and scale of her impact. Leavitt herself is depicted in the lower third to portray her modesty and dedication to her work. In the upper two-thirds of the composition, I used the Small Magellanic Cloud and the universe as a whole to represent the immense scale of her impact, as shown by the Small Magellanic Cloud almost flowing from and above her head. Her thought, knowledge, discovery, and understanding of the grand scale of the cosmos are represented by the visual dominance

of the universe within the composition. To complement the relationship between Leavitt and the cosmos, I chose to depict her visually around the turn of the twentieth century, the period in which she worked, with late Victorian and Edwardian-inspired clothing and hairstyle, in addition to placing Leavitt in her common work environment. Henrietta is examining and marking a glass photographic plate, including the dark star images that would appear on a photographic negative. The tiny marks she makes on the small plate are related to and contrast with the enormous universe and bright stars the marks represent. The stack of notes beside Leavitt represents all her measurements, calculations, and repeated observations behind her discovery, emphasizing her persistence and patience necessary for her work. Finally, to make the lighting and composition more interesting, I chose to cast a strong illumination on Leavitt. I wanted the light to give her a sense of importance and reverence, similar to the dramatic chiaroscuro Caravaggio used to emphasize figures such as Saint Matthew. Leavitt, in her lifetime, was never brought into the light; with this painting as a whole, as well as demonstrated in the symbolic light source shone directly on her, I was able to bring Leavitt into the light and present the cosmic grandeur she helped establish. I chose to work on 9x12 mixed-media paper with low-budget acrylic paint to reflect Leavitt's story: meaningful work doesn't depend on fancy tools or materials, but rather on persistence and the ideas behind it. I used stippling and small layered brushstrokes in order to build up many colors and textures within the limited space. I tried to make the composition as historically accurate as possible, from the dark star markings on the glass plate to the appearance of the Small Magellanic Cloud.

Throughout the process of creating this piece, my research on Leavitt increasingly affected how I viewed her. From a severe illness causing her to gradually become more deaf, to harsh gender barriers in her field, Leavitt persisted through many hardships without giving up. Even though Leavitt died before the full impact of her work was recognized, her story made me understand the difference between doing meaningful work and doing something mainly for recognition. I aspire to adopt her diligence and modesty, as I believe there are times that I attempt something only for recognition from others. I instead want to put full effort into work I am proud of regardless of outside recognition. Furthermore, Leavitt has influenced my daily life helped me become attentive to small details in my art, coding, homework, and studying, as well as researching and problem-solving. Her story proved to me that small actions can accumulate into something far larger than they initially appear. I have learned a lot throughout my process, not only after the piece was complete. I have learned a considerable amount of information in astronomy, women in science, photographic plates and how they work, and have expanded my knowledge of the universe and its measuring tools. I hope to share my artwork through the ARTEFFECT submission itself, but also through my school's literary magazine, social media, and in my future portfolios, in hopes of educating others on an unsung hero deserving of the universe's recognition.