

Reaching for the Stars:
Cecilia Payne-Gaposchkin's Struggle to Break Social and
Scientific Barriers
Process Paper

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Many different connections and interests propelled our topic choice. We had previously seen an episode of *Cosmos: A Spacetime Odyssey*, “Sisters of the Sun,” about Cecilia Payne-Gaposchkin and her discoveries. We chose this topic because of our shared interest in historical oppression and because it fit well into theme of *Breaking Barriers in History*. By combining elements from our previous projects about gender discrimination and slavery, it allowed us to also use background knowledge during research. Even today, women struggle with gender inequality in the workforce, such as the wage gap and male bias in job applications, giving us reason to emphasize how Cecilia Payne-Gaposchkin broke gender barriers in astronomy while simultaneously breaking scientific barriers.

We began our research by finding information on Cecilia Payne-Gaposchkin’s discoveries and experiences with gender discrimination. From there, we began to dig deeper into the Harvard Observatory and the Library of Congress websites to find primary source documents, such as transcripts and pictures of her written works. We also found interviews online that gave us information directly from her about her real-life experiences. However, we obtained most of our information from Payne-Gaposchkin’s autobiography: *Cecilia Payne-Gaposchkin: An Autobiography and Other Recollections*, which included vivid descriptions of Payne-Gaposchkin’s experiences as a woman in science, both as a child and while she made her discoveries.

We chose to present our topic using a website because it best suited our topic, available sources, and working style. For instance, we had several quotes and a moderate number of pictures at our disposal, which together created an aesthetically pleasing presentation. Website building is also extremely functional when working in pairs, as partners can work remotely and do not need to meet often. After registering and creating the website, we established a template structure that we found aesthetically pleasing and a color palette that corresponded with our topic. We then began to transfer our quotes to our website from our previously made outline, adding fitting analysis and pictures as visual aids and organizing them to create cohesive pages.

Our topic is closely related to this year’s theme, *Breaking Barriers in History*, as Cecilia Payne-Gaposchkin broke barriers in astronomy and professorship, as well as gender barriers in both. Before Payne-Gaposchkin’s career at Harvard, a vast majority of Harvard’s professors were male, and there had never been a female professor or department chair in the Faculty of Arts and Sciences. Astronomers used to believe stars were composed of the same material as the Earth, a notion which Payne-Gaposchkin challenged by creating her PhD thesis and making other discoveries, breaking several scientific barriers. By challenging stereotypical barriers for women, persisting through countless sexism-based rejections, and claiming her right to credit, Cecilia Payne-Gaposchkin added to the steps of the many activists who preceded her to prove the worth of women in society, encouraging them to pursue fields of science and professorship. The broken barriers are still visible today, with gender equality and knowledge of the stars being at their highest points in history.