

Codebreaking the Glass Ceiling: Women on the Frontier of WWII Cryptanalysis

I have always found the history of mathematics and science to be incredibly impactful yet often overlooked. When I learned of this year's theme, I decided to interpret the “frontier” as a boundary to be crossed through science. I began searching on the internet through unprecedented events in STEM fields and was soon reminded of a book I had read a few years ago. The book, *Code Girls* by Liza Mundy, describes the lives and contributions to cryptanalysis of many women during World War II. I quickly began researching this topic, discovering the frontiers in cryptology that were pushed and crossed during World War II.

I started my research with some preliminary secondary sources. I wanted to understand the scope of my project before I dove deeper into its nuances. After acquainting myself with my topic, I began searching for primary sources. This search proved to be a challenge, as many documents and photographs relating to cryptanalysis were created to be strongly guarded secrets. I was initially worried that I would not be able to find many first-hand accounts of World War II cryptanalysis. Still, I soon discovered the plethora of once-classified sources that have been made available more recently. Years after World War II, women who worked for WAVES are finally able to tell their own stories. I found it exciting to learn of these formerly secret stories from Arlington Hall, allowing me to piece the history together like a puzzle.

Continuing my research, I discovered the diverse array of people, places, and ideas contributing to codebreaking during World War II. I decided that the web medium could represent my topic well, allowing me to divide my information into individual pages which work together to make up the full website. I separated my website's navigation by the frontiers that were pushed and crossed, so when the user reads each page, they learn about one facet of

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cryptanalytic work during World War II. The website medium also allows me to include images and diagrams interspersed within the text. I find that multimedia can convey information that words cannot; likewise it is often said that “a picture is worth a thousand words.” I additionally introduced some chronology into my project, displaying pages in the navigation bar at the top in the general order in which their contents occurred.

On my website, I argue that the women working in U.S military cryptanalysis for the crossed boundaries that both limited the field of cryptology and kept women from military service. Additionally, this group of women included Black women who had yet another frontier, of racism, to cross. It amazes me that these women achieved so much in the field of cryptanalysis all while fighting oppression and pioneering women’s military service.

Women working in cryptanalysis expanded the possibilities for breaking codes. As they became highly proficient in their work, they not only crossed the frontiers of knowledge in cryptanalysis but also were integral to the United States’ success in World War II.