

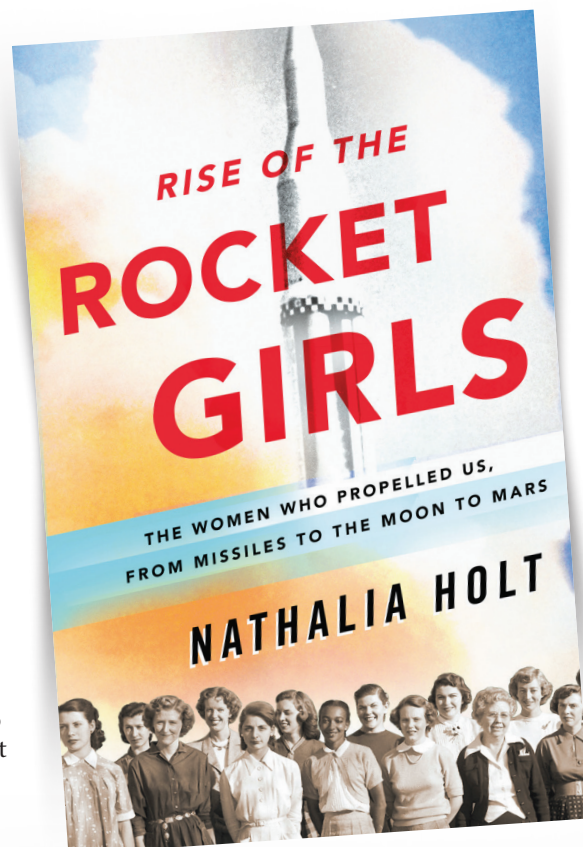
## Rise of the Rocket Girls

**T**his is probably tops on my summer reading list – and maybe on your list, too. The boys had their *Right Stuff* (Tom Wolfe's best-selling 1979 book about the Navy, Marine and Air Force test pilots as well as the seven military pilots who were selected for the first manned spaceflight by the U.S.). But now the “girls” get some recognition – albeit a bit late.



But it took a lot of people to get those rockets off the ground. In the 1940s and 1950s, using mechanical calculators, women in an all-female computations group performed trajectory calculations. In 1961, JPL hired Dana Ulery as their first woman engineer to work alongside male engineers as part of the Ranger and Mariner mission tracking teams.

Their story is a bit like “A League of Their Own” — just substitute hand operated calculators for bats and balls. Throw in some sexism, grit, humor and lots of talent and you have an underappreciated, under recognized group of people who happen to be women. It's a great book for a daughter or granddaughter—or maybe a male or two of any age.



In the 1940s and 50s, when the newly minted Jet Propulsion Laboratory needed quick-thinking mathematicians to calculate velocities and plot trajectories, they didn't turn to male graduates. Rather, they recruited an elite group of young women who, with only pencil, paper, and mathematical prowess, transformed rocket design, helped bring about the first American satellites, and made the exploration of the solar system possible.

*Rise of the Rocket Girls* tells the stories of these women—known as “human computers”—who broke the boundaries of both gender and science. Based on extensive research and interviews with all the living members of the team, *Rise of the Rocket Girls* offers a unique perspective on the role of women in science: both where we've been, and the far reaches of space to which we're heading. These women were extremely important to the process of getting rockets to lift off.

Googling revealed very little about these women and their work. What I did find was that The Jet Propulsion Laboratory (JPL) is a federally funded research and development center and NASA field center located in La Cañada Flintridge, California and Pasadena, California. JPL traces its beginnings to 1936 in the Guggenheim Aeronautical Laboratory at the California Institute of Technology (GALCIT) when the first set of rocket experiments were carried out in the Arroyo Seco.

JPL was transferred to NASA in De-

cember 1958 becoming the agency's primary planetary spacecraft center. JPL engineers designed and operated Ranger and Surveyor missions to the Moon that prepared the way for Apollo. JPL also led the way in interplanetary exploration with the Mariner missions to Venus, Mars, and Mercury. In 1998, JPL opened the Near-Earth Object Program Office for NASA. As of 2013, it has found 95% of asteroids that are a kilometer or more in diameter that cross Earth's orbit.



If you're interested in reading about women in the space program, NASA has created a spinoff site (<http://women.nasa.gov>) that lists the scientists and pilots involved in the program currently.



Katherine Johnson worked at NASA's Langley Research Center from 1953 to 1986. Since her retirement, she's been a strong advocate for science, technology, engineering and math (STEM) education. The 97-year-old mathematician visited NASA's Langley Research Center in Hampton, Virginia, where a \$30 million, 40,000-square-foot Computational Research Facility was named in her honor.

### About the Book

*Rise of the Rocket Girls: The Women Who Propelled Us, from Missiles to the Moon to Mars.*

Published April 5, 2016. By Nathalia Holt. 352 pages. Publisher: Little, Brown and Company. ISBN-10: 0316338923. Nathalia Holt is the author of *Cured: The People Who Defeated HIV* and a former fellow at the Ragon Institute of Massachusetts General Hospital, MIT and Harvard University. Her writing has appeared in the Los Angeles Times, New York Times, TheAtlantic.com, Slate, Time.com, and Popular Science.

### Accolades for the Book

A *New York Times* bestseller, an Amazon Best Book of April 2016 and an Entertainment Weekly “10 Books You Have to Read in April.”