

Eulogy

by Olivia Gagan

Katherine Johnson 1918 ——— 2020

“They were going to the moon, and I computed the path to get there.”

Katherine Johnson’s handwritten calculations sent humans into space. She dreamt up schemes for missions to Mars and found emergency paths home for astronauts in orbit. Yet it took decades for her groundbreaking work to be recognised.

Johnson was born in White Sulphur Springs in West Virginia in 1918, the daughter of a teacher and a lumberjack. Her unusual mathematical abilities were evident from a young age, and she was swiftly ushered through elementary and secondary grades. By 14 she was in college, where she met a key teacher and mentor, W.W. Schieffelin Claytor, who was only the third African American in the US to hold a PhD in mathematics.

Despite Johnson’s prodigious talents, she was not expected to take them beyond the school gates. She graduated college in 1937 and became a teacher in a black school in Virginia, where segregation was still rampant. Two years later, Johnson left her teaching job to attend West Virginia University as a graduate student in mathematics, chosen as one of three black students—and the only woman amongst them—to integrate the school from its previous all-white mandate.

Johnson took just a year of classes before falling pregnant and starting a family with her husband James Goble; she had three daughters. At the age of 35, she took a job as a mathematician at the National Advisory Committee for Aeronautics (NACA)—which would eventually become NASA. Here, Johnson worked in a segregated ‘pool’ of black women analysing flight data. Her life changed when she was assigned to work as part of the Space Task Group, which investigated the possibility of humans going into orbit. One day Johnson was given a temporary job to assist the all-male research team, ‘and they forgot to return me to the pool,’ she later recalled.

Johnson’s calculations of possible paths through space were all the more impressive for having taken place largely before the advent of the electronic computer. Relying instead on her brain, as did the other women working at NASA, Johnson described the pool of women she worked with as ‘computers who wore skirts.’

As one of NASA’s first African-American female scientists, Johnson’s pencil-and-paper computations could make or break a mission. Just before the launch of one early space orbit, astronaut John Glenn asked engineers ‘to get the girl’—Johnson—to verify



by hand the calculations for the spacecraft’s trajectory. He didn’t feel safe enough to lift off until she had. Glenn’s mission was a success and tipped the balance in favour of the United States during its space race with the then-Soviet Union. NASA later used Johnson’s mathematics to help put the first man on the moon during the Apollo 11 mission.

Women were not credited for their work in the early days of NASA, their names left off of official papers. And when man finally reached the moon, it was the astronauts themselves who captured the public’s imagination. It is only recently that Johnson’s work has been recognised and celebrated. In 2015, US president Barack Obama awarded her the Presidential Medal of Freedom, the highest civilian honour. A year later, in 2016, Hollywood biopic *Hidden Figures* told her story on film.

Yet, despite years of her employers, the media, and the general public failing to recognise her talents, Johnson never sought external validation. She knew she could make things add up, that she could chart celestial passages through space—and so she did. ‘I don’t have a feeling of inferiority,’ she once said, ‘—never had. I’m as good as anybody, but no better.’