Educational

Bibha Chowdhuri: A Woman of Firsts with No Recognition

Described in her own biography as “a forgotten heroine of Indian science,” Bibha Chowdhuri was, until recently, often overlooked for her accomplishments. From missing the chance to win a Nobel Prize due to a lack of resources to having her work on a project erased while her colleagues received national attention for theirs, the first woman Particle Physicist in India deserved more than anyone gave her credit for.

Photo courtesy of The Hindu Business Line.

LEARN MORE ABOUT BIBHA CHOWDHURI

Born to Break Barriers

Bibha Chowdhuri was born in 1913 in Kolkata, India. While her family was progressive and valued education, the rest of their society did not: women who pursued an education were rare, and those who did were highly discouraged. Chowdhuri

stayed in Kolkata to continue her schooling and earned her Bachelor of Science in Physics with Honors from Scottish Church College and her Masters from Calcutta University. She was the only woman in her class.

Upon earning her Masters, Chowdhuri was just the third woman to have ever received a postgraduate degree in physics from Calcutta.

Bibha Chowdhuri at the Bose Institute

In 1936, Chowdhuri began her research career under Dr. Debendra Mohan Bose, commonly known as D. M. Bose, who originally turned her away because his research wasn't "suitable for women."

Under Dr. Bose at the Bose Institute, Chowdhuri focused on studying cosmic rays. They were pioneers in the subject, having to ride mules high into the Himalayas to reach stations where they could conduct their experiments. There, they exposed photographic plates to the cosmic rays for long periods of time and analyzed the particle tracks left behind. Their experiments picked up that there was an unknown particle, but their plates weren't sensitive enough to provide accurate measurements.

While they were advocating for better resources, World War II broke out and led to an embargo on the photographic plates that they needed from England.

After the war ended, Cecil Powell, a British physicist, continued the research in England using similar methods with more sensitive plates, detecting a new particle and winning him the Nobel Prize in 1950. Chowdhury and Bose's work was acknowledged in his book, but their recognition quickly faded.

PhD. and Research at the University of Manchester

In 1945, Chowdhury moved to the University of Manchester's cosmic ray research lab under Patrick M. S. Blackett to earn her PhD. Leading the research charge for cosmic rays, Blackett invented a new type of cloud chamber that was more sensitive to the particles being studied- earning him a Nobel Prize in 1949. It's unknown how much of Chowdhury's research contributed to the invention and discoveries found with it.

Chowdhury submitted her thesis, titled "Extensive Air Showers Associated with Penetrating Particles," a few months later. Her thesis examiners recommended her for a position at the Tata Institute of Fundamental Research in Mumbai (TIFR), India, newly formed by Dr. Homi J. Bhabh.

While at the University of Manchester, she received the first public acknowledgment of her work in a local newspaper. Titled "Meet India's New Woman Scientist: She has an eye for cosmic rays," the article explored the work Chowdhury was doing and her feelings on physics as a whole.

"It is a tragedy that we have so few women physicists today," Chowdhury is quoted in the article, "In this age when science, and physics particularly, is more important than ever, women should study atomic power; if they don't understand how it works, how can they help decide how it should be used?"

A Career Unrecognized

At TIFR, Chowdhury was the first female faculty member. She continued her research on cosmic air showers with notable

names in particle physics like Appa Rao and M.G.K. Menon for nearly ten years.

She joined the Physical Research Laboratory (PRL) in Ahmedabad in 1957, headed by Prof. Vikram Sarabhai and joined by her TIFR colleagues. Working on the Kolar Gold Field (KGF) experiments, she was one of the pioneers in building particle detectors until they were abandoned in the 1980s.

While other scientists involved in the KGF received a lot of recognition and national awards, Chowdhury's work was scrubbed from the records, only remembered by her colleagues' "special thanks" when they were recognized.

After Sarabhai's death in 1971, Chowdhury retired and moved to her hometown of Kolkata, where she continued researching at the Saha Institute of Nuclear Physics until she passed away in 1991.

Chowdhury lived a life dedicated to science and research, with her last paper being published in 1990. She was never married or had children.

A Jewel Unearthed, Bibha Chowdhury

While she never received any recognition in India while she was alive, Rajinder Singh and Suprakash C. Roy wrote her biography in 2018, titled "Bibha Chowdhuri: A Jewel Unearthed: The Story of an Indian Woman Scientist." The International Astronomical Union also named a dwarf white star after her, simply titled Bibha.

Although she wasn't appreciated in her time, Bibha Chowdhuri's story serves to inspire young girls interested in physics to fight for opportunities and to follow their passions.