

Decades after Nobel Prize snub, scientist recognized for her discovery

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Image 1. An artist's concept depicting the pulsar planet system. Photo by: Photo12/UIG via Getty Images

Scientist Jocelyn Bell Burnell did not feel like she belonged when she first began her Ph.D. in physics at Cambridge University. "I'm not bright enough for this place," she says she thought at the time.

Bell Burnell was one of only two women in her program, and Cambridge was the wealthiest place she had ever lived. Both factors likely contributed to her impostor syndrome, she told The Washington Post, "although of course we didn't know that term then." Impostor syndrome is when someone doubts his or her accomplishments.

Bell Burnell's response was to work as hard as she possibly could, which ended up paying off. Two years after she arrived at Cambridge, Bell Burnell discovered the first pulsars. Pulsars are special stars that transmit radio waves. The groundbreaking discovery earned her the \$3 million special Breakthrough Prize in Fundamental Physics on September 6, a prize that was previously awarded to Stephen Hawking, among others.

Bell Burnell Encounters Sexism

It is a recognition that many feel is long overdue, especially since Bell Burnell's male Ph.D. supervisor won a Nobel Prize for the same discovery in 1974.

Like the stars of "Hidden Figures" and DNA researcher Rosalind Franklin, Bell Burnell's personal story shows the challenges faced by women in scientific fields. Born in Northern Ireland in 1943, she had to fight to take science classes after the age of 12. "The assumption was that the boys would do science and the girls would do cookery and needlework," she told The Washington Post.

By her junior year at the University of Glasgow in Scotland, she was the only woman enrolled in honors physics. Men whistled and heckled her every time she walked into the lecture hall, she said.

"I learned not to blush," she said. "If you blushed, they just got louder."

At Cambridge, the sexism was somewhat quieter, she said. When Bell Burnell got engaged, people assumed she would be dropping out of the program to become a wife and mother. As a result, professors stopped investing in her career.



Discovery Credited To A Male Colleague

Then, in 1967, Bell Burnell was put in charge of monitoring the readings of a radio telescope. She noticed an "unclassifiable squiggle" and alerted her supervisor. It was the kind of detail that others might have disregarded or overlooked.

"The source didn't seem to be man-made — it was moving around with the stars, keeping pace with the constellations," she told The Guardian in 2009.

She later discovered two more of the strange squiggles and realized they were a new kind of star that transmitted radio waves as they spun. "We called them pulsars," she said.

The discovery of pulsars ended up being "one of the biggest surprises in the history of astronomy," the Breakthrough Prize committee said in a September 6 news release. The discovery led to several important tests and a new understanding of the beginning of the universe.

When Bell Burnell and her supervisor published a paper detailing their findings in 1968, it attracted international attention. The media did not know what to do with a young female scientist who had made a major breakthrough, she told The Guardian.

"Photographers would say, 'Could you undo some buttons on your jacket, please?'" she recalled. "Journalists asked how many boyfriends I had."

Then, Antony Hewish, her supervisor, was awarded the 1974 Nobel Prize in Physics "for his decisive role in the discovery of pulsars."

Being overlooked by the Nobel committee did not surprise her, Bell Burnell told Science News in a recent interview. It was just how things worked back then. Professors, not students, got the credit.

"At that stage, the image people had of science was of a senior man, and it always was a man, with a fleet of younger people working for him," she said. "And if the project went well, the man got praise. If the project went badly, the man got the blame."

Bell Burnell Doesn't Miss Nobel Prize

These days, her Nobel snub is often cited as an example of how women's contributions to science get erased or overlooked. But Bell Burnell, who currently teaches astronomy at Oxford University, says she is not bothered by it.

"I feel I've done very well out of not getting a Nobel Prize," she told The Guardian on September 6. "If you get a Nobel Prize, you have this fantastic week and then nobody gives you anything else. If you don't get a Nobel Prize, you get everything that moves. Almost every year there's been some sort of party because I've got another award. That's much more fun."

As for the \$3 million, Bell Burnell, whose Quaker faith preaches living simply, does not plan on keeping any of it.

"I don't need a Porsche or Ferrari," she told The Washington Post. "I don't have an affluent lifestyle."

Instead, the money will go to creating scholarships for people from underrepresented backgrounds who want to study physics. The funds will be given out by the U.K.'s Institute of Physics, and Bell Burnell is hopeful that having more people from different backgrounds entering the field will lead to even more new discoveries.

"Maybe," she joked, "having some people who suffer from impostor syndrome is not a bad thing."