



Creation: our place, our space

Dame Jocelyn Bell Burnell: looking out across creation

This is Jocelyn Bell Burnell. She is still alive, and she sometimes visits Cambridge. You might see her walking down the street one day!

Jocelyn was born in Northern Ireland in 1943. Her father was an architect and he helped to build the Armagh Planetarium. Jocelyn was inspired by visits there, looking at the stars, and she decided that she wanted to study astronomy.

But it wasn't going to be easy. When she was a child, girls were made to study things like cooking and needlework. Jocelyn and her parents had to protest until she was allowed to study science at school. She went on to study physics at the University of Glasgow in Scotland, and when she was twenty-two she came to Cambridge to do research in her beloved astronomy.

Jocelyn said that she was very nervous when she first came to Cambridge. There weren't many women scientists, and life was very different to anything she had known before. She felt that she didn't really deserve to be here – there must have been a mistake. But she decided that she was going to work really hard and check all her experiment results thoroughly, so no one could turn around and tell her to go back home. She thinks that it is this thoroughness which helped her make one of the biggest discoveries in astronomy.

Her research work was to help her PhD supervisor Antony Hewish set up the Interplanetary Scintillation Array – a radio telescope that tracked across the sky with the stars – and produced about 30m of paper data per night. Jocelyn spent hours analysing the data carefully. In July 1967 she discovered a bit of “scruff” on one of her chart recorder papers. Most people would have overlooked it, and her supervisor told her to ignore it. But Jocelyn looked at it again and again. She eventually worked out that it was a signal which was pulsing with great regularity, at a rate of about one pulse every one and a third seconds. She had discovered pulsars - rapidly spinning neutron stars!

Her work was published under Hewish's name, with her name coming after. And it was Antony Hewish and one of his male colleagues, Martin Ryle, who won a Nobel Prize for Physics in 1974 for the discovery of pulsars. Many people have said that this wasn't fair as Jocelyn had made the discovery, but Jocelyn herself says that it is very rare for students themselves to be awarded a Nobel Prize for the work they are involved in with their supervisors.

Jocelyn went on to win lots of other awards and honours. She was even made Dame Commander of the British Empire in 2007. She has been project manager of the James Clark Maxwell Telescope in Hawaii, President of the Royal Astronomical Society, and is now Professor of Astrophysics at the University of Oxford.

As Jocelyn gazes into space, she enjoys exploring and learning more about God's creation. From her school days she has been an active Quaker, and her Christian faith has inspired her work. She has written a book called *A Quaker Astronomer Reflects: Can a Scientist Also Be Religious?*



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Just a few weeks ago she was awarded the Special Breakthrough Prize in Fundamental Physics. This was partly to make up for her not winning the Nobel Prize all those years ago! She won £2.3 million as prize money, but she thinks that she has enough money for herself. She remembers what it was like when she was the only woman working in a team of white men and is thankful for the opportunities she had. So, she has decided to give all the money away to help people who wouldn't usually have an opportunity to become physics researchers: women, ethnic minorities and refugees.

Wondering Questions

- I wonder which was your favourite part of this story?
- I wonder which was the most important part?
- I wonder if there is anything you would change?
- I wonder what happened next?
- I wonder where you are in this story?

Response Activity

Listen to the sound of a neutron star: <https://www.youtube.com/watch?v=uHEVo-LkDrQ>

The ancient philosophers talked about the music of the spheres: the idea that the celestial bodies (the sun and moon and planets) were all moving together in harmony.

I wonder if you would like to compose a piece of music to describe space and the created universe?

Creative response

I wonder how you can show what this story has meant to you, or what it has made you think about?

Resources: selection of art and craft materials to choose from.