



VNIVERSITAT DE VALÈNCIA

'Honoris Causa'
Acceptance speech

Prof. Dr. Jocelyn Bell Burnell

València, November 10th 2017

I am very honoured to receive this special degree, and in this venerable place. I hope that I can live up to this: that nothing I might do in the future makes you regret this award!

Since there are not so many women in physics and astronomy in my country, I am pleased that today you are awarding this degree to a female astrophysicist. It has been a long struggle in my country to get women fully accepted as scientists, but things are beginning to change. Of course it means a big change for the men as well. I believe that diversity in our academic departments makes them more resilient, more robust and more successful, especially at times of rapid or unexpected change.

This is a special year for me. Fifty years ago I was a graduate student in Cambridge (England – not USA), studying radio astronomy, and discovered a new, unexpected kind of star. We now call them pulsars or neutron stars. Recently we had a special conference at Jodrell Bank in the United Kingdom to mark this event, to see what we have learnt in those 50 years, and what might be the topics to address in the next 50 years.

The last 50 years of pulsar research have been exciting with many surprising, unexpected discoveries. You would imagine that after 50 years a research field might be settling down, becoming middle aged! But the pulsar research field has not settled down yet – it is behaving more like a teen-aged person!

50 years ago there were very few computers. The University of Cambridge had one; it occupied a large room and had memory less than one of today's lap tops! I did not have access to that computer, instead my data came out on long strips of chart paper, which I analysed by hand, and by the end of six months I had over 5 km of chart paper!

The pulsar signal, if it was present, would occupy about 1 cm in 500m. Impossibly small, you might think. But there was one other factor that came into play, and that factor is more often associated with women than with men. It is to do with confidence.

My childhood and education had all been in the north and west of the United Kingdom – some would say the *wild* north and west – the Celtic fringe! Cambridge was a great mecca of learning, far to the south, in the soft, affluent part of England. I did not expect to get a place at the University there, and when I did and arrived to start my doctorate, I was overawed. They were all so clever (and made clear they were clever)!

I judged they had made a mistake admitting me....that they would soon discover that mistake....and would throw me out of the University. We call this '*imposter syndrome*'. In a severe case the student will decide they should leave before they are discovered and thrown out. In the University of Oxford, and equally prestigious place, we now know to look out for and help these students. They are more often female and male.

I can remember in my early days in Cambridge saying to myself “They have made a mistake admitting me; they are going to throw me out, but until they do I will work my very hardest, so that *when* they throw me out , I will not have a guilty conscience, I will know I have done my best. And because I was working my very hardest and being very thorough, I noticed that 1cm in the 500m, and pursued it.

There are a few very special occasions in life that one remembers and recalls where you were when you heard the news. I remember where I was when the conquest of Everest was announced. I remember where I was when the shooting of President Kennedy was announced. Valencia University is linked in my mind with another announcement – one that is very special to astronomers and physicists.

In February last year I was visiting the University when there was an announcement of the discovery of gravitational radiation – predicted by Einstein 100 years previously. We strongly suspected this radiation existed but it is very hard to detect: physicists had been working on the problem for 40 years. I was not sure I would live to see the day when it was picked up. It was a privilege to sit with members of Valencia's Physics Department and see the press announcement, relayed from the USA. This radiation had been detected through the measurement of a movement of only one ten millionth of the width of a human hair! So thank you to those who had invited me to Valencia and thank you to the physics department for allowing me to be part of that memorable occasion.

One of my current roles is as President of the Royal Society of Edinburgh – Scotland's National Academy, founded in 1783 to advance 'learning and useful knowledge'. It is an 'interesting' time to be involved in Scottish affairs. Scotland has always had strong European links, independent of England, and would wish to stay in Europe. But sadly the UK is leaving the European community. There is once again a strong voice for Scottish independence.

How this will end up, I do not know. I understand the Spanish reluctance to admit breakaway countries, and that will undoubtedly influence any Scottish decision. But I do wish to emphasise the long and strong European Links that Scotland has, and how the University of Valencia is today building on those links.

It is in all these contexts that I greatly welcome this Honorary degree and once again thank the University for its generosity. Thank you!

Jocelyn Bell Burnell



VNIVERSITAT DE VALÈNCIA