

Space Stories with DR. TESS CASWELL



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What if you had the opportunity to listen to stories of space exploration directly from an aerospace engineer and simulated astronaut from NASA? What if you could ask her your most pressing questions about space, ranging from the silliest to the most complex ones? On June 30, 2018, about 150 students from different universities and colleges in Dhaka were given the chance to do just that at the "Space Stories" session held at the Independent University Bangladesh.

Following the monumental success of the Bangabandhu-1 satellite launch and the recent achievements of the Bangladeshi Mars Rover Teams, Mars Society Bangladesh in collaboration with Engineering Students' Association of Bangladesh (ESAB), ESAB Innovation Centre (EIC) and Department of CSE of the Independent University Bangladesh invited Dr. Tess Caswell, a simulated astronaut for NASA's long-duration space mission, planetary scientist, and aerospace engineer to share her experiences with the young space enthusiasts of the country.

Soon after the session, the SHOUT team had the opportunity to speak with Dr. Caswell to learn about her personal journey and to hear her thoughts on Bangladesh's endeavours towards space exploration.

WHAT INSPIRED YOU TOWARDS SPACE EXPLORATION?

Dr. Caswell: When I was 10 years old, my fifth grade teacher covered one wall of our classroom with a huge poster of a space shuttle orbiting the Earth and I was absolutely captivated by it. Something about that photo just lit my imagination on fire. In that same year, an astronaut from NASA came to my school and gave a talk about the space station and space shuttle. Afterwards, he stopped by our classroom and spoke with all of us in a small group setting. I remember thinking how amazing it was that this person who actually worked on the space programme was there talking to us one on one. And so those two things combined, I think really fuelled my passion for space exploration.

WHO IS YOUR BIGGEST INFLUENCE IN THIS FIELD?

Dr. Caswell: Amelia Earhart. She has been a role model of mine since I was a little girl. It's because even though

she was famous, she wasn't the best. She always tried to improve her own abilities and to make the world better for women and girls in aviation. She was always pushing the boundaries.

WHAT ARE YOUR THOUGHTS ON WOMEN IN NASA/ WOMEN IN SPACE?

Dr. Caswell: I think we've come a long way from the days of Sally Ride. There's a woman on the International Space Station (ISS) right now. There is usually a woman on the space station; women hold records among the astronauts for most time in space, most time on space walks and so on. So I think we're reaching an age where women and men at least function with equality in the space programmes. But even so I believe there are ways to go in terms of equal representation because there are still fewer women astronauts in space. I never felt like being an astronaut wasn't something I could do. I always felt like it was an achievable goal because there have been women in that job ever since I was a kid. I think, in NASA they go out of their way to not discriminate in their selection process and I think they do a pretty good job of it.

IN YOUR OPINION, SHOULD WE AS A LOWER MIDDLE INCOME COUNTRY PURSUE/ INVEST IN SPACE EXPLORATION AT ALL?

Dr. Caswell: The Bangabandhu-1 satellite is already a huge step towards space exploration that can do wonders. I think CubeSats and NanoSats can also be very useful to have a hands-on experience without having something in the scale of NASA. A space infrastructure can help with communication, earth observation, understanding of water levels, monitoring of resources, monitoring air quality, and even understanding effects of climate change. Space infrastructure allows to monitor large scale phenomenon across the country that can be especially useful for a developing nation.

WHAT MESSAGE DO YOU HAVE FOR THE ASPIRING AEROSPACE ENGINEERS AND ASTRONAUTS OF BANGLADESH?

Dr. Caswell: Carpe diem -- seize the day. Seize the opportunities that are available to you, especially in a nation where the space programme is young and developing. And because it's new and developing, there are so many doors open for you. I feel like women and

girls should do their best to jump into the space programmes and not be afraid. It is going to be hard for them, especially now when it is male dominated. But they should not take 'no' for an answer. If it's what you want to do, just go do it. It sounds kind of clichéd but I think that's what you have to do -- look for the opportunities and go for them regardless of how hard it looks like it's going to be. Because if you really want it, the challenge will be worth it.

And as I have mentioned earlier, I studied engineering at the University of Alaska Fairbanks (UAF), which is hardly a university people recognise. But it turned out to be a blessing in disguise because at UAF, I discovered a project very much like the Rover team here, I discovered that there was a team of students building a sounding rocket payload and that UAF is the only university in the world that owns its own rocket launch facility. Through this hands-on training and the experience from my internships, I landed my first job as an operator of the Environmental and Thermal Operating Systems (ETHOS) console at the ISS mission control. So really, your education is what you make of it, no matter where you are studying.

WHAT KIND OF CAREER PATH SHOULD THEY PURSUE IN ORDER TO DO THAT?

Dr. Caswell: To be honest, I'd say follow your passion. There are so many different jobs within the umbrella of aerospace. If you are interested in medicine, you could be an aerospace physician; if you're interested in biology, you can study the effects of zero gravity on planet biology; if you want to design spaceships, you can be an engineer. You just have to follow your passion and let it lead you on the right course. That's what I found. I asked an astronaut what to do when I was a little kid and I followed his advice to a tee. But when I got there I realised that I wasn't doing the right thing because I let someone else influence my career path. Later on, I realised that more than being an engineer, I was interested in research and discovery, and using my discovery for space exploration as well as for the benefit of the earth. So I went back to school to get a PhD in Geological Sciences, and I am proud to have done that. So I feel that you just have to follow your own intuition and pursue the path that calls to you.

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