

Pale Blue Dot

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The following text is comprised of excerpts taken from a conversation between Shahriar A. and George in early 2016. George is an aerospace engineer that has worked for NASA for the last 12 years. This conversation primarily took place over multiple emails and has evolved into a Q & A format.

Note: George has expressed that he is not an official representative of NASA and that his personal views do not reflect the formal position of the agency. In respect of his privacy only his first name is used.

PART 1

S: For me it has always been a point of interest to step back and take a look at the current state of the world and how it has arrived to where it is today. I continue to explore themes within my art practice and research that create discourse around migration and diaspora in a globalising world. How do your experiences working within the field of space exploration influence the way you think about the world?

G: You cannot work at NASA without being reminded daily of the planet we share and the interconnections of those who live on its surface. The International Space Station soars overhead as a testament to what we can accomplish through mutual cooperation and is a living example of peaceful cultural cohabitation in a challenging environment that somehow still manages to provide otherwise impossible advances in science, medicine, technology and exploration. Anyone who has had the privilege to visit the International Space Station can recount their firsthand experience with the 'Overview Effect'.¹

S: Fascinating, I like the description that you have given about the 'Overview Effect', I haven't come across that before. It makes me think about the complex network of civilisation, the migration of people around the world and how much simpler it must seem from up there. I can only imagine that ones perception of the world from the International Space Station must be overwhelming; looking at a planet that seems so small and fragile from that perspective and then thinking about how big our problems seem when faced with them on Earth.

G: I think an awareness of the complex interconnected network is still there. It's not that the Earth appears simpler from space, it's that the world's fundamental unity becomes concrete, visible, and inescapable. The fabricated borders, invented separations, xenophobias and prejudices are laid bare for what they are.

S: I understand that you have worked at NASA since 2004. During that time you have been a part of numerous launches with the Orbiter² program until it was retired in 2011. You have also worked on the Orion spacecraft and avionics for expendable rockets like SpaceX's Falcon 9. What are you working on now?

G: Last year I started a work detail at Kennedy Space Centres Swamp Works facility, assisting with research that will help make NASA's future deep space exploration possible through techniques like In-Situ Resource Utilization (ISRU).

S: You mention previously the phrase 'cultural cohabitation' in space. Could you describe that a bit further?

G: The International Space Station is a beacon of hope on so many fronts. Not just in terms of science, technology and exploration but in terms of peace. Its very existence would be impossible without international cooperation and funding across borders, languages, cultures and competing technologies. Astronauts and cosmonauts do not give up their identities when living and working aboard the ISS, they simply become more aware of the backgrounds of others and expand their own behaviour to interface with those cultures with kindness, forbearance and intention. All the humans on the ISS rely on each other as a matter of survival, and they don't just make it work. They're comrades. It doesn't take too much imagination to realise the entire Earth is a spaceship, and when it comes down to it, everyone relies upon everyone else to maintain our finite habitat so we and our progeny can thrive.

PART 2

S: For decades the world has faced a universal problem: how to address the global migration of refugees on a catastrophic scale. Developed nations are being challenged by their own people about their laws and foreign policies regarding immigration and opinions are divided on how to support the international refugee crisis.

The most recent challenge brought on by the crises of global migration is the diaspora of the Middle East. Civil unrest, particularly within the wider region in the last decade, has devastated infrastructure, economies and governance resulting in an exodus of biblical proportions. Asylum seekers and refugees from these parts of the world, by no choice of their own, are being forced to migrate and assimilate into western cultures and nations.

Do you think it is possible now for the developed world to see the migration of people and the integration of different cultures as a strengthening of their society and nation? Could this shift in perception result in further advances in the sciences and the arts? Will it challenge designers and technologists to not only face the world's current problems but also provide innovative solutions for its future?

G: It is definitely possible for the developed world to see immigration in a positive light. However, this is dependant upon individual citizens not being insecure about their own culture and also not primed

to see themselves or their way of life as superior or under threat. If citizens of the developed world saw the integration of migrant cultures as strengthening to their society, it would open the doors to all the untapped contributions latent within people who have not been given the opportunity to express them in the land where they were born. Already approximately a third of PhDs in science, engineering and health in the USA are awarded to foreign-born students.³ These are the people responsible for scientific and technical advancements. How can anyone argue that providing a home for these promising graduates would not strengthen the economy and society of the country where they studied? The same applies to the arts, and the perspectives of those who grew up under different circumstances. The more the potential of every human is actualised, the more quickly and efficiently we as a species can rise to meet the challenges we face.

S: I completely agree. No one is able to choose the socioeconomic and political environments that they are born into and some are not presented opportunities to develop their latent potential through higher education as a result of their environment. The way in which this displacement of people is covered on international news media can encourage xenophobic tendencies and can be further fuelled by partisan politics. This 'fear' marks the 'migrant' as a future problem to the society that he/she is relocated to. The developed nations and their people are therefore divided on their stance on whether or not they should change their policies and attitudes to support the refugee crisis.

Currently I reside within New Zealand. It has been 29 years since New Zealand has raised its quota for accepting more refugees. New Zealand's immigration policies have kept this number at 750 refugees a year for far to long.⁴ This apprehension to do more than the bare minimum is sad and a true failure.

PART 3

S: Human history shows that we are natural explorers. Because humans have navigated and mapped the world, migrating to every continent, it is only natural that our fascination with discovery is extended to the stars. Space exploration has already begun and will inevitably progress. Recently, while researching on the topic of utopia, I came across a text by Matthias Böttger and Ludwig Engel in which they write:

Science fiction narratives illustrated through visions of utopia have served as a poetic and indirect form

*of social critique. These proposed situations are hypothetical but are still plausible as they are shaped by our present circumstances, indicating the complexities of contemporary events and illustrating the current state of our society.*⁵

I envisage a future hybrid society that considers space travel and inhabitation as an integral part of their existence. Do you think it is a plausible reality that, in say 1000 years, humanity would have successfully inhabited space?

G: Space travel is already a reality. Humans have set foot on the Moon, robots of our creation have visited every planet and five spacecraft have already left the solar system. Humans will likely visit the moons and surface of Mars as well as several asteroids and perhaps even the moons of Jupiter and Saturn in this century. A thousand years is a very long time, and the rate of our technological and scientific advancement is not just positive it is accelerating. I fully expect humans to be living in established settlements and thriving extra-terrestrial cities throughout the solar system by the year 3000 AD. In fact, I would be surprised if humans, or at the very least their robotic proxies, had not yet visited other star systems by that time.

S: That's very exciting and on the other hand hard to comprehend. A lot has to change for the world to arrive at that point. Just the idea of having another colony on another planet ignites the imagination. I truly admire that you believe the future can be depicted as a progressive civilisation rather than a dystopian one. It does raise the question: At what point, do you imagine, will our nations realise that the future relies on cultural coexistence?

G: We are already witnessing major milestones toward the cultural coexistence required to meet the challenges of our time. Every single country on Earth, all 195 of them, for the first time in history reached a unified agreement in December 2015. Many scientists see climate change as the single greatest threat to humanity in the twenty-first century and beyond; the fact that every nation, even those at war, came together to agree on a forward path of action to address this global threat is concrete evidence of the inevitable future unity of humankind. The Paris Agreement is not just a signal event in the history of fossil fuel emissions it is a watershed moment in the history of humanity. There is so much still to be done. We must act upon our promises.

Footnotes.

1 The Overview Effect is a term used to describe the experience of viewing Earth from space. This profound perspective is said to make astronaut aware of how unique the Earth is within the universe and that the sociopolitical divisions between countries are insignificant in comparison to the whole of humanity and our ecosystem.

2 The orbiter was the heart and brains of the Space Shuttle and served as the crew transport vehicle that carried astronauts to and from space. NASA retired its three operational orbiters at the end of the Space Shuttle Program in 2011 (Atlantis, Discovery, Endeavour).. 'History of NASA's Orbiters'. NASA. <http://www.nasa.gov/agency/crm/shuttle/orbiter.html#.Vx3CbWPZbfY> (accessed 25 April 2016).

3 National Center for Science and Engineering Statistics. 'Graduate Students and Postdoctorates in Science and Engineering: Fall 2011' in National Science Foundation–National Institutes of Health Survey. September 2013. <http://www.nsf.gov/statistics/nsf13331/pdf/nsf13331.pdf> (accessed 25 April 2016).

4 New Zealand's annual refugee quota of 750 has not increased since it was first announced in 1987. New Zealand's total refugee population in 2014 was 1349, equivalent to about 0.3 refugees per 1000 people. That is five times fewer refugees per head of population than Australia and about 47 times fewer than Sweden. This places New Zealand 87th in the world for refugees per head of population. Andy Fyers. 'How New Zealand's refugee quota stacks up internationally'. Stuff, Wellington, 9 September 2015. <http://www.stuff.co.nz/national/politics/71899378/How-New-Zealands-refugee-quota-stacks-up-internationally> (25 April 2016).

5 Matthias Böttger and Ludwig Engel. 'They promised us jetpacks!' in Utopia Forever: Visions of Architecture and Urbanism. Die Gestalten Verlag: Berlin, 2011. p. 159-160.