

Hi this isn't the Ordinary Guy from the Brains Matter podcast <http://www.brainsmatter.com> and this isn't Steve Nerlich from Cheap Astronomy [www.cheapastro.com](http://www.cheapastro.com) but this is *Astronomy outreach*.

OG: And what we're going to talk about today is science communication especially related to astronomy.

SN: I was going to ask you what is your motivation for doing your Brains Matter podcasts – what are you out to achieve?

OG: Well I guess this starts in a galaxy not that far away and not too long ago. I was watching a television news program and, as you may know watching commercial television, they tend to dumb things right down. I was watching this particular commercial news program and they were talking about some kind of medical research and I don't have a medical background by any means, but I knew enough about the science to know that what they were talking about was absolute rubbish. So I started throwing things at the television and my other half said well, if you think you can do better why don't you? And I thought hold on maybe I should try and do better. So that's where my impetus came in to start doing my science communication. So how about you Steve?

SN: Well, the title Cheap Astronomy comes from my thinking about what our ideal target audience is – for astronomy outreach and science advocacy more generally. And I think our target audience are parents with children. So the parents have gone through their phase of education, they've got married and the children have come along. So they're parents and their cash flow is very limited, but at the same time they're in that ideal position of passing on knowledge to the next generation. So I think in that context, what we want to do is give people permission to do everything the Internet tells you not to do – which is to go down to the local department store, buy the cheapest telescope on the floor and bring it home in a box, put it together – be completely comfortable with the fact that it's a crappy, wobbly, not particularly high resolution telescope, but you can point it at the sky and see the rings of Saturn, show your kids – everyone gasps with amazement – you do that two or three times and then you put it in the garage next to all that gym equipment that you've never really used either. But that's OK. It's a once in a lifetime thing that you've done – your kids will forget and maybe there's a chance they will grow up with a burning interest to pursue a scientific career.

OG: Mrs Ordinary Guy has a quite cheap telescope. I don't know what brand it is, I don't know if I could identify a brand on it, but it's a Newtonian. We've pulled it out probably two times in the last five years and actually we have a young child and he's actually quite interested in the stars and making up his own constellations – and he got to the point where he got so interested in it so interested he used to point at things and ask me what they were and I'd tell him. And one day Grandpa OG came along and he was holding OG junior up on his shoulder pointing up at the stars and saying "look at that bright one over there, isn't that a bright star?" And young Mr four year old turned round to Grandpa and said – that's not a star, that's Venus. And then Grandpa looked a little embarrassed thinking "I've just been told off by a four year old".

SN: Excellent. I think that's how it works, you just give people a bit of exposure to it when they're young and you plant a seed.

OG: From little things, big things grow as Paul Kelly said once upon a time. Once we get these seeds planted and have enough people interested, one of the things that I'm trying to achieve, in terms of my science communication, is trying to get a little bit more awareness out there on science and astronomy from the government community. So, there was a quote from, I don't remember who it was, to say that in 1969 we had the Apollo, in 1981 we had the Space Shuttle – and now we've got nothing. That would be great progress if we were going backwards in time.

SN: It would be a great thing if everyone in our current generation were at least aware that 65 million years ago, the dinosaurs were wiped out by a 10 kilometre object striking the Earth. That's an extremely rare event, but at the same time...

OG: It's a non-zero probability.

SN: Exactly. So, it would be kind of sad to have had our species evolve with this extraordinary talent that we do have of the capacity to develop technology to do quite remarkable things – and not to apply that to this ever present risk, however remote it may be in the short spans of time that we are alive as individuals.

OG: But, where do you see us going in the next 20, 30, 50 years because as everyone knows the planet is getting much healthier. We might delve into a bit of science fiction here, but what do you see as a) where we might be going and b) where we should be going in the medium to long term future.

SN: A good way to think is to wonder how we might get to Mars, which most people think of as the next step that we should take after having landed on the Moon. Mars is a whole different ball game, whereas the Moon was 3 days away, it's about 7 months away with our current technology – so that there's a whole bunch of risks associated with being in empty space for 7 months, both with issues of radiation and also muscle wastage and skeletal degradation – and it's just sort of cramped and uncomfortable and there's no sunshine and it doesn't sound like a lot of fun. There probably are some adventurous people who would volunteer for the mission, but it's not something I'd want to do.

OG: The thing that I keep thinking of is about – even though we have the willingness to do it and we may find people who are happy to go on a one way ticket to a life of adventure (if you want to call it that) – is the resourcing. As much as you might want to recycle water – and things like that – you'll need food and you'll need some kind of energy sources because as you get further from the Sun, the ability to generate electricity degrades. We may have the intent – but is it really feasible with the technology set that we understand right now?

SN: I agree – and that's where we come back to the issue of climate change and the impact that we are currently having on our planet. So we need to do something to sustain ourselves for the next 10, 20 30 years – we probably need at least a hundred years for us to become a truly space-faring species. So to get that far we need to give ourselves the time to sustain ourselves on this planet until we develop those technologies and have sufficiently robust economies that a certain proportion of our population can go to university and do

research and not be racing around doing things that just earn money or make food, or whatever. And I think there is always a risk that everyone... they get born, they grow up and suddenly the Internet is available and they never put thought into why the Internet ever became possible – and that's all about a long history of technological development and people being willing to invest money in fairly arcane research – some of which involved dead ends, but at the end of the day if you go through that process something good comes of it.

OG: And this hints at something that's happening quite a bit in the western world at least in that a lot of funding for science research seems to be tied to almost immediate economic outcomes. So they say 'prove the value of this research'. And I keep thinking imagine trying to force that way of thinking on Einstein back in the early 1900s – we will fund you to do your research on relativity if you can tell us what it means. And, at that point, as much of a genius as he was, he would never have been able to consider things like GPS satellites and so on, one hundred years in the future. It's fundamental science that needs to be done before we can get to the next step.

SN: Yes, I agree.

OG: Alright, well thank you for that.

SN: Thank you.

Thanks for listening. This is Steve Nerlich from Cheap Astronomy, [www.cheapastro.com](http://www.cheapastro.com). Cheap Astronomy offers an educational website where education and research might avoid us going the same way as the dinosaurs (apart from the birds of course). No ads, no profit, just good science. Bye.