

# Do emerging scientists have a future in New Zealand?

## *Taking the non-traditional route: leaving academia*

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When we ask if emerging scientists have a future in New Zealand I think we're really asking a few separate, but related questions. I sometimes wonder, especially in the context of a conference like this, if we're making implicit assumptions about the answer to each of them, so I'm going to try to separate them out and answer them individually. First, we're asking if emerging scientists actually want a future in New Zealand. Assuming they do, we're asking if they can actually have a future here. Finally, we're asking how we can help to make it happen.

We can ask those questions in a couple of different ways. We can ask if, in terms of public policy, we want emerging scientists to have a future in New Zealand, if can we make that happen, and how to ensure it happens. We can also ask those same questions on a personal level. Do emerging scientists, like you or I, actually want a future here? And if so, can we make it happen?

Let's talk public policy for a minute. I'm sure that at some point today someone has presented a set of numbers and figures to the effect that an emerging scientist is a public good; each additional scientist in New Zealand confers some large (but hard to measure) benefit to the country as a whole. I'm sure they also provided evidence that the cost of convincing scientists to stay is much less than the return. If you haven't heard that here today, then you will have heard it elsewhere. Paul Callaghan, for example, discussed this extensively in *Wool to Weta*.<sup>1</sup> I don't disagree. Numbers never lie. However, one thing I rarely hear discussed is the opportunity cost. Scientists are smart people, and they would be smart people even if they weren't scientists. When we convince someone to work in the basic sciences we're also convincing them not to work on something else. What, I wonder, are we giving up?

I don't have an answer to that. It's just a thought.

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<sup>1</sup> *Wool to Weta: Transforming New Zealand's Culture* - Paul Callaghan; Auckland University Press 2009.

What I actually want to discuss today is the personal side of all this. So you understand where I'm coming from I'm going to tell you a bit about myself. I was born in South Africa and moved here when I was nine. I grew up in a town called Whakatane and moved to Wellington for university. I stayed for a PhD and then moved to Boston University to do a postdoc. Last year I quit my job and moved back here to start a company.

Technically that probably means I'm not an emerging scientist anymore, but I do know what it's like to leave New Zealand, and what it's like to return. Also, I am working in a related field. Let me tell you a little about my company, Publons.<sup>2</sup> Basically, we scientists prove our value with what we publish. A good publication record is the bedrock for any job or grant application. I'm sure you all agree that system is not perfect but, like democracy, it's the least bad system we've tried. Actually that's not true. We haven't tried any other systems. The basic technology we use to publish and review scientific research hasn't really changed in the three hundred plus years since the Royal Society started the first journal.

Publons is an attempt to change that. It's an experiment at allowing you to rate, review, and discuss any publication in any journal in one place, and an attempt to decouple your reputation as a scientist from journals and journal articles. I want to emphasize the experimental part of this project. We really are trying to approach this as a way to test a hypothesis. I doubt that would come naturally to me without a background in science. In that sense it's an example of how it's possible to do science without doing "science".

Anyway, publons.com. Please take a look. If you have any thoughts or suggestions then I'd love to hear them.

Ok, with that out of the way, let's get back to the original question: do emerging scientists want a future in New Zealand. I don't, not particularly. New Zealand is a beautiful place, and Wellington is a great city. My family is here and a lot of my friends are here; I'll always spend time here. However, New Zealand is a beautiful place in a world full of beautiful places, and Wellington is a great city in a world that contains Copenhagen, Barcelona, Cape Town, San Francisco, Boston, Chicago, New York, Shanghai, London, and Tokyo. In an ideal world I'd get to experience living in all of those places. And in a log cabin in the mountains of Montana.

However, I'm willing to accept that I'm in the minority. A good friend of mine just moved here because he fell for Wellington during a visit. I work with some people that moved back here from Hong Kong specifically because they wanted to live in Wellington. There seem to be a lot of emerging scientists that do want a future in New Zealand.

My only point is that it's up to you to decide on your future. It's ok to want to leave, and it's ok to want to stay.

For those of you that want to stay, can you? If science is your priority then the answer

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<sup>2</sup> <http://publons.com>

is probably no. My postdoctoral work focused on soft x-ray spectroscopy. Basically, that means I shot x-rays at various materials and looked at what came out. To do that you need a synchrotron, which is basically a particle accelerator, and costs on the order of 100 million dollars to build. I could not have come back to New Zealand if I'd wanted to keep doing that.

There is no chance you'll ever be able to do that kind of science in New Zealand. Nor is it likely that we'll attract many superstars. If you want to be surrounded by the very best scientists and students then you need to be in Boston, or the Bay Area, or somewhere like that. I'm sure that there's been plenty of talk about virtual networks today, but you can't beat physical presence.

However, the answer is also yes. If staying in New Zealand is your priority then there are plenty of things you can do here. I'm not going to list them; I'm trying to make a more general point. If we want to claim that we are brilliant scientists, capable of pushing forward the boundaries of human knowledge, then surely we are also capable of finding a way to stay in New Zealand. There's been a lot of talk today about how we need help from businesses, universities, and government. If you really want to stay in New Zealand then perhaps you should ignore that and figure it out for yourself. You might not have the same choices of what to work on, but it's certainly possible.

Don't get me wrong, I'm not saying that's easy.

I'll never forget what it was like to wake up in the days after quitting my postdoc. There is nothing you have to do; you're completely free to do whatever you want. No boss, no papers to write, no requirements. Sounds great, right? It's actually terrifying. What I've come to realize is that freedom is a scary thing. Having a job, a PhD to complete, a talk to present, these things give you validation.

A couple of years ago William Deresiewicz gave a talk to the plebe class at West Point. The title was "Solitude and Leadership".<sup>3</sup> The transcript is definitely worth reading; you'll find it in *The American Scholar*. In it he makes the case that leadership is not about being popular with people, but that leadership is about setting a course that is true to what you believe; it's about solitude.

The thing is that as we've trained to become expert scientists we've also trained to become experts at meeting the requirements of a bureaucracy. We go to school and learn how to pass tests. We graduate and learn how to get papers accepted into journals. We start working and learn how to write funding proposals.

I wonder if we shouldn't also try to train leaders, people that can imagine something beyond the bureaucracy. Maybe that sort of creative thinking is what New Zealand needs most of all.

Thanks.

*Thanks to Daniel Johnston for reading a draft of this talk.*

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<sup>3</sup> [Solitude and Leadership](#) - William Deresiewicz; *The American Scholar* 2010.