A Theory of Nothing—a novel approach to exposing how science really works

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Have you ever wondered what inspired the United States to initiate the mission to put a man on the Moon? Or who first thought of building the Large Hadron Collider or the massive Square Kilometre Array radio

telescope?

What is it that prompts these multi-billion-dollar scientific projects to start?

This is the issue explored by Australian author Thomas Barlow in his first novel, A Theory of Nothing, published last November and which I had the chance to revisit over the summer holiday.

Barlow's previous work tends to focus more on the factual coverage of science and innovation in Australia and beyond, including the regular Barlow Advisory on the Australian research and development system with a particular focus on universities.

His first work of fiction, though, clearly draws on his experience of dealing with people in scientific research. Barlow touches on some sensitive issues that we scientists don't always like to acknowledge.

But A Theory of Nothing didn't start out as a Barlow publication. Barlow originally self-published this novel with the title Critical Mass as a fictional autobiography of the protagonist, Professor Duronimus Karlof.

Early feedback from scientists and administrators gave Barlow the confidence to tighten up the story a little, to change some character names to protect the innocent and republish with a new title under his own name.

Into the novel

The novel begins with Prof Karlof, a physicist and rising star of Harvard University. The inspiration for setting up his major project is the death of a colleague, Sandra Hidecock, a renowned professor of natural law with many accolades.

Hidecock apparently jumped to her death from her office window as she challenged the laws of nature because she was opposed to their "soulless and frigid constraints".

In support of Hidecock, Karlof somewhat reluctantly initiates the Ooala Project, a billion-dollar project to, as he puts it, "have a go at the laws of nature".

Securing his first million dollars from the president of Harvard's slush fund, Karlof goes about creating his handpicked multidisciplinary team of five of the leading second-rate scientists at Harvard.

They were the "disaffected scholars" who "rarely published in the top journals and whose careers had never lived up to their self-imagined promise". These were the ones who wanted to "feel important again" and "their backing would be easy to obtain". In return they would receive "kudos […] and re-ignite in their hearts a sense of mission and destiny".

Having assembled his B-team, they decide that the focus of the Ooala Project should be creating sub-stationary motion. They would create an environment that slows matter down to being stationary compared to all other points of the universe and then slow the matter down more to be "beyond stationary!"

And so it begins.

Karlof builds an international research community including a professional society and a journal. He secures secret defence funding and creates international collaborations.

Karlof attracts additional funding of more than a billion dollars. He builds an extraordinary facility in the Nevada desert, complete with a new-concept electricity generator. He has a community of students living

on site in a Manhattan Project-style remote community, all working together to show that the laws of physics are not as they seem.

He even discovers a new "negatronium particle", an invisible, massless entity that reduces the mass of anything with which it collides.

More than just a story

But the satirical novel is more than a fun raspberry blown at the establishment of international science. Barlow has woven several important themes into a very engaging and humorous story.

He shows how the human element is a critical requirement in the scientific process to build a new research field. He suggests how supporting the best and brightest leader, regardless of the quality of the team, can lead to an extraordinary and unexpected impact on society.

Although it's a cynical view of how to set up a major research project, Barlow delves into the investment in science by politicians based on a scientist's reputation.

He shows too clearly how to buy collaborators, revealing that scientists follow the research money and jump on research bandwagons regardless of what they think of the research quality and whether it's "good" science.

Barlow also has a dig at the public service and the silly consequences of secrecy and the unexpected ways that fundamental research can impact society due to completely unforeseen applications in disparate fields.

In this case, because the "negatronium particle" affords a mechanism to "cross the boundary between the physical and the psychological", the US Treasury uses the impact of this new particle on controlling human

emotion to match government financing failures with policymarkers' expectations. In doing so they create compliance.

And, finally, Barlow demonstrates his strong underlying support for women in science. On trying to find a female to make up a diverse B-team, Karlof "didn't know any second-rate women".

He finds Assistant Professor Millicent Parker on the recommendation of the Dean of Engineering and Applied Sciences, who describes the female professor as "very good – very competent". Parker adds:

[…] but she's too generous with her time. She takes on too many responsibilities […] She writes half my papers for me, she has twice the teaching load of the male assistant professors and if any student runs into trouble, she's always the one they go to. She doesn't leave any time for herself.

Based on Barlow's experience of real people in the research community, perhaps?

But for Karlof, Parker is a "perfectly sensible person: conscientious, considerate […] a women with excessive helpfulness". He believes she will create a great culture, encouraging everyone to pitch in and work together for a common goal.

Fiction or faction?

This book could be seen as a shift for Barlow from his razor-sharp evaluation of innovation in his non-fiction books The Australian Miracle: An innovative nation revisited (2006) and Between the Eagle and the Dragon (2013).

I see this as Barlow using his novel as a different genre to make us think

about how science is "done". It questions if we are really approaching the creation of new knowledge in the best way via the constructs built up over the years to create a science industry of sorts.

He also reveals the bitterness of a scientist when their success leads to loss of control of their work once it is taken over to be applied to practice.

A Theory of Nothing is, above all else, a great read. It is funny and the characters (intentionally or not) do capture the personalities of science, not just in Australia but internationally.

Barlow also captures the human dimension of multidisciplinary research teams, personal ambitions and the rise and fall of a scientific career that is dependent on your latest project's success.

If you are a scientist, you will love the cynical description of a clever person playing the system. And for the non-scientist it provides a hilarious exposé of the way major projects start.

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