

New Apollo missions or scientist monks? What should the role of science fiction be in the governance of science?

By Zachary Pirtle. Published originally on CSPO.org in October 2011, but no longer online.

What should be the role of science fiction (SF) in informing how we develop and govern science and technology? SF currently fills many different roles. Some of it is just for fun (and that's all right!). Some SF explores what it means to be human under different circumstances. Other SF imagines strange new worlds, including new kinds of humans, new kinds of machines and new kinds of worlds. SF is also cited by many scientists and engineers as an impetus for their career choice.

But are there other ways that SF should do more try to guide society? In a new article, "Innovation Starvation," noted science fiction author Neal Stephenson focuses on one role for science fiction that he thinks has been neglected. He argues that society has lost the ability to do major engineering projects like the Apollo program. Drawing on a recent conversation with ASU president Michael Crow, Stephenson discussed why:

"You're the ones who've been slacking off!" proclaims Michael Crow...He refers, of course, to SF [science fiction] writers. The scientists and engineers, he seems to be saying, are ready and looking for things to do. Time for the SF writers to start pulling their weight and supplying big visions that make sense."

To fulfill SF's duties in priming society's appetite for innovation, Stephenson announced the new Hieroglyph project, which will lead to an anthology of science fiction that envisions and makes plausible alternative worlds where big innovation projects can happen. In recent years this has been an underserved role for science fiction, and I am excited by Stephenson's call to help guide how we develop technology.

However, I also believe that there is an additional role for SF that's been underserved in recent years, and it is a role uniquely exemplified by Stephenson's 2008 book *Anathem*.

In short, *Anathem* casts the societal control of science as an explicit strategy for civilization's longevity. *Anathem* thus indicates how SF can provide metaphors for how we govern and control science.

The governance metaphor in *Anathem* is based on a society of scientist-monks. The story takes place in a world called Arbore, which is like Earth, but where science plays a very different role in society. On Arbore, scientists live separately from society in monasteries known as 'maths,' behaving like a mix between monks, Socratic philosophers and modern physicists. There are different types of monasteries: the main characters are from the Decaders, who publicly open the gates of their monasteries every 10 years, allowing their members to interact with society and reveal the results of their research. The Hundreders do so every 100 years (and also work on correspondingly long term problems); and then

there are the Millenarians, who think only about long term issues, and only interact with society once in a thousand years. Over the thousands of years in the book, civilisations have risen and fallen while the work of the monasteries goes on.

There are practical reasons why the scientists are sequestered from the rest of the world. The scientists were forced to live in the maths because, simply, they were too dangerous. Over time, strict rules were established for life in a math, with the monk-scientists being banned from directly using computers.

The metaphor that Anathem creates also inspires us to think about the governance of science over the long term. SF thus can help us have a new engineering concern: can a technology survive major transitions in civilization? In a discussion about automobiles, the main character Erasmus discusses how inefficient the internal combustion engine is, and that if it had been made in the math, they could make it so much more advanced and powerful. However, his sister replies that with such increasing complexity, the ability for everyday people, like their driver Yul, to understand and be able to repair the engine would be greatly diminished. The engine that Yul was using was several hundred years old, and was more durable than other more powerful engines that were created before past technological systems collapsed. Perhaps our technological infrastructure in 2011 is more fragile than the world of 1911, with specialization creating societal vulnerability.

Stephenson's conclusion rejects the logic underlying the societal control of science. After a climactic, the successful scientist-monks and the world's current politicians create a new political order whereby all scientists are released from the maths and made equally powerful, joint rulers of the planet with the 'Saecular' (outside) world.

Is this really a change for the better? After Stephenson had already hinted at how past scientific missteps had led to suffering in society, is it not plausible that future scientific mistakes might lead to similar chaos? There are more options than just switching from one extreme to another, and there is no clear reason why the unrestricted reintegration of science into the world will be without problems. Nevertheless, it is a tribute to Stephenson that the metaphor he creates can be used to examine other possible endings as well.

So, should SF help us envision new Apollo missions or should it encourage us to explore metaphors of scientists as monks? Obviously, I think it can and should do both. The more that SF authors help frame and inspire ideas about how to use science today, the better.

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