

**Science Fantasy: Into the Next Decade**

*Guest of Honor speech delivered at the  
34<sup>th</sup> Annual Jack Williamson Lectureship*

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I want to begin by extending a sincere thank-you to the Lectureship Committee for the generous invitation to come down and be part of the festivities this year. Thank you to all of my friends in Portales for their hospitality: Patrice Caldwell, Gene Bundy, Geni Flores, the wonderful Williamsons. And thank you, Connie, for such a kind introduction. I don't know if I can live up to that, but I will try my best not to make a liar of you. (But if I do, I'll make it up to you at Dairy Queen later.) But, most of all, thank you to everybody here today. I love the Williamson Lectureship and it does my heart good to see the legacy of Jack Williamson in such fine hands. So thank you, very much, for coming.

I am truly honored to be a guest of the Lectureship. It's a very humbling thing, to be included as part of the Lectureship's long tradition. Especially for a writer like me, who is so early in his career. I did have the great

thrill of meeting Jack Williamson -- before I had any sort of writing career at all. And now here I am, trying to speak intelligently about the future, at a Lectureship named for a man who was writing science fiction almost 50 years before I was born. There's an irony here.

So. Science Fantasy... The Next Decade... Gosh. I'm feeling some pressure to become stately, knowledgeable, and wise while I stand up here. But. People who know me know that isn't likely to happen.

Speculative fiction writers have a long history of predicting the future. We have an equally long history of getting it wrong. That isn't to say the literature of speculative fiction is always wrong about these things, because that isn't true. Not at all. But it is true that it's very, very difficult to extrapolate current trends into future realities.

Even so, as I share my thoughts about the coming decade, I'm not going to take the easy way out by talking about how we live in a science-fiction world, or that we already inhabit a science-fiction future. That case has been made many times before, and with more eloquence than I could hope achieve. Anybody who has ever used the internet, or listened to an iPod, or had outpatient surgery, or ridden in a car with a GPS navigation system, already knows we live

in a world filled with the trappings of science fiction. So I'm going to take our science-fictional world as read.

(However, as a side note, I'd like to point out that while this may be true for those of us living in the developed world, I'm not so sure it's true, or as true, for people living outside wealthy, industrialized nations.)

Anyway, the theme of this year's Lectureship raises far more interesting questions. Each of us probably has some notion of what a science fiction future could be. But what is a science fantasy future? Is there such a thing? If so, are we headed there? And what would that mean for us?

I recently polled my friends and colleagues -- many of whom are knowledgeable and wise, some of whom are here today -- for their interpretations of "science fantasy", and what associations the term created for them. This led to an interesting discussion about the roots of genre literature and the various aesthetic influences that shape it. I am now going to steal their smart ideas.

The term "science fantasy" came about as a handy way to describe fantasy stories wherein the fantastical elements -- like magic, for instance -- are treated with scientific rigor. Fantasy has been with us forever, in one form or another, but clearly science fantasy is something that can only exist in a post-Enlightenment, perhaps even a post-

Industrial-Revolution world. It evolved as a response, in part, to a particular worldview.

Later, however, science fantasy came to be understood as something else: fantasy stories adorned with science fictional trimmings. (I'm looking at you, Star Wars.) In other words, stories set in a science-fictional milieu but which are, at heart, fantasies, and which have little interest in rigor or plausibility.

In fact, one could argue that science fantasy exploits the patina of scientific rigor to lend plausibility to fantastical storytelling. (I'm looking at you, Wild Cards.) But fantasy is integral to human culture. Always has been, and always will be. So it's wrong to think that fantastical stories require justification. It doesn't matter how Zeus turned Io into a cow; only that he did, and what that means for us mortals.

Fantasy is a part of who we are. And, like all fantasy, science fantasy tells us about who we are. But it isn't predictive about the greater world. It can't be, because it ignores the empirical realities of our environment. So, what does this mean in terms of a vision for the future?

A science-fantasy world (as opposed to a science-fiction world) is one where our expectations are freed from

the burden of plausibility. It's a place where technology can do seemingly magical things, no matter how mind blowing, no matter how implausible, because somebody, somewhere, will have done something with science, will have performed some feat of engineering.

If we don't already live in that world, we're certainly moving toward it. But there are two sides to our science-fantasy future. One good, one not so good.

At its best, science fantasy bolsters our respect for technology and the scientific method, fires our drive to achieve new things by teasing us with marvels currently beyond our grasp. But at its worst, science fantasy tricks us into devaluing science and technology.

I have only the vaguest understanding of how the internet works. But I take it for granted that if I want to know when Jack Williamson's novel The Humanoids was first published, I can find that information in 30 seconds. It doesn't matter if, at the lowest possible level, my query works via the action of electrons flowing through circuits, or if it works by the action of pixies dancing around fairy rings. They might as well be the same thing. And, in terms of my day-to-day life, I don't care.

But this is a dangerous worldview. It devalues science, it devalues deductive reasoning, it devalues the

very principles upon which so much of our culture is built. It threatens to make us victims of our own progress, by putting us in a state of mind where we unwittingly undo or reverse some of that progress because our vision of the world has changed. Because we expect the world to work differently than it has in the past.

So, at its most extreme, a science fantasy future is one where we no longer know and no longer care how the world works. Are we headed there? I don't know. But maybe.

It's one thing to seek a science fantasy future where science works behind the scenes: quietly, even secretly, but reliably. It's quite another thing to seek a future where we've forgotten that science does work, or how it works.

Take, for example, the antivaccination movement which alleges that the use of certain childhood vaccinations, such as MMR, is a causative factor in the development of autism in children. This claim -- which has been soundly repudiated by study after study<sup>1</sup> -- is convincing concerned parents to prevent their children from being vaccinated for illnesses like measles. In spite of the fact that there is still no scientific evidence for such a link between vaccination and autism, even after concerted efforts to investigate the possibility; in spite of the fact that the originator of the claim, Andrew Wakefield, has been found

guilty of acting "dishonestly and unethically" by the UK General Medical Council<sup>2</sup>; in spite of the fact that The Lancet, the UK's premiere medical journal, actually retracted Wakefield's paper<sup>3</sup>; in spite of a Sunday Times investigation that revealed major discrepancies in Wakefield's data<sup>4</sup>; in spite of the fact that the entire claim is nothing more than a dark fantasy -- people choose to believe it. And now many diseases are making a comeback. Even polio, which had been eradicated in the US by 1994<sup>5</sup>. That shouldn't happen if we're making progress.

Worst of all, children have died because they're not getting the vaccinations they need. This is why I say we ought to be careful that our science fantasy future doesn't become an anti-science fantasy.

Another example of science fantasy gone wrong, albeit a more fanciful one, is cryogenic life extension. This is the notion that just before death, a person could have his or her remains (most especially the brain) frozen at cryogenic temperatures, at which point it will be stored for some indeterminate number of years -- possibly decades, or longer -- until medical science finds a way to revive a cryogenically frozen body. By which point, the reasoning goes, there will surely be powerful treatments on hand for reversing aging and curing most diseases. So you go on ice

for a while and wake up a few decades, or centuries, later, ready to resume life in a young, healthy body.

We can laugh at this because it might sound silly. It's naively optimistic but otherwise harmless, right? I'm not so sure. At heart this is another kind of dark, anti-science fantasy. It preys on peoples' fear of death, and for large amounts of money. (This service is not cheap. Don't look into this unless you're prepared to sink six figures into it. Because if you're going to cheat death, you should do it in style.) Some proponents may be well-meaning, but there is little to suggest that there is any plausibility here. It truly does live in the world of science fantasy: someday, at some point, somebody will have done something with medical science to make this possible.

Looking deeper into the future, perhaps one of the most extreme examples of science fantasism gone amok -- that is, scientific speculation freed from the bounds of rigor -- is the concept of the transhumanist, technological singularity as popularized by futurists like Raymond Kurzweil. At its most basic, the idea behind the Singularity is that as the pace of technological advancement continues to accelerate, we will eventually reach a point where we are no longer capable of understanding the world around us. Even if we wanted to.

That may very well be true. But the really gonzo futurists -- the transhumanists -- envision a post-Singularity world where anything is possible, even uploading our minds, our consciousnesses, into vast digital constructs. In fact, they argue, this is inevitable.

Do I think we're going to see the coming of Kurzweil's singularity in the next decade? Heavens, no. Do I believe we're going to see it come to pass in my lifetime? Nope.

Do I think the concept is science fantasy? Perhaps.

The argument for such a "hard" singularity requires a bit of hand-waving. It goes something like this:

"Well, as micro- and nano-fabrication technology continue to become so advanced that it becomes increasingly possible to pack a greater and greater number of processing elements into a given volume, it will eventually become possible to build machines that equal or exceed the information-handling capacity of the human brain. (So far, so good.) And then some stuff will happen where we figure out how to read and decode thought and memory patterns within the brain with perfect fidelity, and then some other stuff will happen where we figure out how to map those patterns into machines, and POW! We've all uploaded our minds into machines. Hello, bright and shining future."

Well... If that's not magical thinking and a lack of

scientific rigor, I don't know what is. It reminds me of that old Sidney Harris cartoon, the one with two scientists standing at a blackboard, reading a long and complicated derivation. One of the steps reads, "Then a miracle occurs..." And one of the scientists says, "I think you should be more explicit here in step two."

For one thing, this version of the Singularity is all based on unbounded extrapolation of an apparently exponential technological trend -- the famous Moore's law of microcircuitry fabrication. Which isn't a law at all but an empirical trend, and which is almost certainly sigmoidal rather than exponential, just arguing from the laws of physics. (Although, just to give myself some wiggle room, all bets are off if somebody ever cracks quantum computation. I am nothing if not a weasel.)

Once again, it's tempting to say that while this vision of the future is amusing, even intriguing, it's essentially harmless. Doesn't really matter if the great thought experiment of the Singularity is disproven, does it? Well, maybe it does. Because as long as people are talking seriously about such magic, it takes their time and attention away from things that really matter. It seduces us into dropping our guard, makes us lazy.

I fail to see how this vision -- technological

singularity as a utopia awaiting us in the bright and shining future -- can be all that appealing to the millions of people today who suffer from hunger, or have no access to clean water. Perhaps the proponents of Singularity would argue that this is exactly what the developing world needs. That the ability to transform ourselves into digital beings will eliminate poverty, eradicate suffering, erase famine from the world, obviate our concerns about global overpopulation. I'm not so sure. Because if and when the transhumanist revolution happens, I assure you it will start where people are resource rich. But where will all the less fortunate people be when everybody else has downloaded their minds into machines? Just how far is it possible to leave people behind?

Let me tell you about a situation in the present day where the exact opposite has happened. A situation in which the developing world has leapt ahead of us in the first world. And held out a helping hand.

For a period this past winter, the East Coast of the United States was struck with multiple severe snowstorms, one on top of another. Severe enough to shut some cities down for several days. Which you already know. But you might not know about a technology born in Kenya which was used to organize cleanup efforts when Washington, D. C. was

crippled with snow.

Have you guys heard about this? No?

OK. This is awesome.

"Ushahidi" (I hope I'm pronouncing that correctly) is a Swahili word that means "testimony". The Ushahidi web platform is a technology that takes in anonymous cellphone text messages -- containing events, times, and locations -- and assembles the information onto a constantly-updated real-time map<sup>6</sup>. Fundamentally, it amasses information and then identifies the most reliable pieces by identifying correlations in time and space. In other words, Ushahidi separates truth from fiction. It was created as a means of tracking ethnic violence and voter intimidation in the wake of Kenya's disputed election in 2007. Because it was created as a humanitarian effort, it wasn't patented; because it had no investment backing, it was built on pre-existing open-source technology, and thus can be modified and distributed freely; because Kenya is a poor country, it was designed to work with cheap cellphones. And it was built over a long weekend.

Since then, it has been used to monitor elections in India, Mexico, Afghanistan, and Lebanon. It has been used to track unrest in the Democratic Republic of Congo. It was used to coordinate relief efforts for the earthquakes in

Haiti and Chile.

And, when Washington D. C. -- the capitol of the world's sole remaining superpower -- was shut down, the Washington Post newspaper used it to track the locations of road blockages, snowplows, and snow blowers<sup>7</sup>. Using a technology created in Kenya.

You could, if you choose, call this proof that we're living in a science fiction future. (There it is again.) But look at it this way: this is a powerful technological development that happened far outside the boundaries of conventional wisdom. No universities, no venture capitalists, no patents.

Just a few people, with very few resources, changing the world. All because one person -- in this case, a prominent Kenyan lawyer and blogger named Ory Okolloh -- said, "Why can't we do this? Why haven't we done this?" without worrying about how realistic it may have been. In other words, she dared to have technological aspirations that were unfettered by the burden of plausibility.

Perhaps that isn't fantastical, but it is fantastic. It demonstrates the great benefit of striving for a science-fantasy future. It's a vision that can be hopeful, inclusive, forward-looking. And this is why, in spite of my earlier attempts to convince you that we should be careful

about it, I am excited about our science fantasy future.

I'm not a pessimist by nature. So let's build on the example of Ushahidi, and think for a moment about the benefits of living in a world where our expectations are freed from the burden of plausibility.

Because if we don't have to temper our aspirations with the occasional splash of cold-water realism... What's to stop us from dreaming really big dreams?

Ever since I was a child, I have been fascinated by artist's renderings of space stations, earth-orbiting colonies, and O'Neill habitats. (Which some people deride as looking like 1960s shopping malls. Perhaps rightly.) I spent so much time as a kid staring at those paintings of cities in the sky, wishing my hometown were one of them. If ours is a science fiction future, subject to the uncompromising constraints of physics and economics, it's safe to say that I will never get to live on an O'Neill colony. But if ours is a science fantasy future... who knows?

In a science-fantasy world, no dream is too absurd. Greening the desert, curing cancer, eradicating poverty, making starvation a thing of the past. Mining the asteroid belt. Colonizing the solar system. Traveling to the stars. Who doesn't want to live in a world where we can do these

things?

I say let's own our science fantasy future, and take it as read that we will do these things. It doesn't matter that we don't yet know how, or when; all that matters is strive, and what happens afterward.

Thank you.

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<sup>1</sup> Costello, Eileen. "Lifesaving, safe vaccines," *The Boston Globe*, 21 March 2010. Published online: [http://www.boston.com/bostonglobe/editorial\\_opinion/oped/articles/2010/03/21/lifesaving\\_safe\\_vaccines/](http://www.boston.com/bostonglobe/editorial_opinion/oped/articles/2010/03/21/lifesaving_safe_vaccines/) (accessed April 6, 2010).

<sup>2</sup> Triggles, Nick. "MMR scare doctor 'acted unethically', panel finds." January 28, 2010 <http://news.bbc.co.uk/2/hi/health/8483865.stm> (accessed April 6, 2010).

<sup>3</sup> The Editors of *The Lancet*. "Retraction -- Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children." February 2, 2010 <http://download.thelancet.com/flatcontentassets/pdfs/S0140673610601754.pdf> (accessed April 6, 2010).

<sup>4</sup> Deer, Brian. "MMR doctor Andrew Wakefield fixed data on autism." February 8, 2009 [http://www.timesonline.co.uk/tol/life\\_and\\_style/health/article5683671.ece](http://www.timesonline.co.uk/tol/life_and_style/health/article5683671.ece) (accessed April 6, 2010).

<sup>5</sup> Harris, Gardiner. "Eradicated, but polio returns to the U.S.." November 9, 2005 <http://www.nytimes.com/2005/11/08/health/08iht-polio.html> (accessed April 6, 2010).

<sup>6</sup> <http://www.usahidi.com>

<sup>7</sup> Giridharadas, Anand. "Africa's Gift to Silicon Valley: How to Track a Crisis." March 12, 2010 <http://www.nytimes.com/2010/03/14/weekinreview/14giridharadas.html> (accessed April 6, 2010).