Issues in Earth Science
"Topics for Debate"
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Comic Book Science

by
Ann Dulhanty

Thanks to Russ (Dr. C.) for encouraging me to submit my thoughts on the topic: Misconception and Science in Comic Books, which asks the question 'Do we do our young people a disservice by foisting on them, in our comic books, semi-correct science that is, in detail, wrong?'

One way of looking at this is whether semi-science actually makes people more aware of science, or helps them to understand more about science. I can't answer

this without a substantial amount of research, but from what I've seen in my everyday life, despite the rise of enthusiasm from the general public for forms of entertainment that involve speculative fiction, I don't see any more rational approach to emerging scientific information. It frustrates me that we see headlines like 'flu vaccine only 23% effective' when the accompanying article doesn't come close to explaining what this means. Probability and statistics are complex concepts but crucial to understanding infection spread and control.

This is what plagues me (pun intended). There are all kinds of scientific concepts that just can't be explained without building on fundamental laws, mathematical proofs and well, a bunch of boring details that no light entertainment could ever get across. For example, understanding the significance of a single mutation in a single gene requires knowledge of gene expression, protein biochemistry, physiology, and how the organism interacts with its environment.

More specifically, I wonder if fictional portraits of mutants and biological anomalies (human and microbiological) in the comics and other scifi literature have fuelled some of

the public's fear and loathing of Genetically Modified Organisms. The small changes that are made in many of the corn and wheat varieties hardly rate the label of 'frankenfood' but much of what I see in social media refers to GMO's with horror. While each new technology, or strain of plant, created certainly needs to be tested for its individual safety, I can't think of any reason to believe that all GMO's are fundamentally evil. Each should be treated as a separate case. This too is a rather dull scientific tenet - test and collect evidence before drawing conclusions. (Another topic of debate entirely is the business practices of modern agriculture.)

What I'd really like to see, as far as piquing interest about science, is education about two key concepts:

1. That it is important to remain skeptical about any single new finding, and

2. That real understanding takes time and accumulated evidence - anything that purports to explain something in a brief article isn't the entire story.

Still, sharing my knowledge of science is what motivates me to write science fiction. All fields of science fascinate

me and knowledge about the fundamentals of biology, physics, chemistry and math makes me feel comfortable in my environment. I strive to write my fiction without introducing any misconceptions and in such a way that makes people question and want to learn more, but I do take the opportunity to ask: *What if?*

Ann Dulhanty By day, Ann uses her scientific background in biophysics to help technology-based businesses. Come sundown, she can be found writing twisted tales of science fiction and fantasy, celebrating the foibles of the human species in mostly humorous stories. She has published a dozen short stories, in various anthologies and BuzzyMag.com. Ongoing opinions about the business of technology and new fiction can be found at www.anndulhanty.com . And she's Canadian, so her spelling is kinda funny.

Credit: Photo by Russ Colson

Seed Thesis for Issue 3: Misconception and Science in Comic Books

by Russ Colson

This past summer and fall I've been working to develop a new online college course, Earth Science Essentials for the Science Fiction Writer. In the unit on metamorphic rocks I plan to engage students in considering whether Superman really could make diamonds out of coal. There are a lot of sites on the internet that say he couldn't do it, despite his great strength, because, although diamonds do indeed form when carbon is subjected to high pressure, coal has too many impurities and diamond, at least gem-quality diamond, wouldn't form.

Now, the question occurred to me: Do we do our young people a disservice by foisting on them, in our comic books, semi-correct science that is, in detail, wrong? Or, does the semi-science, even though wrong in detail, give them insight into how the universe works and stir their curiosity and interest? I have poked some good-natured fun at some of the wrong earth science in stories that I otherwise like (see my article Earth Science Gets No

Respect in Clarkesworld Magazine). However, despite my article, I think it's ok to sometimes stir curiosity and interest using science that isn't exactly right in every detail. From Superman Comics, I not only learned that high pressure makes diamonds, but that an asteroid passing Roche's Limit will break apart. The Roche's Limit analysis in the comic was neither complete nor entirely correct, but I was fascinated at a time when I had no idea what Roche's Limit was or how it could cause an asteroid to break up.

What do you think? What are the limits and boundaries that a fiction writer should employ in using creative license to distort science into something that it isn't, particularly in comic books?

Dr. C.

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