


# Author Spotlight+

## With Karen C. Fox




 **How did you come to the career of writing about science? Did you ever want to do anything else?**

I always planned to be a physicist, but when I went to college I discovered that it was fairly simple to be an English major as well—just a single class a semester, which I would have taken anyway since I was an avid reader. So I double majored in both subjects. Somewhere halfway through my senior year, with my physics graduate school applications languishing on my desk, I realized I probably wasn't going to go on in physics and that I should search for jobs in the vicinity of science that I might still be interested in. I came home to Washington, DC after graduation, got the requisite waitressing job, and realized that I had been grooming myself for a career in science writing. I didn't know what that meant yet, and naively thought I could just get a job at a science magazine in some entry level position—when really there aren't that many jobs at magazines that aren't for experienced writers. I lucked out, and one of my family's friends, Dan, was a big science writer in town. He told me a little bit about the career, put me in contact with some interesting people who helped me get an internship in science radio, and from there I applied to graduate school in science writing at the University of California, Santa Cruz. I was lucky that I found a career path I really liked (and in hindsight, with the double major I was grooming myself for this career all along) within a few years of college.


 **You've written several books for adults and young adults, but *Older Than the Stars* is your first book for children. Why did you decide to write for a younger audience? Do you plan on writing more children's books in the future?**

I had just finished my book *The Big Bang Theory: What It Is, Where It Comes From, and Why it Works* when I was contacted by someone from Charlesbridge who was looking for astronomy books. I had just done all this work researching cosmology, and I thought I could turn that research into a second book for children. I had written occasional articles for children before that, so it wasn't completely new—but I find that with writing for children I depend a lot more on my editors and publishers who know the field better than I do. When I write for adults, I don't usually need to do more than a first draft and a little rewriting—whenever I've written for children I've always had to re-work it, with the help of an editor, several times.

I would love to write another children's book! Now that I know how hard it is, I'm a little more intimidated, though. I realize that just picking a topic and writing about it, and trusting that it will get better with each re-write, as I did the first time, is probably the way I need to go. . . .

 **What made you decide that “The House that Jack Built” was a good format for *Older Than the Stars*?**

That is definitely something that fell out of the re-writes. I had included some repetitive language in the first draft. In the second draft my editor and I pumped that up a little bit more, deciding to emphasize the sequential nature of the origin of matter and life. And only then did we realize that we could take it even further and make it a poem.

 **What do you think are the greatest difficulties facing women who wish to pursue a career in science? Do you have any advice for young girls who find themselves drawn to this career?**

I think things have changed since I was going to school, so I do think that it's easier for women to find their way into science than it once was. When I was at my all-girls high school, we were required to take three years of math and two years of science, but four years of English. That policy has changed completely, and now they all take four years of math and three years of science. When I was going to college, many science professors were still using a model where they were trying to scare students off. The introductory physics or chemistry class was always meant to separate the serious science students from the ones who should go study something else. This always made me crazy—people didn't drop out of being English majors if they got a B+ in freshman English, but you were supposed to give up on science if you got a B+ in freshman science. This teaching attitude has largely changed, as scientists have figured out that teaching their subject in such a way as to suggest that only

“certain” people can understand it, will backfire.

So part of my response to this question, is that I DO think that if girls want to go on in science, they should be aware that most teachers these days are actually going to do everything they can to encourage them and support them—so turn to those teachers. Secondly, I was really lucky in that in my (fairly small) college, five out of twelve physics majors were women. It was so helpful for me to have that support, and for us to be able to work together. I don’t know if I would have made it through as a major otherwise. So in addition to seeking out teachers, I would also tell young girls to find female tutors, female classmates to work with, etc. I don’t think that’s the only way to go—one can obviously find great mentors and great tutors of both sexes . . . but there really is something nice about talking to someone who probably felt the same frustrations you have.



***Older Than the Stars* is a clearly written explanation of a subject (the Big Bang) that many find too abstract to really understand. Why do you think this “fear of science” exists?**

Well, I kind of answered this question in my last answer, but I’ll give a little more detail here. Basically scientists and mathematicians post-World War II got into a bad habit of presenting science as this really tough subject that one had to be intellectually “superior” to understand. To be considered “well-rounded,” people were supposed to have read books, know politics, understand a little something about music or art, etc., but it became acceptable in our society to not understand science or math. That was something reserved for the “special,” or people who have a special “type of mind.” Think about someone like Robert Oppenheimer, who knew nothing about current events before he became involved with Los Alamos—so much so that he was surprised to hear about the Wall Street crash a few days after it had happened—or Albert Einstein, who is stereotyped as being “absentminded.” We are surprised by such people and consider it odd to not know about current events. But those who know current events but don’t understand even the basics of science are accepted as normal in our society. And this is, I believe, largely due to the way science was taught after World War II, up until the ’90s or so—this idea I’ve talked about where it was taught specifically FOR the highest scoring kids in the class, and anyone who couldn’t keep up was meant to drop out. If a teacher constantly told you, or intimated, that you weren’t good enough to be in a science class, of course you’d have a fear of it.

I think that teachers in the last twenty years have done a great job of improving this. They’re really trying to include everyone into the sciences. Courses and textbooks have changed dramatically. I think it might take another generation or two to really have everyone feel comfortable with science and math, but I think we’re headed in the right direction. If you read my book, you can see just how simple the concepts are behind the science. Everyone should be conversant with such ideas at least on that kind of basic level.



**If you could be (or could have been) at the forefront of any major scientific finding in the past, present, or future, what would it be and why?**

Astronomy and cosmology have always had my heart. I like other things about particle physics, and there’s a whole bunch of chaos theory and complexity theory that I find interesting, but my favorites are always in astronomy and cosmology. So, I would pick either: a) the years 1599–1600 when Johannes Kepler and Tycho Brahe were working in Prague and creating some of the best catalogues of planetary positions, which enabled Kepler to be the first to describe the path planets took as they circled the sun (this also happens to be the subject of a book I’m writing, so it’s possible that I’m so immersed in it right now, and excited about that era, that it’s clouding my judgment!), or b) the early excited years of cosmology in the ’60s when scientists were just discovering the first bits and pieces of the Big Bang Theory and trying to decide between that and competing theories.



**By Karen C. Fox**



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