

# **It's Not *Rocket Science* ... Oh. Wait.**

By Karen Green

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Full disclosure: I'm a bit of a [procrastinator](#). The good folks at ComiXology who post these columns know this all too well, as I inevitably submit my work about 24 hours before it's supposed to run, as opposed to the five days specified in my contract (sorry, Peter!). And this column you're reading now was planned, oh, back in early July, then postponed until late September for promotional purposes, and now I'm writing it at the last minute (as usual) and most of what I'd planned to say is lost, lost in the mists of memory.

Here's the scoop: I had the privilege of interviewing author [Jim Ottaviani](#) on the Graphic Novels Stage at the 2011 American Library Association meeting in New Orleans this past June. I was too caught up in the moment to take notes on all his answers, though, and I thought, "Oh, I'll ask him all this again via email." Erm...

Then I thought—oh, I know: Jim is going to come talk at Columbia in October! I'll wait and write this column as a publicity device, giving me *plenty* of time to get in touch with him for background before then. Erm....

So, now, Ottaviani will be here at Columbia on Friday October 7 and there is no time to check back in with him, as he is on his whirlwind book tour, taking him to such Sacred Haunts of Science as [MIT](#) and the [Los Alamos National Laboratory](#). So I'm on my own. Perhaps I'll just pose the questions Ottaviani's work raises for me, and you can all come to see us on Friday and hear his answers for yourself.

But first: some background. Ottaviani works at the [University of Michigan](#) (my brother's alma mater: Go, Maize and Blue!), where he's made his home for over twenty years. After getting a master's degree there in nuclear engineering, he went on to complete a library degree as well—but got work, oddly enough, not as a traditional science librarian but as the reference librarian for art, architecture, and engineering. For the past seven years, he's been in charge of the infrastructure for U of M's institutional repository, Deep Blue (not IBM's [chess-playing computer](#), but the [digital storage space](#) for all the research carried out by Michigan's faculty, grad students, and staff).

But that's just his day job! For years now, Ottaviani has practically cornered the market on smart, challenging graphic novels about the history of science. These aren't Physics for Dummies manuals, but thoroughly researched, complex but engagingly written works about the very nature of science itself. For many years, Ottaviani self-published via his own company, [G.T. Labs](#) (named for General Techtronics, the laboratory where Peter Parker got bit by that radioactive

spider), but now he is working with publishers such as First Second, who published [Feynman](#), his first graphic novel in color, created in concert with artist Leland Myrick and colorist Hilary Sycamore—a book currently rejoicing in the #2 spot on [The New York Times Graphic Novels Best Sellers List](#).

Color—and comics—are the perfect medium for the story of eccentric, brilliant, Nobel Prize-winning physicist Richard Feynman. Feynman suffered from...no. Feynman was afflicted with...NO. Feynman *experienced* [synaesthesia](#): a condition in which the senses become crossed in some way, so that letters may be associated with colors, or motion may be associated with sounds. How perfect, then, are comics, to convey Feynman's association of letters with colors, or his ability to visualize geometric shapes in three-dimensions.

Feynman, the man, had a following larger than the scientists who admired or envied him, perhaps because he himself was larger than life. A nice Jewish boy from the Rockaways, he mastered bongo drums, safe-cracking, ballroom dancing—all in addition to the physics that fascinated his ceaselessly-moving brain. He was smart but accessible, and his autobiographies, such as *Surely You're Joking, Mr Feynman!*, sold widely. His working life spanned a half-century of some of America's most significant scientific achievements: he worked on the [Manhattan Project](#), helping to develop the atomic bomb and thereby profoundly affecting history, and he identified the [effects of cold on the rubber O-rings](#) that had caused the explosion of the space shuttle Challenger.

Despite the distractions of the well-nigh overwhelming charisma of his subject, Ottaviani manages to get in quite a bit of science. Presenting Feynman's 1983 Alix Mautner Lectures at UCLA, in which he spoke about quantum electrodynamics for a general audience, Ottaviani—with, I would imagine, a major assist from Meyrick—gets in a clever allusion to Einstein's famous remark, "God doesn't play dice with the universe," and also refers back to Feynman's synaesthetic perception of letters. I'm not 100% sure that these 1983 lectures were supposed to be accessible to a public as general as this poor science-impaired historian, because I'll admit I didn't find the principles of wave-particle duality all that easy to follow. But perhaps it just takes more time.

When I interviewed Ottaviani in June, the focus was on *Feynman*, but I wanted to look at the book in the context of his other work, so I plunged into several of his graphic novels. My favorite of the works I read was a book about the space race ostensibly for children—it's published by a children's imprint of Simon & Schuster: [T-Minus: The Race to the Moon](#). What fascinated me about *T-Minus* was its perspective: everyone knows the story of the astronauts; we've all seen "The Right Stuff" or "Apollo 13" or "From the Earth to the Moon." Ottaviani chose to focus not on the astronauts, not on that familiar story, but on the engineers, on the men (yes, they were pretty much all men) behind the scenes. And he made the suspense of that race palpable: the margins of each chapter detail each successive mission launched by the US and the USSR, its success or failure, and how many years, months, and days were left until that moment on July 20 1969 when a human being actually set foot on the moon.

The book begins with T-minus 12 years, and painstakingly counts down to the final seconds after the Eagle had landed and Neil Armstrong stepped out to usher in what everyone thought would

be a new dawn. Because Ottaviani focuses on the science, on the problems that needed to be solved in terms of fuel loads, air supply, thrust, etc., the politics of the race fade away and the excitement of the intellectual challenge comes to the fore. The efforts of the Soviets' chief designer, [Sergei Korolev](#), become so compelling that his unexpected death in 1966 has the genuine feel of tragedy.

For me, 10 years old when Apollo 11 landed, the American parts of the story held an almost painful poignancy, a combination of childhood memory and the nostalgia for a time of seemingly unlimited American scientific prowess. Learning of the Soviet side of the equation made our triumph both bittersweet and even more impressive. When I spoke to Ottaviani, I noted that Feynman and Niels Bohr (the subject of [Suspended in Language: Niels Bohr's Life, Discoveries, and the Century He Shaped](#)) both worked on the Manhattan Project while *T-Minus* examines the Space Race: both massive, government-funded science programs and, to a certain degree, driven by war (whether hot or Cold). I asked him whether the time had passed for that kind of government-funded innovation. And, of course, I didn't write down his answer. I see a couple of scribbled notes: "the 20th century was the physics century, and the 21st century will be the biology century." I confess I do not remember exactly what that means (I'll ask him on Friday and add it in a comment!). It's difficult, though, not to look at the dialing down of the space program with the sadness British cartoonist Tom Gauld demonstrates.

But let's get positive again for a moment, and think about what Ottaviani accomplishes with his wonderful books. (I didn't even mention the one calculated to go straight to my heart: [Dignifying Science: Stories About Women Scientists](#). This is a book not only *about* women but entirely illustrated *by* women: great comics artists such as Carla Speed McNeill, Roberta Gregory, and Marie Severin. What's more, the scientists it documents are not only those you'd expect, such as Marie Curie, but the fabulous [Hedy Lamarr](#), at one time considered the [most beautiful woman](#) in Hollywood, who just happened also to have invented a [frequency-hopping system](#) that is a core component of modern Wi-Fi.)

Another correlation that jumped out at me as I was reading these works was that Feynman and Bohrs, these giants of physics, were equally immersed in the arts: they wrote, they painted, they played musical instruments. This isn't the image that most people have of great scientists. Are most people... wrong? It's true that many of the greats on the "arts" side of the Arts & Sciences ampersand don't find themselves as comfortable in the sciences (with the obvious exception of the beautiful Ms Lamarr). I found myself wondering whether this versatility in Feynman and Bohrs was just another manifestation of their genius or whether—gasp!—perhaps scientists were just more well-rounded than scholars in the [humanities](#)?

But back to the books. As Ottaviani noted back in June, science, more than any other discipline, is communicated visually: through charts, diagrams, illustrations, photographs. This makes it a natural for comics. He confessed that as a kid he hadn't done that well in science or math, but a teacher, Mr Paul Hallick, and a National Geographic story succeeded in lighting the spark for him. Now he gets to try to spark the flame for others. "I'm not trained as a teacher," he said, in the only quote I wrote down, "because I don't have enough ego to think I could teach." Happily, there are more ways to teach, to inspire, than by standing in the front of a classroom.

Come join us on Friday, October 7, at 4:30 PM, in 523 Butler Library at Columbia University, and see if you can't catch a spark yourself.

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