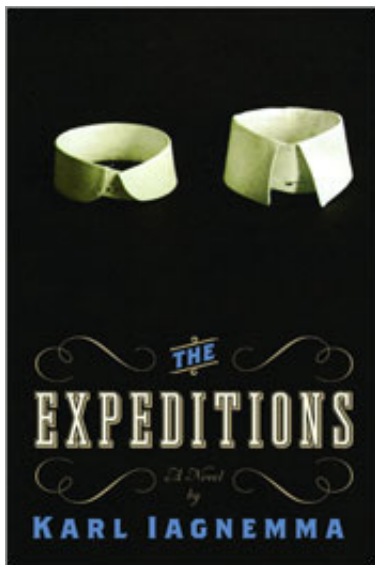




## Karl Iagnemma and Brian Knep



Science and art are often posed as counterpoints, opposite extremes on the brain-type spectrum. But try squaring that with the brains of Brian Knep and Karl Iagnemma (left to right, above), Massachusetts artists with vital connections to cutting-edge science.



**Karl Iagnemma** (Fiction/Creative Nonfiction Fellow '02) is the author of the short story collection [On the Nature of Human Romantic Interaction](#) and the new novel [The Expeditions](#), a creator of stirring fictional worlds with keenly observed details from the realm of science. But along with his acclaimed writing career, Karl is a noted robotics engineer in MIT's Department of Mechanical Engineering. So groundbreaking is his work that NASA has enlisted Karl's team to improve how robots interact with environments, for use in its Mars Exploration Rover Mission.

As an artist, **Brian Knep** (Sculpture/Installation Finalist '07) has created dynamic, often interactive art installations that have shown throughout the world and won grant support from Creative Capitol and the LEF Foundation. But he's also made pioneering contributions to computer science, helped develop special effects tools used in films like *Jurassic Park* and *Starship Troopers*, and published articles in *ACM Computer Graphics* and other scientific journals. Since 2005, Brian has been artist-in-residence at

Harvard Medical School, expanding on scientific concepts and utilizing cutting-edge software (often written by the artist himself) to create fascinating works of art.

We contacted these two remarkable artists and invited them to join a discussion about the interaction between science, technology, and art.

**MCC:** It's fascinating that both of you spend a good deal of your time in scientific environments - Karl as a researcher and engineer at MIT and Brian as artist-in-residence at the Harvard Medical School. How does that scientific environment inform and affect the artistic work you do?

**Karl:** I draw considerable inspiration for story, character, and language from MIT. The insulated nature of academia seems to breed a particular type of person; their peculiarities and passions are alternately frustrating and fascinating to engage on a daily basis. I have been at MIT for thirteen years, but try hard to remain observant of the individuals that haunt the Institute's hallways. And I try to keep my ears open for the nuances of language and attitude that accompany—and, in some ways, help define—particular disciplines.



*Still image from Brian Knepp's "Frog Time," 2007*

**Brian:** There are two elements to working (at Harvard Medical School) that are fascinating to me. One is the science itself, which I really do find incredibly fascinating, just this sense of how much we don't know. You learn all this stuff in high school biology about cells and nucleuses and mitochondria, and they make it sound like it's all figured out, but I'm learning that there's very, very little that we actually know. What we don't know far surpasses what we do know. So that's half of it. The other half of it is more similar to Karl's answer: I'm very interested in the people there and what brought them to study biology. And what's their fascination—their histories, their stories, whether they think about it as curiosity or as altruism, helping the world, or some combination of that. That I find is really interesting. It is also kind of neat being on the outside, and looking at the culture there.

What I do is I'll grab one of the scientists for an afternoon or a lunch, and I'll just speak to them, I'll just ask them all kinds of questions about how they got to where they are, and about their science. For me, it's just about asking questions and seeing where they want to take it and where I want to take it. And just pushing in the directions that we both want to go. So we find a common way to talk about it, and then we separate, he goes to work on science, and I sit in a cafe and drink coffee and think about what to do with it in my work.

**MCC:** It's tempting to assume that work incorporating technology and science would somehow be about science. But that's not necessarily the case here. Could you speak about how you use your work to reveal something about human beings, or human nature?

**Karl:** I would argue that my work is, in part, about science, but that the scientific focus is secondary to the more "traditional" preoccupations with character and story. I have found science (and pseudoscience) to be a fertile subject area, since the everyday work of science gives rise to a surprisingly rich palette of emotions and conflicts—the stuff of fiction. The clichéd view of science is that it's cold, analytical work performed by cold, analytical individuals. In fact, nothing could be further from the truth.

**Brian:** I love when I look at something that happens on a sub-cellular level, and it feels like things that are happening in society. You've got cells that are talking to each other and interacting and dying and giving birth. It's all stuff that we deal with. These similar dialogues are happening at a different scale, the scale of the cell and the scale of the human, and I love that. And I think we can make those connections. I believe

that if you want to affect change in yourself, or others, it has to happen on a subconscious level. There's a lot of work right now that deals with war, but some of the work is so overt that it's not going to change anyone's mind. You yell at somebody, "Your way is wrong," they're going to hit you back with all their defenses. If you want to talk about war, you might reach people better talking about empathy. And how do you find empathy for people on the other side. Or why do people go to war—maybe because they're afraid of changing their status, they're afraid of "other." So you can talk about change, and about impermanence. I think more successful work works on that level. If I talk about science but there's this other layer, which is about interaction, change, human emotion, I think it can actually be a more powerful piece. And my goal is to help people have a transformative experience, because otherwise, I'm just making entertainment, or I'm just screaming out my emotions, and neither of those is totally satisfying. I see science as a very rich way of making the art work on deeper level for people.



*Installation detail from Brian Knep's "Deep Wounds," 2006 (photo by Kris Snibbe)*

**MCC:** Both of you have delved into American history in your art. In "Deep Wounds" ([Watch a video clip](#)), Brian uses cutting edge science to explore how we think about Civil War soldiers, and Karl frequently writes about scientists from previous eras, including the new novel *The Expeditions*, about a 19th-century scientific expedition. What, if any, is the connection between this interest in history and your backgrounds in science and art?

**Brian:** That piece (Deep Wounds) came as a surprise to me. I initially was going to do a piece about biology or-not about biology, but about interactions, about buildings around us and how they have a memory, a cultural memory. I picked this building to do it in - Memorial Hall - and I talked to the Assistant Director, Raymond Traietti, who is a historical buff. He told me all about the building, and about this controversy. For over a hundred years, there's been a memorial for the Union alumni, the alumni who died for the Union cause, and there's no mention of the alumni who died for the Confederate cause. It just stuck with me. One of the ways I work is I try to trust the inarticulate, which is actually a phrase I got from Laurie Anderson. Because if you understand everything, then it's not really interesting anymore. When I feel something pulling me, and I haven't gotten to it yet, I have to at least explore it. In some ways, this is a piece about the red and blue states dividing the country, and about the Iraq War and wars in general, but instead of talking about that directly in a piece, I try to talk about it indirectly, through a historical piece. And that's similar to what I do with the science work where, instead of talking about death and dying directly, I use science to explore it. So I think the process is very similar. And then I actually used some of the science I'd been learning to create the fake skin (used in the piece).

**Karl:** The only connection is a personal one: I happen to be interested in both science and history. That said, there's something wonderful about viewing science through a historical lens, since it allows us to view a particular scientific discovery process with full knowledge of its success or failure, and its historical implications. This can give rise to a variety of emotions: awe, for an experiment that will lead to a profound insight; dread, of work that will lead to a destructive invention; or even sympathy, for scientific research that will, like most research, lead nowhere in particular.

"You see, facts are like rocks. They are dead. Ideas are like trees. They possess the ability to grow. Facts are useless except in service of an idea." Professor Tiffin drank off the whiskey then handed Elisha the glass. "Toilers do, of course, serve a vital purpose. Science requires these people, much as a complex clock requires each minute screw."

Tiffin's manner reminded Elisha of his favorite uncle, Lawrence, who would yearly visit from Boston when Elisha was a boy. Lawrence's first business upon arrival was to haul Elisha onto his knee and pluck a penny from each nostril. Professor Tiffin was swaying slightly, as if on a rolling ship; Elisha understood that he was drunk.

"So, my healthy young friend! What would you like to be: a scientist, or a toiler?"

*From The Expeditions by Karl Iagnemma (Dial Press 2008)*

**MCC:** Brian, you've been successful in design and film, including being part of an Academy Award-winning technical team. And Karl, as a robotic engineer at MIT, you've advanced, among other things, the Mars Rover robots. Clearly, both of you could lead full and successful lives without the arts. So why create art?

**Brian:** You said it right there. You said I could lead a full and successful life, but I don't think I could. I think on paper I could. I really enjoyed working in the film business and I worked in the design business for a while, but I ultimately found them unsatisfying. What I find is that when I create a piece that has a bit of a soul in it, I am the most happy. It's also the hardest thing for me to do. For instance, right now, I need to work on a couple of new pieces, but at the same time, I have a part-time job doing design and programming work for a company. It's a fun job. If I sit down at my computer and I force myself to work on my pieces, I will probably work on (the part-time work). Because it's easier, in terms of mental challenge. It's creative, and it can be a scientific challenge, but you're not forced to examine yourself on a deeper level. But I know that if I make these pieces of art, I'll be much more satisfied internally with the end result than I will be with the design and engineering work I'm doing. And that's fun, I love the people and all that, but my own work is just more satisfying.

**Karl:** Brian's put it very well. I write because I enjoy the process, and find it both difficult and immensely satisfying. It gives me a sense of fulfillment that I haven't found in any other activity.

[Karl Iagnemma](#) is the author of *On the Nature of Human Romantic Interaction* and, most recently, *The Expeditions*. He'll be teaching a *Fiction Workshop* at *Grub Street's Muse* and the *Marketplace* conference, April 26-27.

[Brian Knep's](#) 2007 exhibition "Aging" at the *Judi Rotenberg Gallery* was recently honored by the *International Association of Art Critics, New England chapter*. See more of his work at [www.blep.com](http://www.blep.com).

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