

Science and cinema: from the benchtop to the big screen

If we want biomedical research to have a place in the daily global dialogue, the first question to ask is what occupies that space now? We talk about our work. We obsess over our political and economic interests. We discuss the events of the day, ranging from the personal to the international. And we divert ourselves with hobbies and entertainment. Where, then, can we fit bioscience? It's outside the scope of most people's work. It has political and economic implications, yet the conversation there is scant. And in the news cycle, it pops up occasionally with groundbreaking headlines, but quickly gives way to the next story. Therefore, entertainment holds the most promise as an instrument to drawing public awareness.

Survey analyses demonstrate that science fiction can boost public perceptions of science. For example, a study of the audience for the 2004 blockbuster *The Day After Tomorrow* revealed that viewers were significantly more concerned about climate change and more likely to take action to reduce greenhouse gas emissions.¹ Another example is *The Scully Effect*, named after the character Dana Scully in *The X-Files*. This fictional scientist inspired young women who had grown up watching the show to pursue STEM careers.²

Even more profound is the influence science movies can have on public policy and civic engagement. The sci-fi thriller *Gattaca* explored the implications of genetic manipulation, crystallizing public concerns about human genetic engineering. Commentators cited this film when debating the Genetic Information Non-discrimination Act (GINA), which made it illegal to discriminate against employees or applicants on the basis of genetic information.³ Another interesting example has developed in the shadow of forensic-heavy police procedurals, chief among them, *CSI: Crime Scene Investigations*. While these shows popularized forensic science and led to an increase in forensic science degrees, they also gave rise to misconceptions about the limits of forensic and investigation procedures.⁴ In criminal trials, jurors began demanding

more forensic evidence, effectively raising the standard of proof for prosecutors.⁵ A survey of American legal professionals showed that roughly 80% believed they had had trials affected by forensic television programs.⁶

There's no question whether science fiction can spark a public connection with and dialogue about science, even spurring people to action. Instead, the question is "why doesn't it happen more frequently?" Too often, the science in sci-fi is a plot device rather than a focal point. The fictional biology lab serves more as an incubator for giant monsters or zombie viruses than for thoughtful discussion. In the right hands, it can be both. Already, the National Academy of Sciences runs a program called the Science & Entertainment Exchange that connects scientific experts with entertainment professionals seeking technical advice about science-themed fiction. Though a step in the right direction, it is not enough.

Consider the work of Michael Crichton, the late master of topical sci-fi. His most famous work, *Jurassic Park*, certainly involved brewing up monsters in a lab. And yet, how many people first became acquainted with cloning, or chaos theory, or the notion of dinosaurs as quick and warm-blooded, as a result of that book and movie? Almost overnight, these went from obscure scientific ideas to part of the collective conversation. A movie weaving the fantastic promise of CRISPR, microbiomes, or stem cells into its story could be the next *Jurassic Park*.

Crichton had a knack for storytelling. But he had something else—a robust scientific education. The same can be said of contemporary writer Andy Weir, whose book *The Martian* got everybody talking about the feasibility of growing potatoes on the red planet. Entertainment media could put the fascinating world of biomedical research front and center in the public imagination. But if we want biomedical research to enter the daily global dialogue through entertainment, we must create more artists in this mold.

In furtherance of this idea, I propose the creation of writing fellowships at major bioscience institutions. Imagine the NIH sponsoring a number of artists-in-residence every year. These writers would get hands-on experience working in biomedical research labs. They would run assays, care for model organisms, attend seminars, perhaps even design and conduct experiments of their own—all for the purpose of fostering in them enthusiasm for the field and vision of its possibilities. At the end of the fellowship, the writers will have produced a work—perhaps a screenplay or manuscript—informed by realities and possibilities of bioscience.

Bioscience fuels the imagination of scientists and, given the opportunity, the public. Even in this age of technological wizardry, the natural systems and machinery that make up our world and our very bodies continue to baffle and amaze. When biomedical research finds its proper place in our stories, it will be part of our daily dialogue. We just need the right storytellers.

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