

Entertaining science

Efforts by the US National Academy of Sciences to popularize science through movies will sanitize it as well, says **Daniel Sarewitz**.

Some day Hollywood will make a movie about the Gulf of Mexico oil spill. It might start with a scene of exploration geologists excitedly discovering the oil reserve. Then, ominous music will play while corrupt bureaucrats at the US Minerals Management Service approve BP's licence to drill. Tension builds towards the human tragedy of the Deepwater Horizon oil platform explosion that kills 11 men. The film's climax, let us hope, is a heroically successful effort to bring the blow-out under control.

Underpinning the story will be science and technology, and if the moviemakers want to make sure that they get the technical bits right, they can call on the Science and Entertainment Exchange of the US National Academy of Sciences. The exchange, which started in 2008, links scientists and engineers with movie and television-show makers to provide, as the programme's brochure puts it, "the credibility and verisimilitude on which quality entertainment depends". The exchange aims to increase public appreciation and support for science, to counter antiscientific sentiments through accurate and positive portrayals of science and scientists and to draw more people into scientific professions.

So I'm glad, I guess, that thanks to the exchange, zombie movies are now being used to help illustrate principles of epidemiology and *Iron Man II* provides realistic details about how to build a particle accelerator. But even after long discussions with the enthusiastic people who run the programme, I was feeling confused about its real purpose and value. "There is a very strong antiscience contingent in this country right now, where people simply don't like science," says Jennifer Ouellette, director of the exchange based at their Los Angeles, California office. Yet decades of opinion surveys in the United States have consistently shown that public confidence in scientific leaders is higher than in almost all other groups (tied with doctors and second only to military leaders in the most recent poll, from 2008). Survey data also show persistently strong public support for basic research.

Or perhaps the real problem, as Ouellette describes it, is the public's stereotyped "images of the mad scientist or the dweeby nerd: that they dress funny, have no social skills, play



video games, long for unattainable women". Yet sitting in front of the old National Academy of Sciences building in Washington DC is a statue of modern science's great icon, Albert Einstein, looking exactly like the archetypal rumpled and ethereal-minded professor. And as biologist E. O. Wilson, who comes as close as anyone to being the public face of science in the United States, has explained, scientists must work 80 hours a week if they hope to do important research. That doesn't leave much time for developing social skills or shopping for nice clothes.

Complexity and ambiguity

The theory behind the exchange seems to be that if people are exposed to more-realistic portrayals of scientists and engineers in mass entertainment, and if they are given more factual background about complicated scientific issues, then they will be more likely to have positive attitudes towards science and technology, and less likely to be attracted to antiscientific views such as intelligent design or fringe views such as climate-change scepticism.

But social scientists have long known that this 'deficit model' of knowledge does not explain people's attitudes. In the real world, people have deep experience with science and technology every day, whether they are getting life-saving surgery, losing their jobs to a computer or trying to decide whether they should have a mammogram. No one is exempt from exposure to the profound, often depersonalized, complexity and ambiguity of science and technology.

These difficulties could not be better represented than by the Gulf of Mexico oil spill. This disaster is at once a by-product of amazing science and engineering prowess and a signal of society's incapacity to understand, let alone

manage, the far-reaching implications and consequences of its dependence on perpetual ingenuity. From this sort of complexity, we should not only expect a broad range of public attitudes and understanding about science and technology — but also welcome it as necessary for our collective wisdom.

In this light, there's a naivety bordering on the oblivious in the academy's efforts to render science and scientists more familiar and palatable through mass entertainment. Scientists and engineers are different from cops, lawyers and morticians — not because they are any less human, but because they are part of an enterprise that is continually transforming society, nature and even humanity in ways that everyone can experience but no one can truly understand.

Mythic dilemmas

This is why the great science and technology movies — from *Frankenstein* to *Dr. Strangelove*, from *2001: A Space Odyssey* to *The Matrix* — are cautionary and ambivalent epics, rather than tidy, realistic dramas. These are movies populated by the sorts of mythic dilemmas and oversized personalities (be they humans, monsters or out-of-control computers) that the Science and Entertainment Exchange would like to domesticate. They make viewers uncomfortable because they face up to a truth that the academy ignores: science and technology are expressions not only of human creativity and determination, but also of hubris and the will to power.

A movie about the oil spill would not be made great by its engaging portrayals of scientists and science. It would be great if it raised hard questions about the rightful place of science and technology in the world, examined through the lens of an epochal technological disaster. Through the story of the spill, the movie could explore the intimate ties between the political need for economic growth and the scientific and technological enterprise that feeds this growth. It could probe the pathetic inadequacy of tools for assessing risks at the frontiers of human technological endeavour. It might even confront the moral problem of how and when human wisdom should put limits on the reach of science and technology.

These are among the great and unavoidable dilemmas of our time. They cannot be smoothed over with appealing characters and plot lines. ■

Daniel Sarewitz, co-director of the Consortium for Science, Policy and Outcomes at Arizona State University, is based in Washington DC.

e-mail: dsarewitz@gmail.com

See go.nature.com/ILx8PC for more columns.