CNS-ASU Report #R11-0005

The Center for Nanotechnology in Society
ARIZONA STATE UNIVERSITY

New Tools for Science Policy Report

Can Art and Religion Serve as Methods for Governing Emerging Science and Technology?

Sean Hays
Arizona State University

Center for Nanotechnology in Society
Arizona State University

May 24, 2011

This research was conducted as part of the Center for Nanotechnology in Society, Arizona State University (CNS-ASU). CNS-ASU research, education, and outreach activities are supported by the National Science Foundation under cooperative agreement #0937591.

NSF

Introduction

In 1996, Stephen Jay Gould gave a graduation lecture at the Barrett Honors College at Arizona State University. In this lecture, he detailed a new theory of the interaction of religion and science. He called the new model Non-Overlapping Magisteria, or NOMA. According to NOMA, science and religion are separate but equal magisteria, where magisteria are defined as bounded and exclusive realms of thought or knowledge. The use of magisteria here derives from Catholic dogma, where the Magisterium referred specifically to the divinely ordained authority of the church to define and impart knowledge. Gould was attempting to respond to the ongoing conflict between prominent religious and scientific communities over which realms of conduct and existence were properly addressed by science or religion.

In essence, Gould was arguing that science and religion clearly share an interest in many things—life, death, cosmology, etc—but that they do not and cannot share a way of understanding these things, or the class of conclusions they reach about them.
They frequently pursue knowledge about the same subjects but never produce identical information about those subjects. Science can reveal the natural basis for life on Earth, and religion can reveal the supernatural basis for life. The two of them however, cannot produce valid results within each other's magisteria. Science has no more right to try to inform as to the supernatural underpinnings of evolution than religion does concerning the physical origins of life. Religion can help us to understand the process by which the human body acquires a soul, but it cannot provide us with valid answers about developmental biology. However, with that last example, it is possible to see just how fine a distinction theories like NOMA often cut. Further, in practice the distinction

between religious and scientific magisteria quickly disappears, and conversely, NOMA becomes an implicit defense of the supposed objectivity of the scientific enterprise. The United States is not only known as one of the most technologically and scientifically advanced countries in the world, but it is also known as one of the most religious by various credible public opinion surveys. It is natural, then, that the two enterprises should encounter each other frequently in the public sphere. In a world where NOMA was the prevailing approach to dealing with the interaction of the two ways of knowing the world, their constant proximity and interaction would not be a problem. Everyone would simply be able to mentally and emotionally separate the knowledge produced by the two, and keep each confined to the appropriate sphere of action. Science would stay out of people's moral lives, and religion would steer clear of biology classrooms. As mentioned above, there are two primary problems with this approach. Firstly, it has never been the case that religion has voluntarily avoided involving itself in scientific inquiry or education. In some cases this has turned out to be a positive force. The Catholic Church has maintained an Academy of Science, founded by Galileo, for nearly five hundred years, and through that academy has funded scientific inquiry around the world, often funding research that was in conflict with its own dogma. On the other hand, as Galileo's own case illustrates, religious institutions and people do not always seek or achieve a positive influence. In the United States, the battle between religious fundamentalists and scientists over evolution has been ongoing for more than a hundred years, including the famed Scopes Monkey Trial in 1925.

While the nature of the interaction of science and religion varies considerably, what cannot be denied is that the two do influence each other in important ways.

Scientific discoveries have had a significant impact on Catholic doctrine over the years, as well as the doctrines of other religious denominations.

Religious groups and individuals have used the power of the state to restrain and shape scientific inquiry—as with embryonic stem cell research—and religious belief is a powerful influence on the work of individual scientists, though they frequently deny that this is the case. The probability that a perfect separation between science and religion will ever develop, or that it would be beneficial in any case, is vanishingly small, which is why it is important to look closely at the relationship between the two, with an eye toward how they can be prompted to work together in positive ways.

If it is, in fact, the case that science and technology are now developing so fast that the state cannot adequately control them—and society is to maintain its sovereign right to oversee the allocation of its resources, and to protect itself from harm—then other methods of control are necessary. Given this, religion would clearly be an excellent candidate for this role, due to the power and pervasiveness of its influence. However, that only makes the need for a less antagonistic relationship between the two systems even more pressing. It was this need that prompted the creation of "Can Art and Religion Serve as Methods for Governing Emerging Science and Technology," a *New Tools for Science Policy* event.

The Event

In an effort to begin a productive dialogue about how the relationship between art, religion, and science could be improved in order to support public policy and law, we convened an evening discussion at the Betts Marvin Theatre on the campus of George Washington University in Washington DC. The event was sponsored by the Office of the

President at Arizona State University (ASU), the Consortium for Science, Policy and Outcomes (CSPO), and the Center for Nanotechnology in Society (CNS). The discussion, including audience participation, lasted for an estimated 150 minutes. Approximately two hundred guests attended the event. The event was both live streamed and videotaped. The video footage is available through the Consortium for Science, Policy, and Outcomes' UStream page, located here. The audience members were a mix between was a mixture of executive branch program managers and staff, legislative staff, and students from the various universities in the DC area. The panelists were chosen as exemplars of the three primary elements of the issue: art, religion, and science policy. In fact, each has an experience and influence in all three elements, and thus presented the potential for a more dynamic interaction richer interaction than a set of strict ideologues would have done. The panelists for the event were:

Monsignor Marcelo Sànchez Sorondo: Monsignor Sánchez was born in Buenos Aires, Argentina, in 1942. He was ordained a priest in 1968 in the archdiocese of Buenos Aires. At the University of St. Thomas Aquinas of Rome in 1974, he was awarded a Ph.D. in sacred theology. From 1976 to 1998, he was lecturer in the history of philosophy at the Lateran University in Rome where, from 1982 onward, he was full professor in the same discipline. At the same university he was dean of the Faculty of Philosophy for three consecutive terms from 1987 to 1996. Since 1998, he has been full professor of the history of philosophy at the Libera Università Maria SS. Assunta in Rome. In the same year, he was appointed president of the degree course in education science. In November 1998, Pope John Paul II, appointed him chancellor of the Pontifical Academy of Sciences and the Pontifical Academy of Social Sciences.

Dr. Greg Graffin: Dr. Graffin was born in Madison, Wisconsin, and is the lead vocalist and songwriter of the legendary punk band *Bad Religion*, which he co-founded in Los Angeles in 1980. Graffin obtained his PhD in zoology at Cornell University. He has served as a lecturer in life sciences and paleontology at UCLA, and is currently a lecturer in evolutionary biology at Cornell University. He recently published a book, co-authored with Steve Olson, on naturalist philosophy called *Anarchy Evolution* (New York: HarperCollins).

Steve Olson: Mr. Olson is the author of *Mapping Human History: Genes, Race, and Our Common Origins* (Boston: Houghton Mifflin), which was one of five finalists for the 2002 nonfiction National Book Award and received the Science in Society Journalism Award from the National Association of Science Writers. His book, *Count Down: Six Kids Vie for Glory at the World's Toughest Math Competition* (Boston: Houghton Mifflin), was named one of the top science books of the year in 2004 by *Discover* magazine. His most recent book, co-written with Greg Graffin, is *Anarchy Evolution* (New York: HarperCollins). He has been a consultant writer for the National Academy of Sciences and National Research Council, the White House Office of Science and Technology Policy, the President's Council of Advisors on Science and Technology, the Howard Hughes Medical Institute, the National Institutes of Health, the Institute for Genomic Research, and many other organizations. From 1989 through 1992, he served as Special Assistant for Communications in the White House Office of Science and Technology Policy. He earned a bachelor's degree in physics from Yale University in 1978.

The Discussion

The evening began with an opening statement from each of the panelists. Monsignor Sànchez immediately adopted a controversial position by adding the Vatican to the substantial list of organizations calling for action on global climate change. He stated that the Pontifical Academies had recently concluded a review of the evidence, and affirmed that the scientific evidence of man-made global climate change was incontrovertible, as was the evidence of impending large-scale negative consequences. He also argued that in the wake of the Fukushima nuclear disaster, nuclear power was an unsafe and unsustainable alternative to the status quo of fossil fuel-generated power. The Monsignor called for science to assume its rightful place in service of justice through the revelation of truth and the easing of human suffering. The other two panelists wholeheartedly agreed with the Monsignor, and thus the evening began, in defiance of the prevailing stereotypes about religion and science, on a note of agreement.

Mr. Olson used his opening statement to explain the position on belief that he and Dr. Graffin had adopted in their recent book. Graffin and Olson espouse a version of atheism and monism that it is somewhat mystic, which makes it far more accepting of religious beliefs than any other recent versions of atheism.

Graffin and Olson espouse a version of atheism and monism that, due to the fact that it is itself somewhat mystic, is far more accepting of religious belief than other recent versions of atheism. In opposition to some of the more militant statements from atheists in recent years, Graffin and Olson were seeking to clarify an alternative way of knowing the universe, and consequently, an alternative view of what the universe is like, rather than negate an existing one. Olson then discussed how art and religion were informally

very influential within the DC policy community, and that the influence those two institutions had on constituents and policymakers alike was something that policymakers were aware of. In attempting to create policy and respond to scientific and technological developments, people with the executive branch often took into consideration the influence that art, media, and religion have and will have on the country's response to an issue.

Dr. Graffin rounded out the opening statements by outlining the naturalist philosophy that he has lived by for most of his life, and that he and Mr. Olson described in their book. He stated definitively that he and the Monsignor agreed on much more than they would disagree on, particularly the perspective the Vatican has now adopted vis-à-vis global warming. The prime area of disagreement would be in the nature of truth and the method of discovering truth. He adopts a strict materialist understanding of the universe, which holds that there is only one universe, and the truths of that universe can only be uncovered via an empirical and experimental method of inquiry. However, the interpretation of those truths, and how they can and should be understood and incorporated into our lives is subject to many different influences, many of which are equally valid. It is this message that Dr. Graffin has tried to pass on through his teaching and his music, and the latter has helped to shape the views of millions of young people since the early 1980s. It is also worth noting that the naturalist philosophy offered by Graffin and Olson is not a strictly materialist or positivist epistemology. It is willing to countenance the existence of some things in the universe that we will never understand, as well as a certain amount of mysticism in the influence of nature on the mind and emotion of humans.

Neither the panelists, nor the audience were able to construct a substantive suggestion for improving the relationship between science, religion, and art. However, they were in agreement that art and religion already contained a practical value in terms of influencing politics and policy. Further, they were able to agree that neither perspective was universally more valuable in interpreting the information and technology that science produces, or in guiding its use. They agreed with Gould that science was unlikely to provide concrete answers on how one should live, but it could inform the decision making process people engaged in by providing a clearer understanding of the natural universe in which we make decisions about how to live.

However, Gould's NOMA (or some variation) has become a tool for many within the scientific community, and in some cases the religious community when responding to scientific attempts to understand things like morality or denying the influence of religion on scientific and technological research. In other words, the panelists were each able to agree that the veneer of objectivity adopted by many adherents of philosophies that only believe in a single material universe that can only be known through scientific observation, is just that, a thin coating designed to hide the belief-driven subjectivity that underlies the research decisions made by scientists every day. The audience Q&A was merely a continuation of the discussion that arrived at the conclusion that scientific objectivity is an illusion we can ill afford.

Conclusion

The event produced the following conclusions:

1.) Global climate change is real, man-made, and a threat to humanity is something that religionists and scientists can both agree on.

2.) Religion and art are, and should be, very influential in shaping policy for science and most other issues.

3.) Both art and religion are pathways for citizens to try and influence politics and policy process, and this is a good thing.

4.) While the panelists were in agreement that there is considerable overlap between the magisteria of science, art, and religion, they also agreed that there were areas that were only appropriate to one way of knowing the universe. Hence, religious dogma should not be involved in science education, and neither art nor science should be allowed to exercise restraint on religious belief.

5.) The discussion also demonstrated the difference in the types of knowledge religion and science produce regarding the same object of inquiry in a discussion about the naturalist perspective on the existence of a soul, and what a soul would consist of were it to exist. The Monsignor and Dr. Graffin agreed that science cannot demonstrate the existence or non-existence of a soul, and thus cannot say anything definitive about it. Dr. Graffin is justified in believing that a soul does not exist on that basis, but is not justified in suppressing the belief of others in the existence of a soul, or in attempting to contradict their pronouncements on the nature of souls

The value of the event ultimately lay in lending legitimacy to a non-combative approach to discussing art and religion in the context of politics and policy. The typical tone of the discussions about the real and expected influence of religion and art on policy is oppositional in nature. Conversely, this event began a discussion of how and why one of the most religious countries on Earth should incorporate religious views into the policy

process, as well as how and why religion and art are already tremendously powerful in shaping political outcomes by shaping the views of citizens outside the context of formal political institutions.

Further Readings:

1.) Ferber, Michael P. "Critical Realism and Religion: Objectivity and the Insider/Outsider Problem." *Annals of the American Society of American Geographers*, Vol. 96, Issue 1 (March 2006): 176-181.

2.) Gallup, Inc. "Importance of Religion." *State of the States*, (January 2009) http://www.gallup.com/poll/114022/state-states-importance-religion.aspx

3.) Gould, Stephen J. "Nonoverlapping Magisteria." *Natural History*, Vol. 106 (March 1997): 16-22.

4.) Greenwalt, Kent. "Teaching About Religion in the Public Schools." *Journal of Law & Politics*, Volume 18 (2002): 329.

5.) Pew Research Center. "Belief in God." *The Pew Forum on Religion & Public Life*, (September 2011) http://pewforum.org/Topics/Beliefs-and-Practices/Belief-in-God/?filter_tax=0&filter_date=last12&filter_add=0

6.) Ziman, John. "Is Science Losing its Objectivity?" *Nature*, Vol. 382, (August 1996).