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SCIENTISTS AND RELIGIOUS COMMUNITIES: INVESTIGATING PERCEPTIONS, BUILDING UNDERSTANDING

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Science and religious faith are arguably two of the biggest sociological influences on the lives of people today, whether through direct engagement or with the indirect but pervasive impact of both on societal pursuits, norms, boundaries, and expectations. Much has been said and studied regarding the varying frameworks for understanding the relationship between the two.

Yet when it comes to public understanding and support for science from the large and varied sector of religious communities, it is the *perception* of the role of science and of scientists themselves - e.g., their motives, expertise, and influence - that often carries the most weight. Likewise the impressions scientists hold, right or wrong, regarding the beliefs and concerns of religious people can impact their effectiveness in public discourse regarding issues critical for the health of the nation and the world. Misperceptions between scientific and religious communities can have measurable impacts on national attitudes toward science, and ultimately on national science policy.

Attaining a deeper understanding of these sometimes deeply nuanced perceptions presents a strong yet critically important challenge for the science community. To that end, AAAS and Rice University are collaborating to conduct a major survey of several religious communities regarding their beliefs about science and their perceptions of scientists. A second component of the survey will investigate the views held by scientific professionals from a wide swath of applied science and research careers regarding the attitudes of religious people toward science. The project, funded by the John Templeton Foundation, will provide the first quantitative data on the underlying assumptions and concerns that shape national attitudes on issues ranging from basic science education to environmental stewardship.

Getting to the heart: building a survey

The need for better understanding between religious groups and scientists stems not from a requirement that both agree on all fundamental principles (though the groups can and do overlap in membership), but rather from their shared interest and input into public discourse on the importance and ethical uses of, and support for, science and technology. Indeed, with the AAAS motto of "Advancing Science, Serving Society," understanding the interests and concerns of a largely religious public regarding science is key to effective engagement.

Many scientific and technological issues are of fervent interest to religious communities. While "evolution" often takes the media spotlight, other issues are at least as provocative in both positive and negative ways. Knowledge of advancing medical treatments, water management technology and humane agricultural production are of great interest as part of their service to the developing world, and understanding the effects of climate change is being seen more and more as critical for religious communities called to environmental stewardship and concern for the world's poor [1]. On a more fundamental level, embryonic stem cell research, the nature of the mind and free will, the blurring of distinction between humans and machines, genetic determinism, and even the march toward finding extrasolar life are keen examples of where science touches fundamental beliefs regarding the nature and responsibility of human life.

In fact, a deeper probe shows that it is actually the underlying basic philosophical concerns of religious citizens toward science that can lead to responses of either enthusiastic support for science or else rejection of scientific data in ways that can be sometimes baffling to scientists.

One evangelical leader who advises the project points out that people within his constituency are often more concerned with the "package" that they perceive may be coming along with science, rather than any particular result. For example, it may not be "the fossil record" or the age of the universe that troubles, but rather the perception that "evolutionary science implies godlessness" or the concern that "if my child is taught evolution in school, will it come wrapped in a package of atheism?"

Understanding the role of *authority figures* is paramount to reaching the goals of this survey. All people look to trusted authority figures to find guidance in unfamiliar areas. But if a perceived conflict arises between a religious view and a scientific announcement or a problematic choice regarding technology, to whom does one turn for help? A trusted religious leader may play a bigger

role than an unfamiliar scientist in guiding the thoughts of many people. For some, the perceived motives of scientists can affect the level of trust afforded to them. If scientists are thought to be arrogant or driven by special interests, political bias, or an anti-religious agenda, any message they seek to convey may be suspect.

On the other hand, the degree to which "official statements" regarding religion and science as developed by religious leaders of various denominations are actually appropriated to the conversations and beliefs within local congregations is open to question. MIT researchers discovered a significant disparity between the personal beliefs of people within several faith communities regarding science, particularly evolution and Big Bang cosmology, and the official views of the faith community to which they belong [3]. Their findings prod further investigation into whether members of these communities are either unaware of the views of their own denominational positions (which in between science and their religious tenets), or rather are in personal disagreement or discomfort with those positions, looking to other authorities for guidance.

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Under the guidance of an expert advisory panel of scientists, religious leaders, and survey-research specialists, this major survey project for underlying perceptions is underway. The nationally representative survey will reach 3000 people, including evangelical Christians, mainline Protestants, Catholics, and Jews. Respondents will be asked questions ranging from their perceptions of the nature of science and scientists to the personal interactions the respondent has had (or may have never had) with someone in a technical field.

Likewise, representatives of the scientific community will be surveyed to investigate questions such as the following: How sensitive are scientists to differences among religious traditions, and their stances on science? On what issues do scientists and religious people often agree? What issues are most polarizing? Where do scientists get their information about religion, and on what do they base their impressions of how the religious public views science? To what extent do the views of vocal scientists regarding science, religion, and religious communities reflect or influence the views of others? To what extent do scientists and the general public agree on the limits of science in addressing questions of ultimate meaning?

After the survey, the real conversation begins…

The results from this substantial survey will provide the backbone for more informed and effective national science dialogue. From a scholarly perspective, Dr. Elaine Howard Ecklund, a sociologist and principal investigator for the Rice University component of the project, will examine how spirituality, religion, and science interact at the individual and congregational levels in the various traditions surveyed, and how religious leaders address science at the local level. AAAS will use the survey results as the basis for intense public engagement, through the Dialogue on Science, Ethics, and Religion (DoSER) program.

Letters to the Editor: The editors welcome comments from our readers. We reserve the right to edit and abridge the letter as space permits. Please address all correspondence to the deputy editor.

Scientists and representatives from each of the traditions sampled will begin subsequent dialogue aimed at improving the interface between these communities, informed by knowledge of existing perceptions as revealed by the survey.

For years, AAAS advisory groups have recommended a focus in particular on the relationship between science and evangelical Christianity. Constituting nearly 30% of the US population, evangelicals rank among the most religiously conservative communities in the US (though less so than those described as "fundamentalist"), while also being highly concerned about truth and public policy. Thus, it is with this community that the greatest improvements and impacts could occur in the science and religion dialogue. Additionally, evangelicals are increasingly diverse and their responses to issues such as climate change indicate that they are becoming more open to dialogue.

The survey results will thus serve as the basis for regional workshops bringing local scientists and evangelicals together to address science-related issues of mutual concern. Likewise a national conference will bring together high-profile leaders of the scientific and evangelical communities to discuss the survey results and implications, with the continuing conversations extending deeply into both communities.

Ultimately it is the building of real relationships between scientists and religious communities that can provide the best bridges of understanding. Finding out what both groups actually think, through a survey, is only the first step.

For more information about the AAAS Dialogue on Science, Ethics and Religion visit: http://www.aaas.org/spp/dser/

References

[1] One example of religious communities incorporating the science of climate change into an ethic of concern for the poor is the booklet, "Loving the Least of These: Addressing a Changing Environment," produced for churches by

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the National Association of Evangelicals; http://www.nae.net/lovingtheleastofthese

[2] Ecklund, E. (2010). *Science vs. Religion: What Scientists Really Think*. Oxford University Press, p. 8.

[3] Lee, Tegmark, and Chita-Tegmark (2013), *The MIT Survey on Science, Religion and Origins: the Belief Gap.* Published online at http://space.mit.edu/home/tegmark/survey.html and in *The Huffington Post* (by Max Tegmark) at http://www.huffingtonpost.com/max-tegmark/religion-and-science-distance-between-not-as-far-as-you-think_b_2664657.html?utm_hp_ref=religion

In the News

BIOETHICS COMMISSION RELEASES REPORT ON PEDIATRIC MEDICAL COUNTERMEASURE RESEARCH

On March 19, 2013, the Presidential Commission for the Study of Bioethical Issues released a report with recommendations on the ethics of research on pediatric medical countermeasures, specifically conducting anthrax vaccine trials on children [1]. The advice was in response to a request from the Health and Human Services Secretary, Kathleen Sebelius, after the National Biodefense Science Board (NBSB) recommended research on the safety of a three-dose anthrax vaccine on children begin, pending ethical review.

The Commission reasoned that because children cannot give informed consent to accept the risks for participating in research, due to their level of cognitive development and their lack of independence in autonomous decision making, extra protections are necessary to ensure that children do not experience harm without any expectations of personal benefit. Pediatric medical countermeasures (MCM) - federally regulated drugs and products used in response to chemical, biological, radiological and nuclear attacks - have further ethical considerations because they are pre-event trials, taking place before an actual or imminent attack. Thus children volunteers are being exposed to risks for a hypothetical condition with an unknown likelihood of happening [2]. Therefore, only minimal risk research should be conducted in pre-event trials, according to the Commission, which defines this standard as the "degree of risk encountered in the daily life of a healthy child living in a safe environment or the risk to which a healthy child is exposed during a routine examination." [1] However, after an anthrax attack, the degree of risk that is ethical increases because children may have something to gain from participating in research in post-event testing [3].

The Commission offered six recommendations:

1. Pre-event pediatric medical countermeasure testing should be conducted with a research design posing only a minimal level of research risk except under extraordinary circumstances.
2. Before beginning pre-event medical countermeasure studies with children, ethically sound modeling, testing with animals, and testing with the youngest adults must be completed to identify, understand, and characterize research risks. If pediatric research is determined to be minimal risk and is to be conducted, progressive age de-escalation should be employed whenever possible from the oldest age group of children to the youngest group necessary to provide additional protection to the youngest and most vulnerable children.
3. In part because of the inherent uncertainty of a bioterrorism attack, pre-event pediatric medical countermeasure research posing greater than a minor increase over minimal risk should not be approved.
4. Reviewers should apply the Commission's recommended ethical framework for reviewing pre-event pediatric medical countermeasure research that poses greater than minimal risk, but no more than a minor increase over minimal risk, under Department of Health and Human Services regulations.
5. Post-event research should be planned in advance and conducted when untested medical countermeasures are administered to children in an emergency or when limited pre-event medical countermeasure studies have already occurred.
6. When there are no data on the administration of a medical countermeasure to children and it will be provided to children in an emergency, the medical countermeasure should be provided under a treatment investigational new drug application (IND) to ensure that rigorous pediatric research protections apply to safeguard those children who receive the medical countermeasure.
7.
8. Currently only one licensed anthrax vaccine is approved in the United States, and although Anthrax Vaccine Adsorbed (AVA) has been in production for more than forty years, and has been safely administered to people ages 18 to 65, predominantly in the military, the effects and dosing regimen of the vaccine for children remain unknown. However, the federal plans for responding to a large-scale release of weaponized anthrax would include a widespread vaccination program of AVA. The NBSB believes that testing the safety of the vaccine in children, and their immune response to it, is important to investigate now, but that the lack of data about AVA use in children would present "more than a minor increase over minimal risk" in pre-event trials.

The federal government has multiple steps to take before anthrax vaccine trials on children can be considered. The demanding regulations set forth by the Commission makes such trials seem less likely to happen, but the Commission Chair has described this bioethical review as the most difficult that they have ever had to conduct, and that their decisions ultimately reflect their overarching obligation to protect the safety of children, balancing the undue risk during research for each individual with the need to protect all children during an emergency.

[1]http://bioethics.gov/cms/sites/default/files/PCSBI_Pediatric-MCM508.pdf

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[2]http://www.eurekalert.org/pub_releases/2013-03/bc-pbc031513.php
[3]http://www.washingtonpost.com/national/health-science/ethics-panel-sets-high-bar-for-anthrax-vaccine-research-in-children/2013/03/18/b8e8ba78-9002-11e2-9cfd-36d6c9b5d7ad_story.html

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CONTROVERSIAL H5N1 AVIAN FLU RESEARCH RESUMES; US FRAMEWORK IN PLACE

An international group of 40 scientists recently ended their year-long voluntary moratorium on controversial H5N1 avian flu research. In a statement published jointly in *Science* and *Nature* on January 23, 2013, the scientists noted that the moratorium's purpose had been fulfilled in many countries, and they were acting pursuant to their "public-health responsibility to resume this important work." [1]

The research at the heart of the controversy involves the engineering and production of lethal H5N1 viral strains that have increased transmission among ferrets, the animal model that most closely mirrors human flu responses. This research may increase our understanding of viral spread and provide for greater resilience in the face of a potential flu pandemic. However, it also raises important concerns regarding researcher safety, the potential for accidental release, and the possibility that the information obtained will be used for nefarious purposes. After the US National Science Advisory Board for Biosecurity (NSABB) recommended that experimental details be redacted from two H5N1 papers, a group of leading influenza scientists agreed to a 60-day research moratorium (that was later made indefinite). (For more details, see *PER*, Winter 2012 [2]).

The purpose of the research moratorium was to allow time for experts to enumerate the public health benefits of this work, to identify and describe risk-management efforts, and to permit review of policies regarding biosafety, biosecurity, oversight, and communications by research institutions and government organizations. International collaboration was necessary to evaluate this "gain-of-function" research since efforts to increase transmissibility, host range, or virulence of pathogens have the potential to produce truly global consequences.

Over the course of the year, the discourse resulted in the establishment of a framework by which to address acute safety concerns related to H5N1 research. In July, the World Health Organization issued a series of laboratory safety recommendations designed to mitigate risks inherent in this type of research [3]. In December, the National Institutes of Health hosted a two-day workshop to discuss the implementation of new standards to which researchers would have to conform in order to secure funding for this type of research [4]. On February 21, 2013, the US Department of Health and Human Services released a Framework with details on procedures for departmental funding of such research [5]. It includes provision for a departmental-level review, for which experts may be drawn from inside and outside government, to determine if a proposal to conduct H5N1 gain-of-function research is acceptable for finding by the department. It is also possible that some work might proceed as classified research.

The 40 influenza researchers calling for an end to the research moratorium stressed that research will only resume in certain countries because "scientists should never conduct this type of research without the appropriate facilities, oversight, and all necessary approvals." [1] At present, policies to address the biosafety and biosecurity concerns of this research have been established in most European countries. Several countries, including Japan and the United States, have yet to conclude such efforts. (As PER went to press, proposed regulations were announced in the United States [6]).

Scientists in the field are confident that "the benefits of this work outweigh the risks" [1] and are eager to expand on their earlier work. Proposed experiments include testing viral strains containing different combinations of mutations in transmission models and the expansion of such studies into other mammalian models such as guinea pigs [7].

[1]http://www.sciencemag.org/content/early/2013/01/22/science.1235140
[2]http://srhrl.aaas.org/newsletter/per/archives/newper68.shtml#SpecialReport
[3]http://www.who.int/influenza/human_animal_interface/biosafety_summary/en/index.html
[4]http://www.nature.com/news/controversial-h5n1-influenza-work-likely-to-resume-1.12089
[5]http://www.phe.gov/s3/dualuse/Documents/funding-hpai-h5n1.pdf
[6]https://www.federalregister.gov/articles/2013/02/22/2013-04127/united-states-government-policy-for-institutional-oversight-of-life-sciences-dual-use-research-of
[7]http://www.nature.com/news/work-resumes-on-lethal-flu-strains-1.12266

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STEM CELL TREATMENTS: BIOLOGICAL PRODUCT OR MEDICAL PRACTICE?

On July 23, 2012, a court decision upholding the authority of the FDA to regulate the Regenexx Procedure, a stem cell treatment, may give some direction to the grey area surrounding other such controversial stem cell therapies. The Regenexx procedure, owned by Regenerative Sciences LLC, involves isolating bone marrow stem cells, processing them and then injecting the cells back into the patient to alleviate joint pains [1]. It has been defined as a 'practice of medicine,' a 'drug' and a 'biological product' by different groups. The distinction is crucial because it determines who has authority over the use of the product.

The lawsuit questioned whether the procedure constitutes a drug; a drug would be deemed interstate commerce and subject to FDA regulations. If instead, it was considered a medical practice, then Regenexx would only need to abide by the laws of the State (in this case the laws of Colorado), since the FDA only has jurisdiction over commercial products that involve the crossing of state lines. Chris Centeno, one of the developers of Regenexx, argues his product is merely tissue cells collected from patients. He claims those tissue cells do not undergo significant

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modification, so it should be considered a medical practice, not a biological product over which the FDA has jurisdiction. However, the court decided these stem cells were more than 'minimally manipulated' during processing and concluded that they must be considered both a drug and a biological product [2].

The safety and efficacy of using stem cells for medical treatments have not been established from clinical trials, thus the risks conferred from such procedures are not understood or well known. Strict regulations and more scientific testing are therefore warranted, but some proponents of stem cell treatments wish to avoid regulations. They fear that the traditional drug development trajectory will impede and delay medical advances that could save lives, especially since stem cell research has elicited excitement and hopes for curing all types of conditions and diseases.

Unregulated stem-cell applications have been growing in the US, with at least 12 other companies performing treatments like Regenerative Sciences. Texas, for example, with Governor Rick Perry as a strong stem cell advocate, has invested millions of dollars to study and market stem cell uses [3]. This recent court ruling may serve as a warning that stem cell regulations are likely to be tougher in the future.

More rigorous US regulations could lead to a greater volume of stem cell interventions being performed in other countries with more lax laws [4]. Some US clinics already send their patients overseas for treatments to avoid dealing with US regulations. Currently, it is a matter of policy trying to catch up to the sciences on a global level. Policies are starting to emerge as it becomes apparent that the uses of stem cells, and who is responsible for them, will need to be more clearly addressed. Stem cell technology promises great improvements to the future of medicine, but thorough testing and up-to-date regulations are necessary to responsibly and safely reap these benefits.

[1] http://www.nature.com/news/fda-s-claims-over-stem-cells-upheld-1.11082

[2]http://www.gpo.gov/fdsys/pkg/USCOURTS-dcd-1_10-cv-01327/pdf/USCOURTS-dcd-1_10-cv-01327-0.pdf

[3]http://www.nature.com/news/2011/110920/full/477377a.html

[4]http://www.sciencemag.org/content/338/6112/1296.full

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SCIENTIFIC INTEGRITY POLICIES FROM FEDERAL AGENCIES: NEW STUDY RAISES CONCERNS

Dr. John P. Holdren, President Obama's science advisor, directed federal agencies to develop new scientific integrity policies on December 9, 2010, after a memorandum from the President had affirmed that his administration was committed to scientific integrity [1]. Twenty-two departments and agencies submitted policies to the White House that have been evaluated by the Union of Concerned Scientists (UCS) [2].

The UCS analysis found that The Centers for Disease Control, the Department of the Interior, the Environmental Protection Agency, NASA, the National Oceanic and Atmospheric Administration (NOAA), and the National Science Foundation submitted policies that actively promote and support a culture of scientific integrity [3]. Five agencies submitted policies that promote and support scientific integrity but need additional work to ensure long-term change. Eleven agencies submitted policies that do not make, according to the UCS study, adequate commitments to achieve the preservation and promotion of scientific integrity.

Almost all the agencies were praised for repeating the principles from the December 9, 2010 Holdren memorandum. However, most of the agencies were faulted for the following:

- no explicit that policy applies to political appointees, supervisors, and contractors in addition to career employees
- no commitment to publicly report the aggregate number of scientific misconduct allegations and the specifics on cases of confirmed misconduct
- no provision allowing scientists the rights to review, approve and comment publicly on the final version of any scientific document that relies on their research or identifies them as a contributor
- no procedure for reporting and resolving differing scientific opinions
- lack of procedures for how allegations of scientific misconduct will be investigated, managed and reported
- no provision for scientists' rights to express personal opinions with appropriate disclaimers

The Departments of Education, Justice, Transportation, Veterans Affairs, and the Office of the Director of National Intelligence did not have the final policy available on their websites. NOAA was applauded for having a policy that was easy to access on its website.

Seven agencies have policies that require supervisors or public affairs offices to grant scientists permission before they are allowed to discuss their research publicly, which compromises the 2010 memorandum goals of transparency, as well as the goals of protecting government science and strengthening the quality of government scientific information and advice. The analysis also raises concerns for entities that fall under another department, such as NOAA as a branch of the Department of Congress, and the FDA as a branch of the Department of Health and Human Services; if the policies of the department that oversees another are not strong enough, they could restrict scientific integrity of the entity under them. Furthermore, scientific and technological analysis has not been separated from the "pre-decisional" documents that are used to create policy by any agency, blurring scientific findings and the science that is used to form the basis of new rules.

All the policies resolve to stop officials from suppressing or modifying scientific or technological findings and include provisions to ensure that research undergoes peer review. However, because many of the policies are vague, lacking specifics on procedures and provisions, the final policies of these

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agencies may not enable them to be effective in protecting and promoting scientific integrity and the scientific enterprise, especially if a future administration is not in favor of such policies.

The UCS analysis also made note that none of the agencies had updated its policies to incorporate the Whistleblower Protection Enhancement Act (WPEA), passed in 2012. The WPEA provides federal workers rights that offer them protection to report government corruption and wrongdoing safely [4]. The UCS believes that this new law should be included in the scientific integrity policies to offer additional protections to scientists.

All the policies available to the public can be found on the UCS website: http://www.ucsusa.org/scientific_integrity/solutions/agency-specific_solutions/federal-agency-si-policies.html.

[1]http://www.whitehouse.gov/the-press-office/memorandum-heads-executive-departments-and-agencies-3-9-09
[2]http://www.ucsusa.org/assets/documents/scientific_integrity/SI-policies-comparative-analysis.pdf
[3]http://www.ucsusa.org/news/press_release/four-years-later-a-mixed-bag-scientific-integrity-0365.html
[4]http://www.whistleblower.org/program-areas/legislation/wpea

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Resources

INTERACTIVE WEBSITE ON CONTEMPORARY ISSUES IN ANIMAL RESEARCH ETHICS

The Hastings Center recently released a new interactive online resource for exploring issues related to the ethics of animal research [1]. The site, called "Ethics of Medical Research with Animals: Science, Values and Alternatives," serves as a hub of information about this controversial topic, and is a product of a workshop that was organized by The Hasting Center in 2011.

The website includes fact sheets about animal research, specifically information about the types of animals used in medical research, alternatives to the use of animals, and information about animals and pain, summaries of the U.S. laws that relate to animal research, a bibliography of relevant publications, and a list of educational resources. In addition to The Hastings Center's Special Report *Animal Research Ethics: Evolving Views and Practices* [2], there is also a list of reports useful for understanding the current debates surrounding the use of animals for medical research.

The website is intended for a wide audience, including biomedical researchers, scholars, students, institutional animal care and use committees, policymakers, and journalists who follow animal research issues.

[1]http://animalresearch.thehastingscenter.org/
[2] Susan Gilbert, Gregory E. Kaebnick, and Thomas H. Murray, eds., "Animal Research Ethics: Evolving Views and Practices," *Hastings Center Special Report* 42, no. 6 (2012): S1–S40; http://animalresearch.thehastingscenter.org/special-report/

NEW PUBLICATION ON PEER REVIEW, RESEARCH INTEGRITY AND THE GOVERNANCE OF SCIENCE

A bilingual (Chinese-English) book on "Peer Review, Research Integrity, and the Governance of Science -- Practice, Theory, and Current Discussions" was recently published by Renmin (People's) Press in Beijing [1], in association with a three-day workshop of the same title held at the Dalian University of Technology in May 2012 [2]. The workshop brought together leading researchers and science agency officials from the United States, Europe, and China to discuss how peer review functions within Western society today, and how Chinese institutions are developing their own models of peer review.

Peer review is central to the practice of good science and has been the dominant means for governing science over the last 75 years. However, the precise character of peer review is subject to debate, and new demands are being made on the peer review process, leading to its restructuring and in some cases replacement as the means for governing science. As societies seek to exercise greater control over science, particularly in the case of public science agencies, the standard mechanisms of 20th century peer review are being rethought. At the same time, China is poised to take on a leading role in scientific and technical research. The workshop addressed the present conditions and future possibilities for peer review in China. It also focused on the question of whether it is possible to have a truly global community of peers to guarantee scientific integrity and the governance of science.

The book, co-authored by Robert Frodeman, J. Britt Holbrook, Carl Mitcham, and Hong Xiaonan, provides both Chinese and English analyses of peer review practices. The book begins with an introduction to the theoretical and practical uses of peer review in China and is followed by a discussion of the definition peer review, including basic concepts and models for the peer review process. The second half of the book collects 18 seminal texts on peer review, from the 1970s to the present.

[1] Peer Review, Research Integrity, and the Governance of Science - Practice, Theory, and Current Discussions. Robert Frodeman, J. Britt Holbrook, Carl Mitcham, and Hong Xiaonan. Beijing: People's Publishing House, 2012.
[2] International Workshop on Peer Review, Research Integrity and the Governance of Science; http://capr-peerreview.mines.edu/index.htm

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QUESTIONNAIRE ON THE RESPONSIBILITIES OF SCIENTISTS AND ENGINEERS

You are invited to participate in a questionnaire aimed at identifying how scientists and engineers view the nature and scope of their responsibilities. The data gathered will be used to inform a survey to be conducted later this year. The questionnaire is anonymous and should take no more than 5-10 minutes to complete. It can be completed online here: https://www.surveymonkey.com/s/SciEngResponsibilities-Questionnaire

This questionnaire is a joint activity of the AAAS Scientific Responsibility, Human Rights and Law Program and the Ethics and Human Rights Working Group of the AAAS Science and Human Rights Coalition. If you have any questions about this activity, please contact Jessica Wyndham at jwyndham@aaas.org.

Announcements

CALL FOR CONTRIBUTIONS - The UK based research project, "Framework for Responsible Research & Innovation in ICT" invites submission of case studies and other short documents from parties interested in sharing their experiences with ethics and responsibility in ICT. Particular areas of interest include case studies and discussion of actual projects, debates around a particular ethical issue, thoughts on specific technologies, actual or proposed resolution to dilemmas, and opinions related to the broader topic. Examples of case studies and more information can be found at http://responsible-innovation.org.uk/frriict/.

CALL FOR PAPERS - The journal *Science and Engineering Ethics* seeks papers for a special issue on "Ethics in Modern Universities of Technology: Challenges for the 21st Century." The aim of the special issue is to address the ethical issues that arise for institutions of higher education in the field of engineering and applied science. Its main focus will be on issues at universities of technology, more specifically on the relationships of academic researchers with industrial partners, commerce and innovation in profit organizations. Submissions are invited on the following topics: the role of financial incentives in science, institutional corruption in academia, design and monitoring of regulations governing university-industry relations, corporate governance in technical universities, the role of boards of trustees, potential conflicts of interest, spin offs and entrepreneurship, dual use and military funded research, and teaching ethics to current and future engineers. Abstracts should be submitted to Behnam Taebi at B.Taebi@tudelft.nl by April 30, 2013. General information about the journal can be found at http://www.springer.com/social+sciences/applied+ethics/journal/11948.

CALL FOR PAPERS - The *Journal of Philosophy, Science & Law* is soliciting original manuscripts for publication. Relevant topics include bioethics, engineering ethics, environmental ethics and law, ethical and legal implications of emerging technologies as well as military research, ethics education, the ethics of expert witness testimony, research integrity and research ethics. The Journal is aimed at lawyers, philosophers, scientists and engineers, historians, sociologists and other interested scholars. For more information, visit http://www.miami.edu/ethics/jpsl/ or contact borenstein@gatech.edu.

CALL FOR PAPERS - The *Journal of Philosophy, Science & Law* requests papers related to the ethical and legal implications of medical interventions for individuals with disabilities. Suitable topics include, the use of bionic eyes, cochlear implants, growth hormones, neuroenhancement drugs, limb lengthening surgeries, laws that influence decision making on behalf of disabled children. The Journal's publication guidelines can be found at http://www.miami.edu/ethics/jpsl/submission.html. The deadline for abstract submission is June 1, 2013.

CALL FOR PAPERS - The 9th World Conference on Bioethics, Medical Ethics and Health Law will be held at the University of Napoli, Italy November 19-21, 2013. The conference is designed to offer a platform for the exchange of information and knowledge and to hold discussions, lectures, workshops and exhibition of programs and databases related to bioethics and law, health, technologies, youth, bio-politics, and more. Additional information can be found at www.isas.co.il/bioethics2013. To register or to submit an abstract, contact seminars@isas.co.il. The deadline for abstract submission is May 15, 2013.

CALL FOR PROPOSALS - Proposals are now being solicited for the 2013 annual meeting of the Society for the Study of Nanoscience and Emerging Technologies, to be held in Boston, Massachusetts on October 27-30, 2013. The theme for the 2013 meeting is Innovation, Responsibility, and Sustainable Development. The Society seeks to advance critical reflection from various perspectives on developments in a broad range of new and emerging fields, including, but not limited to, nanoscale science and engineering, biotechnology, synthetic biology, cognitive science and geo-engineering. The deadline for submission is May 1, 2013. For more information, contact S.NETBoston@gmail.com or visit http://goo.gl/jO2vu.

CONFERENCE - The First Annual Conference on Governance of Emerging Technologies: Law, Policy and Ethics will take place in Chandler, Arizona on May 20-21, 2013. The conference will offer a number of plenary and session presentations on the regulatory, governance, legal, policy, ethical and social aspects of emerging technologies such as nanotechnology, information technology, synthetic biology, genomics, neuroscience, geoengineering and robotics. More information and registration are available at http://conferences.asucollegeoflaw.com/emergingtechnologies/.

CONFERENCE - A conference on "Educating Scientists in Research Ethics for the 21st Century" will convene in Annapolis, Maryland on June 3-6, 2013. This trainer-of-trainers conference is designed to prepare faculty and

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administrators to establish or improve instruction in research ethics. Participants will receive extensive curricular resources including syllabi, PowerPoint presentations, handouts for students, in-class exercises, cases for discussion, and a lengthy bibliography. Additional information about the conference, as well as the application form, is available at http://skillassist.org/.

CONFERENCE - Registration is now open for the Third Annual Responsible Conduct of Research Conference at Texas Tech University. Topics to be covered at the conference include research with vulnerable populations, data management and image manipulation, lab safety, replication of data, and ethical conduct of research. The conference will take place April 22, 2013. Registration is available at http://www.tltc.ttu.edu/content/asp/conferences/rcr/index.asp.

CONFERENCE - Be part of the discussion of the future of science and technology policy with leaders in the field at the 38th Annual AAAS Forum on Science and Technology Policy. The Forum will be held May 2-3, 2013 in Washington, DC. The conference is aimed at people interested in public policy issues facing the science, engineering, and higher education communities. This year's program features a keynote address by Assistant to the President for Science and Technology, John P. Holdren, and sessions on Who Wants to Control the Internet and How?, Cases for and Against Patents, among others. Visit www.aaas.org/forum for registration and full program details.

COURSE - The Society of Research Administrators International and the Tuskegee University National Center for Bioethics in Research and Health Care are offering a special event on "Ethics and Research Leadership: Paving the Path for Innovation and the Human Good." The short course will be offered June 5-7, 2013. It is a continuing education course for the professional development of researchers, research administrators, executives, managers, and related subject matter experts and professionals. Continuing education credit hours (CMEs, Nursing CEs, General CEUs) will be provided. More detailed information and registration can be found at http://npotte1.wix.com/tuskegee-sra-13.

EVENT - The first event of the 2013 Neuroscience and Society series will take place in Washington, DC on April 25, 2013 and will address the topic of "Neuroscience and the Law." The series is a partnership between AAAS and the Dana Foundation. Other sponsors include the MacArthur Foundation Research Network on Law and Neuroscience and the International Neuroethics Society. Research on the brain has shed new light on the relationship between our thoughts, feelings, and behavior. These advances have not been lost on the legal system, where they raise serious issues for the law, from matters relating to the admissibility of evidence to decisions about criminal culpability. Speakers at this event will address what neuroscience can and cannot tell us about human behavior; the ways in which neuroscience is entering the courtroom; and the challenges this emerging knowledge poses for the trier of fact. For registration and additional information, visit http://srhrl.aaas.org/projects/science_society/neurosociety/law.shtml.

FELLOWSHIP - The Office for Human Research Protections at the U.S. Department of Health and Human Services is seeking applications for a one-year policy fellowship. The position is being offered in the Division of Policy and Assurances. This Division prepares policies, guidance documents and interpretations of requirements for human subject protections and disseminates this information to the research community. It also administers the assurances of compliance and implements the institutional review board registration process. The fellowship position is administered by the Oak Ridge Institute for Science and Education. For more information, see http://orise.orau.gov/science-education/internships-scholarships-fellowships/description.aspx?JobId=12724 or contact DeAnna Copeland at DeAnna.Copeland@orau.org.

FELLOWSHIP - A postdoctoral training fellowship is available in the Center for Integration of Research on Genetics and Ethics, a Center of Excellence in ELSI (Ethical, Legal, and Social Implications) located at the Center for Biomedical Ethics, Stanford School of Medicine, funded by the National Institutes of Health. The fellowship aims to prepare fellows for interdisciplinary scholarship in emerging ethical, social, policy and/or legal issues raised by genetic research. Fellows also will be expected to apply for an NIH F32 or other fellowship, but will be guaranteed full support for two years. Fellows will conduct independent ELSI research in issues around behavioral genetics. They will have a range of additional opportunities, including participating in CIRGE intellectual life (an interdisciplinary community of scholars including geneticists/scientists, ethicists, lawyers, and physicians); taking coursework in genetics, ethics, or ELSI research methods; being involved in a research ethics consultation service for bioscientists; and helping to plan and participate in CIRGE symposia, policy workshops, and other events and programs aimed at forging interdisciplinary dialogue with genetics researchers. Submissions should be made to Colleen Berryessa, at cmberry@stanford.edu. The position will begin in summer 2013, so interested parties should apply as soon as possible. Additional details are available at http://cirge.stanford.edu/activities/employ.html.

SUMMER INTENSIVES - The Johns Hopkins Berman Institute of Bioethics will offer two sessions of intensive summer courses in bioethics this summer. The first week of courses will be offered June 17-21, 2013. The second week will be June 24-28, 2013. Course topics include foundations of bioethics, clinical ethics, ethics, policy and emerging biotechnology, human subjects research and public health. The courses focus on both theoretical and applied aspects of bioethics and are of practical value to medical, legal, and policy professionals; researchers; scholars; students and others. For more information and to register, go to www.bioethicsinstitute.org/intensives or email bioethics@jhu.edu.