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## Science, Morality, and Universities

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Nationally and internationally, science and the scientific enterprise are important. Science is not the most important topic we take up in society, but it is important and when it suffers, we all suffer. Preserving public confidence in the scientific enterprise is an important role for universities. It is not the most important role that universities play or should play, but it is important, and when universities fail, we all suffer.

The science profession, and by extension the scientific enterprise, face some challenges today. Scientists are held in high regard by the public, but as noted by the National Science Foundation (“NSF”) in 2006:

Some notable changes have taken place during the 27 years of Harris Interactive polls about the prestige of different professions and occupations. Among the 11 occupations included in the survey since it began in 1977, only teachers saw an improvement in their rating, from 29% in 1977 to 48% in 2004. In contrast, the rating for scientists fell 14 points, from 66% to 52%, and ratings for doctors and lawyers fell 9 and 18 points, respectively.<sup>1</sup>

Scientists occasionally express frustration over their inability to sway public opinion. A CBS poll taken in October 2005 revealed that 51% of Americans believe that God created humans in their present form and 81% believe that God played some role in the process.<sup>2</sup> Only 15% believe that humans are

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1. NAT’L SCI. BD., NAT’L SCI. FOUND., SCIENCE AND ENGINEERING INDICATORS 2006, at 7–38, (2006), *available at* <http://www.nsf.gov/statistics/seind06/pdfstart.htm>. The data is based on “very great prestige” responses to the following instructions: “I am going to read off a number of different occupations. For each, would you tell me if you feel it is an occupation of very great prestige, considerable prestige, some prestige, or hardly any prestige at all?” *Id.*

2. *Poll: Majority Reject Evolution*, CBS NEWS, Oct. 23, 2005, <http://www.cbsnews.com/stories/2005/10/22/opinion/polls/main965223.shtml>.

the result of a godless evolutionary process.<sup>3</sup>

The politicization of science is another popular concern. For example, the Union of Concerned Scientists issued a report in 2004 alleging “a well established pattern of suppression and distortion of scientific findings by high-ranking Bush administration political appointees across numerous federal agencies.”<sup>4</sup> Richard Carmona, Surgeon General from 2002 to 2006, testified before Congress that “top Bush administration officials repeatedly tried to weaken or suppress important public health reports because of political considerations.”<sup>5</sup> Even if we were to assume that these allegations were both true and unusual in the political arena, the fact that elected officials would feel free to adopt a cavalier attitude towards the scientific community says as much about the scientific community as it does about the elected officials.

William Butos and Thomas McQuade, economists at Trinity College and New York University, respectively, offer a different but equally pessimistic analysis of the intersection of science and government,<sup>6</sup> criticizing the customary externalities (spillovers) argument for public funding of research and development.<sup>7</sup> They concur with Kealey (1996) that “[n]o significant correlation can be seen between the amount of federal expenditure on basic science and the trend in GDP per capita . . . for the nineteenth and twentieth centuries” and they question the advisability of the current level of public investment in research and development.<sup>8</sup>

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3. *Id.*

4. UNION OF CONCERNED SCIENTISTS, SCIENTIFIC INTEGRITY IN POLICYMAKING: AN INVESTIGATION INTO THE BUSH ADMINISTRATION’S MISUSE OF SCIENCE, 2 (2004), available at <http://www.ucsusa.org> (search for “scientific integration in policymaking” then click on the February, 2004 link).

5. Gardiner Harris, *Surgeon General Sees 4-Year Term as Compromised*, N.Y. TIMES, July 11, 2007, at A1. Politics in the Surgeon General’s office are not a unique feature of the Bush Administration. President Clinton actually demanded the resignation of his Surgeon General Jocelyn Elders in response to her controversial views regarding sex education. U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, OFFICE OF THE SURGEON GENERAL: M. JOYCELYN ELDERS (1993-1994) (2007), <http://www.surgeongeneral.gov/library/history/bioelders.htm>.

6. William N. Butos & Thomas J. McQuade, *Government and Science: A Dangerous Liaison?*, 11 INDEP. REV. 177, 185–93 (2006).

7. *Id.*

8. *Id.* at 192; see also TERENCE KEALEY, THE ECONOMIC LAWS OF SCIENTIFIC RESEARCH 162 (1996).

The scientific enterprise is by no means “on the ropes” in the United States, but there are a few steps that scientists could take to help offset some of the erosion of public opinion and support, and perhaps even reverse it. Human embryonic stem cell research provides a good case study.

#### LIVING UP TO PUBLIC EXPECTATIONS

As the 2006 NSF survey shows, Americans generally hold scientists in high regard. The scientist’s task is to live up to the public’s expectations. The first step is to set high professional standards for rigor, clarity and honesty. One could argue that rigor, clarity and honesty are qualities that the public expects of any profession, but that is not necessarily the case. For example, a 2006 Harris poll found that over half of Americans do not trust journalists, members of Congress, trade union leaders, stockbrokers, lawyers or actors to tell the truth.<sup>9</sup> Nineteen percent of the public did not trust scientists to tell the truth (77% did),<sup>10</sup> but mistrust can be heightened when the public feels that they are not getting the true or full story from scientists who are looking to promote their own research portfolios.<sup>11</sup>

Ronald McKay, a senior investigator in the Laboratory of Molecular Biology at the National Institute of Neurological Disorders and Stroke (“NINDS”), was asked recently why scientists do not correct the exaggerated claims regarding the potential of human embryonic stem cell research.<sup>12</sup> One possible response to that question would have been that scientists do correct exaggerated claims, accompanied by convincing evidence to support that position. Another possible response would have been that there are many reasons exaggerated claims are not corrected, although none is acceptable, because the public deserves accurate information about the state of the science. This response would be bolstered if accompanied by a statement from Dr. McKay that he personally would assure in the future that personnel

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9. Harris Interactive, *Doctors and Teachers Most Trusted Among 22 Occupations and Professions*, (Aug. 8, 2006) [http://www.harrisinteractive.com/harris\\_poll/index.asp?PID=688](http://www.harrisinteractive.com/harris_poll/index.asp?PID=688). Interestingly, the list also includes “pollsters,” thereby creating a Godel-like problem of interpretation. *Id.*

10. *Id.*

11. *Trust and How to Sustain It*, 420 NATURE 719, 719 (2002).

12. Rick Weiss, *Stem Cells an Unlikely Therapy for Alzheimer’s*, WASH. POST, June 10, 2004, at A3.

affiliated with NINDS would actively refute exaggerated claims. Instead, Dr. McKay said, “[t]o start with, people need a fairy tale. Maybe that’s unfair, but they need a story line that’s relatively simple to understand.”<sup>13</sup> If the scientific establishment is engaged in the propagation of fairy tales rather than telling the truth, then the public is justified in withdrawing its support for specific avenues of research.

The second way for scientists to live up to the public’s high expectations is to stick to their area of expertise. Their area of expertise, when they speak as scientists, is the “natural” or “material” world. That is both a strength and a limitation. The strength is that questions of science often can be settled by appealing to widely accessible data from the material world. The limitation is that data from the material world can never answer the most important question we ask about any course of action: whether it is good or evil.

At best, scientists can predict what is likely to happen if we do one thing versus another. In rare cases, they might even be able to say that specific actions will help us accomplish one broad objective versus another, but at the end of the day, we must decide whether those broad objectives are good or evil.

There is some professional confusion on this point. The last time I spoke on human embryonic stem cell research at the University of Minnesota, I mentioned that I was one of the people who, as a child in the 1950s, had radioactive rods put up my nose allegedly as a medical treatment. I still remember the burning sensation. My talk was followed by a representative of the Academic Health Center who assured me that rather than resulting in some skepticism regarding the scientific community’s enthusiasm for new technology, or the ability of the government to regulate the scientific enterprise, my experience should strengthen my support of science because the reason we stopped doing nasal radiation therapy was because we did more research on it.

That advice reflects a fundamental misunderstanding of the scientist’s role in society. Nasal radiation therapy on children was stopped not because we did more research on it, but because we determined that it was wrong. Additional research may have contributed technical information to that

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13. *Id.* See generally Maureen L. Condic, *What We Know About Embryonic Stem Cells*, FIRST THINGS, Jan. 2007, at 25.

determination (though it is unclear that additional technical information really was required), but ultimately the decision that putting radioactive rods up the noses of small children was wrong came from beyond science.

Some scientists might wish to argue that our conceptions of good and evil are themselves the result of “natural” or “scientific” processes like random mutation and natural selection. But even if that turns out to be the case, we still would have both the ability and duty to decide whether our *decisions* based on those concepts of good and evil should be limited to those that (we estimate) might lend a selection advantage to our species. To argue against “ability” would be to endorse a degree of determinism that seems decidedly unscientific in a quantum physics world, and on the normative question of our duty, scientists speaking as scientists have nothing decisive to say.

In a recent editorial, Charles Krauthammer said: “You don’t need religion to tremble at the thought of unrestricted embryo research. You simply have to have a healthy respect for the human capacity for doing evil in pursuit of good.”<sup>14</sup> It is exactly this sort of healthy respect that scientists, speaking as scientists, are in no position to provide because science, per se, cannot distinguish between good and evil.

Scientists are free to speak their mind as voting citizens, as amateur or in rare cases trained, theologians or ethicists, but when speaking as voting citizens, theologians or ethicists, they must drop the mantle of science. If they do not, there are an increasing number of people in the public square who will remove it for them—and that is neither pretty nor good for the scientific enterprise.

#### LIVING WITH THE REALITIES OF PUBLIC FUNDING

One of the interesting discussions regarding human embryonic stem cell research is the issue of public funding. Douglas A. Melton, a stem cell researcher at Harvard University, expressing his support for human embryonic stem cell research, said “[a]ll we’ve ever asked is [to] let human embryonic stem cell research vie for public funding like all other research.”<sup>15</sup> What Dr. Melton really is asking is either

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14. Charles Krauthammer, Op-Ed., *With Stem Cell Research, Some Lines Must be Drawn*, ATLANTA J. CONST., Jan. 12, 2007, at A9.

15. Sheryl Gay Stolberg, *Bush Will Pair Veto with New Cell Initiative*,

that research using human embryos as raw material be placed, for funding purposes, on the same moral footing as other research, or that the moral advisability of the research simply be ignored in funding decisions. He is free to make such requests, but whether the request is granted or denied ultimately will reflect a judgment regarding the request's moral legitimacy—an issue on which scientists speaking as scientists have nothing decisive to say.

When scientists or anyone else feeds at the public trough, the public comes with the trough. I realize that it is a rare person who enjoys having their work subjected to a tough critique—especially by people from outside one's own profession. I also realize that the least-welcomed critique is not that one's research is technically flawed, but that it is morally flawed. However, when you enter the public square, especially with your hand out, you have stepped outside the laboratory and it is a value laden jungle out there.

It may be of some comfort to scientists to know that they are not alone. There are plenty of artists who apply for government funding and do not like having their work critiqued at all, much less by people who are not artists, and especially not by people who label their work as morally objectionable. Scientists might think that their work is a lot more important than that of artists, but I would be surprised if artists would concede that point and artists get one vote each, as do scientists.

#### THE LURE OF CULTURAL AUTHORITY

Sometimes the missteps of scientists can be attributed to the lure of money and prestige within their profession. Although money and professional prestige are powerful incentives, they pale in comparison to the ultimate prize—cultural authority. What is cultural authority? I define it simply as the ability to have a decisive influence on questions of what *should* be done or permitted.

There are at least three ways to divide up the study of human actions. We could think of *scientific* studies of what people are able to do. We could think of *descriptive* studies of what people actually do or might do under certain circumstances. And we could think of *normative* studies of

what people should or ought to do. Natural scientists are experts in the first area, while social scientists and psychologists are experts in the second. Social scientists venture into the normative realm, but only under very strict limitations, for example, the economists' treatment of Pareto optimality.

As in the case of the first two types of questions, there are people who have devoted their lives to the study of "normative" questions. These philosophers and theologians are familiar and comfortable with detailed, scholarly treatments of concepts like right and wrong, moral and immoral, and good and evil. They know the history of those concepts; the various theories regarding them; and, if they are historians of events as well as ideas, they know the real world consequences that have resulted from labeling as good those actions that were evil, and vice-versa. They are as expert in their area as microbiologists are in theirs. One might expect that scientists would show them the same deference that microbiologists would expect to be shown in the laboratory, except for one thing—when the time comes to act, the results of normative analyses always have the potential to trump the results of scientific and descriptive analyses. Whether we *can* do something, or whether we *currently* or *are likely* to do it are irrelevant questions in the light of compelling arguments that we *should not* do it because it is evil.

Scientists do not hold ultimate cultural authority. Nor do economists or public policy analysts. In the United States, ultimate cultural authority is held by ordinary citizens, their elected representatives, and the Constitutionally-directed appointees of those elected representatives. Of course, anyone can attempt to influence public opinion. There are two steps in this process that are pertinent for scientists. The first step is to decide if the issue involves any moral dimensions. Scientists who imagine there to be a fairly large "morality-free" zone in which they can operate may be disappointed at how often the answer to the first question is, "yes." Once the answer is yes, then the people who are likely to be most successful in their attempts to influence public opinion are people who are able to articulate clearly why certain ideas or actions are right or wrong in ways that resonate with the core values of the citizenry. This rather obvious truth can be threatening to those universities who have lost interest, the intellectual foundation, and in some cases even the language, to discuss good and evil,

or who view the core values of the citizenry with a degree of skepticism or scorn. It also may come as hard news to some scientists, because in the race for cultural authority, no one likes to finish second.

### CONCLUSION

Scientists should not withdraw from public debate around issues like human embryonic stem cell research. In fact, scientists could add considerably not only to the debate but to their public prestige by bringing their natural, though occasionally neglected talents for rigor, clarity and honesty to those debates. Imagine the ripples through the scientific community that would follow a top microbiologist who, when asked if human embryonic stem cell research was morally justified replied, "I have no credentials that would permit me to offer a professional opinion regarding the moral justification of human embryonic stem cell research. If you want my personal opinion, I'd be happy to provide it, but I must warn you that no one can form such an opinion based on science alone. My professional training allows me to offer you only a technical summary of what actually happens when we do human embryonic stem cell research, what we have achieved so far, what difficulties we face, and an honest assessment, without embellishment, of the products that might result if those difficulties are overcome." Surely, such a response would do more to enhance the public's opinion of the scientific establishment than fairy tales.

Lest my remarks be interpreted as interdisciplinary squabbling between social scientists and natural scientists, consider the remarks of David Campbell of the Department of Biological Sciences at the University of Alabama:

However, the real question with regard to stem-cell research is whether the potential medical benefit and scientific knowledge outweigh any harm done to the embryo. The answer depends strongly on the value assigned to the embryo, which is not a scientific question. Thus, instead of being an example of science versus anti-science, this is a case of competing ethical claims. . . .

By invoking science as supporting a particular position on ethical questions, which science cannot directly answer, critics are making an error of logic similar to the one made by the Bush administration itself.<sup>16</sup>

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16. David Campbell, Commentary, *Need to Distinguish Science (Good or*

Dr. Campbell points the way to a brighter future of increased public respect and support for a scientific community that values rigor, honesty and clarity over political and economic gain and even cultural authority.

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*Bad) From Ethics*, 446 NATURE 24, 24 (2007). It is likely that the Bush administration error to which Dr. Campbell refers is found in a book review of Seth Shulman's UNDERMINING SCIENCE: SUPPRESSION AND DISTORTION IN THE BUSH ADMINISTRATION (2007). The reviewer accuses an unnamed White House official of "mocking journalists and others in the 'reality-based community' who believe that 'solutions emerge from your judicious study of discernible reality.'" John Horgan, *Dark Days at the White House*, 445 NATURE 365, 365 (2007) (book review). The adviser added: "That's not the way the world really works anymore. We're an empire now, and when we act, we create our own reality." *Id.*

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