

2004 Integrity In Science Conference
Corporate and Political Influence on Science-Based Policymaking

July 12, 2004

The International Trade Center
1300 Pennsylvania Avenue, NW
Washington, DC

Keynote Address
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I am pleased to be with you today for this meeting on a subject that I believe is of profound importance and that occupied a good bit of my interest before coming to Congress. As a clinical psychologist and university professor, for many years I taught research design and statistical analysis and I have long had a passionate interest in the problems of certainty and uncertainty in human affairs. It is true that I don't usually include "student of epistemology" on my political fliers or web page, but that background is part of why I am so concerned with what I believe is an intentional and tremendously dangerous assault not only on scientific integrity but on basic values of inquiry, debate, and decision making that underpin the democratic process itself.

I should perhaps apologize from the outset and explain that the opportunity to speak this morning came up relatively unexpectedly and, owing to prior commitments in my district in Washington State, I was only able to get here this morning via a red eye flight which just arrived at Dulles some three hours ago. It turns out that our nation's great experiment with democracy includes a parallel experiment with sleep deprivation. As a subject in both experiments, I'm not always sure the research design would have passed a human participant review board. It is disconcerting to realize that some of our most significant decisions are made by people suffering from jet lag. On the other hand, that may explain at least some of what happens back here.

Preparing to speak with you gave me the opportunity to literally dust off some old friends - texts by Galileo, Francis Bacon, David Hume, Sextus Empiricus, Karl Popper, Thomas Kuhn, Richard Feynman, Albert Einstein, Thomas Jefferson, Benjamin Franklin, Jacob Bronowski, Irving Janis, and others. If for no other reason than the chance to read again their wisdom, I am pleased to have been asked to give these remarks. I only hope that at the end of this brief talk I will not have inadvertently violated your own sleep deprivation protocols. Let us then cut to the chase.

The Essence of Science

In essence, science is about asking questions and the ways we seek to answer them. What is perhaps most important to understand is that science is not about the answers so much as the means we use to seek those answers. Any fool can answer any question in some way and if people are foolish enough to believe the fool's answer, one can proclaim a problem has been solved and we know just how to proceed as policy makers and citizens. The more a putative answer conforms to one's emotional needs, economic self interest, religious predilections or political aspirations; the more group support and pressure there is to believe something; and the more those in authority wield their power in support of some answers and against others, the easier it may be to accept some answers and reject others and the harder it becomes for others to dissent.

But science demands more and unless we as policy makers in government, indeed unless we as Americans understand that, our scientific enterprise will be vitiated and the policies that guide and in turn depend on science will be misguided. That is why the subject of this meeting is so important.

Richard Feynman observed that scientists have "a lot of experience with ignorance, doubt and uncertainty, ... We have found it of paramount importance" he wrote "that in order to progress we must recognize our ignorance and leave room for doubt. Scientific knowledge is a body of statements of varying degrees of certainty-some most unsure, some nearly sure, but none absolutely certain."

Feynman saw this familiarity with uncertainty, with doubt as an important strength, indeed a responsibility that scientists can offer to society. He went on to say, "If we suppress all discussion, all criticism, proclaiming "This is the answer, my friends; man is saved!" we will doom humanity for a long time to the chains of authority, confined to the limits of our present imagination. It has been done so many times before."

Feynman was right, it has been done so many times before and if he were still with us, I believe he would say that it is being done yet again. In countless subtle and not so subtle ways the administration and Republican majorities who control the House and Senate are deliberately and systematically suppressing discussion and criticism and distorting the scientific process. The modalities of such distortions are manifold and collectively constitute nothing less than a coordinated attack on virtually every stage and aspect of the science/policy interaction.

Evidence of this attack comes from many sources, including a GAO study I requested along with my ranking member on the Research subcommittee, Eddie Bernice Johnson from Texas. Interestingly and tellingly, we asked the full Science committee to conduct hearings on the very topic we are considering today, but those requests were denied, leaving us to hold somewhat of symbolic hearing of our own. I trust that other speakers today will discuss and perhaps dispute specific examples, but based on testimony from that hearing and numerous other sources, it is apparent that the assaults on scientific independence and integrity include all of the following:

- Limitations of the questions that are allowed to be asked
- Constraints on the methods that are used to seek answers
- Limits or elimination of funding and resources to pursue certain currently politically incorrect questions or methodologies
- Biased selections of people who will be allowed to ask questions, seek answers, or give advice in government agencies or panels and even before congressional committees
- Active and intentional suppression of findings that are not to the official liking
- Unjustified claims and inflation of studies or results that are “approved of” by the administration
- Punishment or ridicule of those who ask unapproved of questions or produce unapproved of results
- Retribution for political involvement or public criticism of administration policies
- Disregard of discomfiting scientific evidence entirely and formation of policies based on administration wishes regardless of data or broad expert judgment
- Placement of nongovernmental ideological supervisors in charge of international missions to scientific conferences in order to control the U.S. position vis a vis scientific discussions and accords
- Creation of a climate in which scientists and policy makers begin to self censor or self select out of fear or frustration

Thomas Jefferson wrote: “Question with boldness even the existence of a God: because, if there be one, he most more approve the homage of reason, than that of blindfolded fear”. Clearly, at least in his private letters to a nephew, Jefferson was not one to believe in limiting questions. Indeed, as we are now commemorating the 200th anniversary of the Lewis and Clark expedition, it is worth remembering how much of their mission was dedicated, at Jefferson’s instructions, to scientific exploration and information gathering. One need only visit Monticello to grasp immediately how important scientific study and exploration were to Jefferson and, for that matter, to all of the founders, including Washington and of course Franklin and the rest. It would serve our nation and its current leaders well to recognize that it was no mere coincidence that the people who established our constitutional democratic republic were deeply interested in, understood, supported and in fact participated in the scientific process themselves.

Contrast that attitude of the framers with an administration that removes from a National Cancer Institute web site fact sheets showing there is no empirical evidence linking abortion to breast cancer. Contrast that attitude of scientific inquiry with suppressing analyses of clean air legislation that will save lives and cut pollution at negligible cost. Contrast that attitude with initiatives in Congress to cut funding for research relating to sexually transmitted disease prevention. Contrast that attitude with limits to stem cell research that could one day save millions of lives and untold suffering and economic loss. Contrast that attitude with the selective appointment or withdrawal of experts on scientific advisory panels based not on their scientific credentials but instead on their perceived or supposed political interests. Contrast that attitude with the willful stacking

of advisory committees and removal of any voices deemed “unfriendly” to a predetermined outcome.

Defenders of the administration might argue that the President’s call for a mission to Mars or other high profile endeavors demonstrates his commitment to science. The fact is, the Mars mission was more about political theatre and “the vision thing” than about real science. And therein lies so much of the problem. Science, for this administration has, as virtually everything else from terrorism to drug abuse, become yet one more subject for the next week’s “message agenda”. If scientific findings or the scientific process itself conflict with the politics, the President’s personal beliefs, or the financial interests of the President’s or Congressional Leaders’ funders, the science has to go.

Karl Popper wrote of the attitude and methods of the true scientist “Once put forward, none of our “anticipations” are dogmatically upheld. Our method of research is not to defend them, in order to prove how right we were. On the contrary, we try to overthrow them.. Using all the weapons of our logical, mathematical, and technical armoury, we try to prove that our anticipations were false – in order to put forward, in their stead, new unjustified and unjustifiable anticipations.”

Popper also observed - “Those among us who are unwilling to expose their ideas to the hazard of refutation do not take part in the scientific game.”

How different is that attitude, how different the resulting methodologies and uses of scientific findings from the practices of this administration and Congress. Can one seriously imagine President Bush, who was, in a recent press conference, completely incapable of identifying a single personal mistake, actively seeking information to dispute or falsify, as Popper’s definition of science requires, his own beliefs or policies? Can one imagine the leadership of the House, which on a weekly basis sets rules that not only severely limit debate but even fail to allow time to read legislation, instead intentionally bringing in competing experts or information to challenge their assumptions?

Within the scientific community, the effect of the administration’s and Congressional actions has been chilling and demoralizing. Researchers are practicing self censorship or avoiding government careers or panels entirely, lifetimes of study are being abandoned, international collaboration is being curtailed, studies and data that could lead to valuable, lifesaving innovations are being neglected, interventions based on pseudo-science or faith rather than evidence are being promoted and funded with taxpayer money, some of the best scientific talent is starting to go to other nations rather than our own, and, perhaps most dangerous of all, a pervasive attitude of obedience and blind belief is beginning to dominate our civil and political life.

Politics

Let me pursue the political context of this issue further for a moment.

Imagine the following political advertisement:

(read in a gravelly, dark voiceover tone) “It’s hard to believe that with plague and disease ravaging our population, with hostile enemies threatening us from abroad, with some of our own citizens going hungry, our government would waste your money paying people to look at the stars. But that’s what Galileo does and he’s even begun to tell our children that the earth isn’t the center of the universe. Call Galileo and tell him to stop wasting our money and stop corrupting our children with heretical ideas” (paid for by taxpayers for a geocentric universe).

In politics today, it has become dangerous to question received wisdom, and scientific studies are potential grist for the political attack mill. Not long after I was first elected to the House, a resolution came before Congress to condemn the findings of a meta-analytic study on the long term effects of childhood sexual abuse. It happened that the study in question had been printed in an American Psychological Association journal which, given my background as a psychologist, hit particularly close to my professional home. Some of the findings of the study were admittedly controversial, but the resolution took them out of context and wildly distorted the study’s overall conclusions and intent. No responsible person condones abuse of children, but was it really the role of Congress, and are most members of Congress really qualified, to condemn the study methodology and findings? I believed it was not an appropriate role for Congress (which, by the way, was not able to pass either a budget or appropriations bills on time). I believed instead that part of the scientific process is to allow other researchers to challenge the findings with better studies or evidence. So, I, along with a small handful of others, voted present on the resolution as a way to indicate that we did not think it wise for Congress to get into a habit of condemning peer reviewed research findings for political purposes.

As a result, in the subsequent election hundreds of thousands of dollars were spent to disseminate mailings, phone calls, and broadcast advertisements suggesting that I condoned sexual abuse of children because I refused to condemn the study and its findings. Fortunately, I managed to win the election in spite of those attacks, but unless you’ve been through it yourself you can’t really appreciate what it’s like to have hundreds of thousands of people read that you voted to condone pedophilia.

As it so happens, I apparently get to enjoy a similar experience yet again this year. Just yesterday, by coincidence, I came across an attack piece from this year’s opponent criticizing me for voting last year to defend the NIH peer review process when an appropriations amendment sought to de-fund certain studies of sexual behavior and shift the resources to breast cancer studies instead. The implication of the attack is that I would rather support studies of sexual arousal in old men than life saving breast cancer research.

What has been the response of the scientific community as a whole and scientists as individuals to such attacks on science and to the attacks on those defend scientific integrity and independence? To be perfectly frank, in my judgment it has been, with a few notable exceptions, pathetic, self serving and craven.

My prior votes notwithstanding, I believe it is important to give the devil his due for a moment and point out that when public monies are used to fund scientific research, the government in essence must either take that money from citizens because they voluntarily contribute it through taxes in the belief that it will be used well, or, if citizens do not wish to pay their taxes voluntarily, the government must threaten them, at gunpoint if necessary and punish them with incarceration.

I know and respect the theory and practice of peer reviewed science and grant funding, which is why I voted as I did, in spite of the political cost. But I must also say that in my experience far too few government funded researchers, regardless of their subject area, stop seriously to consider that they are using someone else's hard earned money to fund their intellectual pursuits. It is relatively easy, indeed facile, for publicity seeking politicians to demagogue studies of sexuality when juxtaposed against breast cancer research, but it is no less facile for scientists to self righteously declare that politicians have no right to intrude in their hallowed realms or that elected representatives simply don't appreciate the value of "basic research" Regardless of the specific field, and this includes the "hard sciences" right along with the social sciences, when one reads the countless studies published in seemingly endless esoteric and largely unread journals with no clear benefit to society yet concluding with the obligatory suffix – further research is necessary, one does wonder if it is all worth it. Frankly, much of it is not, yet few in the scientific community own up to that fact.

Which is not to justify in any way the intrusions, distortions, bias, and politically motivated attacks of this Congress and Administration, but is to say that scientists need to examine their own actions critically, make absolutely certain they are using the taxpayer's money wisely, then fight back to defend science, including basic science and including the social sciences, through education, advocacy, and political involvement of their own.

Francis Bacon spoke in the *Novum Organum* of the four species of idols that beset the human mind and interfere with knowledge and understanding, and, ultimately therefore, with human progress. To Bacon's four species I believe a new idol has been in evidence of late, the idol of politics. This idol threatens to be a much greater impediment than any of Bacon's four because it multiplies each of them with the power of the State and because, that power, in turn, is multiplied by the power of the media. We now have a President who, acting on his own idols, imposes his view of truth on the scientific process with utter impunity and insouciance. Whereas Bacon's four idols may have been impediments to those whose goal was true understanding, the idol of politics has not understanding, wisdom or knowledge as a goal but, instead, power and all that power brings with it.

In the end, this is much larger and more consequential than whether or not one scientist or another gets his or her study funded or is appointed to one advisory committee or another. The unwillingness of the President and Congressional leaders to respect and defend, perhaps even to understand, scientific integrity and independence is symptomatic of a much broader resistance to dissent, debate and intellectual openness in the rest of

society. The eagerness with which the President and Republican leaders in Congress demagogue selected scientific studies for political gain is symptomatic of their willingness to push a host of other hot-button issues for political gain. The belief that it is acceptable, indeed preferable to base public policy on personal received beliefs and prejudices or the financial interests of political contributors is typical of how decisions are being made on matters ranging from foreign policy to public health, from environmental protection to energy research.

What is perhaps most troubling of all is that scientists, for the most part, have not been willing to stand up, not simply for the sake of their own self interest in preserving their own funding, but for the sake of critical thinking and the democratic process itself. Oh, there have been editorials here and there, a few newspaper articles, and meetings like this one, but where has there been real, concrete and sustained action that involves real personal risks, real commitment, real sacrifice and that has the chance to produce real results?

In my opening remarks I spoke about policy made by people suffering from sleep deprivation. Having considered the matter further, I think now that too many people in the scientific community have been politically asleep for far too long and it's high time they woke up.

Until scientists get out in the hot sun or the pouring rain and put up yard signs for candidates who understand and defend science, until they take some time from their research pursuits to call prospective voters and persuade them to vote, until they write checks not simply to feel they've contributed, but of sizes commensurate with the importance of what is at stake, until they write letters to the editor to expose and confront the abuses, and, perhaps most importantly, until they are willing to work and fight and risk and sacrifice personally to defend intellectual integrity as essential to democracy, until then, demagoguery and sound bites will carry the day and, ultimately, will carry science as we have known it in this country down with it.

It is true, speaking out and taking action could carry a price and might impact one's career, which is precisely why the administration has enacted the very practices that are the subject of this meeting. But that is also precisely why it is so essential to fight back and precisely why, regardless of what the administration could impose on individual scientists, the risks and the costs of not speaking out, of not fighting back are far greater.

Richard Feynman concluded his final book with the following words "It is our responsibility as scientists, knowing the great progress which comes from a satisfactory philosophy of ignorance, knowing of the great progress which is the fruit of freedom of thought, to proclaim the value of this freedom; to teach how doubt is not to be feared but welcomed and discussed; and to demand this freedom as our duty to all coming generations."

Thank you for letting me join you today, I hope your discussions will be productive and will, in some way, lead to action, risk and change.