

Academic Freedom and Science Research Policy: A Personal View
by M.R.C. Greenwood
Presented at the Academic Freedom Forum
June 11, 2003

Thank you very much. When I was asked to participate in this meeting, I made it clear that I wanted to appear not so much as Chancellor Greenwood but more in my role as Professor and also as someone who has spent time in science policy, including two years in the White House during the Clinton Administration as the Associate Director for Science. I used to tell people that I grew up in upstate New York. I've changed that now so I say I was raised in upstate New York but grew up in Washington D.C. between 1993 and 1995. It's that perspective that I'd like to share with you today, but I will also be happy to try to answer any specific UC administrative questions. I want to thank Cynthia for an extremely well done and orderly presentation. I think we're fortunate to have minds like hers who are able to sort through this 166-page Patriot Act.

The issue of what constitutes academic freedom has been with universities ever since they escaped the collar of their religious history. It is essential to protect the freedom of scholars to say what they believe to be important, even if it is unpopular. As Cynthia said, the climate we are in today is influencing these discussions, and I also believe this is true, and I see it changing quickly. The series of questions I addressed on the National Academy of Sciences Committee in the immediate aftermath of the September 11 disaster has already shifted to become a whole new set of questions.

These are not new questions. The issue of restricting information, particularly in the scientific arena, comes and goes with wars of different kinds in all ages. Our government enacted similar sets of restrictions during World War I, World War II, the Cold War, and the Vietnam War. Government has always sought to restrict the flow of information related to weapons that might allow another country to have a competitive advantage. There has always been politics involved when new developments in science and technology are seen to have the potential to advance or protect the nation's security.

But the days of the Cold War and our original rationale for trying to restrict information, particularly in the scientific area, are now long over. This is where the current policy and the current controversy are at some level, almost surrealistic. During World War II, we began to confront the possibility of weapons of mass destruction. The scientists who were capable of mastering the materials that allowed the development of a weapon such as the atomic bomb lived in a variety of countries. The making of a bomb is a very complex business and the materials, at least the materials involved in nuclear weapons, are not as difficult to track or trace than the kinds of biological materials we are now talking about. There isn't a good reason these days for anyone to possess fissile materials if they're not either working in a nuclear energy facility or certain other pursuits. With biological materials, that is not so clear. Many of the biological materials and organisms that could be weaponized are old ones—anthrax and botulism for instance. I could probably isolate at least a couple of quite dangerous organisms relatively quickly in my own kitchen or garage without anyone knowing. That knowledge scares people to death, because they don't know how to control it. It's something that the biological scientist has never had to face.

Scientists are seeking to understand how organisms exist, develop, evolve, the basic mechanisms of life or the prevention of disease. They are not used to dealing with issues of classification. These scientists have also not had a systematic opportunity to discuss either with their colleagues or the government what, if any, containment policies are going to be necessary to protect the national interest. This was clear in the post 9-11 period with the wild speculation about various scenarios. It was also very confusing because as Cynthia said, terrorism didn't get very well defined. It was anything bad that could happen that somebody who didn't like you could do. We know that a single, dedicated individual who is prepared to die for his cause probably cannot be stopped. No surveillance system in the world is going to get them all. No mechanism of restricting access to this or that laboratory is going to stop it. You might get lucky and catch somebody, but most of the time you won't.

The National Academy study focused on catastrophic terrorism. It looked at what the nation's vulnerabilities are at levels where you could take a building down with an airplane or you could blow up an important bridge to isolate a major area—acts that would require substantial organization to affect them. The report looked at ways the scientific community could work with the government to try to ensure a safer world, but it focused on catastrophic issues. It didn't focus on the individual who could walk into a laboratory, pick up the tritium vials, and dot radioactivity around a bunch of rooms.

The bigger, long term question for the nation is whether we are prepared to sacrifice our economic security, our health security, our environmental security and our personal security in the face of a likely vain attempt to prevent ideas, products or processes from leaving the country. In 1940 it apparently was possible—if you read some of the books that are coming out now—for a group of distinguished scientists to get together and decide to control the flow of this information, to say we the scientists, not just the government, are going to voluntarily not publish certain types of information because we believe it's not in our interest, the national interest or the global interest to have this information out there where anybody could capitalize on it. Whether or not that was a good or bad decision for academic freedom, it was a decision made by informed scientists who were doing the work and who had some judgment themselves about the potential misuses of the information.

It might have been possible in the 1940s and 1950s to lock up our labs and ideas and keep certain people out of the country. I don't actually think it would have been. But the horse is well out of the barn now. The idea that restricting people from coming to the United States and doing their work here would prevent ideas from being spawned, work from being done or people having access to information or materials, especially in the biological sciences area, is very naïve. Even if we shut certain nationalities out of the United States—other countries aren't shutting them out.

My argument when I was in Washington was that you're not going to have science in the national interest if you don't have a national interest in science. We have a big problem with that in this country right now. Students are not going into science and math at the same levels they used to. The European countries are beginning to out produce the PhD production of the United States by almost 20% now. The Asian universities have reorganized themselves to reflect the very productive and positive outcomes of the American higher education system and are beginning to produce PhDs that are certainly comparable to those in the US, and many more of them. We're in an environment now where the bigger danger is that we will not be able to sustain the flow of ideas in our universities and elsewhere that creates new ideas and new

products, so we'll become less capable technologically. The only real way in my view to secure the nation's interest is to be very smart, to do the best work, to reap the best minds by attracting them into your country and to assume that anything new that happens in the bioterrorism or terrorism area you will be able to get ahead of because you have a vast array of very intelligent people working on fundamental research who are coming up with better ideas. While you may not be able to prevent the individual from creating an incident, it's unlikely that another country will get ahead of us technologically.

One has to recognize in the tenor of the day that today's terrorism for the most part is not about negotiation between nation-states. We're dealing with individual, committed terrorists, who are distributed across many countries, including ours, and whose objectives are not to negotiate a strategic missile treaty. Some of the freneticism around the Patriot Act and Homeland Security will probably eventually be shown to have been an awful lot of activity and flurry around a concept that can't be sustained; that is, locking our doors, preventing people from having access, and trying to prevent ideas from escaping the minds of our folks. Eventually, I think some rationality will come into it. Now, if we have another major terrorist attack, it may all change because we have a fundamental problem here, which is that our citizenry is looking for simple solutions—just stop them; don't let them get good ideas; don't let them get their hands on things; don't let them work on this area or that area. Revolutionary changes and concepts—especially in the biological sciences—come out of very unusual places. It's not necessarily the people that are studying anthrax that are going to come up with the next shocking idea that could be used by terrorists.

I was in Washington during a time of peace and it changed everybody's thinking. The thinking then was "we don't have to worry about having a terrible war because those days are over." We can all talk about what war was like, declassify everything, put information up on the Web and talk about it. All the discussion in Washington at the time was allowing information that had previously been restricted because of its usefulness to the military to be released. And many good things came out of that. For example in the seismic monitoring area. Some of the projects put together to monitor nuclear testing are useful in studying what is going on with the earth's mantle. A lot of interesting and exciting research has come out of the fact that this material was declassified and those instruments were allowed to be used for peaceful purposes.

When I was asked to talk to the House Science Committee in November 2002, I was the designated university administrator. I'll read to you the presidential directive, issued in 1985 by President Reagan.

It is the policy of this administration that to the maximum extent possible, the products of fundamental research remain unrestricted. It is also the policy of this administration that where the national security requires control, the mechanism for the control of information generated during federally funded fundamental research in science, technology and engineering, at colleges, universities and laboratories is classification.

Part of what the scientific and university community was saying in that particular hearing was we want to stay there. Condoleezza Rice has stated that this Reagan directive, 189, would remain in effect.

If you want to review literature in this area, I recommend a very good paper by Alice Gast, who is the Vice President for Research at MIT and a member of the National Academy of Engineering. It's entitled "The Impact of Restricting Information Access on Science and Technology." The MIT report *In the Public Interest* is also on their website and is worth reading. There is also a very good website at the American Association of Universities, which has an inventory of the kinds of issues that have been raised about, for instance, someone getting a call about library records. I think it's been very helpful and clarifying for many people to have our legal counsel say you may not be able to call the Chancellor and tell her that the FBI is in your office demanding you turn over your library records, but you can call a lawyer. That is an allowable phone call under these circumstances.

The position I took at the Science Committee—that classification is the best route—is a very conservative position. However, it is a very doable position. It is well understood in the scientific community how materials should be classified. There's less of a consensus about what "sensitive but unclassified" might mean or the impact it might have on research. Some of that is being worked through. We have scientific organizations trying to define what they would agree to as classification. It needs to be very specific; it needs to be very narrow and there needs to be a good justification. The University of California's position is that faculty members are free to serve the public interest in helping the government work on classified work, but they don't generally do it on university premises with university graduate students or others whose careers could be adversely affected by an inability to communicate their work in a free and open environment. That position has served us well for almost fifty years. It doesn't always work to our liking. Sometimes things are classified that we would prefer weren't classified, but there is a process for addressing that. That is a position that universities can work with because we are free to say no.

The sensitive but unclassified area has been among the most difficult. It's unclear because on the one hand you get a policy statement from Condoleezza Rice and Jack Marburger, but then contracts are submitted to universities, including some of our campuses, which have a restrictive publication clause. So it's the right hand not knowing what the left hand is doing. I think this is where the research societies, the AAU and others are exerting their most effective influence by saying let's get those things on the table. We're being told there's a national policy not to restrict fundamental research except if it's going to be classified, and then we start seeing contracts saying we want to restrict your publication.

To my knowledge there has never been a breach of national security committed by a legitimately registered student in a research-intensive university in the United States. The terrorists that came in on student visas didn't go to a research university; they went to a flight school. This seems to have been missed in the regulations hitting us now. What is happening with these regulations is the government is increasing the cost of research in universities enormously. But this argument plays badly against us when we administrators march into Washington and tell them that through these additional regulations the cost of researching a disease increased by 20%. That's just not a well-favored argument now. I believe we will eventually return to a time when the economy and efficiency of research is valued again and people say maybe spending millions of dollars to track students who have been coming in and out of this country for years, none of whom have done anything wrong—maybe that was an awfully big overreaction.

The academic community is our most hopeful force. All of you in this room who question what these things mean; how they're applied; what we should do; what the definition of academic freedom is—you are the people who have helped define the right path, and who I hope are the ones who will continue to define what academic freedom means and what institutions should be doing about it. Some of the issues raised today are legal issues. Some of them are conflict of interest issues. Some of them are academic freedom issues. I am very proud to be a Chancellor at UCSC and to know that people are thinking them through; that they aren't being passive about them; that they're questioning and willing to listen to a broad array of information; and that the university has taken stands on restrictions of publication rights. If the university community; if the scientists themselves; if the intelligentsia of this nation don't define and refine the debate then it could be defined by pretty black and white, simplistic notions. In the scientific and technological areas this is a disaster.

You could go a step further and say if we open up our universities we would know what people were doing, who they are and you would know who to track.

There are certainly people who are making that argument, and that was the trend prior to 9/11. We were relaxing restrictions in the laboratories and other places as well where there was substantially more access to scientific exchange and the exchange of ideas. The other thing now is the way people conduct scientific communication has changed. There is so much now that goes on over the Internet. It used to be that the first opportunity people outside of a fairly select group had to hear about your work was the first time you presented an abstract or paper at a specific type of meeting before it got published maybe a couple of years later. Now for many laboratories, they put their brand new results up pretty fast. And people talk about it, and it's all over the world. And I don't see how you can go back. This was a very naïve assumption that the government made initially that they were going to be able to prevent people from studying certain things if we kept them out of the university. How are we going to keep them out of our libraries? People are going to read what they want to read. Many people come in thinking they're going to study biological sciences or chemistry and they end up studying something else.

You talked about responses from MIT and AAU. Have there been responses from the professional societies?

There have been a number of hearings in this area and almost all of the professional societies have submitted testimony. My guess is that most of the professional societies have the testimonies up on their websites. Sometimes people are testifying on behalf of the society; that is, they're an officer or the designated hitter setting the view. Others will have done it from their personal expertise; for example, as an expert on anthrax. The Academy has started a new committee called *Openness and Secrecy*, and I'm going to have the pleasure of serving on that. What I think MIT, UC and the National Academy have been pushing for is an open dialogue between the government and scientific organizations about how we can ensure that we don't throw the baby out with the bathwater; how we can keep this nation's vibrant intellectual climate and economy moving while at the same time not appearing to be anti-patriotic—making it clear that we are willing to serve to protect people as we always have. We're interested in curing disease, and we're also interested in being sure people don't die from terrorist agents. These are not new values for scientists. Some of the initial language that was used suggested that scientists were irresponsible. And I think we've tried to clean that up and be a lot clearer. What does it mean for some of you? It does mean more rules and regulations that we all love to hate. And many scientists have found creative ways to if not subvert, at least let them minimally impact them. But people are going to just have to be a lot more careful, because as Cynthia pointed out, there are now significant legal penalties for misplacing your vial of anthrax or not remembering where the last container of tritium was. What it means for someone like me, as Chancellor is that our compliance environment has to improve because there are now penalties that we wouldn't want any of our faculty members to be subjected to just because of a casual lack of caretaking. And there are likely to be spot checks and audits at a higher frequency.

Is there likely to be any connection between professional society responses on the claims that there has been increased politicization of selection of people for new advisory panels?

That is one of the most troubling things being reported, which I think is one of the reasons the Academy founded the Openness and Security committee. The question refers to a report in the

fall that several well-qualified scientific appointees to NIH panels were not appointed on the basis of their political affiliation. As far as I can tell, this is only a rumor, where there may have been a study section or so that there was some controversy over an individual or two that wasn't appointed and it blew up. I've been following the AAU website and I haven't seen a lot more examples and I don't know of any at UC. But this is relevant to what Cynthia talked about. We are in a time of anxiety. People are looking over their shoulders at whether or not their political views are being screened as committees are put together. And whether we like it or not people are screened by the organizations that are going to appoint them for certain characteristics, including political.

You use the word "political" to describe a lot of what's going on. It's a nice phrase, but I think what's going on is anti-intellectualism. How do we fight that?

I couldn't agree with you more that we are in an unprecedented era of anti-intellectualism. But it's been going on for a decade or more. I'm not sure that the climate of anti-intellectualism changed one bit between September 10 and September 11. I think the arguments that have been associated with free inquiry and freedom of pursuit of knowledge have not been articulated. They are intellectual arguments; they are not simple arguments, and the only way I know to make them more powerful is to keep articulating them. We think we hear these things all the time, but I can tell you that most of the young people in our universities do not understand these topics, and their parents perhaps even less so.

I meant political in the egalitarian sense, not necessarily the partisan sense. Almost anything that scientists do, whether they admit to it or not, is done in a political environment because it involves money and because it involves international travel and discussion. So it's political by definition. We wouldn't be doing science in the national interest if we can't keep a national interest in science. And we think we're doing science in the national interest. Now that's a political statement. Many of my colleagues would say I don't do science in the national interest; I just do science; I just do my research. But almost every organization you apply to for funding to do your unrestricted, unfettered, not in the national interest science—you've got to respond to those questions of how this is going to advance something; how is this going to advance the field; what disease is it likely to have an impact on.

I'm concerned that the forces that are propelling these things forward are not interested in the arguments we make. What is most effective in challenging this? I wonder if there would be a possibility of legal challenges that might begin to poke holes in this.

I think the University community is in fact challenging some of these areas, whether they're making it a lawsuit or whether they are simply drilling down on some of the artifacts and focusing on what are realistic expectations. I haven't heard of a case that would give anybody a good basis for a legal challenge yet. You've got to have a good case where you could challenge authority.