NATIONAL SECURITY AND TECHNICAL INFORMATION

by

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This symposium is an appropriate place, I believe, to lay out some thoughts that all of us--scientists and public servants--should consider. These thoughts, as well as the ensuing dialogue today and later, will help us recall how much we have in common and also help us remember that national security and scientific interests can best be advanced through a joint effort. The fact is that we do have a substantial amount of common ground and experience--both in our separate fields, and in our joint work, to protect this nation and to further science.

Throughout the world today, every nation's progress and security are tied up with science and technology. Some would say that fact is a curse of the modern age; others would say it is our salvation. Technical information has given us the means to destroy civilization or, at least, revert it to the Dark Ages. At the same time, science and technology have made life safer and bountiful, given us tools to understand better the universe in which we live, and provided the weapons and intelligence systems to help us defend our nation.

There is an overlap between technical information and national security which inevitably produces tension. This tension results from the scientist's desire for unconstrained research and publication, on the one hand, and the federal government's need to protect certain information from potential foreign adversaries who might use that information against this nation. Both are powerful forces, thus it should not be a surprise that finding a workable and just balance between them is quite difficult. But finding this balance is essential, for we must simultaneously protect the nation and protect the individual rights of scientists--both as academicians and citizens.

This tension is accentuated when scientists are employed by the federal government directly, or work for the government indirectly in their own offices with federal research funds. Some of this work is done on subjects which directly affect the nation's security--e.g., its defense, diplomacy, and intelligence efforts. The federal government has always conducted these activities on behalf of our society for several reasons. It is far more convenient for the federal government to provide for the common good. Irreversible and significant harm--to the nation as a whole, and to its citizens--often is threatened and this fact is a stimulus for the federal government to act.

There are cases where interplay has occurred between science and the national security interests. One of the most obvious, of course, is the Manhattan Project of World War II in which the first nuclear weapons were created and tested. Another is the development of "national technical means" to monitor foreign compliance with international arms control accords. Science and national security have a symbiotic relationship--each benefitting from the interests, concerns, and contributions of the other. In light of the long history of that relationship, the suggestion is hollow that science might (or should somehow) be kept apart from national security concerns, or that national security concerns should not have an impact on "scientific freedom."

The need in today's world for protection of some information, for secrecy is clear--I believe--to any fair observer. Protection of the information necessary to safeguard our society, and to conduct our international affairs, must occur. Within the federal government, there is a system established by Executive Order to assess the expected damage, should certain information come into the hands of foreign enemies, and--based on that assessment--to control

access to that information so as to prevent any such exposure. This exposure potentially could occur through public release of the data, or from the successful clandestine activities of the agents of foreign intelligence services.

And we should make no mistake, foreign intelligence services--among other entities of foreign governments--are collecting all types of information in the U.S. Specific data on technical subjects is high on the wanted list of every major foreign intelligence service and for good reason. The U.S. is a leader in many--if not most--technical areas, and technical data can enhance a nation's international strength. In terms of harm to the national interest, it makes little difference whether the data is copied from technical journals in a library or given away by a member of our society to an agent of a foreign power.

A different source of tension arises when scientists, completely separate from the federal government, conduct research in areas where the federal government has an obvious and preeminent role for society as a whole. One example is the design of advanced weapons, especially nuclear ones. Another is cryptography. While nuclear weapons and cryptography are heavily dependent on theoretical mathematics, there is no public business market for nuclear weapons. Such a market, however, does exist for cryptographic concepts and gear to protect certain types of business communications.

Research into cryptography is an area of special, long-standing concern to me. When I was Director of the National Security Agency, I started a dialogue to find a common ground regarding cryptography between scientific freedom and national security. Considerable effort has gone into that dialogue,

by both scientists and public servants, and I think the results so far have been reasonable and fair. Cryptologic research in the business and academic arenas, no matter how useful, remains redundant to the necessary efforts of the federal government to protect its own communications. I still am concerned that indiscriminate publication of the results of that research will come to the attention of foreign governments and entities and, thereby, could cause irreversible and unnecessary harm to U.S. national security interests.

There are, in addition, other fields where publication of certain technical information could affect the national security in a harmful way. Examples include computer hardware and software, other electronic gear and techniques, lasers, crop projections, and manufacturing procedures.

I think it should also be pointed out that scientists' blanket claims of scientific freedom are somewhat disingenuous in light of the arrangements that academicians routinely make with private, corporate sources of funding. For example, academicians do not seem to have any serious difficulty with restrictions on publications that arise from a corporate concern for trade secret protection. The strong negative reaction from some scientists, over the issue of protecting certain technical information for national security reasons, seems to be based largely on the fact that the federal government, rather than a corporation, is the source of the restriction. Yet this would presume that the corporate, commercial interests somehow rise to a higher level than do national security concerns. I could not disagree more strongly.

Scientists and engineers have served our society spectacularly in peace and war. Key features of science--unfettered research, and the publication of the results for validation by others and for use by all mankind--are essential

to the growth and development of science. Both our national security and our economic development rely heavily on these features. Restrictions on science and technology should only be considered for the most serious of reasons.

But nowhere in the scientific ethos is there any requirement that restrictions cannot, or should not--when necessary, be placed on science. Scientists do not immunize themselves from social responsibility simply because they are engaged in a scientific pursuit. Society has recognized over time that certain kinds of scientific enquiry can endanger society as a whole and has applied either directly, or through scientific/ethical constraints, restrictions on the kind and amount of research that can be done in those areas. The fact is that restrictions exist today on science and technology; for example, in conducting medical experiments on human subjects, in safeguards on handling and storing radioactive materials, in controlling some research on gene-splicing, in protecting proprietary manufacturing processes, and in requiring peer review before publication of the results of scientific research. Some of these restrictions are common sense, some are federal requirements, some are simply good business, and some are good science.

Moreover, in 1952 Congress gave an example of its willingness to act when it passed the Patent Secrecy Act. This law directs procedures to ensure that public disclosure of inventions, which would be detrimental to the national security, does not occur. Such inventions are secret and are afforded appropriate protection. Equally important, this law is not totally one-sided in favor of government. The law established appeal procedures and a mandatory review process. Little use of this law has been necessary, except in the last few years and then not for long. The law is obviously not popular with all whom it regulates, but it has for thirty years now provided a precedent for a legislative solution to

the question of private versus public interest.

One sometimes hears the view that publication should not be restrained because "the government has not made its case," almost always referring to the absence of specific detail for public consumption. This reasoning is circular and unreasonable. It stems from a basic attitude that the government and its public servants cannot be trusted. Specific details about why information must be protected are more often than not even more sensitive than the basic technical information itself. Publishing examples, reasons, and associated details would certainly damage the nation's interests. Public review and discussion, of classified information which supports decisions, is not feasible or workable.

In contrast, it is a fact that in today's world Congressional reviews of sensitive Executive Branch decisions are feasible and workable. The existence, and the processes, of such reviews are intentional. I do not think it is harmful to recognize that the federal government--particularly its intelligence agencies--have in fact made mistakes in the past on occasion, and suspicion of the actions of the federal government in this regard is understandable if not always supportable. The dominant fact of this new decade is that there now exists in the Congress a forum where assertions by the government of secrecy needs can and have been challenged and examined in a properly secure environment.

I recognize that there is concern in some circles that the suspension of publication of some information, for national security reasons, means that such information will never be published. The fact is, however, that national security concerns to protect information will not--and do not--last forever. The federal government's structure and procedures, though conservative and imperfect, do work. Sensitive information does get released in due course.

The Executive Order I mentioned earlier, which requires protection of information through classification, also requires the eventual declassification of that same information. For example, voluminous classified data from World War II has been declassified and released--including intelligence materials which had extraordinary sensitivity when they were acquired. Much of the stimulating effort for computer science in this country came from government sponsored and controlled classified activity. There is in our society a legitimate need and desire which I accept that history, whether political or scientific, will be served eventually--even if national security requires that public disclosure, and personal recognition, have to be postponed.

Rather than a confrontation between national security and science, I believe that a wiser course is possible and that our joint search for that course ought to be one of our goals. A potential balance between national security and science may lie in an agreement to include in the peer review process (prior to the start of research and prior to publication) the question of potential harm to the nation. The details of such a system would have to be resolved, of course, but cooperation will be better for all of us than confrontation. Included in such a system should be goals to simultaneously preclude harm to U.S. national security and to impose no unreasonable restrictions on scientific research, publication, or the use of the results. And when restrictions are judged necessary, speedy procedures for appeals, review, and appropriate compensation should be included. One example of this type of process is that recommended in the Public Cryptography Study Group. It is not easy to create workable and just solutions that will simultaneously satisfy the wide-ranging needs of national security and science, but I believe it is necessary before significant harm does occur which could well prompt the federal government to overreact.