THE BALANCE OF INTERESTS BETWEEN
NATIONAL SECURITY CONTROLS
AND FIRST AMENDMENT INTERESTS
IN ACADEMIC FREEDOM

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INTRODUCTION

Many of the federally imposed restrictions currently being applied to industry and the academic community have their origins in the World War II era. These restrictions were originally implemented in order to safeguard our national security during the war years. Primarily because of the continued strained political relations and general mistrust of the Soviet Bloc countries the restrictions have continued and in many instances have broadened in scope. The scope of not only the products and expertise have expanded but also the number of persons to whom the restrictions apply.

Scientists had accepted the use of science and technology as an instrument of foreign policy or national security measures, in particular during war years, but only when the policy was conducted in ways that were compatible with the academic norm.\textsuperscript{1} The academic community has traditionally thrived on open, free communication on an international level. However, the restrictive "national security" policies of the federal government, beginning with the Carter Administration and escalating significantly during the Reagan Administration, have been infringing on the professional norms of scientists. Both industry and the academic community have decried the Reagan Administration's "well-publicized"\textsuperscript{2} sweeping measures to stop what the federal government terms as the "massive hemorrhage of American technology to the Soviet Union,"\textsuperscript{3} as a device to gain positive political publicity. Neither industry nor the academic community denies the right nor the importance of the government to protect national security. The conflict is that in some instances the controls being used are inappropriate for the university setting and, in fact, were not intended to be used in that setting, but rather only in industry.\textsuperscript{4} Moreover, some of the controls being applied to university researchers are vague, overly broad, and are probably unconstitutional as applied.

Industry leaders question the effectiveness of the controls considering the availability on the world market for the desired technology. Also questioned is the
weight given to national security interests at the expense of the national trade economy. The point of view of industry will only be mentioned as a contrast or comparison to the major focus of the paper, which is the balance of interests between national security controls and First Amendment interests in academic freedom.

The paper will be divided into four major sections: an historical overview of the control systems used in the university scientific community; a review of how these controls, originating in both the Legislative and Executive Branches, have changed and developed into the present-day control systems; a discussion of the interests and protection that "academic freedom" or the First Amendment affords the scientist; and a discussion of the existing case law balancing First Amendment interests and national security interests.
I. ACADEMIC FREEDOM & FIRST AMENDMENT RIGHTS

The value of free and open communication has a particular significance to the scientist. Scientists begin with a problem and form a theory to explain the phenomenon under investigation. They must then test the theory by revealing it to their peers. Sometimes the theory will not lie within the previous accepted body of data. Other scientists must test the new theories and critically evaluate them and the methods of investigation used. The theory is adopted if it can be accepted by a consensus of professional opinion. Even if the theory may not be accepted the process of testing it may help discard related theories of others or provide other information applicable to other problems. These theories are also examined by students who may be stimulated by the possible implications. Professional advancement accrues to those who make original contributions to the scientific data and scientists' professional standing is based on peer recognition.

The most formal mode of scientific communication is through publication in scholarly journals that have a worldwide distribution. In recent years, approximately 37% of the articles in these journals have been written by U.S. scientists. Moreover, an analysis of the citations in these articles shows that U.S. scientists have relied frequently on foreign research results and that reliance has increased. Conferences and symposia are also an important source of scientific communication. The meetings allow for a more rapid dissemination of scientific theories than do publications and also allow for instant feedback and a more informal exchange of ideas. Because of the productiveness of meetings, particularly when leading researchers in the field attend, the participants are often international. Informal conversations among colleagues, in particular with those in a researcher's own institution, occur frequently. Scientific researchers often work closely with their graduate students and many foreign graduate students in scientific and technical fields are in U.S. universities. The percent of
foreign students enrolled in full time graduate science and engineering has increased dramatically. Finally, exchange visits between scholars in science and technology contribute to the universal exchange of knowledge in various fields. Scientists depend on open communication, oral or written, as an integral part of their ability to work effectively.

II. HISTORICAL OVERVIEW

A. World War II Era

Prior to World War II there was little government sponsored research in universities and any outside funding was usually by industry for small applications-oriented projects. Therefore, the decision in 1940 to engage universities, instead of government or industry, to work on war project was considered revolutionary. These projects were considered very successful and began the era of government sponsored research in universities. During the war the universities had many Army and Navy trainees enrolled and the civilian student population was reduced. Much of the research was classified and therefore done under strict security involving at times "armed guards and painstaking indoctrination." Secrecy was accepted by the researchers as a short-term restraint essential for the war effort. The combination of the urgency to win the war and the scarcity of civilian students modified the structure of the traditionally open academic community enough to adapt to the new restrictive atmosphere. Most of the secret war projects ended when the war ended particularly because the secrecy and security measures were considered at odds with the principles of academic freedom.

After the war a few of the large secret war projects such as the Applied Physics Laboratory managed by Johns Hopkins University, and Los Alamos managed by the University of California, continued, but in both instances the laboratories were off-campus. Generally, however, those who worked on the secret projects returned to
campus and "practically all universities banned secret work from their campuses." The success of the union between the federal government and higher education during the war years prompted the federal government to fund on-campus basic research. The federal government realized that universities must play a major role in the development of unclassified science and technology in order to develop national security interests. The relationship between the two institutions began with both needing each other yet both having different needs as to secrecy and security.

B. Post-World War II

At the end of the War, President Truman decided to release the scientific and industrial information gathered from Germany and Japan, with attention given to national security interests. The Office of Scientific Research and Development (OSRD) also released much of the wartime research that was kept secret during the war. An example was research conducted at the M.I.T. Radiation Laboratory which was the "primary U.S. microwave radar research facility." These data were helpful to universities and industry throughout the world. In contrast to the release of much scientific data, information regarding atomic energy was "born classified" according to the guidelines and interpretation of the 1946 Atomic Energy Act (Act). The Act gave the government "an absolute monopoly over all aspects of atomic energy research, development and production." Because atomic energy was relatively new and not thoroughly understood the government maintained total control of atomic energy research and development for national security reasons. The public knew only that U.S. scientists had developed a "secret bomb" that was of "unimaginable destructiveness."

Restraints on the export of goods that began during the war continued after the war despite expectations that these restraints would end with the war. There were
three major pieces of legislation passed in order to continue to control exports to the Soviet Union. In 1949 the Export Control Act\textsuperscript{29} was implemented in order to control the export of munitions to the Soviet Union. The Coordinating Committee for Export Controls (COCOM), an international control system among Western allies, was established in 1949 to control the export of military-sensitive goods including munitions, atomic energy and dual-use technology. In 1954 Congress implemented another export control measure, the International Traffic in Arms Regulations (ITAR),\textsuperscript{30} in order to control the export of security-related goods.

In addition to protective policies on exports, the federal government has restricted people from traveling to the United States or in some instances out of the country. Prior to World War II the international borders were relatively open;\textsuperscript{31} however, at the beginning of World War II, most international borders were closed.\textsuperscript{32} The authority to close the borders for national emergency situations was given to the President through Congress,\textsuperscript{33} while the power to issue passports was vested in the State Department. The International Security Act of 1950 (McCarren Act)\textsuperscript{34} and the Immigration and Nationality Act of 1952 (McCarren-Walter Act)\textsuperscript{35} established rigid guidelines on the issuance of visas to foreign applicants. These restrictions were used at times to deny or delay significantly the entry of foreign scientists into the United States who wanted to enter in order to attend meetings or assume faculty appointments.\textsuperscript{36}

C. Detente

By the late 1950s the interest in science and technology was intense. The Soviet Union had launched the Sputnik,\textsuperscript{37} the Kennedy Administration had announced its goal of landing on the moon and the advancement of science and technology was seen as critical to national prosperity and national security.\textsuperscript{38} The McCarthy "red scare" era\textsuperscript{39} had ended and more positive foreign relations with the Soviets were exemplified by
the negotiations in Geneva in 1955\textsuperscript{40} and Camp David in 1958.\textsuperscript{41} Scientific cooperation began in 1958 when both countries declassified certain research on nuclear fusion and shared the information. This exchange was credited with "significantly advancing the state of the art in fusion research."\textsuperscript{42} One year later the United States and the USSR signed an agreement between the NAS and the Academy of Science of USSR (ASUSSR).\textsuperscript{43} The agreement included provisions for scientists to have the opportunity for exchange visits and joint symposia.\textsuperscript{44} The U.S. scholars chosen for the program were sponsored by the National Academy and were pursuing personal scientific interests.\textsuperscript{45} There was much interest in the exchange because previous personal communication between scientists in both countries had been curtailed under Stalin.\textsuperscript{46} Also, there had been constant delays in the translation of published materials and neither side had much knowledge of the other country's research and development efforts.\textsuperscript{47} These exchanges continued and expanded in scope during the 1970s and as the political climate between countries became more conciliatory the exchange programs were expanded and the countries entered bilateral agreements. Between 1972 and 1974 eleven interagency agreements ("bilaterals") were established. Unlike the other exchange programs, these visits were tied directly to national research priorities.\textsuperscript{48} Continuing the trend towards cooperation a Task Force on Secrecy of the Defense Science Board recommended reform of classification policy, and provided for a significant decrease in the amount of information classified and the duration of classification.\textsuperscript{49} The openness between countries was also reflected in new policies on trade. The national policy of a liberal expansion of the trade between the countries was agreed upon in exchange for a tacit Soviet agreement to "abide by the status quo in international affairs."\textsuperscript{50} As a measure of the change in policy that began under the Nixon Administration and continued under Presidents Ford and Carter, the Export Administration Act of 1969\textsuperscript{51} encouraged trade with all countries, including communist countries.\textsuperscript{52} There was a substantial increase in trading, and including such goods considered dual-use technology.\textsuperscript{53}
D. Post-Detente

The tide of these goodwill gestures began to change in the late 1970s in response to several events that prompted not only the government but also individual scientists to protest Soviet foreign and domestic policy. The Soviet policy in the Middle East War in 1973,\textsuperscript{54} the Soviet support of the Popular Movement for the Liberation of Angola in 1975, the failure of the 1979 SALT II agreement to pass the Senate,\textsuperscript{55} and the Soviet invasion of Afghanistan\textsuperscript{56} were a series of events that brought back the Cold War. Also, in 1978 two Russian scientists, Yuri Orlov and Anatoly Shcharansky, were put on trial for their political activities.\textsuperscript{57} In response, individual American scientists canceled their visits to the USSR or refused to participate in meetings planned under the bilateral agreements.\textsuperscript{58} The NAS Committee on Human Rights issued a statement of protest.\textsuperscript{59} The harassment of Soviet scientist Andrei Sakharov\textsuperscript{60} because of his political statements was also the object of protest by American scientists. The President of NAS, Philip Handler, warned the President of the USSR Academy of Sciences that further government pressure on Sakharov would impair relationships between the Academies.\textsuperscript{61} The United States government reacted to these events with a series of measures that closed off communication between the countries. The State Department deferred all high-level meetings under the US-USSR bilateral agreements in science and technology.\textsuperscript{62} No licenses were issued to export technology to the Soviet Union pending a review of the licensing policy.\textsuperscript{63} The export restrictions affected sales of computers and other advanced electronic equipment, strategic oil and gas commodities.\textsuperscript{64}

III. GOVERNMENT CONTROL OF TECHNOLOGICAL TRANSFERS

The current restrictive trend of the Reagan Administration is based on a fear that science and technology are the key to our national security and that Soviet efforts
to obtain this information have escalated drastically. In 1980 the Defense Department issued a brochure that indicted inter-Academy exchanges, student exchanges, scientific conferences and symposia, and the entire professional and open literature as inherently adverse to U.S. military security interests. Yet a committee (Corson committee) of university representatives and government officials commissioned to study scientific exchanges and national security indicated that "only a small fraction of the overall Soviet bloc intelligence collection effort is directed at U.S. universities." However, the reports of leaks from the academic community were still fragmentary because of recent recognition of the problem. Examples of some reported incidents, according to the Corson report, are: "a) the visitor's technical activities and studies went beyond his or her agreed field of study; b) the visitor's time was poorly accounted for, including reports of excessive time spent collecting information not related to his or her field of study; c) the visitor, either successfully or unsuccessfully, attempted to evade visa or exchange agreement restrictions imposed on his or her itinerary; and d) in one or two incidents a visitor participated in clearly illegal activities of an intelligence nature." Yet, the Corson report stated that no representative of the U.S. intelligence agencies was able to offer evidence of specific damage to U.S. national security stemming from leaks in the academic community. Nevertheless, the U.S. intelligence agencies continue to predict a surge of Soviet efforts to obtain sensitive information from university sources. The suspicion is based generally on three factors: "1) an increased Soviet emphasis in the past decade on the acquisition of newly emerging Western technologies; 2) a belief that U.S. universities are expanding their participation in such research areas, particularly in process technologies; 3) a forecast that as the government tightens its controls on other domestic sources of information and works with its allies to reduce third-country losses, foreign acquisition efforts will be increasingly redirected toward research institutions." Even assuming that the trend is correctly predicted, the report indicated that the government's efforts at control
are spread broadly across too many different technologies. Because the gap between basic and applied research is narrowing and dual-use technology is expanding rapidly, the government cannot effectively control any potential source of leak. The panel suggested the government "build tall fences around narrow areas." Those areas would have to meet each of four criteria:

1) the technology is developing rapidly, and the time from basic science to application is short;

2) the technology has identifiable direct military applications; or it is dual-use and involves process or production-related techniques;

3) transfer of the technology would give the USSR a significant near-term military advantage; and

4) the United States is the only source of information about the technology, or other friendly nations that could also be the source have control systems as secure as ours.

Examples of technology that meet all four criteria are high-speed electronics and computer-based encryption techniques. The resulting restrictions being placed on U.S. scholars must be balanced against the loss of information from the sharing that comes from the international scientific community. The scientific community is based on a worldwide informational base. Unless there is the communication of new ideas, peer review of those ideas through validation or reflection of new theories, and spin-offs from research, U.S. technological and scientific advancement would not flourish. The United States has also gained useful information from Russian and Eastern European countries through commercial technology transfer, open literature, and through scientific exchanges. Harvard Nobel Prize-winning scientist, Walter Gilbert, acknowledged how much he benefitted in his prize-winning research when he hosted a visit from Soviet molecular biologist, Dr. Mirzabekov. Julian Sturdevant, a Yale University professor, uses a differential scanning microcalorimeter based on a design developed by a scientist
at the Institute for Biophysics in Puschino, near Moscow. The information was gathered through a personal contact with Professor Privilov in Puschino. Not only the university research community but also industry and the general public have profited from the exchange of technology from the Soviet bloc countries. For example, the technology in polymer chemistry that lead to soft contact lenses was developed in Czechoslovakia and was sublicensed to Bausch and Lomb.

Nevertheless, representatives of the Reagan Administration with "great fanfare" have issued warnings and initiated well-publicized measures to inform the academic community that they must comply with suggested restrictions on the traditionally open academic communication. Vice Admiral Bobby R. Inman, former deputy director of the Central Intelligence Agency and past director of the National Security Agency warned scientists that "Congress is ready to move to resolve the conflict between academic freedom and national security in favor of the latter." He predicted that if scientists did not voluntarily cooperate that "far more serious threats to academic freedom would occur." Furthermore, Inman said "the situation 'could well cause the government to overreact.'" In response to criticism from scientists that the federal government has not made its case for national security interest, Inman stated, "This reasoning is circular and unreasonable." He continued, saying, "The specific details of why information must be protected are often even more damaging than the information itself."

This "non-reason" from government officials to people who are particularly accustomed to scientific data and evidence only serves to provoke mistrust of the government. American scientists question whether it is desirable or even possible to stop the flow of communication among scientists in other countries. The sophisticated worldwide communication system, the large number of alternative avenues of collection through nonaligned nations receiving desired information or products, and the divided responsibilities of different U.S. government agencies applying laws that were not
intended to apply nor suited for the research university setting make the present government policies unproductive and overreactive.

A. Legislative Branch

Congress has enacted certain pieces of legislation to control the dissemination of information for national security reasons. Some legislation acts as a direct control on information, goods or technology exchange while others indirectly restrict the exchanges. Two major pieces of legislation enacted originally to restrict industrial exports have been applied as a direct controls on the traditionally open community of university researchers: Arms Export Control Act and the Export Administration Act (and the accompanying regulations) have been most frequently cited by scientific researchers as having been inappropriately applied to the academic community. Another major piece of legislation is the Atomic Energy Act, which controls the dissemination of any information relating to atomic energy. It has not been cited as frequently as the export laws as infringing on open communication of researchers primarily because more research on atomic energy is classified or contractually restricted at the onset of the research project. However, there have been some examples of the government restricting nonclassified, noncontractual research on atomic energy. The examples illustrate the breadth of the scope of permissible governmental controls for national security protection. The Inventions Secrecy Act also illustrates how legislative controls enacted many years earlier are applicable to current governmental national security safeguards. Finally, the Immigration and Nationality Act can exert restraints on information exchange by controlling the influx of people desiring to enter the United States for professional visits, to attend conferences, to study or to accept faculty appointments. It grants practically unfettered power to the State Department to deny visas to those
who would "endanger the security . . . of the United States,\(^88\) and can also restrict the movement and activities of those permitted to enter.\(^89\)

1. Arms Export Control Act/International Trade in Arms Regulations

There are two major pieces of legislation that were implemented to control the export of goods to non-friendly countries which have recently been used to restrain the expression of university scientists. The original purpose of the first, the Arms Export Control Act,\(^90\) was to control the export of weaponry. The Act is administered by the Commerce Department through a set of regulations called the International Trade in Arms Regulations (ITAR).\(^91\) ITAR prohibits the "export of technical data" designed as "defense articles and defense services\(^92\) without a license. Generally, "export" as defined by ITAR is the communication of technical data to a foreign national no matter where it takes place.\(^93\) The controlled items are those listed on the "United States Munitions List."\(^94\) Most of these items are weaponry but the scope of ITAR as defined in "technical data" includes: "(a) any unclassified information that can be used, or be adapted for use, in the design, production, manufacture, repair, overhaul, processing, engineering, development, operation, maintenance, or reconstruction of arms, ammunition, and implements of war on the U.S. Munitions List; or (b) any technology which advances the state-of-the-art or establishes a new art in an area of significant military applicability in the United States; or (c) classified information . . . ."\(^95\) Furthermore, the initial burden of determining whether the technology in question advances the state-of-the-art or establishes a new art is on the person requesting a license.\(^96\)

The scope of the possible interpretation of the definitions of goods or technology that are controlled under ITAR is broad.\(^97\) Dual-use technology (that which can have a military or non-military use) can be included under the definition of technical data
under the export control laws although the goods themselves may have no military use. For example, the same basic semiconductors which go into video games, also go into missile-guidance systems, and laser technology that can be used to fuse detached retinas can also be used to disable enemy communications satellites.\textsuperscript{98}

ITAR does allow for general exemptions of unclassified technical data that are in the public domain.\textsuperscript{99} The intent behind this exemption was to allow for open communication in the academic setting. However, ITAR's definition of export includes communication of technical data to a foreign national no matter where it takes place.\textsuperscript{100} Therefore, under ITAR a foreign student could be prevented from working in a research laboratory to learn about microprocessor development that has application in high speed computation, but would have access to any information on the subject found in the public domain, i.e., a scholarly journal.\textsuperscript{101} Given the extraordinary growth within the last ten years of foreign graduate students in the fields of science and engineering attending American universities,\textsuperscript{102} the problem of determining what information and to whom it should be given becomes enormous. A university professor could be subject to civil or criminal penalties by the very information he delivers at a lecture to a room of students including foreign nationals. Also, an American university researcher could be subject to sanctions under ITAR not for publishing\textsuperscript{103} but for delivering a scientific paper, which includes "technical data,"\textsuperscript{104} to a symposium of scientists in a foreign country.\textsuperscript{105} The Justice Department recognized the possible conflicts between the government's strict application of ITAR to the academic community. In 1978 a Justice Department memorandum addressed to the scientific advisor to President Carter, Dr. Frank Press,\textsuperscript{106} stated that ITAR licensing requirements were a prior restraint and violated the first amendment's doctrines of vagueness and overbreadth. There had not been legal authority directly on point; however, the memo reasoned that "prior restraints on publication are permissible only in extremely narrow circumstances and that burden on the government of sustaining any such restraint is a heavy one."\textsuperscript{107} The memo
stated that in the very limited number of instances where prior restraints are constitutionally permissible they must be narrowly applied to meet a permissible government objective. The memo concluded that ITAR was not written precisely enough to prevent arbitrary application of the licensing provisions and it did not contain a provision for judicial review.

A court of law can interpret legislation and narrow the scope of the definitions, declare the legislation unconstitutionally vague or overly broad or applied without sufficient due process safeguards. Subsequent to the Justice Department memo, the court upheld the constitutionality of ITAR in United States v. Edler Industries. The court upheld the constitutionality of the ITAR definition of technical data. The court acknowledged that the definitions of technical data "are susceptible of an overbroad interpretation" and the language could also be interpreted to include the interchange of scientific and technical information that has no substantial military application. However, the court held the licensing provisions of ITAR were not overly broad and therefore not a prior restraint on speech. The court noted that there were exemptions from the licensing requirement if the technical data were in the public domain. Furthermore, the court stated that despite the fact that there are many dual-use technologies, the issue of scienter, i.e., whether or not the defendant knew or should have known the recipient of the exported information would use it to produce or operate articles on the United States Munitions list, would be relevant factor in determining liability under the export control law.

Despite the narrowing of ITAR in the Edler decision, Donald Kennedy, President of Stanford University, representing the presidents of California Institute of Technology, Massachusetts Institute of Technology, Cornell University and the University of California, addressed a letter to Secretary of State Alexander M. Haig, Jr., Secretary of Defense Caspar W. Weinberger and Secretary of Commerce Malcolm Balridge expressing concern about the administration of the ITAR and the EAR. Kennedy stated
that until the present administration, these export laws had not applied to traditional university activities. University officials had received a series of letters from the Reagan Administration through the State and Commerce Departments suggesting that lectures which contained information that is unclassified may be considered an "export" within the ITAR and the EAR.\textsuperscript{120} A strict application of the export laws could function as chilling effect or a bar to the exchange, publication, or use of unclassified materials in the classroom because of the presence of foreign students. Kennedy then warned that "[r]estricting the free flow of information among scientists and engineers would alter fundamentally the system that produced the scientific and technological lead that the Government is now trying to protect and leave us with nothing to protect in the very near future."\textsuperscript{121} The Administration responded through letters from lesser officials\textsuperscript{122} trying to placate the fears of the university presidents; however, "the letters were so qualified that it remained unclear just what unclassified technical data were deemed by the Administration to be too sensitive to be taught."\textsuperscript{123}

2. Export Administration Act/Export Administration Regulations

The other major export law in the controversy between university researchers and the federal government is the Export Administration Act (EAA).\textsuperscript{124} EAA, the authority for the Export Administration Regulations (EAR),\textsuperscript{125} is administered by the Commerce Department and controls the export of goods and services not covered by ITAR.\textsuperscript{126} The regulations establish a mandatory licensing scheme for commodities and technical data having civilian and military significance. The purpose of EAA/EAR is to control the export of technical data in order to further national security, to foster foreign policy, and to protect the domestic economy from a drain of scarce materials.\textsuperscript{127} Violations of EAR carry civil and criminal penalties.\textsuperscript{128}
EAR's definition of "technical data" is similar in scope to the ITAR definition: "information of any kind that can be used, or adapted for use, in the design, production, manufacture, utilization, or reconstruction of articles or materials. The data may take a tangible form, such as a model, prototype, blueprint, or an operating manual, or they may take an intangible form such as technical service." This definition includes unclassified materials. EAR's definition of export means an actual shipment or transmission of data out of the United States or an exchange within the United States with the knowledge or intent that the data will be sent out of the U.S., or any release of technical data of U.S.-origin in a foreign country. Within the classifications, EAR grants an automatic or "general" license which functions much like an exemption, for certain data: "data generally available" to the public or through open conferences, and "scientific or educational data" which is "information not directly and significantly related to design, production, or utilization in individual processes" and "instruction in academic institutions and academic laboratories." The category of general licenses (GTDA) would in a literal reading seem to include nearly all university research and exchanges of such data with foreign nationals. Yet, a series of incidents have been documented that has justified the fears of university professors that the scope of the export laws is overly broad.

One of the most dramatic instances of the Government invoking the authority of the export laws was in 1982 in San Diego, where the Society of Photo-Optical Instrumentation Engineers (SPIE) conference was held. The conference was to be attended by more than 2700 people from 25 countries including the Soviet Union attend. One week before the conference, the Defense Department hinted that some papers to be presented might pose violations of the export laws and requested the organizers to supply conference rooms so Department of Defense (DOD) officials could talk to the authors of the various papers. The DOD representatives began warning scientists whose work was sponsored by a DOD agency that the export regulations
required them to submit their papers to the DOD for a security clearance. As a result of the questioning and rumors, more than 150 of 700 unclassified papers were withdrawn from the conference. Many researchers were confused and frightened about what was required of them. To compound the problem, the DOD officials at the conference did not have the authority to clear the papers. At the same time, the Commerce Department sent what it characterized as a routine telegram to the organizers, informing them that some of the papers may fall under the export control laws. After sending the telegram, the Commerce Department learned that the conference met its criteria for an open meeting which meant that anyone could attend and the papers could be published. A representative from Commerce then asked the State Department representatives to tell the organizers the conference was approved.

What both sides agree on was that there was much confusion and many papers were withdrawn unnecessarily; the incident has rippled through the research community. One of the organizers of the conference said many scientists were concerned about their ability in the future to discuss openly their research and stated that many members have cancelled their membership in SPIE because they feel the organization was on the "DOD hit list." What has become known as the "San Diego incident" has polarized the federal government and scientists in universities in the controversy over scientists right to communicate openly with the international scientific community. The government was asking the scientists why, if required to do so, were so many scientists failing to get a prior clearance from DOD. There was general agreement that many scientists under government contract simply did not know they were required to do so under DOD regulations. Others apparently got clearance from their supervisors and assumed that procedure was adequate. Furthermore, it was admitted by a Pentagon official that if all had applied for prior clearance, the Pentagon could not have handled the work load. Many scientists felt the "San Diego incident" was a test case and
reflected the Reagan Administration's policy to stop possible leaks to the Soviets and just as importantly to send a message to academicians that it will follow through with its threats on control.

Another question at issue is the sensitivity of the material to be presented and whether the Soviet representatives were employing the information. There are also two sides to that story. Pentagon officials have said that several SPIE members have voiced their concerns about the subject matter of some of the presentations being presented to foreign scientists. The government official cited as an example a session on airborne reconnaissance in which Soviet representatives were supposedly taking photographs of every viewgraph. On the other hand, the then-president, Richard Wollensak, and executive director, Joseph Yava, of SPIE gave a different version of the story. They stated that only four Soviets were present at the meeting and "three of them spent nearly all their time at Sea World and Neiman-Marcus." Wollensak recalled that during the sensitive meeting in question on airborne reconnaissance, he was drinking coffee with two of the Russians and "the other two Russians were walking to the shopping center to spend their morning." The disagreement between the groups is not whether national security is a legitimate goal but whether the application of the export laws is intended for ideas or for products and processes. Controlling the transfer of ideas is extremely difficult if not impossible, especially with a group that has been fiercely independent and open in their practice.

The EAR was cited for restrictions imposed on an American Vacuum Society Bubble Memory Conference in Santa Barbara in 1980. A few days before the conference the organizers were informed by the Commerce Department that the presentations at the conference were covered by the EAR and warned that violations carried criminal and civil penalties. The reason for the government concern was that scientists from Hungary, Poland, USSR, and the People's Republic of China were scheduled to attend
the conference. As a result of the "warning" the organizers requested the Soviet Bloc participants not attend; the Soviets complied with the request.

Another example of obstructive restrictions was a letter written by a NSA employee to the Institute of Electrical and Electronics Engineers (IEEE), one of the largest professional societies in the world. The letter, purportedly written on the employee's own initiative, warned IEEE that a session planned and articles published on cryptography which were to be part of a symposium to be held in New York might violate ITAR. Officials of IEEE were said to "cravenly urge" authors of papers to clear them with the Government prior to the presentation. Consequently, some speakers checked with university lawyers and as a result MIT did not distribute one monograph although all other papers were read; one tenured professor read papers of two graduate students in order to protect them from possible liability of the export laws.

ITAR may include publication in international journals as exports, and technical data may include descriptions of computer algorithms. Yet because ITAR is vague and difficult to interpret, it is not clear whether ITAR can restrict the publication of computer algorithms relating to cryptography. The NSA Counsel claimed the regulations were enforceable in that instance while the Justice Department says they were unconstitutional. Whether or not there is statutory authority, the NSA director, Vice Admiral Bobby Inman, began a campaign of visiting nongovernment cryptologists in universities trying to convince them to "voluntarily" submit to restraints on their work.

3. Proposed Amendments to the Export Laws

The policy trends in the Reagan Administration have been to extend the national security controls to unclassified information not under government contract, and to
apply the controls not only to technological hardware for export but also to ideas or information on basic technology.\textsuperscript{162} There have been proposed amendments to both export control regulations (ITAR/EAR) that would impose further restrictions on the academic researchers. One of the proposals would extend the reach of the Arms Export Control Act to include ideas and require a license for the export of the new ideas "critical technology."\textsuperscript{163} In practice, this new proposal could require scientists who want to publish or lecture abroad to obtain a license from the State Department for the "export" of ideas relating to technology listed on the U.S. Munitions List.\textsuperscript{164} There is a similar version of this provision proposed for the Export Administration Act.\textsuperscript{165} Both provisions have remained in the House Foreign Relations Committee.\textsuperscript{166}

There were proposed revisions of the Export Administration Act\textsuperscript{167} that would have extended the licensing requirements to unpublished notes and drafts. However, the Justice Department issued a memo questioning the constitutionality of the proposed revisions, indicating that these new restraints would be unconstitutional prior restraint on free speech.\textsuperscript{168} Eventually, the proposed revisions "languished" in committee and were not passed;\textsuperscript{169} however, they were superceded by an executive order that expanded the classification system.\textsuperscript{170} Another proposed bill would require academic institutions to submit detailed information on foreign students requesting to study in certain scientific areas, such as their course of study, who they would be working with and their travel plans.\textsuperscript{171} Not only Congress, but also the Executive Branch has implemented some programs that reflect this restrictive trend. Two major control systems most frequently mentioned as an area of concern by university representatives and one that has attempted to persuade other countries to follow this increasingly restrictive trend are discussed in the next section.

A Pentagon proposal was made to give military reviewers the authority to restrict publication of research results of scientists doing unclassified applied research for the Defense Department.\textsuperscript{172} The proposal was a recommendation by a Defense Department
panel advising Pentagon officials on ways to limit the release in journals and at scientific conferences of unclassified, dual-use technological information. The proposal had three levels of procedures depending on the type of research. The first level of review would apply to "nonsensitive" topics and would require scientists conducting the unclassified research to submit their papers to military reviewers at the same time they sent their research to journals to be published. The second level of review would require scientists working on unclassified but "sensitive" basic research that might have military application, e.g., microelectronics, to submit their research papers to military reviewers sixty days before sending them to journals. The Pentagon reviews would make comments on the information, yet the authors of the papers would have final decision as to whether to seek publication. The last section of the proposal would require researchers conducting applied research or development considered "sensitive" to submit drafts of their findings 90 days before sending them to journals. Pentagon reviews would make the final determination as to whether the paper could be published. The Pentagon officials estimated that only one percent of all Pentagon-financed research now receiving support from the Defense Department would be subject to the proposed controls. Many universities representatives opposed the restrictions and indicated that the university would choose not to participate in the Defense Department research programs rather than submit to prepublication review. Ultimately, the Pentagon decided not to implement the proposal. A Pentagon official stated the plan "was a good concept in theory, but unworkable in practice."

4. Atomic Energy Act

The Atomic Energy Act is another legislative control on scientific information imposed for national security reasons. Presently the Nuclear Regulatory Commission (NRC) and the Department of Energy (DOE) are responsible for the administration of
the Act. Their duties are "to assure the common defense and security," and within that policy they are to permit and encourage dissemination of scientific and technical information relating to atomic energy and "to provide that free exchange of ideas and criticism which is essential to scientific and industrial progress and public understanding." If information is within the definition of "restricted data" it becomes subject to statutory restrictions. Restricted data are defined in the Act as "all data concerning (1) design, manufacture, or utilization of atomic weapons; (2) the production of special nuclear material; or (3) the use of special nuclear material in the production of energy, but shall not include data declassified or removed from the Restricted Data category...." Within that definition the word "design" includes: "(1) specifications, plans, drawings, blueprints, and other items of like nature; (2) the information contained therein; or (3) the research and development data pertinent to the information contained therein," while "research and development," in turn include "(1) theoretical analysis, exploration or experimentation; or (2) the extension of investigative findings and theories of a scientific or technical nature into practical application for experimental and demonstration purposes, including the experimental production and testing of models, devices, equipment, materials, and processes." Both definitions are broad, and although the charge to the administrators is to allow for open exchange, the sweep of the language could apply to a classroom discussion or even the day-to-day reporting of events that occurred at the Three Mile Island reactor incident in 1979. Dissemination of the information is controlled by rules and regulations under the Act and access to that information is conditioned on obtaining a security clearance from the government. Any unauthorized use of the information may be enjoined or criminally punished. The Act does allow for continuous review of what is included in Restricted Data and also any classification guidelines so that some data may be declassified. DOE and NRC can suggest regulations to protect Restricted Data but they do not have the power to include information within the Restricted Data
category.\textsuperscript{192} The administrators may also declassify if they find that the information can be published "without undue risk to the common defense and security."\textsuperscript{193} These procedures regarding classification are the opposite of how all other government documents are classified, which are ordinarily determined by executive orders.\textsuperscript{194}

In government funded nuclear research programs, restrictions on the dissemination of the research data are contractually agreed upon before the work begins. No researcher in the field of atomic energy not working under a government contract has access to "restricted data" without a security clearance. In order to obtain the clearance, an agreement to restrict the classified information would be required. Restrictions on information dissemination have, however, also been applied to privately developed unclassified data on at least two occasions in order to prevent publication of articles on nuclear energy. The first was in 1950, when \textit{Scientific American} magazine proposed to publish an article on the hydrogen bomb by Hans Bethe.\textsuperscript{195} The editors of the magazine had not submitted the article to AEC for review because they considered all the technical information it contained to be widely known to physicists and widely disseminated.\textsuperscript{196} AEC nevertheless obtained a copy of the article and requested the editors of the article to delete certain sections.\textsuperscript{197} The magazine reluctantly complied with the request and also destroyed all copies of the original article along with the type and printed plates.\textsuperscript{198}

In 1978 a similar article was planned for the \textit{Progressive}. The magazine commissioned a free-lance journalist to write a series of articles about secrecy in the United States nuclear weapons program. Although the first article, published in February 1979,\textsuperscript{199} contained some details of the hydrogen bomb, there were no objections raised to the information disclosed.\textsuperscript{200} The second article in the series entitled, "The H-Bomb Secret: How We Got It, Why We're Telling It," had descriptions and sketches on how the bomb works. The government received a pre-publication copy\textsuperscript{201} and informed the editors of the magazine that about 20\%\textsuperscript{202} of the data were Restricted Data under
AEA and offered to rewrite the article. The editors refused the offer and the government moved to obtain a preliminary injunction preventing publication. The editors and the author maintained that all the information used was available to the public, and that the author had had no access to classified material. The government invoked national security interests and claimed violation of AEA. The *Progressive* defendants relied on First Amendment freedom of expression to protect the right of scientific inquiry and to protect the right to make a political statement on nuclear proliferation. The court granted a restraining order against the *Progressive*. The *Progressive* did not publish the article and it could not challenge the lower court's decision because the case was mooted upon publication of the material elsewhere.

Despite language within the AEA that encourages dissemination and discussion of information relating to atomic energy, the fact that there was no government proprietary interest in the research, and that the data were from unclassified sources, the government was successful in preventing the publication of the *Progressive* article. The result of the *Progressive* case leaves no clear guidelines to a private researcher for permissible unclassified information dissemination. The possibility of civil or criminal penalties has a clear chilling effect upon the researcher.

5. Immigration and Nationality Act
   a. Passport Denials

The Immigration and Nationality Act (INA) governs the admission of aliens into the country. The State Department has almost absolute discretion to issue passports to allow a citizen to leave the United States or to issue visas allowing a foreigner to enter. Each historical era creates different political concerns that are reflected in the State Department policy of granting or denying passports and visas. There are clear, legitimate reasons for a denial of a passport in the areas of security or
international relations. Security reasons can include those who are "notorious drug traffickers, pimps or those trying to leave the country to avoid possible criminal trials."\textsuperscript{209} Passports can be denied to those who may be subject to possess such information that would subject them to the possibility of kidnap or violence against them.\textsuperscript{210} However, there is a category of those who have been refused passports and were given the vague reason that "travel abroad at this time would be contrary to the best interests of the United States."\textsuperscript{211} An early example of the subject of this type of refusal is Dr. Martin Kamen, a scientist. At that time of the denial of a passport, he was teaching radiation physics and biochemistry at Washington University, Saint Louis, Missouri.\textsuperscript{212} In 1947 Dr. Kamen was refused a passport that he had applied for in order to accept an invitation to lecture at the Weizman Institute of Science in Israel.\textsuperscript{213} Since that first refusal, Dr. Kamen had been refused a passport three other times to attend conferences or to accept a visiting professorship. The incidents that triggered the refusal were interactions with Soviet officials. At a party Kamen met the Soviet vice-consul who asked him to persuade a colleague, who was developing radiation treatments for cancer, to help a Russian consul official suffering with leukemia to receive radioactive treatment.\textsuperscript{214} Dr. Kamen did comply with the request and was later invited to lunch by the Soviet vice-consul in order to express his gratitude for Dr. Kamen's help. This information about his interaction with the Russians was brought out in Kamen's testimony before the House Committee on Un-American Activities. A concern of the government was that Kamen had worked on the Manhattan Project\textsuperscript{215} and he was privy to much classified information on nuclear energy. Although Kamen testified that he disclosed no classified information at the luncheon and the Atomic Energy Commission did not object to his leaving the country,\textsuperscript{216} he was still refused a passport for political reasons and to prevent his knowledge of nuclear energy from being an "export."
Two recent cases in which the Supreme Court has dealt with passport regulations are *Aptheker v. Secretary of State* and *Haig v. Agee*. In *Aptheker* native-born citizens and residents of the United States were denied passports because of their membership in the communist party. The legal justification given by the State Department was Section Six of the Subversive Control Act of 1950, which provides that any member of a registered Communist organization, commits a crime if he attempts to obtain a passport. The government contended that the legitimate goal of the Act was to ward off "the danger the world Communist movement presents for our national security" and, therefore, reasonable restraints on a liberty interest were allowable. However, that goal had to be balanced against the right to travel, which is a citizen's "liberty" guarantee in the Due Process Clause of the Fifth Amendment. *Aptheker* challenged the statute on its face and as applied to his case. The restrictions of the Act were enforceable regardless of the purpose of the trip or the security sensitivity of the areas to be visited or whether the member actually knew or believed that he was associated with what was deemed to be a "Communist-action" or "Communist-front" organization. *Aptheker* had stated he wanted to travel in Europe for study and recreation in order to write, publish, teach and lecture on his observations. The court held the Act unconstitutional on its face, reasoning that the provision was overly broad, and there was no nexus between membership and the national security concerns of the government; furthermore, it was not the least restrictive alternative against the Fifth Amendment liberty right usurped by denying the right to travel abroad. Finally, the court stated that since freedom of travel is a "constitutioanl liberty closely related to rights of free speech and association," the appellants should not have the burden of proving the statute is unconstitutional nor should a government official be exposed to criminal penalties for issuing a passport in violation of the Act.
Haig v. Agee is a recent case regarding passport revocation for national security reasons. Agee, formerly employed by the Central Intelligence Agency, was involved in covert intelligence gathering activities. In 1974, in a press conference in London, he told of his intentions "to expose CIA officers and agents and take measures necessary to drive them out of countries where they are operating" and then proceeded to carry out his plan. The Secretary of State revoked Agee's passport and stated as a reason that Agee's activities were likely to harm national security interests or the foreign policy of the United States and advised Agee of his right for a hearing on the issues. The District Court held that the provision exceeded the statutory powers of the Passport Act of 1926 and ordered the passport restored. The Court of Appeals affirmed. The Supreme Court examined a history of the Passport Act of 1926 and noted that in the succeeding versions of the immigration acts that the single most important criterion for passport decisions was national security or foreign policy concerns. The Court distinguished Aptheker by contrasting the protection afforded beliefs and the protection accorded conduct. Further, the Court distinguished the almost limitless freedom of interstate travel with the more restricted right to travel outside of the United States. Finally, the Court stated that although there was no explicit authority to revoke a passport, the policy of the regulation relied upon was sufficient to conclude that Congress impliedly approved of the authority. Other significant factors in the court's decision were that Agee planned to disclose classified material to violate his contract with the CIA not to make public statements about the Agency only after clearance, and to breach national security interests. The Supreme Court reversed the lower court's rulings and held that due process rights only required what had been accorded Agee, namely reasons for revocation and an opportunity to post-revocation hearings.

Agee is an indication of what the Court now accepts as a national security risk, as opposed to the Kamen case of the 1950s. Agee's claim of First Amendment protection
for his political speech, assuming those protections reached beyond the national boundaries, was without foundation. The protection of the First Amendment for political speech is not limitless. The Supreme Court recognized in 1931 that "[n]o one would question but that a government might prevent actual obstruction to its recruiting service or the publication of the sailing dates of transports or the number and location of troops." Agee's disclosures were tantamount to the disclosure of the location of the troops. The fact that these disclosures were meant in part as a criticism of the Government foreign policy did not override the national security interests at stake.

b. Visa Denials

The denial of visas to those wanting to enter the United States is another tool used by the government to restrict indirectly the flow of information. There are a number of categories of aliens that are ineligible for visas under the Immigration and Nationality Act (INA). Some examples of those excludable are for health reasons or those who have been convicted of a crime involving moral turpitude. Section (27) excludes aliens that the Attorney General has determined could "engage in activities which would be prejudicial to the public interest . . . or security of the United States." Finally, Section 28 is a catchall section to exclude various anarchists and communists. The burden is on the alien to disprove ineligibility for a visa. Judicial scrutiny of any visa denials is "exceedingly deferential" to the State Department decision. In Kleindienst v. Mandel, the Supreme Court upheld the Attorney General's plenary power in disallowing a visa to a Belgian journalist who had Communist sympathies. The Court would not weigh the decision against the First Amendment interests against those United States citizens personally seeking to communicate with him or to engage in an academic exchange, but reasoned that there were other avenues of communication that were possible.
The controversy over visa denials has centered mainly on those with political beliefs that are at odds with the current administration. Recently, however, the State Department has used visa denials to those whom the State or Justice Departments suspect of wanting to enter the country in order to acquire military sensitive technology. The restrictions will apply mainly to the Soviet bloc countries but can apply to all nationalities. The "crackdown" as it is referred to by State officials using the INA as authority will focus on technology in four controlled categories:

1. Technology on the Commodity Control List propounded under the Export Administration Act;
2. The State Department's Munitions List, which also controls arms exports;
3. Technology controlled under the Atomic Energy Act;
4. Technology restricted under the National Security Classification System.

The immediate effect on scientists is unknown, although a wide array of research areas can be included under the definitions of all four of the above listed categories. Also, it is unknown what questions of proof are needed before the applicant is suspect.

In addition to the outright denial of a visa, visas may be granted with certain restrictions on the visitor's activities. An administration official said these types of restrictions in the past have been "of a nonregulatory nature"; the new policy would make them "formal and regulatory." The process would include listing specific activities as off limits, for example, visiting research institutes or commercial facilities or setting forth a list of activities in which the visitor may not participate. The restrictions would be made known to the host institutions and to all relevant U.S. government agencies.

In 1981, for example, the State Department began asking university officials to cooperate in imposing security-related restrictions on Chinese scholars studying in the
United States. Those students studying in the fields of science and technology are subject to restrictions under the export control laws. C. Peter Magrath, President of the University of Minnesota, in his response to the State Department, reminded them that the mission of the university is teaching and said "neither our faculty nor our administrators were hired to implement government security actions."269 The State Department had requested that a visiting Chinese scholar not have access to unpublished or classified Government-funded work and suggested he take coursework with minimal involvement in applied research.270 Magrath replied that the University did no classified work and "[b]oth in principle and practice the restrictions . . . are inappropriate for an American research university."271

Some foreign scholars have cancelled trips to visit the United States or institutions have cancelled invitations because of the restrictions placed on them by the State Department. A Hungarian specialist in electronic circuitry, invited by Cornell University, cancelled the visit because the Commerce Department stipulated the scientist could only receive information from classroom situations and he could not be given prepublication copies of research papers.272 Stanford University cancelled the visit by a Russian scholar in robotics, Nickolay V. Umnov, who had been invited by the National Academy of Sciences. Prior to the scheduled visit, the State Department informed Stanford of the restrictions that would be imposed on the visit. Stanford University President Donald Kennedy commented that the letter "included some really quite outlandish requests."273 The State Department had asked the officials at Stanford to prevent Umnov from having any contact with those working in Silicon Valley, and that he not be permitted to participate in discussion of certain unclassified DOD research being done at the university that had no contractual secrecy provisions.274 The University and the State Department ultimately reached an agreement on acceptable restrictions on the visit, but the State Department later cancelled the visit "for other reasons."275 Kennedy stated that he did not know what those "other reasons" were,
but he said that a lot of the theories appeared to be conspiratorial.\textsuperscript{276} An example of the State Department requesting university officials to monitor the activities of foreign visitors was a letter filled with questions received by Massachusetts Institute of Technology Professor Herman Feshbach. The letter asked for information about the work and professional affiliations of a scientist from Peking, and asked for Feshbach's cooperation in answering the questions "in view of how we feel about Communists."\textsuperscript{277} Professor Feshback did not answer the questions and had no further contact with the State Department regarding the scientist in question.\textsuperscript{278} The government is aggressively pursuing restrictive policies on university researchers, and many university officials are resisting being used as a policing tool by the agencies.\textsuperscript{279} The underlying concern is that universities have specifically refused research involving classified information or contract restrictions requiring secrecy or pre-publication review. The universities have balanced the interests between receiving the federal funding or maintaining a campus without restrictions on its foreign students\textsuperscript{280} or foreign professionals. University officials have stated that their role is not to police visitors but to foster an exchange of ideas and that if the State Department grants these visitors visas that any restrictions should be reasonable and enforceable by the State Department, not the universities.\textsuperscript{281} "You can't ask universities to do something they damn don't know how to do at all, which is to be spooks,"\textsuperscript{282} commented Stanford's President Donald Kennedy at a DOD-University forum.

6. Inventions Secrecy Act

The Inventions Secrecy Act\textsuperscript{283} is another piece of war legislation that is now being used in the "technology-war." It authorizes the Commissioner of Patents to keep a patent secret, with or without a Government property interest, if its release is determined to be detrimental to national security.\textsuperscript{284} The government has legally been
able to keep patents secret on the grounds of national security since 1917. Originally the restrictions were to be imposed only during wartime and after the war if the president declared a national emergency. The secrecy orders have never been subject to judicial review, nor have they been tested on First Amendment grounds. The Act has not been cited by the university community as a major concern; however, it was invoked by NSA in 1977 to classify a patent application for a cipher device using advanced mathematical techniques created by Dr. George I. Davida, a professor of electrical engineering and computer science at the University of Wisconsin. On NSA's recommendations, the patent office elected to keep the invention secret, other protests from the University Chancellor and the scientist. Soon after this incident, the Commissioner of Patents issued a secrecy order on a "phaseron" or voice scrambler to be used on citizen band radios that would allow CB and telephone users to communicate without being overheard. The inventors of this device also protested and NSA changed its order and rescinded the secrecy requirement on both patent applications. The Act includes a secrecy order on inventions even if the Patent Office does not consider the invention patentable or if the patent application is withdrawn. There is an appeal process available through the Commerce Department if a petition to the sponsoring defense agency has been denied.

Because of the increase in restrictions, there have been at least two significant formal attempts by representatives from higher education and the government to discuss some of the concerns raised; the first was begun at the request of then-director of the National Security Agency (NSA), Admiral Bobby Inman, in order to begin a dialogue between cryptography researchers and NSA. The Public Cryptography Study Group was formed by the American Council on Education (ACE) with representatives from government and education. On the agenda to be discussed was whether a statutory system of prior review for research on cryptography should be imposed or whether voluntary restraints would be sufficient to safeguard the national security interests the
NSA felt were at risk with the dissemination of some of the information then being published.

Cryptography had been employed almost exclusively for military codes, but is being used by banks to protect financial privacy in computer data. Firms in highly competitive businesses have begun to scramble their telephone communications and to encrypt their messages. The declining costs of the computer have made good cryptosystems affordable; for example, a microprocessor or chip can easily be plugged into a computer to encrypt a message. The advanced technology of the micro-processors and the vulnerability of electronic transmissions to being intercepted have created a broad economically-motivated interest in cryptology outside of government, not known before.

University mathematicians and engineers have begun to publish more widely and routinely to trade ideas on new cryptosystems, whereas before the only people outside the Government interested in ciphers were hobbyists. This new interest and information have concerned the National Security Agency (NSA) -- the agency responsible for code making and code breaking in Government -- which sees a danger to national security in all the nongovernmental research, articles and marketing of cipher machines. The fear is, of course, that other nations will improve their codemaking through this information. The concern is not with the major powers such as the Soviet Union or France, because their codes have long been considered unbreakable, but with developing nations improving their codes. Apparently their codes are still breakable and NSA wants to retain this source of information.

The Public Cryptography Study Group, with one exception, did vote for a voluntary system of review that would be on a trial basis for two years. Under this plan, researchers could submit their papers to NSA for determination on whether there should be changes in the manuscript, deletions, or delays in publications. The program is now operating although not all researchers are using it. Although the Public Study
Cryptography Group made a decision to try the voluntary system, many members of the Study Group had been under the impression that NSA already had the authority for statutory restraints. A paper submitted by NSA for the members of the group detailed a statutory prior restraint system. The report stated that NSA would be authorized to seek a court order enjoining publication of non-government publications through a court-enforceable Civil Investigation Demand.\textsuperscript{301} However, NSA does not have authority to restrain publication and Civil Investigation Demands apply only to the Justice Department and the Federal Trade Commission in antitrust suits.\textsuperscript{302} There was some question as to whether NSA was deliberately deceptive in the report issued to the group.\textsuperscript{303} NSA general counsel Schwartz, when asked to respond in detail why the national security required these restraints, responded that NSA could not explain because the reasons were classified.\textsuperscript{304}

The idea that university researchers would submit their papers for prior review to NSA before publishing them\textsuperscript{305} met with different responses. Some were encouraged by the communication between the two groups,\textsuperscript{306} others who have submitted articles for review were bothered by the lack of any explanation when NSA asked the author not to publish.\textsuperscript{307} Others, such as William Carey, executive director of the American Association for the Advancement of Science\textsuperscript{308} termed the prior review process as censorship whether it is voluntary or involuntary.\textsuperscript{309} His concern was that there was no evidence that universities were responsible for loss of technology and applied science to the Soviet Bloc countries. Carey asserted that the leaks were occurring in industry during commercial transactions, legal and illegal.\textsuperscript{310}

The second report by higher education representatives was prepared by the panel on Scientific Communication and National Security Committee on Science, Engineering, and Public Policy. The panel, chaired by Dale Corson, President Emeritus of Cornell University, was composed of 19 members including representation from university faculty and administrators, former federal agency officials, and executives in high-
Panel members were given a security clearance and were given three secret-level briefings by members of the intelligence community; a subpanel with security clearance at the highest level was briefed at two more meetings. The panel also heard presentations by members of the university research community. Additionally, the panel commissioned papers by experts in various fields in major research universities. One of the major conclusions of the study was that "only a small percentage" of any potential national security leaks had involved university scientists. Furthermore, they concluded the policy of "security by secrecy" was administratively impractical and unnecessarily disruptive to scientific communication. The panel recommended the national policy should be "security by accomplishment" -- a policy that would secure the U.S. technological lead by promoting scientific productivity. The report was released September 30, 1982, with what has been referred to as an "optimistic expectation" on the part of the research community for a resolution of the problems that had originally led to the creation of the panel. However, in an update of the panel report in January 1984, the optimism had evaporated. There has been another series of restraints in the research community and many scientists still feel they do not know their rights and obligations regarding dissemination of their research.

B. Executive Branch

1. Executive Order

The President has the power to effect policy in federal agencies through directives and executive orders. According to Lloyd Cutler, former counsel to President Carter and an expert in regulatory agencies, "[T]he president does indeed possess the ultimate constitutional power over the content and timing of regulations issued by executive branch agencies, so long as the action taken is within the agency's statutory activities. As a matter of political theory and policy, the president ought to assert such power
whenever he deems it necessary to make an important balancing choice among conflicting
and competing national goals . . . the President is the elected official most capable
of making the needed balancing decisions as critical regulatory issues arise within his
own executive branch, while the most appropriate and effective role for Congress is
to review and, where necessary, curb particular presidential interventions.\textsuperscript{320}
Classification of information for national security reasons has traditionally been
authorized through executive orders.

Executive Order 12065\textsuperscript{321} signed by President Jimmy Carter attempted to limit
the amount of information that was to be classified.\textsuperscript{322} The trend in policy reflected
the notion that government officials with authority to classify should consider the
public's right to know before imposing secrecy and the decision should be balanced
against "identifiable damage" to national security.\textsuperscript{323} Furthermore, when there was
any doubt as to classification, the lowest level of clearance was to be used.\textsuperscript{324}

On April 2, 1982, President Reagan signed Executive Order 12356\textsuperscript{325} which reversed
the trend to broaden the access of information to the public established in the previous
administration.\textsuperscript{326} In this new classification order, he changed key elements of the
previous order, raising concerns by university researchers.\textsuperscript{327} The preamble of the
order states that the purpose of the order is to "provide for a uniform system for
classifying . . . and safeguarding national security information." The order, as others,
defines three levels of classification: "top secret,"\textsuperscript{328} "secret,"\textsuperscript{329} and "confidential."\textsuperscript{330}
The definitions for "top secret" and "secret" are the same as previous orders. However,
the wording in the definition for the "confidential" category has been changed. The
word "identifiable" in describing the potential damage to national security that would
justify a "confidential" classification was deleted. The section now reads: ""Confidential'
shall be applied to information, the unauthorized disclosure of which reasonably could
be expected to cause [identifiable] damage to the national security."\textsuperscript{331} The deletion
of the adjective "identifiable" was explained at a congressional hearing by a deputy
assistant attorney general: "[T]he requirement of 'identifiable' damage may be construed to suggest that disclosure must cause some specific or precise damage, a requirement that the government might not reasonably be able to meet in some cases."332 The deletion had been termed a "crucial requirement previously established" by the Carter Administration in 1978.333 The charge has been made that the change could "greatly increase government powers to classify research, even in areas not clearly related to national security."334

The Reagan order, in contrast to the Carter order,335 provides that if there is any "reasonable doubt" about the appropriate classification level the doubt should be resolved in favor of classification (pending a final determination) and if there is doubt about the level of classification, the information will be placed in the higher level.336 Richard Stilwell, deputy in the Office of the Under Secretary of Defense for Policy, noted the wording merely requires the upgrading of class in order to "safeguard" the information pending classification or classification at a higher level.337 Nevertheless, the order reversed the trend towards openness and increased secrecy.

Another area in the new order that moves towards more classification is in the provisions regarding the amount of time for information to remain classified. President Nixon's classification orders had a provision for an automatic declassification after 30 years,338 unless the continued classification was considered necessary. President Carter's executive order had allowed for a six-year declassification period.339 The Reagan order allows a classified status at the discretion of government officials "as long as required by national security considerations."340 Upon request for clarification of the declassification time provision, a government representative stated that the date set for guidelines of declassification are "artificially set time limits for automatic declassification."341 The application of the guideline remains vague and seemingly left to the sole discretion of government officials with no notice to the public as to when the right to know vests.
Another change in policy towards secrecy was the provision that even if information had been declassified, it could be reclassified under the Reagan order. Furthermore, although EO 12356 does provide for an exemption for "Basic scientific research information not clearly related to the national security," early drafts of the order had not included this provision (which was contained in the Carter order) and only because of protests from the scientific community was the exemption retained.

The letter from the government representative responding to the concerns of the researchers and trying to reassure them of the good faith of the changes in the Reagan Executive order was followed by some revealing policy considerations. Stilwell commented that "[t]he trend toward openness in government had run virtually uninterrupted for the past thirty years. The New Executive Order seeks to redress this imbalance and provide a more even approach to the issues of protective versus openness." But what the researchers have been saying is that openness is what maintains the foundation of the strong scientific inquiry. Because of reduced federal monies going to universities except for research in national security, the academic researcher is put under pressure to submit to the classification restrictions or forego the resources for research programs and facilities. The concern is that these restrictions, proffered "without any compelling reason for instituting a system of classification that is so at odds with the previous systems," inhibits academic research by silencing open communication with other scientists.


agencies and departments in the Executive Branch. The Directive is essentially a "Nondisclosure Agreement" in which government employees with access to classified information would be compelled as a condition of employment to sign an agreement submitting to a prior review for the rest of their lives of any books and articles they write in order to assure deletion of classified material. Federal officials maintain that the Directive is necessary to protect the national security and to prevent classified information leaks.

Assistant Attorney General Richard K. Willard, author of the plan to strengthen the censorship rules, has cited as the impetus behind the directive the efforts of our "adversaries" to gain information regarding American military capabilities and diplomatic intentions. However, according to the General Accounting Office (GAO), during the last five years classified or Sensitive Compartmented Information (SCI) has been leaked through writings or articles of current or former government employees only twice. The GAO will not disclose whether the information in these instances came from people with official access to SCI, so it is impossible to substantiate whether the disclosures would have been prevented by the prior review process.

Also included was a provision requiring government employees to submit to polygraph examinations as a condition of employment. After protests from various interest groups, this provision was deleted from the final draft. Moreover, pressure from publishers, scholars, Congress, and other interested groups forced the Administration to suspend the directive in February 1984, pending more discussion with Congress, and Congress put a moratorium on the use of the agreement on November 22, 1983. However, a study completed by GAO indicated that the moratorium may not have had a significant impact because at least 120,000 government employees had already signed a lifetime censorship agreement (excluding employees of CIA and NSA), and that many had been asked to sign since early 1981. This disclosure outraged
Congress, which expected to be notified of the implementation of the directive, and it criticized the Administrator's "lack of candor" with Congress and the public.\textsuperscript{362}

Further protests came from House Post Office and Civil Service Committee, which had supported legislation that would stop all existing censorship requirements except for the CIA and National Security Agency employees.\textsuperscript{363} The American Association for the Advancement of Science (AAAS) Committee on Academic Freedom and Tenure wrote a report detailing their concerns with the Directive,\textsuperscript{364} describing it as "repressive."\textsuperscript{365} The report stated that the intimidating character of the Directive interfered with free expression, and would remove from public discussion much information that tested the judgment of our government policies and would discourage academics, many of whom serve the government in different capacities, from entering into government service. The directive was withdrawn in February 1984 because of substantial opposition from Congress and the public.\textsuperscript{366}

3. COCOM

The Coordinating Committee for Export Controls (COCOM) is a membership of nations including Japan and the NATO countries, except Iceland; they met to reach a consensus on what sensitive technologies should not be shipped to other countries.\textsuperscript{367} The countries operate under voluntary agreements and most of the details of its operation are not publicized.\textsuperscript{368} Officially the items that are to be restricted are classified information; however, it is well known that items on the COCOM list are also on the U.S. Commodity Control List (CCL),\textsuperscript{369} which is organized into an atomic energy list, a munitions list, and an industrial/commercial list.

At a January 1982 meeting of COCOM in Ottawa, President Reagan urged the member nations to tighten controls on technological exports to target nations.\textsuperscript{370} These technologies included advanced computers, other electronic technology, fiber optics,
semiconductors and metallurgical processes.\textsuperscript{371} Although many of the suggestions were not acted upon, COCOM did endorse the control of some applications of advanced technologies.\textsuperscript{372}

The effectiveness of COCOM is questionable because of the number of member nations, each having their own national priorities. Attempts to control technology have been difficult to administer and have met with complaints by industry as well as universities. The market for technological goods as well as ideas is international. Without control over the export policies of Western allies, the United States cannot stop the leakage of information to Communist bloc countries. Given formal control mechanisms such as COCOM and treaties, the possibilities of an effective control system is unlikely if other countries do not have the same policy and enforcement procedures. A 1976 Defense Science Board Task Force,\textsuperscript{373} organized to assess the suitability of the export control laws for dual-use technology, found that efforts to control should be focused not on the products of technology but rather on design and manufacturing knowledge.\textsuperscript{374} The Task Force concluded that the U.S. could maintain its lead in critical technologies by denying a license to export technology when it represented a revolutionary rather than an evolutionary advance in technology.\textsuperscript{375} Moreover, when implementing a program broad in scope, it discourages or delays exports to the detriment of business. Many business executives believe that if U.S. companies do not sell to Soviet bloc countries, Western allies will. They argue that the loss of the market is more detrimental to U.S. business than is the loss of technology.\textsuperscript{376}

The American Association for the Advancement of Science (AAAS) Committee on Scientific Freedom and Responsibility is charged with the task of monitoring government policies that restrict the freedom of scientists. The Committee began a newsletter in September 1982 and has sent information to the officers of the AAAS and its affiliated societies documenting instances of such governmental intrusions into the university science community.\textsuperscript{377} Also, the American Association of University Professors'
Committee on Academic Freedom and Tenure has published a series of articles in *Academe* detailing instances in which the policies of the federal government have significantly interfered with academic freedom in the name of national security.\textsuperscript{378} The Corson report and its update have also detailed how "major new policy thrusts" of the federal government have infringed upon the traditional open communication of scientists.\textsuperscript{379}

**American Vacuum Society**

-- Bubble Memory Conference of February 1980 -- The Commerce Department notified the Society that a session was covered by regulation dealing with exports and that "oral exchanges of information in the U.S. with foreign nationals constitutes export of technical data." Organizers and some participants were informed that they would be subject to large fines and prison sentences for failure to comply with export license rules. Subsequently, nine invitations to persons from Hungary, Poland, the USSR and the People's Republic of China were rescinded.\textsuperscript{380}

-- Bubble Memory Conference of December 1981 -- Dr. Gyorgy Zimmer, a Hungarian physicist, was denied a request to participate in this conference following a report that Dr. Zimmer "provided the Soviets the scientific knowledge on magnetic bubble memories gained as a result of his frequent visits to U.S. laboratories." Dr. Zimmer's reply to DOD officials focused on the importance of the "unrestricted exchange of ideas ... in the advancement of scientific progress," and that his research group in Hungary was open to anyone interested and that he had frequently collaborated with United States scientists without complaint.\textsuperscript{381}

-- Annual Meeting, November 3, 1983, Boston, Massachusetts -- Two scholars who had been under investigation for years by the FBI were arrested in the middle of the meeting and charged with espionage. After the arrests, the society was contacted and the FBI requested a list of the attendees and threatened to subpoena
the list if it was not supplied. The society refused to turn the list over without a subpoena, and the FBI did not follow through with the subpoena.\textsuperscript{382}

\textbf{Institute of Electrical \& Electronic Engineers}

\textendash\, \textit{Lasers, Electro-Optical Systems \& Inertial Confinement Fusion Conference}, February 1980 \textendash\ Due to the open display of certain equipment with military potential and due to the official U.S. response to the invasion of Afghanistan, the State Department notified the conference that nine Soviet scientists were to be prohibited from attending. Consequently, their invitations were withdrawn.\textsuperscript{383}

\textendash\, \textit{Electrical AeroSpace Conference}, September 1982 \textendash\ Before the conference an Air Force representative asked that all records, abstracts, and papers be destroyed and presentations cancelled; the request was later withdrawn when the conference chair said he would comply only if the Air Force bore the $25,000-$50,000 cost.\textsuperscript{384}

\textendash\, \textit{Spectrum} publication, October 1982 \textendash\ A manuscript entitled "Out-Numbered and Out-Weaponed by the Soviets: The U.S. Shoots for High Technology" was ordered to be shredded by the Army Chief of Public Affairs because it purportedly contained classified information. When staff editors investigated the charge and found that the information was not classified and was easily accessible, the Army representative explained that "unclassified information can be put together in such a way as to be reclassifiable."\textsuperscript{385}

\textendash\, \textit{International Test Conference}, November 1982 \textendash\ The Air Force Systems Command requested that three papers on very large scale integrated circuits by Texas Instruments engineers be withdrawn because of potential damage to U.S. interests. Although the authors had gone through the usual review process, reviewers did not decide until 5 days before the conference that the papers should not be delivered. After much adverse publicity, the Air Force re-reviewed the papers and approved the conference presentations.\textsuperscript{386}
Fourth International Conference on Perma-Frost, July 1983 -- Six of 24 DOD-sponsored papers were withdrawn due to possible national security implications. The paper topics dealt with maintenance of airfields and roads on permafrost pipeline construction and the performance of off-road vehicles on tundra terrain and were judged helpful to the Soviets in maintaining their airfields in Siberia. Organizers were puzzled about the reasoning because the U.S. holds a dubious or non-existent lead over the Soviets in that subject. The papers involved no classified information and there was no official explanation for the demand.\textsuperscript{387}

1983 National Telesystems Conference, November 1983 -- Five days before the NTS conference, a scientist doing unclassified research sponsored by the Air Force Systems Command Armament Division was requested to delete a three-word phrase ("for example, manpacks") referring to the ability of a receiver to pick up the position of a missile, from 900 copies of a printed paper. The researcher had never signed a contractual agreement with the Air Force for prepublication review, had followed standard procedure for the review of unclassified technical material, and had received approval from local authorities. Nevertheless, the researcher complied with the request and removed the phrase from each copy with a magic marker.\textsuperscript{388}

Society of Photo-Optical Instrumentation Engineers

26th Annual International Technical Symposium, August 1982 -- One hundred technical papers scheduled to be presented were withdrawn at the request of Pentagon officials because they contained information that could not be exported to "America's adversaries."\textsuperscript{389} The Defense Department cited the ITAR as authority for the censorship. Because there were several foreign nationals from Soviet bloc countries, the papers that had been previously authorized by the DOD were later ordered withdrawn.\textsuperscript{390}
Conference on Technology for Space Astrophysics: The Next 30 Years, October 1982 -- Shortly before the conference was to begin, a number of papers were withdrawn as a result of confusion over the extent of possible problems with the Defense Department.  

American Chemical Society

-- Chemical Abstracts publication September 1982 -- The export license to send bibliographic information on magnetic computer tape to the Soviet Union and Poland was not renewed. The reason given was that the license to export magnetic tape technology to those countries was not approved for national security reasons, although the data on the tapes were exportable and had been since 1974. 

Optical Society of America

-- October 1982 -- The Pentagon ordered six scientists to withdraw papers alleged to have "serious defense implications." The papers, on blue-green laser communication, were among 600 scheduled on that topic. Blue-green lasers are used to communicate with submarines. 

American Ceramics Society

-- January 1984 -- 8th Annual Conference on Composite and Advanced Ceramic Materials -- Included with the announcement of this conference was a notice of a second meeting entitled, "A Symposium on Composite Materials," which was sponsored separately by DOD and NASA and restricted to "U.S. citizens only." The fact that the two sessions were to be held in the same hotel rooms led to allegations by a Japanese newspaper that the U.S. was in the process of restricting Japanese access to certain "high technology information," by invoking export control regulations to bar Japanese membership in "academic societies concerning composite materials technology," and to deny access to research papers. The former allegation proved to be false, and the latter is still under investigation.
IV. FIRST AMENDMENT v. NATIONAL SECURITY

The First Amendment safeguards scientific speech or any other protected expression against unreasonable government restraints. The purpose of the First Amendment is to ensure "the widest possible dissemination of information from diverse and agnostic sources" and the "unfettered interchange of ideas." Any statute imposing restrictions or criminal sanctions on protected expression will be upheld only if the government can demonstrate a "compelling" interest in the regulation. The strength of the state interest will be judged by the gravity of the substantive "evil" that the state is seeking to avert, and the likelihood of its occurrence. Under this standard, the "likelihood of occurrence" will decrease as the gravity of the potential danger increases. If the state can demonstrate that the combination of factors provides a "compelling" interest in the regulation, the state must then show that the regulation is the least restrictive alternative to the restraints. Also, the state can be required to show that the regulation is neither impermissibly vague nor overly broad. The state carries even a heavier burden if it seeks prior restraints on a publication. The degree of protection is broader than limits on expression imposed through criminal penalties. The Supreme Court has consistently held that prior restraints on expression are presumptively unconstitutional.
While there has not been a Supreme Court case where the government has restrained for national security protection the speech or publication of unclassified information of a university scientist, there have been cases that have balanced national security interests against First Amendment protection. Their holdings and reasoning demonstrate the spectrum of permissible restraints on speech and information dissemination and by whom. The earlier cases involved loyalty oaths and the later cases have involved the publication of "security sensitive" materials.

In the 1950s and 1960s, the Supreme Court heard a series of "loyalty oath" cases that shaped the limits of allowable state loyalty oath requirements for state employees. Generally, the objective of requiring the loyalty oaths was to protect the government from subversive persons. That objective, however, had to be balanced against the constitutional rights of the individuals required to take the oath. In 1952, *Wieman v. Updegraff* held unconstitutional an Oklahoma statute requiring state officials and employees, as a condition of employment, to take a loyalty oath disavowing membership in any organizations listed by the United States Attorney General as a "communist front" or subversive organization. The oath violated due process rights of individuals because their mere association with certain organizations was considered sufficient to disqualify them from government employment regardless of their level of knowing participation in those organizations. New Hampshire enacted a statute in 1951 that allowed the legislature to regulate and investigate subversive activities. Persons found to be subversive were ineligible for state government employment. The statute was challenged in *Sweezy v. New Hampshire* where the court warned that the exercise of power be "carefully circumscribed" so as not to threaten the "freedom of communication of ideas, particularly in the academic community." The court held the legislative investigation inquiring about the content of the university professor's lecture was "unquestionably . . . an invasion of [Sweezy's] liberties in the area of academic freedom and political expression -- areas in which government should be
The court reasoned that the oaths violated the due process clause of the Fourteenth Amendment. Baggett v. Bullitt, heard by the court in 1964, involved faculty and staff at the University of Washington who refused to sign a loyalty oath as a condition of employment. The Supreme Court held that the statutes requiring the oaths were unduly vague and violated due process. The court reasoned that the employees would not have been able to make a promise of future conduct when the parameters of the future conduct were unclear. Justice White posed a series of questions regarding the possible implications swearing loyalty under a vague oath:

But what is it that the Washington professor must "know"? Must he know that his aid or teaching will be used by another and that the person aided has the requisite guilty intent or is it sufficient that he know that his aid or teaching would or might be useful to others in the commission of acts intended to overthrow the Government? Is it subversive activity, for example, to attend and participate in international conventions of mathematicians and exchange views with scholars from Communist countries? What about the editor of a scholarly journal who analyzes and criticizes the manuscripts of Communist scholars submitted for publication? Is selecting outstanding scholars from Communist countries as visiting professors and advising, teaching, or consulting with them at the University of Washington a subversive activity if such scholars are known to be Communists, or regardless of their affiliations, regularly teach students who are members of the Communist Party, which by statutory definition is subversive and dedicated to the overthrow of the Government?

The Washington oath goes beyond overthrow or alteration by force or violence. It extends to alteration by "revolution" which, unless wholly redundant and its ordinary meaning distorted, includes any rapid or
fundamental change. Would, therefore, any organization or any person supporting, advocating or teaching peaceful but far-reaching constitutional amendments be engaged in subversive activity? Could one support the repeal of the Twenty-second Amendment or participation by this country in a world government?413

Since a vague oath can be interpreted in several ways, the oath-taker is subject to prosecutorial discretion for what may be "knowing but guiltless behavior."414 "Well-intentioned prosecutors and judicial safeguards do not neutralize the vice of a vague law."415 Similarly, scientists whose work is subject to the review by people in agencies whose role and loyalty and inclination is to be zealous in their protection of any possibly "Communist influence" or national security leak would function like a prosecutor who was given the discretion to prosecute a researcher, thus exposing the researcher to censorship without adequate due process safeguards.

In the last case to be discussed, Keyishian v. Board of Regents,416 faculty and staff members of a New York university refused to sign a loyalty oath as a condition of employment. The court held the New York law protecting the educational system from subversion was legitimate but it could not be pursued by a means that was constitutionally broad and vague.417 Justice Brennan emphasized the importance of education in our society:

Our nation is deeply committed to safeguarding academic freedom, which is of transcendent value to all of us and not merely to teachers concerned. That freedom is therefore a special concern of the First Amendment, which does not tolerate laws that cast a pall of orthodoxy over the classrooms.418

The series of cases shows an effort by the states to protect the security of the state from subversives. When the restraining efforts infringed on that "special concern of the First Amendment -- academic freedom,"419 the court has consistently tipped the
balance between national security and academic freedom in favor of First Amendment interests.

Congress has also attempted to require loyalty oaths of scientists conducting unclassified research with federal grants. Congress put pressure on the National Science Foundation (NSF) and the National Institutes of Health (NIH) to adopt policies requiring loyalty oaths in order to receive grant money. NIH wrote procedures requiring an oath, but never implemented them. The National Science Board at NSF rejected the suggestion from Congress and maintained that approval of grant money should be based on "experience, competence, and integrity" of the applicant. The matter was then referred to the National Academy of Sciences (NAS). The NAS committee also rejected the loyalty oath requirement for persons conducting unclassified research.

Loyalty oaths were meant to curtail or inhibit the communication between the government employee and any "subversive" organization. In each case mentioned, the court acknowledged the legitimate governmental goal of protecting national security. However, when this goal was balanced against First Amendment rights, the oaths could only be upheld if they were not vague or overly broad and if they allowed for adequate procedural due process. The cases have focused particular concern on the academic community and protecting the traditionally free exchange of ideas.

In the three most recent cases the court balanced First Amendment and national security interests; however, none of the cases developed a clear standard of review for future litigants to follow. In New York Times Co. v. United States, the court held that the government could not prevent the publication of the Pentagon Papers, a classified history of the Vietnam War, by invoking the need to protect the national security. In Snepp v. United States, a former Central Intelligence Agent had signed an agreement to submit any publication relating to the Agency for prior approval. The court held that the government had a right to protect unclassified information through
restraints on its employees even without an explicit contractual agreement. The test for the restriction was that of "reasonableness." In the third case, United States v. Progressive,\(^ {429}\) the government was allowed to restrain the publication of an article of privately gathered, nonclassified material about how the hydrogen bomb is constructed which was written in order to carry on an informed debate of the issue of government secrecy of atomic weapons.

A. New York Times v. United States

The New York Times began a series of articles on the history of the Vietnam conflict, based on government documents received by them that were classified as secret, top secret, and top secret-sensitive.\(^ {430}\) The documents chronicled the three decades of involvement of the United States in Vietnam. The government charged that publication of the information would create a national security risk and moved to enjoin further publication. The Supreme Court in a per curiam decision voted 6 to 3 to hold that the government did not carry its burden of proving justification for prior restraint of publication for national security reasons. Each Justice wrote a separate opinion detailing his reasoning. Justice Black, in his concurring opinion, emphasized that the purpose of the First Amendment was to curtail and restrict the powers granted to the Executive, Legislative, and Judicial Branches of the government.\(^ {431}\) Justice Black wrote that the term national security is a "broad, vague generality whose contours should not be invoked to abrogate the . . . First Amendment."\(^ {432}\) Justice Douglas, in his concurrence stated that there was no statutory authority to justify the prior restraint,\(^ {433}\) and the Executive Branch had no "inherent power" to sustain the heavy burden against prior restraint.\(^ {434}\) Even acknowledging that the disclosure "may have a serious impact,"\(^ {435}\) he noted that the First Amendment was to prohibit governmental censorship of embarrassing information. Justice Brennan wrote that prior restraint
should be allowed only in a single, extremely narrow class of cases when the nation is at war. For example, the government could prohibit the publication of the "sailing dates of transports or the number and location of troops." Otherwise the government would have to prove that the publication "must inevitably, directly, and immediately cause the occurrence of an event..." The Government maintained in its brief that an injunction could be obtained for national security reasons only if the government could prove "grave and irreparable harm" would result if the publication was not enjoined. They did, however, also maintain that if they sustained that burden, the injunction could apply to material whether or not it is classified, whether or not the publication would violate a criminal statute, and notwithstanding how the newspaper came into possession of the information. The court was unconvinced of these arguments and held that the Executive Branch did not have such inherent, sweeping powers and the government had not met its burden of proof.

A corollary issue of the case was the classification system itself and the secrecy system of the government. Justice Stewart wrote of his concern with the classification system.

For when everything is classified, then nothing is classified, and the system becomes one to be disregarded by the cynical or the careless, and to be manipulated by those intent on self-protection or self-promotion. I should suppose ... that the hallmark of a truly effective internal security system would be the maximum possible disclosure, recognizing that secrecy can best be preserved only when credibility is truly maintained.

The New York Times case is at one end of the spectrum of case law that balances First Amendment free expression interests against the governmental interests of national security. In the decision, the court stated the government had not met its burden of proof. Factors bearing on the decision were that the documents were mainly historical, many people had access to the documents and other newspapers throughout the country
had already begun to publish their own version of the documents.\textsuperscript{440} Unfortunately, although strong, precise reasons were set forth in each of the concurring opinions, they do not carry the weight of precedent and the test for justification of prior restraint was left unresolved.

B. Snepp v. United States

Based on his experiences as a CIA agent, Frank W. Snepp III published a book, Decent Interval, about certain CIA activities in South Vietnam. Snepp had as a condition of employment signed an agreement that he would submit all publications relating to the CIA for prior approval by the Agency and that he would not divulge any classified information. The Government did not contend that the information in the book was classified or nonpublic; it also conceded that as a general rule, Snepp had a First Amendment right to publish unclassified material.\textsuperscript{441} Yet both the District Court\textsuperscript{442} and the Court of Appeals\textsuperscript{443} found that Snepp's breach of contract for prepublishing clearance had inflicted "irreparable harm" on the United States. The case was appealed to the Supreme Court\textsuperscript{444} where the court upheld the lower court's decision and granted the government a constructive trust over the profits of Snepp's book as a measure of punitive damages and as a "deterrent against similar breaches of security."\textsuperscript{445} The appearance of confidentiality was stressed in testimony presented by Admiral Turner, Director of the CIA. He suggested that Snepp's book and others like it had impaired American intelligence operations\textsuperscript{446} because potential sources of information were reluctant to enter agreements with the United States for fear that the information might be exposed.\textsuperscript{447} Yet even if Snepp had submitted the book for prepublishing review, the Government's censorship authority would only apply to the classified material.\textsuperscript{448} The purpose of the agreement could not be to censor critical expression of the CIA, but rather to ensure that classified nonpublic information would not be
released without permission. Therefore, presumably if the book had been submitted for prior review it would have remained as it was because no classified or nonpublic information was contained in the book.

Snepp clearly had a contractual obligation to submit publications for prior review for classified material stemming from his employment as a government agent. Both lower courts acknowledged (and the Supreme court accepted their findings) that the potential possibility of unreviewed material could be detrimental to "vital national interests even if the published information is unclassified." However, a specific standard for what constitutes irreparable damage to national security interests because of leaks of classified material is not clearly set forth.

C. United States v. Progressive

In 1979 a federal court heard the case United States v. Progressive. The basic issue of the case was a confrontation between First Amendment right of expression and national security interests. The freedom of speech and press have been protected from government through the First Amendment and any prior restraint on a publication is met in court with a heavy presumption of unconstitutionality. Few justifications except national security are sufficient to override First Amendment interests. Accordingly, the government can classify sensitive information in order to protect national security. At issue in the case is the scope of the classification. The government ultimately obtained a preliminary injunction enjoining the publishers of the Progressive from disseminating an article entitled "The H-Bomb Secret: How We Got It, Why We're Telling It." John Morland, a journalist with little scientific training, put together the material for the article out of public, nonclassified information. Erwin Knoll, the editor of The Progressive, stated that the article was to inform the nation of the false illusion of security created by the Government's "oppressive and ineffective
system of secrecy and classification and to encourage an "open, honest, and informed public debate" on issues surrounding nuclear arms. The defendants maintained that since the information was already in the public domain and other nations already had the data or the opportunity to obtain it, they could not be guilty of violating the Atomic Energy Act which would authorize injunctive relief against those who would disclose restricted data "with reason to believe such data will be utilized to injure the United States or to secure an advantage to any foreign nation." The government, on the other hand, pleaded national security interests permitted it to "impress classification and censorship upon information originating in the public domain, if when drawn together, synthesized and collated, such information acquires the character of presenting immediate, direct, and irreparable harm to the interests of the United States." Both sides produced the opinion of experts to bolster their case prompting the court to note that "many wise, intelligent patriotic individuals can hold diametrically opposite opinions on the issues before us."461

The court held that the publication of the technical material in the Morland article would be analogous to the publication of troop movements or location at the time of war, the narrow exception to the rule allowing prior restraint on the press. At the same time, Judge Warren recognized that the article did not provide a "do-it-yourself" bomb kit. He also stated that he was not convinced that the prior restraints on the publication would deter the defendants from reaching their objectives of stimulating knowledge and debate regarding nuclear armaments. Finally, he distinguished the New York Times case in that 1) the Pentagon papers were essentially historical data, 2) the government did not sustain its burden of proving the national security interests were at stake, and 3) there was no applicable statute violated.

The government obtained the preliminary injunction but the case was mooted when essentially the same material appeared in other journals. The Progressive did not publish Morland's article and lost the opportunity to challenge the lower court's decision.
The public was left with a decision that allowed for no prior notice of when a private individual gathering public, nonclassified information would be subject to criminal penalties upon publication of that material. This uncertainty could lead to self-censorship out of fear of an expensive, lengthy legal battle and criminal sanctions.

V. CONCLUSIONS

The reason the state seeks to impose restrictions on scientific communication is that it may be subject to dangerous or unwanted uses and therefore harmful to national security interests. Protecting the national security is a legitimate government interest and as a general rule the Supreme Court has acknowledged that the security of the Nation is one of the few narrow exceptions to prior restraint of the press. However, in the recent examples of the use of legislative and executive control systems the researchers have had no due process or notice of when or why their work may be subject to censorship and civil or criminal penalties. Case law on prior restraints for national security reasons -- *New York Times v. United States*, *Snepp v. United States* and *United States v. The Progressive* -- does not give a clear standard that allows researchers to know what might be subject to restraints.

The federal government has invoked the export laws as applicable authority for imposing prior restraints on university scientists' speech and publications despite language in both export laws exempting information in the public domain and university researchers from the intent of the statutes. Since the export laws are vague and dual-use of technology is widespread, a researcher does not have adequate notice of possible exposure to government sanctions. Different government agencies administer the legislative restraints, each setting forth their own standards for classification of information. The "prosecutorial discretion" and the vagueness of the export laws give government too much control over ideas that are not classified and do not have any government
proprietary interest. The intelligence agencies say the laws are applicable but the Justice Department has questioned the constitutionality of the export laws as prior restraints on university researchers. The Atomic Energy Act also has specific language encouraging the dissemination of information on nuclear energy. Yet the government was successful in restraining information which was unclassified, in which it had no proprietary interest, and which was in the public domain. It has been clearly established that Immigration and Nationality Service officials have the discretion to prevent foreign scientists and students from entering the United States or to place restrictions on their stay.471 University officials do not object to the restrictions per se but to the expectation by INA that university personnel will police the visitors. In settings as traditionally open as universities, the expectation is galling472 and administratively cumbersome especially because of the large number of foreign graduate students studying in science and engineering and the large number of foreign scientists who visit. Furthermore, since these restrictions are usually only applied to those from Soviet bloc countries or the People's Republic of China, other foreign visitors have access to this guarded information and disseminate it after their return to their country. COCOM was organized in order to effect an international control system on military goods and technology; however, the organization is loosely governed and compliance with any guideline is voluntary.

The Executive Branch has expanded the classification system through Executive Order 12356,473 which allows the government "to classify federally funded research even when the funding agency has no classification authority."474 The Order also allows classification of nongovernment research and writing even when it is based on nonclassified information.475 University scientists who may be potential government employees are discouraged from serving in a government agency by a contract of employment through National Security Directive No. 84 that would impose life censorship procedures on their writings or speeches after they leave the government service. This
contract restriction in combination with the new classification system expands the power of government to control the dissemination of information which would restrict the exploration of science as an activity based on the free exchange of ideas.476

What is the danger? Government officials have rationalized that that information itself is classified and cannot be released.477 The Corson panel members, who were briefed at the highest classification level by national security agents, were not convinced of any evidence of significant leaks from the research community. The evidence for the government's case against university researchers remains inadequate. Even if the government could offer some evidence of serious leaks from the university community, how could the various agencies in their overlapping duties control thoughts or ideas? Are there enough agents in enough agencies to police all the classrooms, research labs and conferences, and who have enough expertise in the various subject areas to make judgment on what is a national security interest? And while our scientists are being policed, the scientists in the rest of the world are free to pursue avenues of information and exchange ideas amongst each other. What would we have gained?

The strength and lifeblood is in scientific community is open, free communication. Censoring that community would impede our own scientific progress. Unless the government can proffer some convincing evidence, scientists and university officials will not cooperate. The federal government must reexamine its motives in the policy of restraints and understand that university researchers are unlikely to cooperate in censorship of their work. Even if they might not want to get involved in a battle against the government on policy, they must fight because they must publish and speak in order to function at their best within the scientific community. Scientific advancement by achievement and not secrecy must be the path for the United States to follow.
Notes


3. Id.

4. See infra notes 29-30 and accompanying text.


6. Ferguson, supra note 5, at 535.


8. Id.

9. Id.

10. Id.

11. NAS Report, supra note 7, at 130 (Table 3).

12. NAS Report, supra note 7, at 64.

13. NAS Report, supra note 7, at 117. Some of the projects turned into major laboratories such as: Applied Physics Laboratory at John Hopkins University; Center for Rocket Research at California Institute of Technology; Radiation Laboratory at M.I.T.; Radar Counter-measures Laboratory at Harvard University.

14. Id.

15. NAS Report, supra note 7, at 118.

16. Id.

17. Id.

18. Id.

19. Id.

20. Id.

21. Id. at 97.

22. Id. at 98.


25. Cheh, supra note 22, at 167 n. 19.

26. Id. at 167.

27. Id.

28. Id. at 168.


32. Id.


36. NAS Report, supra note 7, at 99.

37. The Sputnik was a series of Russian spaceships that were launched during the late 1950s and early 1960s. Russians Plan More Sputniks, Aviation Week, Aug. 29, 1960 at 28.

38. NAS Report, supra note 7, at 100.


40. Lubrano, supra note 1, at 455.

41. Id.

42. NAS Report, supra note 7, at 101.

43. Id.

44. Lubrano, supra note 1, at 456. Seven objectives for the exchange were listed in a report prepared for the National Academy by a review panel under the
chairmanship of Carl Kaysen in 1977. These were: (1) building world science, (2) building US science, (3) keeping abreast of Soviet science, (4) fostering the international scientific community, (5) fostering the solution of global problems, (6) using scientific and technological interchange to reduce political tensions, and (7) promoting commerce and trade related to scientific research and technology. Over 350 American scientists had participated in the Academy’s programme between 1959 and 1977. All of the exchanges contacted by the Kaysen panel (N=275) felt that they had been very successful in achieving the fourth, third, and sixth objectives, while also obtaining results in the promotion of US and world science. Carl Kaysen, Chairman, Review of US-USSR Interacademy Exchanges and Relations (Washington, DC: National Academy of Sciences, 1977).

45. Lubrano, supra note 1, at 455.
46. Id.
47. Id.
48. NAS Report, supra note 7, at 101; see also Lubrano, supra note 1, at 457.
50. NAS Report, supra note 7, at 101.
52. NAS Report, supra note 7, at 101.
53. Id.
54. Lubrano, supra note 1, at 466.
55. Id.
56. Id.
57. In May 1976, Orlov had formed a group to monitor Soviet compliance with the Helsinki Accords. It was in connection with these activities that he was arrested and later sentenced to 7 years imprisonment and five years of internal exile. Shcharansky was accused of spying but most of the evidence brought against him at his trial concerned his activism in the Jewish Community. He was sentenced to three years of imprisonment and 10 years in labor camp. Lubrano, supra note 1, at 462.
58. Lubrano, supra note 1, at 460.
59. The National Academy of Sciences' Committee on Human Rights issued a statement August 1978: "Those who decided to cancel or postpone their trips or to confront their Soviet hosts have done so with great reluctance. They include scientists who pioneered in the earliest Soviet/US exchanges, seeking to build bridges of common scientific endeavor across the chasm of the Cold War. They also include others who have seen themselves as steadfast in resisting the politicalization of science." NAS, News Report (Oct. 1978) 5.

60. Andrei Sakharov, a Soviet physicist, was elected as a foreign member of the National Academy of Sciences. In 1980 he was arrested for openly criticizing the Soviet actions in Afghanistan. Lubrano, supra note 1, at 454, 461.

61. Lubrano, supra note 1, at 461.

62. Id. at 466.


64. Lubrano, supra note 1, at 467.


66. In Spring of 1982 discussions between representatives of the National Research Council and the Department of Defense led to the establishment of an ad hoc panel of the Committee on Science Engineering and Public Policy, chaired by Dale Corson. The panel included scientists, former defense and national security officials, and research administrators in industry and universities. The task of the panel was to examine evidence of technological leaks and methods of controlling them which would accommodate both national security interests and academic freedom. The report, Scientific Communication and National Security (National Academy Press, Washington, DC, 1982), more commonly known as the Corson report was released September 30, 1982, with a follow-up report 18 months later.

67. NAS Report, supra note 7, at 99.

68. 224 Sci. 461 (May 1984).

69. Id. at 17-18.

70. Id. at 19.

71. Id. at 20-21. See also Scientific Exchanges and U.N. National Security, Science, Jan 8, 1982, at 139. Frank Carlucci, Deputy Secretary of the Department of Defense criticizes US/USSR scientific exchanges because they "enhance Soviet
military power." Id. at 139. Mr. William Cary, Executive Officer and Publisher
of Science replies to Carlucci and both letters are printed in Science. Id.
72. NAS Report, supra note 7, at 101.
73. Id.
74. Wallerstein, Michael B., "Scientific Communication and National Security in
75. Id. NAS Report, supra note 7, at 49.
76. See infra page and notes on how scientists work.
77. See generally, Nat'l. Acad. of Sci., Com on Sci., Eng'g., and Pub. Pol'y, Working
Papers of the Panel on Scientific Communication and National Security 38-41
78. Working Papers, supra note 77, at 45.
79. Working Papers, supra note 77, at 45. See generally Working Papers, supra
note 77, at 38-50.
82. Id.
83. AAAS 22 Jan. '82 p. 383.
84. Id.
85. Id.
86. Id.
89. Id. SS 1182 SS 212(27).
(hereinafter cited as ITAR).
92. Id. SS 121.19.
93. Id. SS 125.03.
95. 22 C.F.R. SS 125.01 (1982).
96. Id. at (b)n.1.
97. Zonderman, supra note 2, at 125; see also, e.g., George Dummer, director of
the Office of Sponsored Programs at MIT characterized both ITAR and EAR as
"the most bewildering set of regulations I've ever had to deal with." 212 Science
523 (May 1, 1981).
98. Id.
99. ITAR, 22 C.F.R. SS 125.11(1).
100. ITAR, 22 C.F.R. SS 125.03(b).
102. Wallerstein, supra note 74 (chart attached).
104. Id. See also, ITAR, supra note 30, at 121.19.
105. Sullivan & Bader, supra note 103.
106. Id. Harmon, Memorandum to Dr. Frank Press, Constitutionality under the First Amendment of ITAR Restriction on Public Cryptograph (May 11, 1978) [hereinafter "Harmon Memo"]
108. Id, quoting Harmon Memo at 9; see also Erzonick v. City of Jacksonville, 422 U.S. 205 (1975).
109. Id, quoting from Harmon Memo at 10.
110. Id. Before prior restraint on expression becomes final it must be subject to judicial review. The government has the burden of proof.
111. Unconstitutionally vague means persons of ordinary intelligence would not know if they were violating the law. Connally v. General Construction Co., 269 U.S. 385.
112. Legislation must be narrowly tailored to meet a specific government objective, if it is not and as a result impinges on a constitutionally protected right, it will be found to be overboard. See Broderick v. Oklahoma, 413 U.S. 601 (1973).
113. United States v. Edler, 579 F.2d 516 (9th Cir. 1978). See also U.S. v. Swartoski, 592 F.2d. 131 (2nd Air. USC App 1979) (held the export regulation under the Mutual Security Act was not unconstitutionally vague).
114. United States v. Edler, 579 F.2d 516, 520 (9th Cir. 1978).
115. Id. at 521.
116. See notes 1 & 2 on p. 17G.
117. See n. 130.
118. Id. at 522.
120. Id. at 21. An example of these letters follows:
Dear Sir or Madam:
The Chinese scholar(s) at your institution is (are) part of an official US-China exchange program which has sponsored more than 2,000 Chinese scholars and students to study in the United States to date. . . . The majority of these officially sponsored Chinese scholars are pursuing studies to acquire scientific or technical expertise urgently needed by China to achieve its modernization goals. The United States fully supports this effort. However, the United States Government is concerned that none of these programs involve the transfer of technical data which is considered critical on export control or national security grounds. U.S. law and regulations require that the Department of State, together with the relevant U.S. agencies, examine in detail those programs which may involve the transfer of such technical data . . . To be responsive to these concerns, the Department of State requests that you complete the enclosed questionnaire for the scholar(s) named above:
(Selected questions from Questionnaire)
What is scholar or student's full name?
How long will this scholar or student be at your institution?
What professional trips might this student or scholar be taking?
What major subject areas will be involved in the scholar or student's program? . . . (include information such as research problems and specific experiments).
How will this program be conducted? For example, will the scholar do individual research or joint laboratory research? What research methods and procedures, instruments . . . or specialized equipment may be used during the course of the study program? Will student have access to specialized library collections? Specialized laboratory facilities? Do the procedures or results of the scholar's research program have applications to the production or processing of advanced materials? If so, how? Do the procedures or results have application to the design, development, manufacture, or reconstruction of any specific end item . . .? How? Do you [the host professor] or your institution have any contacts with industry or government organizations? If so, please list them and indicate whether the foreign visitor will have any access to contract activities.
Nelkin, supra note 162, at 116-17.

122. Id.
123. Id.
127. 50 U.S.C. SS 2402(2)(A), (B), (C) (Supp. IV 1980).
128. 15 C.F.R. SS 2405(a), (b), (c).
129. 15 C.F.R. SS 379.1(a) (1982).
130. Id. SS 379.1(b)(1)(i), (ii), (iii).
131. Id. SS 379.1(b)(2)(i), (ii), (iii).
132. Id. SS 379.3
133. Id. SS 379.3(a)(1).
134. Id. SS 379.3(b)(1), (2).
135. Sullivan & Bader, supra note 103, at 460.
137. Greenberg, Science's New Cold War, Science News, Apr. 2, 1983, at 218. Purportedly, in the inquiry room, DOD officials asked scientists: 1) If their work was sponsored by a DOD agency? 2) If so, had they secured a clearance?
138. Sullivan & Bader, supra note 103, at 52. See also Kolata, supra note 136, at 1233. Furthermore, according to Wollerslak, executive directive of SPIE, 36 papers that DOD blocked at the SPIE conference were later approved for inclusion in the printed proceedings. Greenberg, supra note 137, at 220.
139. Kolata, supra note 136, at 1234.
140. Id.
141. Id.
142. Id.
143. Greenberg, supra note 137, at 218.
144. Kolata, supra note 136, at 1233.
145. Greenberg, supra note 137, at 218.
146. Kolata, supra note 136, at 1234.
147. Id.
148. Id.
149. Id.
150. Greenberg, supra note 137, at 220.
152. See infra note 380 & accompanying text.
153. Id.
154. A Senate Intelligence Committee cleared NAS of the charge that it was behind the letter. Kahn, Cryptology Goes Public, 58 Foreign Aff., 141, 156 (1979-80).
155. Id. See also, Kahn, The Public's Secrets, 44 Progressive 30 (Nov. 1980). ITAR, supra note 34, SS 121.01. Category XIII(b) includes: "Speech scramblers, privacy devices, cryptographic devices . . . and specifically designed components therefore, [and] ancillary equipment . . ." Id.
156. Id.
157. Id.
160. Inman broke the traditional rule of silence that has typified the intelligence community. The initials of NSA are often said to stand for "Never Say Anything." Kahn, supra note 158, at 30.
163. Id. at 707.
164. Id., U.S. Munitions List, supra note 30.
165. Id.
166. Id.
167. Nelkin, supra note 162, at 81.
169. Id.
171. Nelkin, supra note 162.
172. McDonald, K., Three Universities Warn Pentagon on Censorship, XXVIII Chron. Higher Ed. 1, 18 (4-4-84).
173. Id. at 18.
174. Id.
175. Id. at 18.
176. Id. at 17.
177. Edith W. Martin, Pentagon Deputy Under-Secretary for Research and Advanced Technology and Co-chair of the DOD-University panel examining the effect of export control laws on academic scientists. Id.

178. Id.

179. See supra notes 23-28 and accompanying text.


182. Id. SS 2161(b).


184. Id. SS 2014(i).

185. Id. SS 2014(x).

186. See, e.g., Cheh, supra note 23, at 170 n. 48:

48. Testifying before the Joint Committee on Atomic Energy on the sweeping secrecy provisions of the Atomic Energy Act, atomic scientist and teacher, Dr. Enrico Fermi, stated:

"But this secrecy acts as a tremendous brake on progress. If I may give you an example: I am teaching a course in nuclear physics at the University of Chicago, and I would have liked to give my students certain background to the work in atomic energy.

"I have a fair notion of what is classified and what is not classified, but still the feeling that I would have had to weigh my words very carefully--I could have been asked embarrassing questions, and I would have been faced with the choice of either telling a student in the open classroom. 'I am sorry, my boy, but this is something that I am not allowed to answer.' And just this uneasiness drove me to stay off the subject. . . .

"Perhaps the belief is that in basic science much more is kept under wraps than actually is. But just the feeling of this blank wall--the fact that nobody knows exactly where the wall begins, how far one can go without overstepping the limits--acts as an extremely serious psychological block against what would be a very natural and very appropriate field for free investigation."

Hearings Before the Joint Comm. on Atomic Energy Pt. 21, 81st Cong., 1st Sess. 371 (1949) (testimony of Dr. Enrico Fermi).

187. Cheh, supra note 23, at 171 n. 49.

188. 42 U.S.C. SS 2165(b) (1976).

189. Id. SS 2277 and SS 2201(i).

190. Id. SS 2162(b). See also Cheh, supra note 23, at 172 n. 59.
191. Id. SS 2201(i).
192. Id. SS 2165(g).
193. Id. SS 2162(a).
194. Cheh, supra note 23, at 173. See also infra pp. 38-39 and notes 328-344.
195. Cheh, supra note 23, at 176. "Dr. Bethe's position in the Scientific American incident is somewhat ironic considering that he filed an affidavit on behalf of the government in the Progressive case." Id., n. 83.
196. Cheh, supra note 23, at 176.
197. Id.
198. Id.
200. Cheh, supra note 23, at 177, n. 91:

"91. Presumably the government had no notice that the article was about to be published.

This problem of notice underscores one of the absurdities of applying information controls to privately developed information. The government can only prevent publication of information that it somehow learns will be published. Short of applying an unprecedented and unconstitutional screening of publications, the government can reach only those bits of information that the prospective publisher purposefully or inadvertently calls to its intention."
201. Cheh, supra note 23, at 177, n. 92.
202. Id., n. 93.
203. 467 F. Supp. 990, 1000 (W.D. Wis. 1979).
204. Id. at 993.
205. Id.
206. See Cheh, supra note 23, at 209.
209. Id. at 173. See also "Passport Denied," 3 Stan. L. Rev. 312, 322 (1951).
210. "Passport Denied," supra note 209, at 322. See also infra note 245 and accompanying text.
212. Id. at 174.
213. Id.
214. Id. at 175.
215. Manhattan Project was the name given to the United States atomic bomb development project. It began in 1942, enlisted the aid of scientists worldwide, employed 150,000 people, cost approximately $2 billion, and ultimately led to the discovery, construction, and detonation of an atomic bomb in 1945. Cheh, supra note 23, at 167, n. 23.

216. Cheh, supra note 23, at 175, n. 32.


220. Id.


223. Id. at 511.

224. Id. at 509.

225. Id. at 511, n. 10.

226. Id. at 514.

227. Id.

228. Id. at 517.

229. Id.

230. Haig, supra note 218, at 283.

231. Id., n. 3. In order to identify CIA agents in countries where they were operating, Agee went to a target country and recruited collaborators and trained them to expose the "cover" of CIA employees and sources. Id. Agee also published two books in which he identified hundreds of persons as CIA personnel, on a country-by-country basis, and gave biographical information on them. Id. fn. 3. Furthermore, as a condition of employment, Agee had signed an agreement not to publish or participate in the publication of any material relating to the CIA during or after his term of employment without specific approval from the Agency. See also infra p. 55, the language in the clause was identical to the clause constructed in Snepp v. United States, 444 U.S. 507 (1980).

232. Id. at 286. The provision relied upon by the Secretary of State, 22 C.F.R. SS 51.70(b)(4).


236. Agee v. Muskie, 629 F.2d 80 (DC Cir. 1980).
237. Haig, supra note 218.
238. Travel Central Proclamation 1918 of May 22, 1918, ch. 81, SS 1-2, 40 Stat. 559.
239. Haig, supra note 218, at 298.
240. Id. at 305.
241. Id. at 306.
242. Id. at 283, n. 4.
244. Haig, supra note 218, at 306. Id. at 310. The Secretary of State revoked Agee's passport and gave him notice of his right to a hearing and offered to hold it in West Germany where he was living. Upon cancellation of Agee's passport, the Secretary of State provided him with identification papers permitting him to return to the United States. Id. at 287, n. 16.
245. Id. at 277.
246. 283 U.S. 697, 716 (1931).
248. Id. at 277, n. 7. See examples of the danger to lives of United States officials abroad by the disclosures in Agee's books and speeches.
250. e.g., 8 U.S.C. SS 1182(a)(1) deals with aliens who are mentally retarded, (5) deals with aliens who are narcotic drug addicts or chronic alcoholics, and (6) deals with aliens who are afflicted with any dangerous contagious disease.
251. Id. at (a)(9). This section deals with crimes of moral turpitude.
252. Id. at (a)(27).
253. Id. at (a)(28).
254. Passport Refusals, supra note 211, see generally procedural issues, pp. 198-201.
255. NAS Report, supra note 7, at 37.
256. Kleindeinst v. Mandel, 408 U.S. 753 (1972). A visa was denied to a Belgian journalist who had been invited to participate in an academic conference.
257. Id. at 760.
258. Id. at 765.
261. William Schneider, Jr., Under-Secretary of State for security assistance, science, and technology and chair of the Reagan Administration's senior interagency group on technology transfer. Aviation Wk & Tech, 5-16-83, at 21.


263. Munitions List, 22 C.F.R. SS 121.01 (1982), which is part of the ITAR, 22 C.F.R. SS 121.01-130.33 (1982).


266. Commodity Control List, supra note 124 at section 2403(b); Munitions List, supra note 94 at section 121.01; Atomic Energy Act, supra notes 183-185; National Security Classification System infra note 265.

267. Peterson, supra note 260.

268. Id.


270. Id. at A15.

271. Id.

272. Abrams, supra note 119, at 27.

273. Greenberg, supra note 137.

274. Id.

275. Id.

276. Id.


278. See generally, NYT Mag 9-25-83, p. 26, 27, 28; NYT 11-27-81 A1, col. 3; Nelkin, pp. 78-79; 121 Sci News 229 (4-3-82); Peterson, I. Hearing considers impact of secrecy proposals on science; R. Reinhold, Administration Trying to Reconcile Scientific and Security Interests, NYT (2-1-82); Peterson, I., Denying Visas to Stop Technology Export, 123 Sci. News 310.

279. Kim McDonald, 3 Universities Warn Pentagon on Censorship, Chron. H.F., 1, 18 (4-4-84).

280. Id.


282. Greenberg, supra note 137, at 222.

284. *Id.* at SS 181.


286. *Id.* at 39.

287. The authority relied upon was the Patent Secrecy Act of 1952, which allows a competent government authority to disallow disclosure of a patent if the invention "would be detrimental to the national security." Kahn, *supra* note 154, at 154.


289. The inventor may apply for compensation under SS 183 of the Secrecy Act. Only 29 claims have been filed between 1945 and 1980 (about one per thousand orders); 9 have been settled, 10 denied, and the rest are still pending. Litigation is generally lengthy, for example, in 1977, General Electric finally won a suit concerning a World War II radar invention. Unger, *supra* note 285, at 39.

290. Kolata, *Study Group Agrees to Voluntary Restraints*, 210 *Sci.* 511 (Oct. 1980). Cryptography is the body of knowledge that deals with methods of information protection. Methods that transform text, using a key, so that it becomes unintelligible and therefore useless to those not meant to have access to it, are called encryption methods. *Academe*, Dec. 1981, p. 373, fn. 1.

291. *Id.* Public Cryptography Study Group:

   Werner A. Baum (Dean, Arts and Sciences), Florida State University, co-chair
   Ira Michael Heyman (Chancellor), University of California, Berkeley, co-chair
   David H. Brandin (Vice President, Computer Science & Technology Div.), SRI
   International (Nominated by the Association for Computing Machinery)
   R. Creighton Buck (Mathematics), University of Wisconsin (Nominated by the American Mathematical Society)
   George I. Davida (Electrical Engineering and Computer Science), University of Wisconsin, Milwaukee (Nominated by the Computer Society of IEEE)
   George Handelman (Mathematical Sciences), Rensselaer Polytechnic Institute
   (Nominated by the Society for Industrial and Applied Mathematics)
   Martin E. Hellman (Electrical Engineering), Stanford University (Nominated by the Institute of Electrical and Electronics Engineers)
   Wilfred Kaplan (Mathematics), University of Michigan, Ann Arbor (Nominated by the American Association of University Professors)
   Daniel C. Schwartz (General Counsel), National Security Agency

293. Zonerman, supra note 2, at 125.
294. Kahn, supra note 158, at 29.
295. Id.
296. Id.
297. Id.
298. Id.
300. Id.
301. Id. at 512.
302. Id. Existing statutes do not regulate the domestic publication of unclassified information relating to cryptography. Human Subjects Regulations, supra note 379, at 373.
303. Id.
304. Id.
306. Id. Martin Hellman, Stanford University, who represented IEEE in talks with NAS. Cipher Deavours, Kean College of New Jersey, editor of Cryptologia.
307. Id.
308. AAAS is the largest general science group in the country.
310. Id.
311. Committee on Science, Engineering, and Public Policy:
   George M. Low (Chair), President, Rensselaer Polytechnic Institute
   Solomon J. Buchsbaum, Executive Vice President, Customer Systems, Bell Telephone Laboratories, Inc.
   Emilio Q. Daddario, Hedrick and Lane, Attorneys-at-law.
   Elwood V. Jensen, Professor and Director, Ben May Laboratory for Cancer Research, University of Chicago
   Alexander Leaf, Chief of Medical Sciences, Massachusetts General Hospital,
   and Jackson Professor of Clinical Medicine, Harvard Medical School
   Gardner Lindzey, President and Director, Center for Advanced Study in the Behavioral Sciences
   J. Ross MacDonald, William Rand Kenan, Jr., Professor of Physics, University of North Carolina
John L. McLucas, President, World Systems Div., Communications Satellite Corporation
Elizabeth C. Miller, WARP Professor of Oncology, McArthur Laboratory for Cancer Research, University of Wisconsin
George E. Palade, Chairman and Professor, Section of Cell Biology, Yale University School of Medicine
Joseph M. Pettit, President, Georgia Institute of Technology
Leon T. Silver, Professor of Geology, Division of Geological and Planetary Sciences, California Institute of Technology
Herbert A. Simon, Professor of Computer Science and Technology, Carnegie-Mellon University
I. M. Singer, Professor, Mathematics Department, University of California, Berkeley
F. Karl Willenbrock, Cecil H. Green Professor of Engineering, Southern Methodist University
Frank Press (Ex Officio), President, National Academy of Sciences
Courtland D. Perkins (Ex Officio), President, National Academy of Engineering
Frederick C. Robbins (Ex Officio), President, Institute of Medicine
Allan R. Hoffman (Ex Officio), Executive Director
Barbara Darr (Ex Officio), Administrative Assistant

Panel on Scientific Communication and National Security:
Dale R. Corson (Chair), President Emeritus, Cornell University
Richard C. Atkinson, Chancellor, University of California, San Diego (Former Director, National Science Foundation)
John M. Deutch, Dean of Science, Massachusetts Institute of Technology (Former Under-Secretary, Department of Energy)
Robert H. Dicke, Einstein Professor of Physics, Princeton University (Former member, National Science Board)
Edward L. Ginzton, Chairman of the Board, Varian Associates
Mary L. Good, Vice President and Director of Research, UOP, Inc. (Member, National Science Board)
Norman Hackerman, President, Rice University (Former chairman, National Science Board; Former member, President's Science Advisory Committee)
James R. Killian, President Emeritus, Massachusetts Institute of Technology (Former Presidential Science Advisor; Former member, President's Science
Advisory Committee)  
Franklin Lindsay, Chair, Executive Committee, ITEK Corporation  
Richard A. Meserve, Attorney, Covington and Burling  
Wolfgang K. H. Panofsky, Director, Stanford Linear Accelerator Center, Stanford University (Former member, President's Science Advisory Committee)  
William J. Perry, Partner, Hambrecht and Quist (Former Under-Secretary for Research and Engineering, Department of Defense)  
Samuel C. Phillips, Vice President and General Manager, TRW Energy Products Group (Former Director, National Security Agency)  
Alexander Rich, Sedgwick Professor of Biophysics, Massachusetts Institute of Technology (Former member, National Science Board)  
John D. Roberts, Provost, California Institute of Technology (Member of the Council of the National Academy of Sciences)  
Harold T. Shapiro, President, University of Michigan  
Charles P. Slichter, Professor, Department of Physics, University of Illinois (Former member, President's Science Advisory Committee, Member, National Science Board)  
Michael I. Sovern, President, Columbia University  
Elmer B. Staats (Former U.S. Comptroller General; Former Deputy Budget Director; Former Executive Officer, Operations Coordinating Board, National Security Council)  
Lawrence E. McCray (Staff), Project Director  
Elizabeth G. Panos (Staff), Administrative Assistant  
Mitchel B. Wallerstein (Staff), Staff Consultant  

312. NAS Report, supra note 7, at xi. The panel was also briefed by representatives of the departments of Defense, State, and Commerce, the CIA, FBI, the Defense Intelligence Agency, and the National Security Agency.  
313. Id.  
314. Id. at 17.  
316. Id. at 7.  
317. Id.  
Nancy Lammers, Ed.
(1978).
323. Id. See also Nelkin, supra note 162, at 81.
324. Id.
(1982).
327. 69 Academe 9a 12a (Jan-Feb. 1983), The Enlargement of the Classified
Information System, Academe Bulletin of the AAUP [hereinafter cited as
Classified Information].
328. Exec. Order No. 12356, supra note 265 at section 1.1 (1).
329. Id. at SS 1.1(2).
330. Id. at SS 1.1(3).
331. Id.
332. Academe, supra note 327 at 10a.
333. Id.; Exec. Order No. 12065, supra note 321, at SS 1(1-104).
334. Nelkin, supra note 162, at 81.
337. Classified Information, supra note 327, at 12a.
338. Id. at 11a.
339. Id.
340. Supra note 328, at SS 1.4(a).
341. Classified Information, supra note 327, at 12a.
342. Exec. Order No. 12356, supra note 328, at SS 1.4(c).
343. Id. at SS 1.6(b).
344. Classified Information, supra note 327, at 11a.
346. Classified Information, supra note 327, at 13a.
347. Id. at 11a.
348. Id.


351. National Security Directive No. 84. The initial disclosure of the broadening of the review caused such a furor of protests that the Administration withdrew the proposal February 1983.


353. SCI refers to classified and compartmented information that is shown only to those who absolutely need to see it. It has been defined as the type of information that if revealed "could cause irreparable injury to the United States." Abrams, supra note 350.

354. Id.

355. Polygraph testing is of doubtful reliability, its use is widely feared, and submission to the examination may be required without regard to a stated probable cause and without any clear limits regarding the scope of the questioning. Government Censorship and Academic Freedom, 69 Academe 15a, 16a (Nov.-Dec. 1983).


357. Abrams, supra note 350, at 69.

358. The study was requested Rep. Jack Brooks, D-Beaumont, TX, who introduced the legislation proposed by the House Post Office and Civil Service Commission outlawing the censorship.

359. Id.


361. Footnotes, Chron. H.E., 8-8-84.

362. Id.

363. Burnham, Houston Chronicle, 8-19-84.

365. Id. at 17a.
366. Footnotes, Chron. H.E., 8-8-84.
367. Target countries include USSR, People’s Republic of China, Eastern Europe except Yugoslavia, Asian communist countries. Cuba is not subject to COCOM controls.
368. NAS Report, supra note 7, at 109.
371. Working Papers, supra note 77, at 90.
372. Id.
374. NAS Report, supra note 7, at 31; see also NYT Mag., Nov. 27, 1983, 125, 132.
375. Id.
376. NYT Mag., Nov. 27, 1983, at 103, see e.g., An Ethiopian national airlines wanted to buy a Boeing 767, but was thwarted by the U.S. government. The plane has a sophisticated laser gyroscope that the government feared would fall into the hands of the Soviet Union, allies of Ethiopia. So the Ethiopians bought the French Air-Bus, which had a laser gyroscope that an American company had already manufactured and sold to the French. Id.
377. Zonderman, supra note 2, at 125.
382. Norman, C., To Catch a Spy, 222 Science 904, Nov. 25, 1983.
383. Supra note 380.

385. Id. at 7.


390. Id.


392. U.S. Bans Tape Exports to the East Bloc, 60 Chemical & Engineering News, 6 (Sept. 20, 1982).


394. NAS Report Update, supra note 315, at 11. In a Japanese corporation, two Hitachi employees pleaded guilty to a conspiracy charge of trying to buy computer secrets from IBM. Hitachi and IBM reached an out-of-court settlement giving IBM the right to inspect future Hitachi products and a purported 300 million dollar cash payment. A $300 Million Apology to IBM, Newsweek, 11-21-83, p. 84.


396. The First Amendment of the Constitution reads as follows: "Congress shall make no law ... abridging the freedom of speech or of the press." U.S. Const. Amend. I. The First Amendment protects a number of important values three of which are: "the individual interest in self-expression, the social interest in the free flow of information and ideas, and the political interest in informed self-government." If scientific communication is part of personal fulfillment, and individual pursuit and expression of knowledge, opinions, beliefs and ideas, then it can promote the "core values" that the First Amendment protects. Ferguson, 16 Harvard Civil Rights-Civil Liberties Law Review 519 (1980) at 533; see also T. Emeson, the System of Freedom of Expression 6, at 6, 7 (1970).


398. Ferguson, supra note 396, at 547, n. 138.
399. Landmark Communications Inc. v. Virginia, 435 U.S. 829, 848 (1978). The Court declared it will "make its own inquiry into the imminence and magnitude of the danger said to flow from the particular utterance and then . . . balance the character of the evil, as well as its likelihood, against the need for free and unfettered expression." Id.

400. Vague means a person of ordinary intelligence cannot understand the regulation.

401. Overbreadth means the regulation can include those who would be impermissibly punished or restrained.


404. See discussion infra of Wiener, Sweezy, Baggett, Keyeshian, pp. in text 49-52.


406. Id. at 187.


408. Id. at 245.

409. Id. at 250.


411. Id. at 361-62.

412. Id. at 366.

413. Id. at 369.

414. Id. at 373.

415. Id.


417. Id. at 602.

418. Id. at 603.


420. The Public Health Service Act of 1944, ch. 373, 58 Stat. 682-720 SS 1, z, 201-612, provided legislative authority for the granting of government research funds to universities. From that grant, the National Institute of Health was responsible for basic research in biology and medicine and the National Science Foundation


422. Id.

423. The National Academy of Science was established in 1863 by an Act of Congress as a private, non-profit, self-governing membership corporation for the furtherance of science and technology for the general welfare. The terms of its charter require the National Academy of Sciences to advise the federal government upon request within its fields of competence.

424. **NAS Report**, supra note 7, at 100.

425. See supra discussion on p. 49-52 and notes 404-424.

426. See generally, Weiman, supra note 405, at 188; Sweezy, supra note 407, at 253-254; Baggett, supra note 404, at 379; Keyishian, supra note 416, at 602.

427. 403 U.S. 713 (1971) (*per curiam*).

428. 444 U.S. 507 (1980) (*per curiam*).


432. Id. at 719.

433. Id. at 720-22 (Douglas, J., concurring).

434. Id. at 722.

435. Id.


437. Id. at 726-27.

438. Id. at 732 (White, J., concurring).

439. Id. at 729 (Stewart J., concurring). *Court Ruling on Secrets -- Where it will Lead*, *U.S. News & World Report*, July 12, 1971, at 22, stated the decision gave Congress the impetus to revise the government secrecy system. Congress subsequently heard testimony that 99-1/2% of the government's 20 million secret papers could safely be made public.

440. Pentagon Papers, supra note 437, at 17. When the hearings on the prior restraint began, the *Washington Post* started to publish its version of the documents.
The story also went out to the 345 client newspapers that subscribe to the combined *Los Angeles Times* -- *Washington Post* news service.

441. Snepp v. United States, *supra* note 428. *Id.* at 511.


443. 595 F.2d 926 (4th Cir. 1979).

444. Snepp, 444 U.S. 507 (1980) (*per curiam*).

445. *Id.* at 514.

446. *Id.* at 512.

447. *Id.*

448. *Id.* at 521.

449. *Id.* at 516.


453. *Id.* at 993.

454. *Id.*

455. Morland, in his affidavit for the case, stated he read extensively in open-literature-physics texts, encyclopedia articles, magazines, unclassified government publications, and interviewed scientists who did not answer any questions they considered might be considered. Knoll, *Born Secret* -- *The Story Behind the H-Bomb Article We're Not Allowed to Print*, Progressive, May 1979, at 12, 14.


457. *Id.* at 996.


459. *Id.*

460. *Id.* at 991.

461. *Id.* at 996.


463. *Id.* at 993. "One does not build a hydrogen bomb in the basement." *Id.* However, there is no way that terrorist hoodlums (Idi Amin was suggested) or anyone except a large, highly industrialized nation could build the bomb. The article explained that construction requires a huge, immensely sophisticated and enormously expensive industrial complex. Knoll, *supra* note 455, at 18.


Taubman, U.S. Drops Efforts to Bar Publication of H-Bomb Articles, N.Y. Times, Sept. 18, 1979, at A1, col. 5. In September of 1979, the Justice Department obtained an order barring the Daily Californian, a student-run paper in Berkeley, from publishing a letter by Charles R. Hansen that contained the three key concepts about the bomb that the government sought to protect in the Progressive case. Hansen, a computer programmer, whose letter was similar in content to the Morland article, maintained that all the material in his letter was available in the public domain. The Madison Press Connection, who had not been enjoined by the government, published the Hansen letter September 16, 1979. A day later the Justice Department announced it would abandon its efforts to restrain publication of articles on the hydrogen bomb by the Progressive Magazine and the Daily Californian newspaper.


Zonderman, NYT Mag. 11-27-83, p. 125. Departments of State and Defense and Commerce, the F.B.I., Intelligence agencies and Customs are all involved in exports control.


See generally, NAS Report, supra note 7 at 36-37; Abrams, supra note 119 at 23.

See n. 121, n. 281, n. 348 & accompanying text.

Supra, p. 39-41.

Nelkin, supra note 162, at 81.

Id.

Nelkin, supra note 162, at 83.

George Davida, the lone dissenter in the Public Cryptography Group's vote to propose voluntary review of papers on cryptography noted that "NSA has never explained in any detail why it is more in the national interest to have restraints than not to have them. Schwartz (from NSA) replies that the NSA cannot fully explain because its reasons are classified." Kolata, Study Group Agrees to Voluntary Restraints, 210 Science 511, at 512 (Oct. 31, 1980). See also e.g., In the Progressive case, the lawyers who wanted to present the court with affidavits from scientists that would testify that Morland's article contained no secrets--could only show the article to those scientists who had received the Government's security clearance. Those affidavits were then censored and
words, sentences, paragraphs, and whole pages were deleted from the open court record. Morland's own affidavits, a detailed account of the public sources for all the scientific and technical details in his article, were subject to many deletions. Forty-seven exhibits appended to Morland's affidavit, that included magazine articles, book chapters, publicly distributed brochures, and encyclopedia articles were also censored in part. The attorneys representing the Progressive had to have a security clearance in order to look at the Government's classified filings in the case and take part in closed sessions of the court. Knoll, 'Born Secret', Progressive, 12 at 20 (May 1979); see also e.g., Some critics of the Public Cryptography Group's recommendation have stated they don't believe that NSA has not "made its case" that national security will be endangered by the open publication of certain results in cryptography. Inman then CIA director, replied, "This reasoning is circular and unreasonable. The specific details of why information must be protected are often even more damaging than the information itself." Kolata, CIA Director Warns Scientists, AAAS Jan. 22, 1982, p. 383.