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Memo Operating Guidance

No. 93-11 July 1, 1993

VICE CHANCELLORS—BUSINESS AND FINANCE ADMINISTRATION* CONTRACT AND GRANT OFFICERS OFFICE OF THE PRESIDENT FUNCTIONAL MANAGERS

Subject: Ownership and Dissemination of Research Results

Enclosed are materials relating to the ownership and dissemination of research results. Additional materials on this subject were transmitted by Contract and Grant Memos 86-32, 86-3, 85-21, and 85-16. Materials enclosed herewith are:

Memorandum dated June 1, 1993 from Special Assistant Belle Cole to Vice Chancellors for Research and Graduate Division Deans transmitting a brief statement of University policies and principles applicable to the Technology Reinvestment Project

Memorandum dated June 7, 1993 from the Association of American Universities to Presidents and Chancellors regarding Agencies Encourage Waiver of Indirect Costs and Patent Rights in the Technology Reinvestment Project

Opinion issued by the United States District Judge Harold H. Greene, United States District Court for the District of Columbia, in The Board of Trustees of the Leland Stanford Junior University v. Louis Sullivan, M.D. Secretary, Health and Human Services, et al.

Memorandum dated June 14, 1993 from University Counsel Beal transmitting a copy of an article from the Journal of College and University Law on "The First Amendment, Governmental Censorship, and Sponsored Research"

AAAS Bulletin, Access to Scientific and Technical Information, Issue 10, Spring 1987

AAAS Bulletin, Access to Scientific and Technical Information, Issue 11, Winter 1989

We are concerned that there may be an increase in federal agency efforts to place restrictions on the dissemination to the results of unclassified research. Please continue to inform us of any actions in this area.

C&G Memo No. 93-11 July 1, 1993 Page 2

Refer: Barbara Yoder 510-987-9848 Subject Index: 01,11,20 Organization Index: U-115,F-350

OF. hero

David F. Mears Director Research Administration Office

Enclosures (distributed to Contract and Grant Officers only)

cc: Associate Vice President Moore L. Clausen/ONR Senior Vice President Kennedy UNIVERSITY OF CALIFORNIA Carol McClain, Coordinator

Research Issues

BERKELEY . DAVIS . IRVINE . LOS ANGELES . RIVERSIDE . SA

J.W. PELTASON President

OFFICE OF THE PRESIDENT 300 Lakeside Drive Oakland, California 94612-3550

June 1, 1993

WALTER E. MASSEY Provost and Senior Vice President-Academic Affairs

VICE CHANCELLORS FOR RESEARCH GRADUATE DIVISION DEANS

Dear Colleagues:

Enclosed for your reference and information is a brief statement of University policies and principles that are meant to serve as a guideline for faculty who are planning to respond to the solicitation for proposals of the Technology Reinvestment Project (TRP).

Please inform faculty at your campus who are developing industrial partnerships under the TRP of the importance of communicating these UC policies and principles early in their discussions with their industrial partners and of involving their Contracts and Grants Offices at the earliest possible stage in negotiations to assure timely initiation of their TRP projects.

If you have questions, please contact Barbara Yoder in Research Administration (510-987-9848) or Joe Acanfora in the Office of Technology Transfer (510-748-6618).

Sincerely,

Belle Cole ' Special Assistant

cc: Defense Conversion Working Group Director Wootten Director Mears Director Merritt Manager Acanfora Coordinator McClain Principal Administrative Analyst Evans Principal Administrative Analyst Yoder



One hundred twenty-five years of service.

DEFENSE CONVERSION BULLETIN

University Policy Issues in Industrial Partnerships: Foreign Graduate Students, Publications, and Intellectual Property

The Technology Reinvestment Project (TRP) will provide new opportunities for University researchers to work with industry on projects. It is important, however, that in the partnerships being formed the University reaffirm its commitment to long-standing academic policies regarding ownership of results and access to University research programs.

<u>Citizenship Restrictions</u>. UC's past experience with some commercial firms working on dual-use technologies suggests that in some cases the companies feel compelled by Export Administration Regulations to control access and prohibit participation of foreign nationals. . However, current University policy prohibits acceptance of awards in which limits are placed on the basis of citizenship of project participants.

<u>Publication Delays</u>. University policy requires that the University own or be able to control dissemination of the results of research. Open publication of results is essential to the research mission of the University. Only Chancellors have the authority to approve publication restrictions. However, we are unaware of any Chancellor having made a significant exception to the University's publication policy for other than classified research, even when such a stand has cost the University much needed research funding.

Intellectual Property. The University has a long-standing policy on rights in inventions and patents made by its employees. Patent provisions outside University policy may delay or preclude a faculty member's ability to publish; diminish a P.I.'s ability to secure future sponsored research funding; interfere with effective technology transfer; or violate certain legal obligations to the federal government. University patent policies provide for ownership by the University of inventions which arise under research conducted by University faculty and grant certain prescribed royalty-bearing licensing rights to the sponsors and collaborators of such University research. A portion of such royalties are returned to inventors, personally, and to the inventor's campus for further research. The University position, however, provides for flexibility and exceptions, as necessary, to accommodate any unique or special circumstances arising under the TRP.

Early discussions of these issues should include your campus Contracts and Grants Office, Patent Coordinator, or the Office of Technology Transfer. These offices are familiar with industry concerns and have forged agreements in which everyone can benefit.



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Association of American Universities

Memorandum

President

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to: Presidents and Chancellors from: Cornelius J. Pings Mea

SUDJECT: Agencies Encourage Waiver of Indirect Costs and Patent Rights

date: June 7, 1993

I write to alert you to agency practices which encourage universities to waive indirect costs and/or to give up patent rights when responding to Requests for Proposals (RFPs) for the Technology Reinvestment Project. I am concerned that universities, in the heat of bidding or negotiating with agency officials over a major collaborative project, may waive or lower indirect costs, or may waive patent rights as part of the bargain, thus setting a very dangerous precedent which other agencies can, and will, demand to follow.

Perhaps the hottest request for proposals in many years has been that of the Technology Reinvestment Project (TRP), which will fund about \$500 million worth of education, technology development, and deployment projects, all attempting to stimulate the defense conversion process of the country. (Can you remember any other RFP which had its own "800" number—"800-dual-use"?) DOD's Advanced Research Projects Agency (ARPA) serves as the focal point for a collaborative agency management effort which also involves NIST, Energy, NASA, and NSF.

We have learned that at least two program officials, when describing the project to prospective participants, have suggested that proposals which included lower overhead rates for the performers would have a competitive advantage. Indeed, the program solicitation encourages high levels of nonfederal matching funds—the Q&A in the brochure states that the selection criteria favor proposals with the "valuation of cost share above 50%" by nonfederal sources. Additionally, the answer to another question notes that overhead can be counted toward matching funds and that "proposals structured to avoid overhead costs . . . will generally be more competitive." Defense officials reached on the telephone insist that official DOD policy is to pay for the full amount based on negotiated overhead rates.

I urge you to weigh carefully proposals that necessitate waiver of indirect costs and/or patent rights and the effect such waivers are likely to have on actions of other federal agencies sponsoring university research. The risks here are fairly substantial. The deadline for receipt of these TRP proposals is July 23, 1993.

Suite 730 . One Dupont Circle . Washington, DC 20036 . 202/466-5030 . FAX 202/296-4438

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UNITED STATES DISTRICT COURT FOR THE DISTRICT OF COLUMBLA

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THE BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY,

Plaintiff,

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LOUIS SULLIVAN, M.D., SECRETARY, HEALTH AND HUMAN SERVICES, et al.,

Defendants.

Civil Action No. 90-2656 (HHG)

FILED

SEP 26 1991

CLERK, U.S. DISTRICT COURT, DISTRICT OF COLUMBIA

OPINION

The principal legal issue in this lawsuit -- the extent to which the government may curtail the speech of a recipient of a government grant -- is related to that which was recently resolved by the Supreme Court in <u>Rust</u> v. <u>Sullivan</u>, 111 S. Ct. 1759 (1991), a case involving abortion counseling in family planning clinics. This Court has carefully considered that decision as well as other, prior appellate law dealing with the issue in question and, in the context of pending cross-motions for summary judgment,¹ it

¹ Plaintiff has abandoned its motion for preliminary injunction, preferring to concentrate on the merits.

is resolving the dispute in favor of plaintiff Stanford University.

I

In August 1989 the National Heart, Lung, and Blood Institute (Institute) of the National Institutes of Health² issued a notice that it planned to award contracts for a five-year research project on an artificial heart device. The research was to be conducted at two separate academic institutions, each of which was to receive a government grant of approximately \$1.5 million. The notice indicated that the contract might include a clause known as the Confidentiality of Information Clause (confidentiality clause) which would require researchers to obtain government. approval before publishing or otherwise publicly discussing preliminary research results. In October 1989 Dr. Philip Oyer, a professor of cardiovascular surgery at Stanford Medical School, submitted a proposal on behalf of Stanford in response to the notice. Stanford's proposal objected to several provisions of the notice, particularly the confidentiality clause, and ultimately, when Stanford and the-government could not agree with respect to the clause,

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² The National Institutes of Health are component parts of the Department of Health and Human Services which is headed by Secretary Louis Sullivan.

the government withdrew the contract from Stanford and awarded it elsewhere.³

Stanford argues that the confidentiality clause constitutes an illegal prior restraint and an unconstitutional condition on a government benefit.⁴ The relief requested is a declaratory judgment that this clause is unconstitutional and an injunction requiring the Institute to re-award the contract to Stanford.

During July and August, Stanford negotiated with the Institute about the clause. At the end of August 1990, when no agreement could be reached, the Institute withdrew the contract from Stanford and a week later awarded it to St. Louis University Medical Center, which apparently did not object to the clause. There have been some delays with respect to the start of this research, and St. Louis University has not yet begun the human trials of the artificial heart device. The government agrees that a resolution of this case in favor of Stanford would not significantly injure St. Louis University or any other third party.

- Stanford also argues that the clause was not authorized by statute, but the Court rejects that claim. While there is no statute specifically authorizing the actions taken or contemplated by the Institute, there is broad contracting authority which is adequate to constitute statutory sanction for the actions taken by the Institute. 42 U.S.C. § 241(a)(7).

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³ In June 1990, the Institute sent the research contract -- which included the clause -- to Stanford for its concurrence. Stanford signed the contract, but it made its agreement to the contract contingent upon the "mutually satisfactory resolution" of several issues, including its objection to the confidentiality clause.

II

The confidentiality clause requires researchers to give the government advance notice of their intent to publish preliminary findings,⁵ and it allows the government's contracting officer to block such publication.⁶ More specifically, under the clause, a researcher must give forty-five days advance notice that he plans to publish preliminary findings. If the contracting officer objects to the publication, the researcher may file a written claim with him, and the contracting officer then has an additional sixty days in which to decide that claim. The contracting officer's ultimate decision is final and binding (except

⁵ The information subjected to this prior government approval is defined as:

information which might require special consideration with regard to the timing of its disclosure may derive from studies or research, during which public disclosure of preliminary unvalidated findings could create erroneous conclusions which might threaten public health or safety if acted upon.

48 C.F.R. § 352.224-70(b). The information is also referred to as "findings . . . which have the possibility of adverse effects on the public or the Federal agency." 48 C.F.R. § 352.224-70(f).

The confidentiality clause further prohibits disclosure of personal information about individual participants in the research study as well as of proprietary information. 48 C.F.R. § 352.224(a). Stanford does not contest the government's restrictions on these two types of confidential information, and they are not at issue in this lawsuit.

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> that the researcher may file suit in court). <u>See</u> 48 C.F.R. § 52.233-1.

It is well established that under the law this procedure constitutes a prior restraint on speech in that it allows the government to suppress the dissemination of information in advance of publication.⁷ Prior restraints are permitted "only in exceptional cases." <u>Near v.</u> <u>Minnesota</u>, 283 U.S. 697, 716 (1931). "Any system of prior restraint . . . 'comes to . . . Court bearing a heavy presumption against its constitutional validity.'" <u>Southeastern Promotions, Ltd. v. Conrad</u>, 420 U.S. 546, 558 (1975) (<u>suoting Bantam Books, Inc. v. Sullivan</u>, 372 U.S. 58, 70 (1963)).

These principles apply to the kind of speech involved in this case. The most typical prior restraint cases involve political or artistic speech. <u>See, e.g., New York</u> <u>Times Co. v. United States</u>, 403 U.S. 713 (1971) (publication of Pentagon Papers); <u>Boutheastern Promotions. Ltd. v.</u> <u>Conred</u>, 420 U.S. 546 (1975) (performance of musical "Hair"). It is equally settled, however, though less commonly the subject of litigation, that the First Amendment protects scientific expression and debate just as it protects

⁷ It is immaterial that the restraint does not last forever. Even a restraint of speech for a limited period is inconsistent with the First Amendment. <u>See, e.c., New York</u> <u>Times Co.</u> v. <u>United States</u>, 403 U.S. 713 (1971).

political and artistic expression. <u>Miller v. California</u>, 413 U.S. 15, 34 (1973); <u>Roth v. United States</u>, 354 U.S. 476, 484 (1957); <u>United States v. U.S. District Court for Cent.</u> <u>Dist. of Cal.</u>, 858 F.2d 534, 542 (9th Cir. 1988).

The defendants now concede⁸ that the government could not impose the kind of restraint contemplated by the regulation on scientists whose research is not paid for by a government grant or contract. The question before the Court therefore is whether the grant of public funds takes the present situation out of the category of impermissible suppression of speech.

Equally unpersuasive is the defendants' claim that, inasmuch as the government could have hired scientists as employees, a diminution of the free speech rights of scientists affiliated with a university receiving government monies is less offensive to the law than it might otherwise be. <u>Id</u>. at 6 n.5. Even assuming that the premise is correct, that kind of an argument could be made with respect to almost any activity, and its acceptance would in practice erode First Amendment freedoms on the widest scale.

⁵ Transcript of July 12, 1991 Hearing at 52. Further, although at one stage of this litigation defendant appeared to contend to the contrary, Opposition to Summary Judgment at 5 n.4, this case does not involve commercial speech. Stanford Beeks to engage in five years of research, not to "propose a commercial transaction." <u>Board of Trustees of State Univ. of N.Y.</u> v. Fox, 492 U.S. 469, 473 (1989). Defendants later conceded this point. Transcript of July 12, 1991 Hearing at 39.

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III

Prior to the issuance by the Supreme Court of the <u>Rust</u> decision earlier this year, the law regarding speech-type conditions attached to government grants was less than clear. Although there were factual differences among the cases which could be, and were, cited as responsible for the particular results reached in the various cases, it has become increasingly difficult to discern a principled rule applicable to all the various situations.

Among the principal decisions in recent years upholding the constitutionality of speech-type restrictions accompanying particular contracts or subsidies are Regan v. Taxation Without Representation (TWR), 461 U.S. 540 (1983); Cammarano v. United States, 358 U.S. 498 (1959); DKT Memorial Fund Ltd. v. Agency for Int'l Dev., 887 F.2d 275 (D.C. Cir. 1989); and among those which found restrictions to be invalid are <u>Perry</u> v. <u>Sindermann</u>, 408 U.S. 593 (1972); FCC v. League of Women Voters, 468 U.S. 364 (1984); <u>Arkansae</u> Writers' Project. Inc. v. <u>Ragland</u>, 481 U.S. 221 (1987); <u>Big</u>

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<u>Mama Rag. Inc.</u> v. <u>United States</u>, 631 F.2d 1030 (D.C. Cir. 1980); <u>Speiser</u> v. <u>Randall</u>, 357 U.S. 513 (1958).⁹

In view of the confusion among the prior decisions, if for no other reason, it is most useful to concentrate on the holding and reasoning in the decision handed down earlier this year in <u>Rust</u>. Moreover, to the extent that prior decisions of the Supreme Court or the lower courts conflict with <u>Rust</u>, they have of course been expressly or impliedly overruled.

In <u>Rust</u> v. <u>Sullivan</u>, the Supreme Court upheld a regulatory restriction¹⁰ which prohibits health

Defendants attempt to distinguish several of the decisions which are adverse to their position on the basis that the restrictions there, but not here, were contentbased. Defendants' Opposition to Summary Judgment at 14. However, it is difficult to understand how it could be claimed that the restriction in the instant case is not content-based. Stanford, on the other hand, claims to find in the decisions a motivational rationale, <u>see</u>, <u>e.g.</u>, Stanford's Reply at 17, a stand that is likewise unpersuasive.

¹⁰ The restriction at issue was promulgated by the Secretary of Health and Human Services to implement Title X of the Public Health Service Act, 42 U.S.C. §§ 300 <u>et seq</u>. There was a question whether the regulation actually implemented the statute, <u>see</u> Justice Stevens' dissent, but the majority of the Court answered that question in the affirmative.

⁹ There are, to be sure, some significant factual differences among the cases. For example, <u>TWR</u> and <u>Cammarano</u> involved tax preferences; <u>DKT Memorial Fund</u> the receipt of population planning funds; <u>Arkansas Writers' Project</u> tax exemption for some but not all publications; and <u>League of</u> <u>Women Voters</u> grants to broadcasters conditioned upon their not editorializing.

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professionals in government-funded family planning clinics from discussing abortion with their patients. After referring to and analyzing the cases referred to above, the majority of the Supreme Court concluded that the restriction does not impinge on the First Amendment rights of these medical workers and that it is therefore valid. That of course is the law and this court. like all lower courts, is bound theraby. There are, however, two bases upon which, under the Rust Court's own language, the Rust result does not follow here.

First. The Supreme Court made a sharp distinction in Rust between the denial of a benefit to an individual on account of his speech or expression (which is constitutionally prohibited) and an insistence that public funds be spent for the program purposes for which they were authorized (which the Constitution allows). Said the Court:

> The Secretary's regulations do not force the Title X grantee to give up abortionrelated speech; they merely require that the grantee keep such activities separate and distinct from Title X activities. Title X expressly distinguishes between a Title X grantee and a Title X project . . . The Title X grantee can continue to perform abortions, provide abortion-related services, and engage in abortion advocacy; it simply is required to conduct these activities through programs that are separate and independent from the project that receives Title X funds.

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In contrast, our "unconstitutional conditions" cases involve situations in which the government has placed a condition on the <u>recipient</u> of the subsidy rather tha[n] on a particular program or service, thus effectively prohibiting the recipient from engaging in the protected conduct outside the scope of the federally-funded program.

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111 S. Ct. at 1774 (emphasis in original) (citations omitted).

The regulations at issue in the instant case broadly bind the grantee and not merely the artificial heart project. Dr. Oyer and the other individuals working for Stanford¹¹ on the project are prohibited by defendants' regulations from discussing preliminary findings of that project without permission. Unlike the health professionals in <u>Rust</u>, the Stanford researchers lack the option of speaking regarding artificial heart research on their own time, or in circumstances where their speech is paid for by Stanford University or some other private donor, or not paid for by anyone at all. Regardless of the circumstances, during the contract's five-year life¹² they may not speak P.11

³¹ It may be that Stanford University and all those affiliated with it are under a like prohibition. Transcript of July 12, 1991 Hearing at 28.

¹² The ban on discussing unvalidated findings may last longer than the five-year contract period, for if the government considers results to be "preliminary" and "unvalidated," it could bar publication even after the contract is over.

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about the project's results or its progress without the express prior permission from defendants' contracting officer.

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The Supreme Court's discussion in <u>Rust</u> which, notwithstanding the result reached there, specifically reaffirmed the unconstitutionality of speech-related restrictions applicable to recipients of government funds as such, compels the conclusion that the defendants' restrictions in the instant case lack constitutional validity. The regulation at issue here is not tailored to reach only the particular <u>program</u> that is in receipt of government funds; it broadly forbids the <u>recipients</u> of the funds from engaging in publishing activity related to artificial heart research at any time, under any auspices, and wholly apart from the particular program that is being aided.¹³

¹³ Defendants' ban on preliminary reporting could not validly be defended on the basis that it is tied to the heart research program rather than the researchers, for the latter, as noted, would be precluded from speaking or publishing about artificial heart research even on their own time. Any attempt to examine such speech or publication with a view to determining whether or not the information came to these scientists as a consequence of their work on the federally-financed project or from their general familiarity with the subject would require such intrusive examination into thought processes that it could not conceivably be undertaken. It should be noted in this connection that Dr. Over has worked for almost twenty years on the development of a self-contained artificial heart device.

Second. Other language of the Supreme Court has a similar impact on the issues in this case. The Court recalled in Rust that it had previously "recognized that the university is a traditional sphere of free expression so fundamental to the functioning of our society that the Government's ability to control speech within that sphere by means of conditions attached to the expenditure of Government funds is restricted by the vagueness and overbreadth doctrines of the First Amendment."14 This explicit exception to the broader ruling in Rust is directly on point here. The plaintiff is of course a university. The subject of this lawsuit is the very free expression that the <u>Rust</u> Court held to be so important for the functioning of American society that it may be curtailed through conditions attached to grants or contracts only if these conditions are not vague or overbroad. Yet, the conditions imposed by the defendants are plainly in that category.

The regulations permit the contracting officer to prevent Stanford from issuing "preliminary unvalidated findings" that "could create erronaous conclusions which might threaten public health or safety if acted upon," or P.13

¹⁴ 111 B. Ct. at 1776. The Court cited <u>Kevishian</u> v. <u>Board of Repents</u>, 385 U.S. 589, 603, 605-06 (1967), in support of that statement. <u>Bee also</u>, <u>Big Mama Rag. Inc.</u>, <u>supra</u>, 631 F.2d at 1034; <u>Bella Lewitzsky Dance Foundation</u> v. <u>Frohnmayer</u>, 754 F. Supp. 774, 782-83 (C.D. Cal. 1991).

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that might have "adverse affects on . . . the Federal agency." 48 C.F.R. § 352.224-70. In the view of this Court, these standards are impermissibly vague. Under what circumstances are preliminary findings regarded as "validated"? Who will decide whether the conclusions drawn by Stanford are erroneous -- the non-scientist contracting officer?¹⁵ What is meant by the phrase that a report "could" create erroneous conclusions? How would it be determined that such a conclusion "might threaten public health or safety,"¹⁶ and to what degree of certainty would

¹⁵ The contracting officer need not even be, and in this instance he apparently is not, a medical doctor or a scientist.

¹⁶ In fact, defendants' claim that the condition is designed to protect public health and safety, Opposition to Summary Judgment at 5 n.4, is also off the mark. Defendants point to cases in which government agencies tried to protect members of the public from false claims by commercial purveyors of medicine and therapies. But no such public health hazard is posed in this case if only because only twenty of the artificial heart devices will be made available, and their availability will be strictly controlled under the research regime. And of course there is not the slightest reason to believe that the Stanford scientists -- who are not in the business of selling patent medicines -- will be making fraudulent claims when they publish learned articles on artificial heart research.

Defendants' stated goal of protecting prospective patients from unwarranted hope (that might result from the issuance of preliminary findings by Stanford scientists not screened in advance by a government contracting officer), id. at 10, constitutes a strange and attenuated way of protecting health and safety. Neither these defendants nor any other public officials have statutory or other authority to regulate citizens' hopes. there have to be a threat to public health and safety? What kind of a threat? What would be regarded as an adverse effect "on the Federal agency?" Would such an effect have to be concrete, financial, reputational, or of some other nature? To pose these questions, and others that could be asked, is to reveal the vagueness of the standards.

There is the related problem of the chilling effect of these vague and overbroad conditions. It is impossible for a grantee such as Stanford and its chief researcher Dr. Over to know what might be regarded as a violation of these amorphous standards. Because of the vagueness and subjectivity of the administrative regulation, a responsible grantee could be certain of not being in violation only if it refrained from publishing any preliminary findings not endorsed by the contracting officer. Thus, the qualifying phrases referred to above are not likely to effect any real diminution of the otherwise unfettered authority of the contracting officer, and no prudent grantee is likely to publish that which the contracting officer has not cleared even if the reasons for the refusal to clear appear to be wholly invalid.¹⁷ In sum, this case fits snugly in the "free expression at a university" category that <u>Rust</u> carved

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¹⁷ Indeed, under the regulation, the contracting officer may suppress a preliminary report on the basis of "any objections;" the objections need not be material, significant, or valid.

out of its general ruling on speach conditions attached to grants.

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IV

Defendants' approach to this case is that, since public funds will be expended on the artificial heart research at issue here, the burden is on plaintiff Stanford University to explain why and under what circumstances it should be relieved of the obligation to submit its publications on this subject to the government for its prior approval. That approach views the issue from the wrong end of the telescope.

Stanford University, a premier academic institution, engaged in significant scientific and medical research for the benefit of the American people, is not <u>ipso facto</u> compelled under the law to surrender its free speech rights and those of its scientific researchers to a "contracting officer" merely because a regulation issued by defendants so directs. There exists, after all, the First Amendment to the Constitution, the supreme law of the land, which protects those very rights.

The Supreme Court decided in <u>Rust</u> v. <u>Sullivan</u> that when the government grants money to an institution or a program, it may under certain circumstances condition that grant upon curtailment of the program participants' rights under the

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First Amendment. Defendants' argument in this case is that that decision is applicable to government grants and contracts generally, without substantial limitation. The <u>Rust</u> decision opened the door to government review and suppression of speech and publication in areas which had theretofore been widely thought immune from such intrusion; the government's position in this case, if endorsed by the courts, would take that door off its hinges.

That position must be viewed in the context of the fact that few large-scale endeavors are today not supported, directly or indirectly, by government funds -- from the health care of senior citizens, to farm subsidies, to the construction of weaponry, to name but a few of the most obvious. Defendants' proposal would, at least potentially,¹⁸ subordinate the free speech rights of the participants in the programs receiving such federal monies to the government's wishes. To put it another way, if the Supreme Court decision were to be given the scope and breadth defendants advocate in this case, the result would be an invitation to government censorship wherever public funds flow, and acceptance by the courts of defendants'

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¹⁸ All it would take to transform the potential into reality would be a regulation similar to the one promulgated by the defendants here, and a somewhat plausible rationale. <u>See Chevron V. National Resources Defense Council. Inc.</u>, 467 U.S. 837 (1984).

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position would thus present an enormous threat to the First Amendment rights of American citizens¹⁹ and to a free society.²⁰

This Court, like all lower courts, is of course bound by the <u>Rust</u> decision. But for the reasons stated, the Court will not, without explicit appellate direction, further narrow²¹ the speech and expression rights of citizens and organizations, or subject to government censorship the publications of institutions of higher learning and others engaged in legitimate research. No such appellate direction has been given; on the contrary, as explained above, <u>Rust</u> is

²⁰ Defendants' position also conflicts with the trend in this country, as well as elsewhere, to allow citizens and organizations to speak and otherwise to operate without intrusive official direction. Even in the Soviet Union, where Joseph Stalin at one time decided what could be published and by whom, the dead hand of government control of Scientific research and publication is apparently no more.

²¹ In <u>Rust</u>, in a holding reminiscent in its detail of <u>Miranda</u> v. <u>Arizona</u>, 384 U.S. 436 (1966), the Supreme Court even upheld a regulatory requirement that prescribed in so many words what the physicians and nurses in family planning clinics must say when asked by a woman patient about abortions.

¹⁹ That is not to say that all the various departments and agencies of the government may be expected to rush out at once to curtail the free speech rights of those with whom they deal. But establishment of the principle that such action can pass constitutional muster is sure to be implemented, and it is bound to have increasingly wide negative effects on a free society, as the legality of censorship acompanying federal monies becomes more and more common and thus more and more deeply ingrained in the fabric of government and society.

consistent with a decision to allow Stanford to use its own judgment on when and what to publish, notwithstanding that its research is supported with federal funds. The Court will accordingly issue an injunction which will have the effect of prohibiting defendants from interfering with the university's freedom to publish.

V

What remains to be decided is what relief is appropriate. Defendants argue that their Department should be given the opportunity "to resolicit the contract following appropriate procurement procedures." Motion to Dismiss at 32. However, it is plain that the contract would have remained with Stanford but for the illegal confidentiality clause. Under these circumstances, a court may order that the contract be awarded to the disappointed party without an additional round of procurement proceedings. <u>Delta Data Systems Corp.</u> v. <u>Webster</u>, 744 F.2d 197, 204 (D.C. Cir. 1984). The judgment being issued contemporaneously herewith therefore so provides.

HAROLD H. GREENE United States District Judge

September 26, 1991

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UNITED STATES DISTRICT COURT PREMERCE COURT FOR THE DISTRICT OF COLUMBIA CE OF COLUMNES

THE BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY,

Plaintiff,

v.

LOUIS SULLIVAN, M.D., SECRETARY, HEALTH AND HUMAN SERVICES, et al.,

Defendants.

Civil Action No. 90-2656 (HHG)

FILED

SEP 26 1991

CLERK. U.S. DISTRICT COURT, DISTRICT OF COLUMBIA

ORDER

Upon consideration of plaintiff's motions for a preliminary injunction and for summary judgment; defendants' motion for summary judgment; the oppositions, replies, and supplemental memoranda; the hearing on the motions; and the entire record herein; it is this 26th day of September, 1991, in accordance with the Opinion issued contemporaneously herewith

ORDERED that defendants' motion for summary judgment be and it is hereby denied; and it is further

ORDERED that plaintiff's motion for summary judgment be and it is hereby granted; and it is further

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ORDERED that judgment be and it is hereby entered in favor of plaintiff; and it is further

ORDERED that the Secretary of Health and Human Services shall award to Stanford University Contract No. NOI-HV-08110, a contract involving a left ventricular heart system or device, without including a provision requiring the approval of a contracting officer or other government official prior to publication or discussion of preliminary research results.

L. Seere

HAROLD H. GREENE United States District Judge

OFFICE OF THE GENERAL COUNSEL 300 LAKESIDE DRIVE, 7TH FLOOR OAKLAND, CALIFORNIA 94612-3565 (510) 987-9800 FAX (510) 987-9757

June 14, 1993

✓ PRINCIPAL ADMINISTRATIVE ANALYST BARBARA W. YODER Research Administration Office

COORDINATOR ELEANORE LEE Research Policy Analysis Academic Affairs

Re: Censorship of Sponsored Research

Dear Barbara and Eleanore:

Enclosed is a copy of a very informative article on the constitutional issues raised by government attempts to impose publication and other restrictions on sponsored research. The author is the attorney who handled the recent Stanford case.

Sincerely,

Melvin W. Beal University Counsel

mwb/soc

Enc. 1

cc: D. F. Mears

THE FIRST AMENDMENT, GOVERNMENTAL CENSORSHIP, AND SPONSORED RESEARCH

PETER M. BRODY*

The federal government funds substantial research in the sciences and humanities at universities.¹ Among the "strings" the government may attach to a research grant or contract are terms restricting the institution's ability to publish or otherwise disseminate research results. For example, a Department of Health and Human Services (HHS) procurement regulation authorizes the contracting officer to include a clause that, inter alia, prohibits the researcher from publicly disclosing "preliminary unvalidated findings" that "could create erroneous conclusions which might threaten public health or safety if acted upon."²

Many universities have policies precluding the acceptance of sponsored research projects with secrecy requirements.³ Some institutions, while lacking formal policies against secrecy in research, nonetheless consider it repugnant to fundamental academic principles and values.

This article examines whether the government may demand confidentiality as a condition of a research grant or contract, or whether such a condition infringes upon the First Amendment rights of the researcher and the institution. This question illustrates the general tension between the private and public status of government-supported academic institutions. The receipt of government research funds subjects the recipient to specific regulations. Some restraints may be legitimate exercises of the government's discretion to determine how the government spends public funds.⁴ There may be, however, a limit to the restrictions the government can impose on sponsored research

4. At a minimum, for example, the government's power to choose what types of research to fund seems unexceptionable.

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^{* 1992} by Peter M. Brody. The author is an attorney with the law firm of Ropes & Gray, Washington, D.C., which represented Stanford University in Board of Trustees of Stanford University v. Sullivan, discussed infra. This article is an adaptation of the author's presentation at a program on "Threats to Academic Freedom" at a March 1992 workshop sponsored by the National Association of College and University Attorneys.

^{1.} The term "university" includes both colleges and universities.

^{2. 48} C.F.R. §§ 324.70, 352.224-70 (1991). Confidentiality clauses are also authorized under, for example, the Federal Acquisition Regulations. 48 C.F.R. § 52.227-17(d) (1991). In addition, an agency may seek to impose such a clause in the absence of any specific regulatory authority.

^{3.} See Rebecca S. Eisenberg, Academic Freedom and Academic Values in Sponsored Research, 66 Tex. L. Rev. 1363, 1384-88 (1988).

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programs without infringing upon the constitutional rights of the recipients of the funds.⁵

The limit of government restrictions turns on several related, but distinct lines of constitutional case law. First, the doctrine of "academic freedom" embraces the academic institution as a special zone of freedom protected by the First Amendment. Indeed, academic scholarship and inquiry, like political speech, lie at the core of the First Amendment. Second, the doctrine of "unconstitutional conditions" holds that the state may not condition a government benefit on the recipient's relinquishment of constitutionally protected rights. Both the "academic freedom" and "unconstitutional conditions" doctrines confront the danger that public funding may serve as a vehicle for suppression of dissent from official viewpoints. For these reasons, government efforts to condition academic research grants and contracts on speech restrictions would appear to merit strict First Amendment scrutiny.

Nonetheless, in Rust v. Sullivan,⁶ the Supreme Court reaffirmed a competing doctrine known as the "non-subsidy" doctrine. The doctrine allows the state selectively to encourage speech and other constitutionally protected activity through government funding decisions. The government can encourage speech that is consistent with legislative policy and discourage inconsistent activity. Courts invoke the doctrine to justify what might otherwise appear to be an unconstitutional condition.

As even Rust acknowledged, the university remains a protected forum of free expression and academic discourse.⁷ Because inquiry and scholarship are among universities' central functions, government efforts to restrict those functions, even through funded research, warrant the highest level of scrutiny under the First Amendment. This conclusion is supported by a federal district court that struck down the abovedescribed HHS confidentiality clause.⁶

I. THE DOCTRINE OF ACADEMIC FREEDOM

"Academic freedom" refers to the First Amendment protection of speech in academic institutions." The term "academic freedom" was

5. A separate issue, not addressed in this article, is whether the agency has a statutory basis for its attempt to impose speech restrictive conditions on a research contract or grant. *Cf.*, e.g., Gay Men's Health Crisis v. Sullivan, 792 F. Supp. 278 (S.D.N.Y. 1992) (Centers for Disease Control exceeded statutory authority in conditioning grant for AIDS educational materials on absence of "offensive" content).

6. 111 S. Ct. 1759 (1991).

7. In fact, Rust expressly confirmed this. See supra text accompanying notes 66-73.

8. See Board of Trustees of Stanford Univ. v. Sullivan, 773 F. Supp. 472 (D.D.C. 1991), appeal dismissed as moot, No. 91-5392 (D.C. Cir. 1992), discussed infra at pp. 212-214.

9. See generally William W. Van Alstyne, Academic Freedom and the First Amendment in the Supreme Court of the United States: An Unhurried Historical Review, 53 LAW & CONTEMP. PROBS. 79 (1990); Symposium, Symposium on Academic Freedom, 66 Tex. L. Rev. 1247 (1988); Janet Sinder, Academic Freedom: A Bibliography, 53 LAW & CONTEMP. PROBS. 381 (Summer 1990).

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first invoked in Adler v. Board of Education.¹⁰ At issue in Adler was a state law disqualifying members of "subversive" organizations from teaching in public schools. Dissenting from the Court's decision upholding the law, Justice Douglas stated that "[a] pall is cast over the classrooms. There can be no real academic freedom in that environment . . . The teacher is no longer a stimulant to adventurous thinking; she becomes instead a pipe line for safe and sound information."¹¹ During that same term, Justice Frankfurter, concurring in a case concerning a loyalty-oath requirement for all state employees,¹² emphasized the chilling effect such requirements have on educational institutions:

By limiting the power of the States to interfere with freedom of speech and freedom of inquiry and freedom of association, the Fourteenth Amendment protects all persons, no matter what their calling. But in view of the nature of the teacher's relation to the effective exercise of the rights which are safeguarded by the Bill of Rights and by the Fourteenth Amendment, inhibition of freedom of thought, and of action upon thought, in the case of teachers brings the safeguard of those amendments vividly into operation.¹³

In Sweezy v. New Hampshire,¹⁴ a professor challenged a state regulation that required him to divulge the contents of his lectures to state authorities investigating subversiveness. A majority of the Court expressly embraced the constitutional doctrine of academic freedom:

The essentiality of freedom in the community of American universities is almost self-evident. No one should underestimate the vital role in a democracy that is played by those who guide and train our youth. To impose any strait jacket upon the intellectual leaders in our colleges and universities would imperil the future of our Nation. No field of education is so thoroughly comprehended by man that new discoveries cannot yet be made. Particularly is that true in the social sciences, where few, if any, principles are accepted as absolutes. Scholarship cannot flourish in an atmosphere of suspicion and distrust. Teachers and students must always remain free to inquire, to study and to evaluate, to gain new maturity and understanding; otherwise our civilization will stagnate and die.¹⁵

15. Id. at 250, 77 S. Ct. at 1211-12. This statement was echoed in Shelton v. Tucker: "The vigilant protection of constitutional freedoms is nowhere more vital than in the community of American schools." 364 U.S. 479, 487, 81 S. Ct. 247, 251 (1960).

^{10. 342} U.S. 485, 72 S. Ct. 380 (1952). The Adler majority upheld the law, but that holding was substantially overruled in Keyishian v. Board of Regents, 385 U.S. 589, 87 S. Ct. 675 (1967).

^{11.} Id. at 510, 72 S. Ct. at 393 (Douglas, J., dissenting).

^{12.} Wieman v. Updegraff, 344 U.S. 183, 73 S. Ct. 215 (1952).

^{13.} Id. at 195, 73 S. Ct. at 220-21 (Frankfurter, J., concurring).

^{14. 354} U.S. 234, 77 S. Ct. 1203 (1957).

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Similarly, Justice Brennan, writing for the Court in Keyishian v. Board of Regents,¹⁶ exalted academic freedom as "a special concern of the First Amendment, which does not tolerate laws that cast a pall of orthodoxy over the classroom . . . The classroom is peculiarly the marketplace of ideas."¹⁷

The First Amendment protects academic discourse because of its setting and because such discourse concerns subjects that are core free speech matters. Both within and outside the academy, "[t]he First Amendment protects works which, taken as a whole, have serious literary, artistic, political, or scientific value."¹⁸ As Sweezy and other decisions recognize, the academy's critical role as a forum for controversial speech justifies the academic freedom doctrine.

The academic freedom cases chiefly concern government efforts to restrict teachers' freedom of speech in the classroom. Indeed, Justice Frankfurter's concurrence in Sweezy appears to confine the doctrine to the lecture hall. He specified "four essential freedoms of a university to determine for itself on academic grounds who may teach, what may be taught, how it shall be taught, and who may be admitted to study."¹⁹

18. Miller v. California, 413 U.S. 15, 34, 93 S. Ct. 2607, 2620 (1973) (emphasis added); accord. Curtis Publishing Co. v. Butts, 388 U.S. 130, 147, 87 S. Ct. 1975, 1987 (1967) (the founders "felt that a free press would advance 'truth, science, morality, and arts in general"); Roth v. United States, 354 U.S. 476, 484, 77 S. Ct. 1304, 1308-09 (1957); Bush v. Lucas, 462 U.S. 367, 371, 103 S. Ct. 2404, 2407-08 (1983) (society has "an interest in free speech, including . . . the maintenance of an atmosphere of freedom of expression by the scientists").

19. Sweezy v. New Hampshire, 354 U.S. 234, 263, 77 S. Ct. 1203, 1218 (1957) (Frankfurter, J., concurring) (emphasis added) (quoting Report of The Open Universities in South Africa 10-12). Restrictions on "who may teach" were at issue in numerous cases striking down laws requiring a loyalty oath as a condition for employment as a teacher in a state university. See Wieman v. Updegraff, 344 U.S. 183, 73 S. Ct. 215 (1952); Keyishian v. Board of Regents, 385 U.S. 589, 87 S. Ct. 675 (1967); Whitehill v. Elkins, 389 U.S. 54, 88 S. Ct. 184 (1967); Baggett v. Bullitt, 377 U.S. 360, 84 S. Ct. 1316 (1964); see also Shelton v. Tucker, 364 U.S. 479, 81 S. Ct. 247 (1960) (striking down state statute conditioning eligibility for employment as teacher in state college on submission of list of all organizations to which the teacher belonged or contributed money).

Restrictions on who may be admitted to study are less litigated, but some notable decisions exist. For example, Justice Powell's opinion in Regents of the Univ. of Cal. v. Bakke, 438 U.S. 265, 98 S. Ct. 2733 (1978), stated that academic freedom encompasses the right to consider race as an admissions factor to achieve a diverse student population, although it does not justify reliance on race to the exclusion of all other qualifications. See also Regents of the Univ. of Mich. v. Ewing, 474 U.S. 214, 106 S. Ct. 507 (1985) ("genuinely academic decisions" regarding a student's "academic competence" are to be accorded substantial deference by courts).

Finally, governmental efforts to restrict "what may be taught" were at issue in Sweezy. 354 U.S. at 262, 77 S. Ct. at 1218 (1957) (Frankfurter, J., concurring) (government may not compel a state university faculty member to divulge the contents of lectures to authorities investigating subversive activity absent "exigent and obviously compelling"

^{16. 385} U.S. 589, 87 S. Ct. 675 (1967).

^{17.} Id. at 603, 87 S. Ct. at 683-84.

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Were academic freedom limited to the classroom, the activities of university researchers would merit the doctrine's protection only when the research affected the classroom.²⁰

The Court's discussions of academic freedom, however, plainly encompass university research and scholarship. For example, in Sweezy, the majority opinion refers to the importance of "new discoveries"²¹ and "scholarship,"²² and the freedom of teachers "to inquire, to study and to evaluate."²³ Explaining the vital importance of freedom of inquiry and discussion in the university, Frankfurter said in concurrence:

Progress in the natural sciences is not remotely confined to findings made in the laboratory. Insights into the mysteries of nature are born of hypothesis and speculation. The more so is this true in the pursuit of understanding in the groping endeavors of what are called the social sciences, the concern of which is man and society. The problems that are the respective preoccupations of anthropology, economics, law, psychology, sociology and related areas of scholarship are merely departmentalized dealing, by way of manageable division of analysis, with interpenetrating aspects of holistic perplexities. For society's good-if understanding be an essential need of society-inquiries into these problems, speculations about them, stimulation in others of reflection upon them, must be left as unfettered as possible. Political power must abstain from intrusion into this activity of freedom, pursued in the interest of wise government and the people's well-being, except for reasons that are exigent and obviously compelling.²⁴

governmental interests). In this area, the Establishment Clause also may protect academic freedom. Compare Epperson v. Arkansas, 393 U.S. 97, 89 S. Ct. 266 (1968) (striking down statute criminalizing teaching of evolutionary theory because it served sole purpose of furthering dominant religion of state), and Edwards v. Aguillard, 482 U.S. 578, 107 S. Ct. 2573 (1987) (invalidating state law requiring public school teachers to teach "creation science" if natural science was taught), with Tilton v. Richardson, 403 U.S. 672, 91 S. Ct. 2091 (1971) (Establishment Clause did not preclude federal grants to religiously affiliated colleges and universities that were nonetheless "characterized by an atmosphere of academic freedom"), and Roemer v. Board of Public Works of Md., 426 U.S. 736, 96 S. Ct. 2337 (1976) (same as to state funding).

20. What takes place in the classroom may well reflect the current research activities of the teacher or others. But not all teachers are researchers or keep abreast of other's research.

21. 354 U.S. 234, 77 S. Ct. 1203 (1957).

22. Id.

23. Id.

24. 354 U.S. at 261-62, 77 S. Ct. at 1217-18 (Frankfurter, J., concurring). It may be inferred from such statements that the First Amendment protects, not only the discussion of research, but the research itself. Whether research is, indeed, speech protected by the First Amendment or is "mere conduct" has been much debated elsewhere. See, e.g., Eisenberg, supra note 3; James R. Ferguson, Scientific Inquiry and the First Amendment,

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Such statements reflect the contemporary model of the great "research university."²⁵ Like Justice Frankfurter, the profession has acknowledged that the freedom of academic researchers to report and discuss their research and benefit from others' comments on their work is an essential component of the enterprise. For example, the American Association of University Professors' (AAUP) 1915 General Declaration of Principles states that "the first condition of progress is complete and unlimited freedom to pursue inquiry and publish its results. Such freedom is the breath in the nostrils of all scientific inquiry."²⁶ Similarly, the AAUP's 1940 "Statement of Principles on Academic Freedom and Tenure" states that academic freedom "applies to both teaching and research. Freedom in research is fundamental to the advancement of truth."²⁷ The 1940 Statement emphasizes the need for a faculty's "full freedom in research and in the publication of the results."²⁸

Other First Amendment pronouncements by the Court support application of the doctrine of academic freedom outside the classroom. For example, in Board of Education v. Pico, a plurality of the Court stated that a school board's removal of books from school libraries would be unconstitutional if it was intended to "contract the spectrum of available knowledge" in accordance with the political and social views of the board.²⁹ The Court's decisions also have recognized student's First Amendment rights to engage in political protests³⁰ and religious worship³¹ on campus.

64 CORNELL L. REV. 639 (1979); Richard Delgado & David R. Millen, God, Galileo and Government: Toward Constitutional Protection for Scientific Inquiry, 53 WASH. L. REV. 349 (1978); John A. Robertson, The Scientist's Right to Research: A Constitutional Analysis, 51 S. CAL. L. REV. 1203 (1978); Michael D. Davidson, Note, Considerations in the Regulation of Biological Research, 126 U. PA. L. REV. 1420, 1427-35 (1978); Note, First Amendment Protection for Biomedical Research, 19 ARIZ. L. REV. 893, 895-900 (1977); Roger Funk, Comment, National Security Controls on the Dissemination of Privately Generated Scientific Information, 30 U.C.L.A. L. REV. 405, 436-37 (1982). That issue, however, is independent of the question of the constitutional limits of government power to restrict researchers' speech about their work.

25. See, e.g., Van Alstyne, supra note 9, at 87. The American Association of University Professors' 1915 "General Declaration of Principles" observed: "The modern university is becoming more and more the home of scientific research." 1 AAUP BULL 17 (1915), reprinted in Appendix A: A General Report of the Committee on Academic Freedom and Tenure, 53 LAW & CONTEMP. PROBS. 393, 398 (Summer 1990) [hereinafter, General Declaration]. Of the three "purposes for which universities exist," the first listed is "[t]o promote inquiry and advance the sum of human knowledge." Id. at 397. (The other two are "general instruction" and the development of "experts for various branches of the public service".)

26. General Declaration, supra note 25, at 398.

27. Policy Documents and Reports 3 (AAUP 1984), reprinted in Appendix B: 1940 Statement of Principles on Academic Freedom and Academic Tenure, 53 LAW & CONTEMP. PROBS. 407 (Summer 1990).

28. Id.

29. Board of Educ. v. Pico, 457 U.S. 853, 866, 102 S. Ct. 2799, 2807-08 (1982) (quoting Griswold v. Connecticut, 381 U.S. 479, 482, 85 S. Ct. 1678, 1680 (1965)).

30. See, e.g., Healy v. James, 408 U.S. 169, 92 S. Ct. 2338 (1972) (students' freedom

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These cases suggest a concept of academic freedom in which educational institutions, like the press, are favored forums in the "marketplace of ideas." This broader concept of academic freedom is more similar to the academic profession's own definition than is the narrower set of "four freedoms."³² The 1915 "General Declaration of Principles" describes academic freedom as "freedom of inquiry and research; freedom of teaching within the university or college; and freedom of extramural utterance and action."³³

Whatever the boundaries of academic freedom, the publication and discussion of research is at the core of the doctrine.³⁴ If the government attempted to censor publication and discussion outright, it would have to satisfy stringent First Amendment standards, such as a compelling need supporting a narrowly tailored restriction. The question is whether government efforts to restrict researchers' speech are subject to lesser standards solely because the government funds the research.

The leading academic-freedom cases involve state universities or public schools. In those cases, despite the presence of government funding, the First Amendment applied. In fact, government funding provided the element of state action necessary for a plaintiff's First Amendment claim.³⁵ Accordingly, government sponsorship of a particular research grant or contract (or government support of a research facility) should not eliminate the researcher's First Amendment freedom from censorship. The academic freedom cases, however, are not the sole basis for concluding that the First Amendment protects the researcher's speech regardless of who funds the research.

II. UNCONSTITUTIONAL CONDITIONS

According to the unconstitutional-conditions doctrine, the government may not condition the receipt of a government benefit on the

to engage in Students for a Democratic Society activities on campus); Tinker v. Des Moines Indep. Community Sch. Dist., 393 U.S. 503, 89 S. Ct. 733 (1969) (public school cannot discipline students for wearing armbands).

31. See Widmar v. Vincent, 454 U.S. 263, 102 S. Ct. 269 (1981) (student's right to religious worship and teaching at college facilities).

32. But cf., e.g., Walter P. Metzger, Profession and Constitution: Two Definitions of Academic Freedom in America, 66 TEX. L. REV. 1265 (1988) (arguing that the definition and boundaries of "constitutional" academic freedom differ significantly from those implied in concepts of academic freedom formulated by the academic profession itself).

33. General Declaration, supra note 25, at 393.

34. Indeed, the result of withholding the protection of the doctrine to universities may produce a perverse outcome. Should a university then agree to restrictions on either the underlying research or discussion of that research, the possibility arises of academic freedom claims against the university by individual faculty researchers, who can legitimately claim that the restriction constitutes state action. See generally Eisenberg, supra note 3.

35. See generally John E. Nowak, Ronald D. Rotunda & J. Nelson Young, Constitutional Law 497-525 (2d ed. 1983).

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recipient's relinquishment of a constitutionally protected right. As Justice Stewart summarized in Perry v. Sindermann:³⁶

[E]ven though a person has no "right" to a valuable governmental benefit and even though the government may deny him the benefit for any number of reasons, there are some reasons upon which the government may not rely. It may not deny a benefit to a person on a basis that infringes his constitutionally protected interests especially, his interest in freedom of speech. To do so, "would allow the government to 'produce a result which [it] could not command directly.""³⁷

Early cases enunciating the doctrine stemmed from the concern during the Lochner era regarding corporations' substantive due-process rights. The Supreme Court held that states could not require corporations to surrender those rights as a condition of doing business.³⁶ The courts have since used the doctrine to strike down various government conditions on such diverse benefits as tax exemptions,³⁹ welfare payments,⁴⁰ and public-broadcasting grants.⁴¹

The Supreme Court has shown a special sensitivity toward government efforts to curtail First Amendment expression as a condition of funding. In Speiser v. Randall,⁴² the Court struck down a state-tax exemption conditioned on a taxpayer's subscription to a loyalty oath. More recently, the Court held that a state may not condition a tax

37. Id. at 597, 92 S. Ct. at 2697; see generally, e.g., Kathleen M. Sullivan, Unconstitutional Conditions, 102 HARV. L. REV. 1413 (1989); Albert J. Rosenthal, Conditional Federal Spending and the Constitution, 39 STAN. L. REV. 1103 (1987); Symposium, Unconstitutional Conditions, 26 SAN DIEGO L. REV. 175 (1989); Gary A. Winters, Note, Unconstitutional Conditions as "Nonsubsidies": When is Deference Inappropriate?, 80 GEO. L. REV. 131 (1991).

38. See, e.g., Frost v. Railroad Comm'n, 271 U.S. 583, 46 S. Ct. 605 (1926) (access to public highways cannot be conditioned on acceptance of common carrier status); Terral v. Burke Constr. Co., 257 U.S. 529, 42 S. Ct. 188 (1992) (corporation's state license to transact business cannot be conditioned on surrender of rights to federal court jurisdiction).

39. See, e.g., Speiser v. Randall, 357 U.S. 513, 78 S. Ct. 1332 (1958) (veterans' property tax exemption may not be conditioned on loyalty oath); Arkansas Writers' Project, Inc. v. Ragland, 481 U.S. 221, 107 S. Ct. 1722 (1987) (state may not condition tax exemption for magazines on the subject matter of the magazine).

40. See, e.g., Sherbert v. Verner, 374 U.S. 398, 83 S. Ct. 1790 (1963) (unemployment benefits may not be conditioned on recipient's willingness to work on recipient's Sabbath); Shapiro v. Thompson, 394 U.S. 618, 627, 89 S. Ct. 1322, 1327 (1969) (AFDC benefits may not be conditioned on length of residency); Graham v. Richardson, 403 U.S. 365, 374, 91 S. Ct. 1848, 1853 (1971) (United States citizenship is not a lawful condition of welfare benefits).

41. See, e.g., FCC v. League of Women Voters, 468 U.S. 364, 107 S. Ct. 1722 (1984) (funding of public broadcasting cannot be conditioned on broadcaster's refraining from editorializing).

42. Speiser v. Randall, 357 U.S. 513, 78 S. Ct. 1332 (1958).

^{36. 408} U.S. 593, 92 S. Ct. 2694 (1972).

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exemption for magazines on the subject matter of the publication.⁴³ These tax-exemption cases illustrate the Court's concern for government actions that discriminate between different points of view.⁴⁴ Additionally, the Court invalidated restrictions that require silence. For example, in FCC v. League of Women Voters,⁴⁵ the Court held that the government could not condition funding on the broadcaster's refraining from all editorializing. Even viewpoint-neutral restrictions on researchers' speech, therefore, implicate the unconstitutional-conditions doctrine.

Many unconstitutional-conditions cases involve speech restrictions on public employees, including public-school teachers or state-university professors. For example, in Pickering v. Board of Education⁴⁶ and Perry v. Sindermann,⁴⁷ the Court upheld the right of a teacher to criticize publicly the school's administration without fear of retaliation.⁴⁶

Thus, while the doctrines of academic freedom and unconstitutional conditions are distinct, they can overlap.⁴⁹ The academic-freedom doctrine stresses the importance of free inquiry, while the unconstitutional-conditions doctrine emphasizes the unfairness of government manipulation of benefits. Nonetheless, since academic-freedom cases involve government funding, cases involving restrictions on the rights of government-supported institutions or researchers can be understood as unconstitutional-conditions cases. In fact, some of the academic-freedom cases expressly rely on unconstitutional-conditions analysis. For example, Justice Douglas dissenting in Adler, stated:

I have not been able to accept the recent doctrine that a citizen who enters the public service can be forced to sacrifice his civil rights. I cannot, for example, find in our constitutional scheme the power of a state to place its employees in the category of second class citizens by denying them freedom of thought and expression. The Constitution guarantees freedom of thought and expression to everyone in our society. All are entitled to it; and no one needs it more than the teacher.⁵⁰

Arkansas Writers' Project, Inc. v. Ragland, 481 U.S. 221, 107 S. Ct. 1722 (1987).
See generally LAWRENCE TRIBE, AMERICAN CONSTITUTIONAL LAW 794-804 (2d ed. 1988).

45. 468 U.S. 364, 104 S. Ct. 3106 (1984).

46. 391 U.S. 563, 88 S. Ct. 1731 (1968).

47. 408 U.S. 593, 92 S. Ct. 2694 (1972).

48. See also Rankin v. McPherson, 483 U.S. 378, 383, 107 S. Ct. 2891, 2896 (1987); Givhan v. Western Line Consol. Sch. Dist., 439 U.S. 410, 414, 99 S. Ct. 693, 696 (1979); Mt. Healthy City School Dist. Bd. of Educ. v. Doyle, 429 U.S. 274, 283-84, 97 S. Ct. 568, 574 (1977). Cases outside the education arena include Elrod v. Burns, 427 U.S. 347, 348. 96 S. Ct. 2673, 2677 (1976) (non-policy-making position of public employment cannot be conditioned on party affiliation); Rutan v. Republican Party of Ill., 497 U.S. 62, 110 S. Ct. 2729 (1990).

49. See Van Alstyne, supra note 9, 93-97.

50. Adler v. Board of Ed. of City of New York, 342 U.S. 485, 508, 72 S. Ct. 380, 392-93 (1952) (Douglas, J., dissenting).

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Conversely, the unconstitutional-conditions cases that involve employment at public schools, like Perry and Pickering, can be understood as academic-freedom cases. Indeed, Perry categorizes several prior decisions as unconstitutional-conditions cases even though those cases invoked academic-freedom and not unconstitutional-conditions doctrine.

The two doctrines complement each other. Together, they appear to impose strict First Amendment scrutiny on governmental attempts to impose secrecy on researchers as a condition of a research grant or contract.

III. THE "NON-SUBSIDY" DOCTRINE

A competing line of cases upholds conditions or restrictions on government benefits that appear to involve the relinquishment of a constitutionally protected right.⁵¹ In these cases, the Supreme Court purports to distinguish "between direct state interference with a protected activity and state encouragement of an alternative activity consonant with legislative policy."⁵² In upholding state action comporting with the latter purpose, the Court has characterized the restriction as a permissible "refusal to fund" or "non-subsidization," rather than an unconstitutional condition.⁵³ Although the Constitution protects the disfavored activity, the Court has emphasized the recipient's lack of any entitlement to subsidies. Rather, the Court has held that the government may allocate resources in accordance with social policy without violating the Constitution.⁵⁴

Cases upholding "non-subsidies" of protected activity have involved speech restrictions similar to those struck down as "unconstitutional conditions." Thus, in contrast with League of Women Voters and Speiser, respectively, the Court upheld a law conditioning federal taxexempt status on the taxpayer's refraining from lobbying activities⁵⁵ and regulations denying food stamps to striking workers.⁵⁶ In contrast with the Lochner-era cases, the Court upheld a state-imposed restriction on casino advertising as part of a licensing scheme.⁵⁷

54. Id.

55. See, e.g., Regan v. Taxation Without Representation, 461 U.S. 540, 103 S. Ct. 1997 (1983) (exemption); see also Cammarano v. United States, 358 U.S. 498, 79 S. Ct. 524 (1959) (upholding IRS regulation disallowing lobbying expenses as a business deduction).

56. Lyng v. International Union, United Auto., Aerospace & Agric. Implement Workers, 485 U.S. 360, 108 S. Ct. 1184 (1988).

57. See, e.g., Posadas de Puerto Rico Assocs. v. Tourism Co. of Puerto Rico, 478 U.S. 328, 106 S. Ct. 2968 (1986). The result of *Posadas* undoubtedly also reflects the fact that it concerned "commercial speech" which merits a lower standard of First Amendment protection.

^{51.} See, e.g., Maher v. Roe, 432 U.S. 464, 97 S. Ct. 2376 (1977).

^{52.} Id. at 475-76, 97 S. Ct. at 2383 (1977) (upholding state law barring use of welfare funds for nontherapeutic abortion); accord, Harris v. McRae, 448 U.S. 297, 100 S. Ct. 2671 (1980) (same as to federal funds).

^{53.} Maher, 432 U.S. at 475-76, 97 S. Ct. at 2383-84 (1977).

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One lower court, echoing the view of many observers, has noted that "the law regarding speech-type conditions attached to government grants" has been "less than clear," and "it has become increasingly difficult to discern a principled rule applicable to all the various situations."⁵⁸ But reconciling the "unconstitutional conditions" cases with the "non-subsidy" decisions may be unnecessary for our purpose, since no "non-subsidy" cases have involved an academic institution or speech protected by academic freedom. Indeed, the Court's opinion in Rust v. Sullivan⁵⁹ indicates that there may be a "university exemption" from the non-subsidy doctrine. This exemption would preserve the academic-freedom doctrine and the unconstitutional-conditions doctrine (at least as applied to academic institutions). Ironically, the holding in Rust greatly strengthens the non-subsidy doctrine in non-academic contexts.

Rust concerned Title X of the Public Health Service Act.⁶⁰ Title X provides federal funding for family-planning services and authorizes the Secretary of HHS to contract for such services pursuant to its own regulations. The Act states that the government may not fund programs in which "abortion is a method of family planning."⁶¹

HHS promulgated regulations that imposed certain conditions on eligibility for Title X grants. HHS prohibited funding to clinics that provided abortion counselling or referrals for abortion or that encouraged, promoted, or advocated abortion as a method of family planning. The regulations also required that Title X projects be "physically and financially separate" from any prohibited abortion activities.

Various Title X grantees and doctors employed by Title X programs challenged the regulations as unconstitutional conditions, among other grounds. The plaintiffs contended that the regulations conditioned the receipt of Title X funds on the relinquishment of their First Amendment right to engage in abortion advocacy and counseling. The plaintiffs also asserted that the regulations discriminated on the basis of viewpoint in violation of their First Amendment rights.

The Supreme Court upheld the regulations and rejected the "unconstitutional conditions" argument. Chief Justice Rehnquist's opinion stated: "This is not a case of the Government 'suppressing a dangerous idea,' but of a prohibition on a project grantee or its employees from engaging in activities outside of its scope."⁶² Moreover, "the government is not denying a benefit to anyone, but is instead simply insisting

60. 42 U.S.C. §§ 300-300a-41 (1989).

62. Id.

^{58.} Board of Trustees of Stanford Univ. v. Sullivan, 773 F. Supp. 472, 475 (D.D.C. 1991), appeal dismissed as moot, No. 91-5392 (D.C. Cir. 1992); accord, e.g., Sullivan, supra note 37, at 1416-17 ("doctrinal disarray"); Rosenthal, supra note 37, at 1106 ("boundary lines are hazy and do not stay put").

^{59. 111} S. Ct. 1759 (1991).

^{61.} Rust, 111 S. Ct. at 1762.

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that public funds be spent for the purposes for which they were authorized."⁶³

The Chief Justice distinguished "unconstitutional conditions" cases involving "situations in which the government has placed a condition on the recipient of the subsidy rather than on a particular program or service, thus effectively prohibiting the recipient from engaging in the protected conduct outside the scope of the federally funded program."⁶⁴ The Court noted that the HHS regulations did not bar recipients of Title X funds from using private funds to finance pro-abortion activities "outside the Title X program."⁶⁵

The distinction between program restrictions and restrictions on recipients is not self-evident. For example, when is protected speech "inside" or "outside" the program? Does the question depend solely on the physical location of the speaker? Does the content of the speech affect the determination? If the speech is related to the funded program, does that mean it is subject to the program restrictions, no matter where it occurs? If so, how does one determine what knowledge is "related" to the program and what may be the result of other activity?

Furthermore, Rust's treatment of the unconstitutional-conditions argument has been criticized as insensitive to the government's preeminent and sometimes exclusive role in the funding of various protected activity. The Court's response that private parties can "simply decline a subsidy" avoids the fundamental issue of how the government uses its economic power to shape knowledge and ideas as well as conduct.⁶⁶

Perhaps most troubling, the "non-subsidy" doctrine, as enunciated in Rust, could justify broad speech restrictions on all governmentfunded programs, including research and teaching at academic institutions. Taking the principle to its logical extreme, the government, by "buying up" speech rights of academics, could eventually exert enormous control over the flow of ideas at educational institutions. The "non-subsidy" doctrine, in short, could eliminate academic freedom. Perhaps foreseeing this, Chief Justice Rehnquist stated:

This is not to suggest that funding by the Government, even when coupled with the freedom of the fund recipients to speak outside

66. See, e.g., Bella Lewitzky Dance Found. v. Frohnmayer, 754 F. Supp. 774, 785 (C.D. Cal. 1991); Winters, supra note 37, at 158-61.

^{63.} Id. at 1774.

^{64.} Id.

^{65.} Id. at 1775 n.5. The regulations required the Title X grantee to contribute an equal amount of private funds to qualify for the federal funds. Thus, plaintiffs argued, the regulations did restrict privately funded speech. The Court rejected this argument, not only because private funds "outside" the program were not affected, but also because "[t]he recipient is in no way compelled to operate a Title X project; to avoid the force of the regulations, it can simply decline a subsidy." Id. The Court said, "We have never held that the Government violates the First Amendment simply by offering that choice." Id.

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the scope of the Government-funded project, is invariably sufficient to justify government control over the content of expression. For example, . . . we have recognized that the university is a traditional sphere of free expression so fundamental to the functioning of our society that the Government's ability to control speech within that sphere by means of conditions attached to the expenditure of Government funds is restricted by the vagueness and overbreadth doctrines of the First Amendment, Keyishian v. Board of Regents, 385 U.S. 589, 603, 605-606.⁶⁷

In other words, a vague or overbroad speech restriction connected with a government benefit may be an "unconstitutional condition" as applied to universities, though it is a "non-subsidy" as applied to others.

The Court's reaffirmation of the university as "a traditional sphere of free expression" is significant. First, the "non-subsidy" cases before Rust had not dealt with funding of academic institutions. Therefore, it was unclear whether that doctrine would abridge the doctrine of academic freedom. In effect, Rust creates a limited "university exemption" from the "non-subsidy" doctrine. Second, although the Court cited Keyishian, which refers to the classroom as a "marketplace of ideas,"58 the Rust Court speaks of the university as a traditional sphere of free expession.⁶⁹ The Court's reference to "the university" accommodates its broad discussions of academic freedom and previous First Amendment decisions encompassing academic activities outside the classroom.⁷⁰ It recalls Pico's rejection of attempts to "contract the spectrum of available knowledge."71 A broad formulation of the academic-freedom doctrine should encompass the inquiry and scholarship that is central to universities' mission of increasing knowledge through research. Rust appears to lend further credence to this broader application of the academic-freedom doctrine.

It is unclear whether Rust left the academic freedom doctrine unchanged. Rust specifically refers to vagueness and overbreadth limits on conditions placed on governmental funding.⁷² Are clear and precise restrictions therefore immune from challenge, even if they are viewpoint or content discriminatory?⁷³

71. Board of Educ. v. Pico, 457 U.S. 853, 866, 102 S. Ct. 2799, 287 (1982) (quoting Griswold v. Connecticut, 381 U.S. 479, 482, 85 S. Ct. 1678, 1680 (1965)).

72. Rust, 111 S. Ct. at 1776.

73. Rust elsewhere seems to suggest otherwise: in rejecting the argument that the Title X regulation is viewpoint discriminatory, Rust implicitly recognizes that viewpoint discrimination constitutes an "unconstitutional condition" and takes the restriction out of the category of "non-subsidies." 111 S. Ct. at 1763. Alternatively, viewpoint- or content-discrimination can be analyzed as a form of overbreadth, thus bringing such discrimination within at least the limited "university exemption" from the non-subsidy doctrine.

^{67.} Rust, 111 S. Ct. at 1776.

^{68.} Keyishian v. Board of Regents, 385 U.S. 589, 603, 87 S. Ct. 675 (1967).

^{69.} Rust, 111 S. Ct. at 1776.

^{70.} See supro notes 16-27 and accompanying text.

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While the precise boundaries of the "university exception" to the non-subsidy doctrine may not be obvious, the Court has made clear that universities have a special First Amendment status, perhaps akin to that of the press.⁷⁴ Academic inquiry and scholarship are part of the "traditional sphere of free expression." Thus, speech restrictions on government-funded programs at academic institutions should continue to merit strict scrutiny, without regard to whether the government's action could be characterized as a "non-subsidy."

IV. THE STANFORD CASE

Board of Trustees of Stanford University v. Sullivan⁷³ addressed some of the open issues which emerged in the wake of Rust. In Stanford, the National Institutes of Health offered Stanford University a contract for the clinical testing of a heart-assisting device. The Institutes withdrew their offer when Stanford refused to incorporate the HHS "Confidentiality of Information Clause" (COIC) into the contract. The clause prohibited the contractor from disclosing "preliminary unvalidated findings" that "could create erroneous conclusions which might threaten public health or safety if acted upon."⁷⁶ The clause also prohibited the release of findings which could have "adverse effects" on "the Federal agency."⁷⁷ Stanford sued the government, challenging the COIC as an unconstitutional condition of the contract. Judge Harold Greene, of the District Court for the District of Columbia, held for Stanford.⁷⁸

The government had conceded that it could not impose COIC-like restrictions on scientists whose research was not federally funded. The government contended, however, that "the grant of public funds takes the present situation out of the category of impermissible suppression of speech" and brings it within the "non-subsidy" doctrine.⁷⁹

Relying on Rust, Judge Greene rejected the government's contention. First, the COIC restricted the recipient, and was not merely a "scope of program" limitation, because it "broadly bind[s] the grantee and not

75. 773 F. Supp. 472 (D.D.C. 1991), appeal dismissed as moot, No. 91-5392 (D.C. Cir. 1992).

76. Id. at 474 n.5.

77. 48 C.F.R. § 324.70 (1991) (policy and applicability of confidentiality clause); 48 C.F.R. 352.224-70 (1991) (confidentiality clause) (1991). The clause is part of the procurement regulations of the Department of Health and Human Services, and is to be included in contracts under certain circumstances somewhat vaguely described in those regulations.

78. Stanford, 773 F. Supp. at 473. Stanford unsuccessfully asserted, in addition, that the agency lacked any statutory authority to promulgate and impose the COIC. Id. at 474 n.4.

79. Id. at 475.

^{74.} Not surprisingly, the apparent immunity to the non-subsidy doctrine conferred on a "traditional sphere of free expression" has spawned at least one successful effort to gain judicial recognition of another such "sphere," namely "the arts." See Finley v. National Endowment for the Arts, 795 F. Supp. 1457 (C.D. Cal. 1992).

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merely the artificial heart project."⁸⁰ The COIC would prohibit the researchers from speaking, without the prior permission of the government, about the research "on their own time" or "where their speech is paid for by Stanford University."⁸¹ Second, the district court invoked Rust's "university exemption" from the non-subsidy doctrine and held that strict scrutiny applied. According to the court, the COIC embodied "amorphous standards" that could cause a recipient not to publish at all, rather than risk violating the COIC.⁸² The court also rejected the government's attempt to demonstrate the requisite compelling need for the COIC on the basis of public health and safety:

Defendant's stated goal of protecting prospective patients from unwarranted hope (that might result from the issuance of preliminary findings by Stanford scientists not screened in advance by a government contracting officer) constitutes a strange and attenuated way of protecting health and safety. Neither these defendants nor any other public officials have statutory or other authority to regulate citizens' hopes.⁸³

Accordingly, the court struck down the COIC.

Stanford's application of the "university exemption" from the "nonsubsidy" doctrine to research and scientific discourse is an important affirmation of a broad definition of the academic-freedom doctrine. Judge Greene said: "[T]he subject of this lawsuit is the very free expression that the Rust Court held to be so important for the func-

82. Id. at 477. The district court asked:

Under what circumstances are preliminary findings regarded as "validated"? Who will decide whether the conclusions drawn by Stanford are erroneous the non-scientist contracting officer? What is meant by the phrase that a report "could" create erroneous conclusions? How would it be determined that such a conclusion "might threaten public health or safety," and to what degree of certainty would there have to be a threat to public health and safety? What kind of a threat? What would be regarded as an adverse effect "on the Federal agency?" Would such an effect have to be concrete, financial, reputational, or of some other nature? To pose these questions, and others that could be asked, is to reveal the vagueness of the standards.

Id. (footnotes omitted).

83. Id. at 477 n.16 (citation omitted). Judge Greene also rejected as inapposite "cases in which government agencies tried to protect members of the public from false claims by commercial purveyors of medicine and therapies." Id. The court stated:

[N]o such public health hazard is posed in this case if only because only twenty of the artificial heart devices will be made available, and their availability will be strictly controlled under the research regime. And of course there is not the slightest reason to believe that the Stanford scientists—who are not in the business of selling patented medicines—will be making fraudulent claims when they publish learned articles on artificial heart research.

Id.

^{80.} Id. at 476.

^{81.} Id.

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tioning of American society that it may be curtailed through conditions attached to grants or contracts only if these conditions are not vague or overbroad."⁸⁴

Equally significant is Stanford's application of the Rust distinction between "scope of program" restrictions and restrictions on the speech rights of recipients of program funds. Judge Greene rejected the government's suggestion that the COIC was a "scope of program" restriction because it precluded only speech about the funded program. The court stated:

Any attempt to examine such speech or publication with a view to determining whether or not the information came to these scientists as a consequence of their work on the federally-financed project or from their general familiarity with the subject would require such intrusive examination into thought processes that it could not conceivably be undertaken.⁸⁵

The government's argument highlights the manipulability of the scopeof-program/recipient distinction. Judge Greene's opinion in Stanford, however, illustrates that courts will not permit the government to manipulate the distinction out of existence.

A broader principle may justify this part of the court's decision. In Rust, the program itself consisted largely of speech; thus, defining the "scope of the program" inevitably involves determining which speech will be funded and which will not.⁸⁶ The distinction between a "scope of program" speech restriction and a speech restriction on fund recipients might not be obvious in that case. In Stanford, by contrast, the essence of the program did not consist of speech, but of basic research.⁸⁷ Under those circumstances, application of the Rust distinction may be relatively straightforward. Arguably, any attempt to regulate the speech of the fund recipients should be subject to strict scrutiny because the "scope of the program" does not consist of speech. Additionally, this result best comports with the university as "peculiarly the marketplace of ideas" and a "traditional sphere of free expression."⁸⁵

88. This analysis is not affected by the government's inclusion in a research contract of a speech or publication component—for example, a requirement that the researchers prepare a report and a specific allocation of funds to pay for that aspect of the work. The researchers will still have "off-duty" hours, and any attempt to restrict their speech

^{84.} Id. at 477. The court's inclusion of grants and contracts is an apparent reference to the government's argument that speech restriction in contracts should receive a lesser degree of scrutiny than such restrictions in grants. Transcript of Oral Argument at 32-37, Stanford, 773 F. Supp. 472 (D.D.C. 1991), appeal dismissed as moot, No. 91-5392 (D.C. Cir. 1992). As Judge Greene observed, there is no support for such a distinction in the case law or logic. Id.

^{85.} Stanford, 773 F. Supp. at 476 n.13.

^{86.} Rust v. Sullivan, 111 S. Ct. 1759 (1991).

^{87.} Stanford, 773 F. Supp. at 473.

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V. CONCLUSION

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Constitutional law today supports recognition of the university—in all its vital aspects—as having a favored status under the First Amendment. Accordingly, courts should invoke the academic-freedom and the unconstitutional-conditions doctrines to accord the highest level of scrutiny to interference with speech, regardless of governmental funding.

Discourse and scholarship in all the sciences are among the core functions of the university today. Although the government may fund substantial amounts of research by universities, the First Amendment precludes the government from demanding that such research take place entirely behind closed doors.

at those times will cross the line demarcated in Rust.

It is, of course, a separate question whether and to what extent the government can exercise control over the contents of the report for which it pays. For example, the government and researcher may disagree over the content of the report. If the government insists on publishing the report in the form it prefers, the researcher should have the option of not signing her name to it. Although it seems a remote possibility, the First Amendment may be implicated if the government nonetheless insists on identifying the researcher as the author.

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FOIA EXEMPTION REQUESTED FOR TECHNICAL INFORMATION

As part of an omnibus legislative package sent to Congress in February intended to promote industrial competitiveness, President Reagan has proposed a broad exemption from the requirements of the Freedom of Information Act (FOIA) for unclassified technological information owned by the Federal government. The exemption, if granted by Congress, would give Federal agencies authority similar to that granted to the Department of Defense in 1983 to withhold technological information from uncontrolled disclosure. The availability of such information could instead be governed by a combination of administrative procedures for sclective dissemination of information and inderal export control regulations.

In a detailed statement of the proposed changes, the Administration asserts that FOIA exemptions need to be expanded to support the government's interest in "ensuring that national interests are not damaged by the release of critical technical data overseas." The legislative proposal would accordingly exempt "from mandatory disclosure technical data that cannot be exported lawfully from the United States without approval, authorization or a license under the Federal export laws." This exemption would be broad since, under the regulatory approach used by the Federal government, approval, authorization or a license is required in accordance with export regulations for transfer of all technical data abroad or to foreign nationals within the United States.

Under the Export Administration Regulations, many technical data transfers are automatically pre-approved by the government and thus covered by a "general license" not requiring specific approval if certain conditions are met. The exemption would thus mean that all decisions of Federal agencies on whether or not to release particular technical data, and what export restrictions apply if technical data is released, could not be circumvented by FOIA equests. Technical data that has already entered the public domain -- and data specifically approved by an agency for public dissemination if the FOIA exemption is enacted -- qualify for a General License GTDA (general technical data available) which authorizes export to all destinations and transfer to all individuals without regard to nationality.

Both the National Aeronautics and Space Administration and the Department of Energy have policies and procedures designed to allow only selective dissemination of unclassified technical data arising from certain research and development projects carried out under their sponsorship. The policies often seek to confine dissemination to other government agencies. government contractors and other U.S. firms or researchers. However, unlike the Department of Defense, neither agency can currently withhold such protected data in response to a request filed under the Freedom of Information Act. Nevertheless, many of the restrictions are formulated to take advantage of the existing statutory authority -- contained in the Export Administration Act of 1979, as amended (EAA), and the Arms Export Control Act of 1976 (AECA) -- to control the export of technology from the United States. This means that direct access by U.S. citizens is usually permitted while transfer to foreign nationals may or may not be At a approved on a case-by-case basis. minimum, the data restricted by NASA, DoE, and DoD is governed by the provisions of the General License GTDR (technical data under restriction). (See the next article for further information on export licenses.)

Various attempts have been made to obtain from Congress a general FOIA exemption for technical data. The Department of Defense succeeded in 1983 by having authority "to withhold from public disclosure any technical data with military or space application in the possession of, or under the control of, the Department of Defense" included in the 1984 DoD Authorization Act. To date, Congress has specifically refused to provide a blanket exemption usable by other agencies. A FOIA expert for the American Civil Liberties Union is confident that Congress will also rebuff this latest initiative because such an exemption could readily be used by the Executive Branch for purposes in direct conflict with the intent of Congress in enacting and preserving the Freedom of Information Act.

Proponents of the FOIA exemption for technical data argue that FOIA partially undermines the ability of the Federal government to control the export of technology in accordance with the intent of Congress. The President's statement further argues that FOIA rules do not adequately protect certain types of technical information that are not particularly valuable to domestic users, but "could affect the

position or national security competitive interests of the United States." The space shuttle design is cited as an example because it has little value to U.S. companies, but could have significant value to foreign competitors undertaking government-supported space initiatives. In granting an exemption to DoD, the Senate Armed Services Committee directed that its use be guided by considerations of whether release of data could be detrimental to the interests of the United States from either a military or economic standpoint by giving foreign competitors an advantage or lessening an advantage or superiority which the United States might have.

EXPORT LICENSES FOR TRANSFER OF TECHNICAL INFORMATION

In connection with its "technology security" program, the Department of Defense (DoD) is planning to seek new validated license requirements for transfers to all foreign nationals of certain unclassified technical data related to militarily important technologies. In a report to Congress on the Militarily Critical Technologies Program dated 17 July 1986, DoD indicated that "a need for appropriate technical data controls to non-Communist countries" based on the Militarily Critical Technologies List (MCTL) is anticipated. Over the past two years, DoD has placed new administrative controls on dissemination of unclassified technical data arising from DoD- sponsored research and development projects based on the MCTL. If DoD is successful in expanding validated licensing requirements to all foreign destinations under the export control regulations, constraints on transfers of private sector technical data would be increased. In anticipation of such proposals and in light of the proposed export control-related FOIA exemption, it is useful to review export licensing and related requirements now in place.

Both the International Traffic in Arms Export the (ITAR) and Regulations Regulations (EAR) place Administration constraints on the transfer of certain categories of technical data to foreign nationals within the United States or abroad if the data have not been made generally available to the public. Technical data controls under the ITAR are administered by the Office of Munitions Control (OMC) within the State Department while EAR controls are administered by the Export Administration of the Department of Commerce. DoD plays a key advisory role in recommending categories of technical data for control by each agency.

The EAR define the term "technical data" as "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 can be in tangible form (a prototype, a blueprint, a technical report, or an operating manual) or intangible form (technical advice). The technical data controls apply to the export of technical data in any fashion. The most obvious means of export is the actual shipment or transmission of technical data out of the United States. However, the controls also apply to less obvious "exports," such as transfer of technical information to foreign nationals within the United States, oral exchanges of information with foreigners in the United States or abroad, visual inspection by foreign nationals of U.S.origin equipment and facilities, and the application to situations abroad of personal knowledge or technical experience acquired in the United States.

General licenses set forth in the EAR allow the transfer of much technical data to all or some foreign nationals without the necessity of applying for specific approval from the Department of Commerce. The availability of two general licenses in particular, the General License GTDA (technical data available to all destinations) and the General License GTDR (technical data under restriction), substantially limit the constraints that national security export controls place on the transfer of technical information to foreign nationals. The General License GTDA authorizes transfer to all individuals, without regard to nationality, if the

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technical data has been made generally available

to the public in any form, or is scientific data data used in instruction in academic stitutions and laboratories that is not directly and significantly related to design, production, or utilization in industrial processes. The export regulations do not place any constraints on making technical data generally available to the public. Thus most unclassified technical data can qualify for transfer under the GTDA if it is first placed in the public domain. A revision to the EAR formally proposed by the Department of Commerce in May 1986 would explicitly authorize use of the General License GTDA for transfer of all technical information arising from research that is not subject to restrictions on publication or dissemination imposed by the sponsor-even if the information has not been made publicly available.

The General License GTDR authorizes transfer of most technical data that are not exportable under a General License GTDA to foreign nationals who are citizens of Free World nations, subject to specified restrictions, exclusions, and exemptions set forth in the EAR. Technical data subject to some of these limitations cannot be transferred to such foreign nationals without written assurance from the individual that the data will not be transferred to individuals who are citizens of twenty nations: Afghanistan, Albania, Bulgaria, Cuba, Czechoslovakia, Estonia, the German Democratic Republic, Hungary, Kampuchea, Laos, Latvia, Libya, Lithuania, Mongolian People's Republic, North Korea, the People's Republic of China, Poland, Romania, the Union of Soviet Socialist Republics, and Vietnam.

A validated license is required for the export of all technical data that are ineligible for GTDA or GTDR. For free-world destinations (i.e., nations other than those listed above), validated licenses are required for technologies specifically described in an entry on the EAR Control List. An export application must be filed with Export Administration and approval in the form of a validated license must be received prior to the transfer. A validated license is also required for the export of data listed in EAR section 379.4(c) and (d), which include data relating to such areas as nuclear technology, civil aircraft, airborne electronic direction-finding equipment, hydrofoil and hovercraft watercraft, and infrared imagery equipment. Validated licenses are required for all exports of technical data to Communist countries that are not covered by GTDA (essentially all unpublished technical data) or one of two very limited situations in which GTDR may be used.

A revision also proposed in May would make the General License GTDR available for the transfer by U.S. firms and universities to employees who are foreign nationals of technical data that are otherwise exportable only under an individual validated license. Transfers to citizens of the nations listed above would not qualify for this procedure. Technical data restricted by either Part 379.4(c) or (d) could not be transferred under this proposal using the GTDR.

The ITAR set forth controls on the export of technical data relating directly to defense articles (arms, ammunition, and implements of war) and defense services. The term "technical data" is defined in the ITAR as: 1) classified information relating to defense articles and defense services; 2) information covered by an invention secrecy order; and 3) information which is not classified that is directly related to engineering, the design, development, production, processing, manufacture, operation, overhaul, repair, maintenance, or reconstruction of defense articles. This includes information which advances the state of the art of articles on the U.S. Munitions List. "Defense articles" means any item of hardware designated on the Munitions List (part of the ITAR). U.S. Information in the public domain is not considered to be technical data subject to ITAR controls. General mathematical and engineering information is also not included in this definition.

"Information which advances the state of the art of articles on the U.S. Munitions List" has been interpreted by the Department of Defense in such a way that some professional engineering societies have been obligated to hold restricted access sessions at their meetings. For example, the Society of Manufacturing Engineers (SME) sponsored a conference on fabrication of composite materials in September 1986 where access was entirely restricted to individuals who received prior approval via the export-controlled DoD technical data agreement (see issue 6 of this bulletin). Foreign nationals seeking to attend the conference were required to obtain permission by submitting a request to the Defense Intelligence Agency via their embassies. This conference was constrained because the DoD considers much of the manufacturing technology discussed to be of direct importance for advancing the state-ofthe-art of items on the Munitions List (such as military aircraft), and thus controllable under ITAR. None of the information presented was classified.

If technical data is controlled under ITAR, a license or approval must be obtained from the OMC before it is exported to any destination, or disseminated to foreign nationals. In the case of conferences, foreign attendance is only approved when intergovernmental programs will be served, i.e., only pursuant to official agreements or formal arrangements between the attendee's nation of residence and the U.S. Government. Several engineers from France who applied to

As reported in the last issue of this bulletin (Summer 1986), it has been proposed that the National Technical Information Service (NTIS) of the Department of Commerce be transferred to the private sector. While opposition to the idea within the Executive Branch, Congress, and the user community is nearly unanimous, pressure from the Office of Management and Budget (OMB) has resulted in a privatization proposal in the President's fiscal year 1988 budget proposal. If allowed to proceed, the Administration will offer the private sector the opportunity to operate the entire NTIS under contract, with the Government retaining overall policy direction.

While NTIS officials have presented the Administration's proposal to Congress, it appears that the concensus within NTIS and the Department of Commerce is that a transfer to the private sector is a bad idea. In a report resulting from the Department's examination of various privatization options during 1986, an intra-Departmental task force concluded:

... NTIS must [already] be counted among the most privatized of Federal agencies. ... Given a program so complex and so privatized, any decision to make further privatization moves must be supported by evidence of extensive benefit and minimal cost. Such evidence does not exist. In fact, as this report clearly demonstrates, the evidence is that extensive privatization presents substantial costs and risks for the government, for NTIS customers and for the information industry as a whole. Given the impetus for this study, the governmental costs and risks must be of major interest. These clearly include monetary costs, since discontinuing any significant portion of the NTIS would increase rather than decrease Federal appropriations. More important, however, are the policy costs and risks, those associated with U.S. competitiveness, national security, technology transfer, intellectual property rights and the availability of scientific and technical information. Conversely, there is little evidence to show that extensive privatization will provide tangible benefit for NTIS customers or for government's privatization goals. There appears to be some benefit for the information industry, but it is questionable whether this is a net benefit or simply a redistribution of the current benefit level among firms in the industry.

NTIS recently circulated the proceedings of a public workshop it convened in July 1986 to discuss alternatives and issues associated with privatization of the agency. Participants in the attend the SME conference were turned down by U.S. authorities because no specifically relevant agreement was in effect between France and the United States. Department of Defense approval public dissemination eliminates for any licensing requirement under ITAR, even if the technical data result from non-DoD research and development.

PRIVATIZATION OF NTIS: AN UPDATE

workshop, along with most of the 138 respondents to a notice published in the Federal Register in April 1986, found little to recommend any of the privatization options put forward by NTIS for public comment. One commentator, an expert on Federal scientific and technical information programs, pointed out the inappropriateness of considering the future of NTIS as a stand-alone issue -- insulated from its role as a government-wide agency representing all Federal research and development agencies involved in dissemination of scientific technical information. Instead, any and proposal to privatize NTIS should await the outcome of a study of what actions are necessary to improve Federal management of scientific and technical information in support of Federal research and development programs.

The Administration's proposal has not been warmly received in Congress, particularly since OMB reportedly believes that NTIS can be the without shifted to private sector approval. Walgren, Congressional Doug chairman of the subcommittee on science, research and technology of the House Committee on Science and Technology, intends to insert a provision in the NTIS authorization bill specifically requiring Congressional approval any divestment of NTIS. Sherwood for Boehlert, the subcommittee's ranking Republican, captured the sentiments of most observers by calling the NTIS proposal a "triumph of idealogy over common sense."

drafted has Representative Walgren language in the Commerce Department's fiscal year 1988 authorization bill that would establish NTIS as an independent government corporation. This proposal reflects a recommendation made by the National Academy of Public Administration. The Senate Commerce, Science, and Trans-portation Committee is expected to take similar action. This status for NTIS would allow it as it does now, but will greater freedom to meet staffing and capital equipment needs.

Spring 1987

The Department of Defense has a new policy requiring all users of its classified information to notify DoD if they believe data have been classified improperly or unnecessarily. The "mandatory challenge" policy is intended to help DoD avoid unnecessary restrictions on the use of information and, when appropriate, the considerable expense that classification involves. Already in effect for DoD employees, the policy will not take effect for others until it is published later this year or next year in the DoD manual for contractors who use classified information. This manual now only encourages contractors to report instances in which they believe data have been wrongly classified.

* The Association of American Universities, at the request of the DoD-University Forum, will soon be publishing a collection of informational materials designed to inform the university community about national security and export control restrictions that may pertain to university research. The project is designed to give principal investigators and researchers, as well as university administrators and government agency officials, accurate information and guidance about current national policy.

* 1986 amendments to the Stevenson-Wydler Technology Innovation Act of 1980 give Federal

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laboratory directors discretionary Federal authority to deny access to U.S. research by organizations of any foreign country that do not privileges grant similar to American organizations. The main purpose of the Act is to require efforts to facilitate technology transfer from U.S. government laboratories to state governments and the private sector. Congress is further considering legislation that would establish equitable technology flow as a priority in trade negotiations.

The Office of Technology Assessment (OTA) of the U.S. Congress is conducting a series of activities as part of the OTA Bicentennial Study, Science, Technology, and the Constitution in the Information Age. This study was requested by the Committee on the Judiciary of the U.S. House of Representatives. One workshop, held on 11 March, focused on scientific communication, national security, and the first amendment. The study seeks to identify areas where significant advances in scientific knowledge and development of unprecedented technolological capabilities are expected, and discuss the ones that may have challenging implications for the interpretation and application of Constitutional principles during our third century of Constitutional government.

THE SAGA OF NSDD 145, THE POINDEXTER MEMORANDUM, AND HR 145 (AND A CLASSIFIED AIR FORCE STUDY)

Back on 17 September 1984, the President signed National Security Decision Directive (NSDD) 145 which set forth national policy on telecommunications and automated information systems security. This directive recognizes that the use of telecommunications and information processing services within the government and the private sector is expanding rapidly. Telecommunications and automated information processing systems can be highly susceptible to interception, unauthorized electronic access, and related forms of technical exploitation. NSDD 145 asserts that the technology to exploit electronic systems is widespread and used extensively by foreign nations, and can be employed by terrorist groups and criminals. The purpose of the directive was to focus attention on enhancing protection of government systems and "those which process the private or

proprietary information of U.S. persons and businesses" that may become targets for exploitation by hostile intelligence services. The President directed that the government's capabilities for securing telecommunications and automated information systems against technical exploitation threats be improved.

NSDD 145 has been controversial since its issuance. The controversy has intensified over the past year as evidence of a classified Air Force study on national security issues related to publicly accessible databases and a policy statement issued by the President's National Security Advisor based on NSDD 145 have been publicized. A point of controversy that all three documents have in common is an assertion that unclassified information can often reveal highly classified knowledge when taken in aggregate or selectively culled by experts. NSDD 145 states that the "compromise of this information, especially to hostile intelligence services, does serious damage to the United States and its national security interests." Thus the directive requires that systems handling "sensitive, but unclassified information" in electrical form, "the loss of which could adversely affect the national security interest" be protected "in proportion to the threat of exploitation and the associated potential damage to the national security."

Another point of controversy engendered by NSDD 145 is its stated mandate related to private sector information systems:

The government shall encourage, advise, and, where appropriate, assist the private sector to: identify systems which handle sensitive non-government information, the loss of which could adversely affect the national security; determine the threat to, and vulnerability of, these systems; and formulate strategies and measures for providing protection in proportion to the threat of exploitation and the associated potential damage. Information and advice from the perspective of the private sector will be sought with respect to implementation of this policy. In cases where implementation of security measures to nongovernmental systems would be in the national security interest, the private sector shall be encouraged, advised, and, where appropriate, assisted in undertaking the application of such measures.

Perhaps the most controversial element of NSDD 145 is its assignment of responsibilities for policy implementation. Α National Telecommunications and Information Systems Security Committee (NTISSC) was assigned the task of developing operating policies necessary for implementation. The Assistant Secretary of Defense for Command, Control, Communications and Intelligence is the designated chair of NTISSC. A permanent secretariat for the Committee was required to be composed primarily of personnel of the National Security The Secretary of Defense was Agency. designated to be the executive agent of the government for telecommunications and information systems security, with a national manager for this program reporting to him. Thus while the scope of the policy is government-wide, control of implementation and development of security standards is exclusively assigned to the military.

As has been detailed in previous issues of this bulletin, the Department of Defense has in various mechanisms for controlling place dissemination of "unclassified, sensitive technical data" it originates or manages. Various DoD officials have not been shy about broad measures to limit calling for of scientific and technical dissemination information originating in other government agencies and the private sector. While DoD technology security programs do not derive direct authority from NSDD 145, the coexistance of authority given DoD under the

Directive with these programs has generated much confusion and fear. NSDD 145, in requiring initiatives to protect "sensitive, unclassified information," has thus been widely perceived as mandating additional controls on the dissemination of unclassified information.

In mid-1986 it became known that the Air Force had commissioned a study of the potential value of publicly available electronic databases to hostile intelligence efforts. Apparently in connection with this study, investigators visited the operators of a variety of databases, including the Institute of Electrical and Electronics Engineers, the American Chemical Society, and commercial vendors such as Dialog and Mead Data. Information on the contents of the databases and the identity of subscribers was sought by the agents of the Federal Bureau of Investigation and the Defense Intelligence Agency. The results of the Air Force study are classified and are accordingly not specifically known. Media accounts suggest that the report recommends controls on foreign access to certain databases, such as a requirement for foreign users to obtain U.S. export approvals, or mechanisms to monitor who seeks what information from the databases. While there may be no link between the Air Force initiative and activities being carried out under NSDD 145, the directive's language pertaining to private sector information systems has led critics of the Air Force effort to assume a connection and to harshly criticize NSDD 145.

Confusion and controversy about NSDD 145 reached a peak with the issuance of the memorandum by the President's National Security Advisor, John M. Poindexter, setting forth "national policy on protection of sensitive, information in Federal unclassified hut government telecommunications and automated information systems." This memorandum, dated 29 October 1986, sought to provide a general definition of what type of unclassified information may justify special protection when communicated, transferred, electronically processed, or stored on telecommunications and automated information systems. It also obliged Federal departments and agencies to determine what information is sensitive. The definition in the memorandum stated:

Sensitive, but unclassified information is information the disclosure, loss, misuse, alteration, or destruction of which could adversely affect national security or other Federal government interests. National security interests are those unclassified matters that relate to the national defense or the foreign relations of the U.S. Government. Other government interests are those related, but not limited to the wide range of government or government-derived economic, human, financial, industrial, agricultural, technological, and law enforcement information, as well as the privacy or confidentiality of personal or commercial proprietary information provided to the U.S. government by its citizens. The Poindexter memorandum was widely received outside of the Executive Branch as an athorization for a new and extremely broad program of security classification. The distinction between requiring measures for protection of information in electronic form within government telecommunications and automated information systems and measures to restrict dissemination of information was not sufficiently clear.

Recognizing the legitimacy of a concerted and systematic effort to improve the security of automated data processing equipment (ADPE), legislation has been formulated within Congress to authorize many of the activities being carried out under NSDD 145. H.R. 145, the Computer Security Act of 1987, would establish a computer security standards program within the National Bureau of Standards (NBS), promote government-wide computer security, and require training in security matters of persons involved in the management, operation, and use of Federal computer systems. NBS would become responsible for developing security standards and guidelines for all civilian government ADPE handling unclassified information.

According to the Committee on Government Operations of the U.S. House of Representatives, H.R. 145 is the result of growing concern

ithin the Congress that the government's computer and communications systems are not being adequately protected from unauthorized access or misuse. In investigations of the computer and communications facilities of several major Federal agencies conducted by the Committee over a period of years it was found that security was often lax or virtually nonexistent. Security has been a low priority for most Federal agencies, with relatively small amounts of funds devoted to security efforts.

In the view of the Committee on

Government Operations, NSDD 145 is in conflict with current law, which assigns authorities and responsibilities for the development of computer and communications standards to agencies other than DoD. Under both the Brooks Act and the Paperwork Reduction Act, the Office of Management and Budget, the General Services Administration, and the Commerce Department have government-wide management and policy responsibilities for computers, telecommunications and information management, including authority for the issuance of policies and standards for computer security.

In response to the controversy over the Poindexter memorandum, the White House agreed in March 1987 to rescind it and conduct a review of NSDD 145. While seeking changes in H.R. 145, the Administration has pledged to work with Congress to devise acceptable legislation on computer and telecommunications security. One change suggested by the Secretary of Commerce is inclusion of clear language to the effect that nothing in the legislation authorizes the government to withhold information that is otherwise available to the public. Such language would hopefully eliminate the widespread misunderstanding about Federal ADPE security efforts.

Meanwhile, officials in the Department of Defense have promised to make available an unclassified summary of the Air Force report on publicly available databases. The officials state that regardless of the report's recommendations, no effort will be made to restrict access to existing databases available to the public. It was acknowledged, however, that the report may fuel continuing efforts to reduce the amount of scientific and technical information arising from government-sponsored research and development that is made available to unrestricted databases in the future.

Call for Nominations

Submission of entries in the 1988 selection of the AAAS Award for Scientific Freedom and Responsibility is invited.

The AAAS Award recognizes scientists and engineers who have:

* Acted to protect the public's health, safety, or welfare: or

* Focused public attention on important potential impacts of science and technology on society by their responsible participation in public policy debates; or

* Established important new precedents in carrying out the social responsibilities or in defending the professional freedoms of scientists and engineers.

The award consists of a plaque and \$1,000 which are presented to the recipient at the AAAS Annual Meeting. Nomination forms may be obtained from the Office of Scientific Freedom and Responsibility at the AAAS address. The deadline for nominations is 31 August 1987.

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The Project on Access to Scientific and Technical Information is conducted on behalf of the AAAS Committee on Scientific Freedom and Responsibility. The Committee is authorized by the AAAS Board and Council to monitor the actions of the governments of the United States and other nations which circumscribe the freedom of scientists or restrict the ability of scientists to exercise their professional responsibilities, and to report on developments affecting scientific freedom and responsibility.

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AAAS BULLETIN

Access to Scientific and Technical Information

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The United States and Japan: Scientific Communication and Cooperation

The Office of Scientific Freedom and Responsibility's Science and Society Program addresses issues at the intersection of science and technology and the society of which they are a part. The publication of the AAAS Bulletin *Access to Scientific and Technical Information* reflects our ongoing interest in issues relating to the manner in which scientists communicate with each other and the public, including any circumstances under which it could be appropriate to limit the rights and responsibilities of scientists to disseminate information in a timely and unfettered manner.

As the American public has become concerned with the loss of U.S. high technology preeminence, particularly in the commercial sphere, increasing attention has focused on scientific communication and sharing with our marketplace competitors. Although several countries compete successfully with the United States in the high technology arena, the debate regarding reciprocity and fairness has mainly involved the nature of our scientific relationship with Japan. Thus this Bulletin issue is devoted to this highly visible debate.

Contributors were chosen to reflect representative views from institutions that make important contributions to U.S. public policy for science and technology. Articles and their authors include:

• "The U.S.-Japan Science and Technology Agreement," by Elizabeth Baldwin, Congressional Research Service

• "Symmetrical Access to Scientific and Technical Information Between the United States and Japan: The Role of the National Academy Complex," by Mitchel B. Wallerstein, Associate Executive Director, Office of International Affairs, National Research Council

• "Technology and the Trade Advantage," by Rep. Ralph M. Hall, Chairman, House Committee on Science, Space and Technology, Subcommittee on International Scientific Cooperation; with Virginia Gold, Technical Consultant, Subcommittee Staff

• "United States International Science and Technology Policy: A 'Balanced' Approach," by Deborah L. Wince, Assistant Director, International Affairs, Office of Science and Technology Policy.

We welcome your comments on this timely subject. Please submit letters to: Deborah C. Runkle, AAAS, 1333 H Street, NW, Washington, DC 20005.

The U.S.-Japan Science and Technology Agreement

By Elizabeth Baldwin

Congressional Research Service

The first umbrella U.S.-Japan Science and Technology Agreement was signed by President Carter and Prime Minister Ohira in 1980. In June, President Reagan and Prime Minister Takeshita signed a new U.S.-Japan Agreement of Cooperation in Research and Development in Science and Technology. The 1980 agreement served as an umbrella document covering several dozen small research projects in different areas. It did not affect other bilateral agreements that had been separately negotiated by federal agencies (such as the National Science Foundation). This obscure document gained some visibility when Dr. William Graham, the White House science adviser, used its renegotiation to advance some controversial positions in this area.

By 1987, there was a growing sense of concern over the perceived inequities in the science and technology relationship between the United States and Japan. Larger economic issues included Japan's use of basic research results from the United States to produce products that dominated international trade especially some U.S. domestic markets. There was a growing opinion that Japan should spend more of its resources on basic research and contribute to the global information base. There were also more specific issues such as the large number of Japanese

The views expressed are those of the author and not those of the Congressional Research Service or the Library of Congress.

researchers in the United States (supported by U.S. government funds) compared with the small number of U.S. researchers in Japan. People in and outside of government felt that Japan was getting much more out of its relationship with the United States than it was returning. A major factor contributing to this inequity is the open nature of the U.S. research establishment where most basic research is sponsored by the federal government in academic and government labs. This makes access easier than in Japan, where most research is done by industry and considered proprietary, closing participation to foreign researchers.

With the 1980 agreement expiring in January of 1988, negotiations were scheduled to begin in November 1987. Preceding these meetings, the Federal Coordinating Council for Science, Engineering, and Technology (FCCSET) discussed how best to proceed. Opinion was divided about what steps to take in response to the increasing imbalance in technology flow between Japan and the United States. Dr. Graham advocated strong actions that were thought by some to be potentially damaging to international cooperation in joint projects. He wanted the United States to demand: that the Japanese government commit more resources to basic research; that the Japanese government provide funds for U.S. researchers to learn Japanese; and, that the Japanese subsidize positions for U.S. researchers in Japanese labs. When the White House Economic Policy Council met in July 1987, they declined to endorse Dr. Graham's proposals. Dr. Graham continued to push for adoption through the remainder of the year in Congressional hearings and other public forums.

Negotiations with the Japanese proceeded through the winter, but January 31, 1988 (when the 1980 agreement expired) passed with no new agreement. Talks continued until March when a mutually acceptable agreement was reached. The bilateral agreement was signed at the Toronto Economic Summit in June 1988. It did not include all of Dr. Graham's proposals but did include hotly debated language regarding intellectual property rights and national security. Intellectual property rights arising from any joint research would be distributed according to the laws of the country in which the research was done. The agreement also stated that any exportcontrolled information or equipment exchanged between the United States and Japan would be subject to the laws and regulations of each country. Although the substance of the above clauses was not so unusual, the Japanese and some on the U.S. negotiating team felt they had no place in a scientific cooperation agreement. To the Japanese, tacking on political, patent, and national security issues was another example of "Japan bashing" and some in the United States (notably State Department personnel) argued that this document was not the proper vehicle for these issues.

It is too early to assess the impact of this agreement on U.S.-Japan scientific relations, but the negotiations and resulting agreement have focused attention on the issues involved in "symmetrical access" — a term used to describe the process whereby the United States and Japan each contribute equally, taking into account the difference in resources and ability.

There have been Japanese efforts to address these issues. Their science-related ministries and agencies have just submitted a budget request that would increase spending by 13%, although it is not clear how much of the increase would go to basic research. They have also attempted to increase the number of foreign researchers in Japan by offering fellowships. U.S. applications are being handled through the Japan Program Office at the National Science Foundation. Because of administrative problems, the first group of applicants was small, but a larger response is predicted as the program becomes better known and more information is distributed. There has long been a reluctance for foreign researchers to go to Japan because of the language and cultural difficulties. These are barriers that will take time to overcome as the Japanese language is taught more often in Western countries and Japan becomes a full member of the international community supporting basic reseach.

Symmetrical Access to Scientific and Technological Information Between the United States and Japan: The Role of the National Academy Complex

By Mitchel B. Wallerstein Associate Executive Director Office of International Affairs National Research Council

The term "symmetrical access" was first used in a series of private, nongovernmental meetings held during 1985–1986 that involved distinguished representatives from the industrial, financial, and academic communities in the United States and Japan. The U.S. side in these discussions, which were known as the Discussion Group on Advanced Technology and the International Environment, was sponsored by the National Academies of Science and Engineering and was led by Dr. Harold Brown, who is currently Chairman of the Foreign Policy Institute of the Johns Hopkins University. The Japanese side was sponsored by the Japan Society for the Promotion of Science and was led by Dr. Takashi Mukaibo, who is the Acting Chairman of the Japan Atomic Energy Commission. Funding for U.S. participation was drawn from private sources.

The second of two meetings of this Discussion Group was held in November, 1986 in Kyoto, Japan. The framework for this meeting was the innovation process, that is, the complex process by which new ideas are incorporated in commercial products and processes. This system includes a number of interwoven facets, incuding research and development (R&D), production and manufacture, and marketing and distribution. Participants discussed the respective national systems and the many factors that support innovation — government policies, private management practices, sociotechnical factors (such as labor attitudes, national technological literacy, private savings practices, etc.) and the macroeconomic environment. The meeting considered differences

The views expressed are those of the author and not necessarily those of the National Academies of Science and Engineering, the Institute of Medicine or the National Research Council.

in the two systems, points of friction, and various means to mitigate these difficulties.

The term, symmetrical access, emerged from these discussions as a conceptual approach to negotiations and relationships, not only in research but in all bilateral interactions between the two countries. As defined by the participants, symmetrical access means a course of action taken by each side that seeks to ensure the availablity of equivalently valued knowledge, technology, financing, and markets to the other side. Exact equity is not expected; it cannot be measured precisely and in most cases cannot be achieved because of the inherent structural and cultural differences between the United States and Japan or between any two countries. In fact, use of the term "symmetrical access" was intended to avoid words that imply opprobrium, words such as "fair" or "unfair" or "equal" or "reciprocal." Symmetrical access does imply, however, that both nations are prepared and determined to work together to solve existing imbalances in the flow of scientific and technological information in a spirit of cooperation.

As discussed and agreed in Kyoto, symmetrical access was not intended to suggest a situation of one-to-one reciprocity. The reason for this is obvious but important and therefore bears repeating: the Japanese R&D system is organized very differently from our own. Whereas in the United States most basic research i.e., the search for new knowledge - is generally conducted in university laboratories, which are readily accessible to foreign nationals, in Japan similar work is conducted primarily in the laboratories of private industry and government agencies. Moreover, the Japanese have followed a different development strategy in the post-World War II period and until recently have not developed a strong basic research capability in many fields. Instead, their strength has been in applied research and engineering application, activities which are often proprietary and therefore not open to public access. And this represents another asymmetry between the two countries.

A notion similar to symmetrical access was articulated in the recently concluded bilateral science and technology agreement between the two countries. Among other things, the 1988 U.S.-Japan Agreement on Cooperation in Research and Development in Science and Technology called for both governments to provide "comparable access" to their government-sponsored or -supported research facilities and activities, as well as to scientific and technical literature. The agreement also sets out a number of S&T areas of national importance in which both countires have "complementary capabilities and from which both countries will obtain equitable benefits."

Currently, the United States invests more resources in fundamental scientific research than Western Europe and Japan combined (when defense-related research is included). We pursue all fields of basic research without much priority given to the commercial potential of the research. More than 100 research universities carry out this activity, in conjunction with a system of federally funded national laboratories and research centers. Foreign participation in most fields of fundamental or academic research is, in most cases, encouraged and common.

The situation with respect to access to basic scientific research in our major advanced industrialized trading partners is mixed, however. In Western Europe, there is a long-standing tradition of support for basic research in the university system and open access by foreign nationals. As Western Europe moves toward regional economic integration in 1992, it is promoting new trans-European R&D programs, such as EUREKA and ESPIRIT, to improve its competitive position relative to the United States and Japan. In Japan, on the other hand, there has been relatively less investment in basic research and a variety of legal and cultural constraints on foreign access. Until recently, for example, it was not possible for foreigners to be employed by Japanese government research institutions or to become professors in Japanese national universities. This situation is now changing, however, and the Japanese are in the process of initiating a number of new steps to provide formal points of access for foreign researchers.

With respect to balancing access to more applied research and advanced technology and development — rather than the results of basic science — the concern is for the protection of intellectual property rights and the assurance of sufficient compensation to the inventor. The United States and Japan, for example, employ different procedural mechanisms in awarding patents. Japan's system, which is based on the principle of giving priority to the first a file a patent, is similar to that used in the countries of West Europe. The U.S. system, on the other hand, gives priority to the inventor who can demonstrate through a written disclosure that he/she was the first to develop a new idea.

The Academies have continued to discuss matters regarding symmetrical access with their Japanese counterparts since the 1986 meeting in Kyoto. We have monitored closely a variety of efforts by the Japanese to improve opportunities for access. Mombusho (the Japanese equivalent of our Department of Education), for example, has established 50 fellowships per year earmarked specifically for foreign scientists. And, when Prime Minister Takeshita came to Washington to meet with President Reagan in 1988, he announced an outright gift of over approximately \$40 million to be used as NSF research fellowships for study and work in Japan. Moreover, three so-called endowed chairs have been established at Tokyo University in software, microelectronics, and computer science, which are funded by Japanese industry, to be occupied by mid-level academic researchers from Harvard and M.I.T., AT&T Bell Labs, and Imperial College. And MITI, acting through its Agency for Industrial Science and Technology, is proposing the establishment of a number of new research laboratories, instrumented with state-of-the-art technology, that would be expressly open to foreign nationals. All of these opportunities are, of course, based on the assumption - which may not necessarily be correct - that there will be a sufficient number of foreign researchers willing and able (i.e., fluent or at least conversant in Japanese) to fill the positions.

One of the more intriguing - but poorly understood - initiatives of the Japanese government is the Human Frontier Science Program. Proposed initially by former Prime Minister Nakasone and taken up at the Economic Summit in Venice, Italy, the notion is to apply Japan's obvious technological capabilities to advancing the basic life sciences, including the study of brain function, human disease, and genetics. Many in the international scientific community welcomed the announcement of this effort, which is anticipated to involve a substantial Japanese investment and a major foreign scientific input, as a constructive and highly altruistic way for the Japanese to "give back" to the world particularly the developing world - from the fruits of its technological prowess. But others are less sanguine about Japanese motivations, concerned that the goal may be short-term commercializable applications of biotechnology. It remains to be seen how this program will be organized and supported and for what specific goals.

Despite these uncertainties, there seems little doubt that the leaders of the scientific and technical communities in Japan have recognized that, if that country is to remain competitive into the twenty-first century, it *must* pursue a policy of internationalization, including an improved capability in basic science, with foreign participation. The development of improved basic research will be expensive, given the current underdevelopment of the Japanese research universities, and it will take time. But it should not be doubted that it will happen, eventually. Likewise, Japanese government officials also recognize that additional steps must be taken to reduce the current imbalances between the number of Japanese scientists and engineers working abroad and the number of foreigners working in Japan, although the Japanese frequently point out that their citizens working abroad are making a major contribution to the R&D systems of the host countries (e.g., the award of a Nobel prize for medicine to a Japanese researcher, Susumau Tonegawa, at M.I.T.).

In addition to monitoring developments in Japan, the Academies have taken a number of proactive steps to pursue the symmetrical access concept. One such step is the establishment of an Office of Japanese Affairs within the National Research Council under the direction of Dr. Martha Caldwell Harris. The primary objectives of the new office are: (1) to act as a focal point both within the Academy complex and the larger science and engineering communities for information about areas of excellence in Japanese science and technology; (2) to promote better working relationships between the technical communities of the two countries; and (3) to examine various S&T policy issues arising from U.S.- Japanese interactions. The Office of Japanese Affairs will pursue a variety of specific activities, including: (a) the identification of various means to promote greater access by American scientists and engineers to the Japanese R&D system (i.e., academic, industrial, and government laboratories); (b) the identification of opportunities for scholarly exchanges that will promote more effective two-way flows of information in science and technology: and (c) the development of workshops, conferences, and studies to promote greater mutual understanding of how each society pursues scientific and technological objectives.

The Academies also have continued their unofficial bilateral discussions with the counterpart group from the Japan Society for the Promotion of Science and the Engineering Academy of Japan regarding further activities in the substantive areas agreed to at the Kyoto meeting. In this regard, the U.S. and Japanese sides have agreed to joint program activities of follow-on designed to identify specific fields of science and technology in which asymmetries appear to exist and to develop various mechanisms for promoting a more balanced flow of information and people.

While the concern about symmetrical access has so far been focused almost exclusively on the U.S.-Japan relationship, it is in reality a generic issue. Basic science has always been international in character, a common good to be shared widely for the benefit of humanity. As a result, foreign researchers from many other scientifically and technologically important - or potentially important - countries also benefit from access to the relatively open U.S. R&D system. Here, too, there are potential asymmetries. Many of these are newly industrializing countries (NICS) that are beginning to challenge the United States in high technology markets. Yet, like Japan in its early postwar phase of development, they do not yet possess the capability to "give back" in the form of support for significant fundamental research. Thus, while most concern today is focused understandably on the asymmetries that exist with respect to Japan, it is important to bear in mind that the issue likely will arise in the future with other countries as well.

As science and technology have assumed an increasingly central role in the economic performance of nations during the 1980s, we have seen a growing specter of "scientific and technological protectionism" at the very time when it has become imperative that the United States seek actively to acquire new knowledge and expertise from beyond its borders. Although it is true that there are currently asymmetries in the U.S.-Japan S&T relationship — and there may well be similar imbalances with other industrializing countries — the alternative of denying the citizens of a particular country access to information is both unpalatable and, in the end, counterproductive. We need instead to work together to ensure that all parties shoulder the burden and share in the benefits.

Technology and the Trade Advantage

By Representative Ralph M. Hall

Chairman, Committee on Science, Space and Technology Subcommittee on International Scientific Cooperation U.S. House of Representatives with Virginia Gold Technical Consultant, Subcommittee Staff

As anyone with even a passing knowledge of this nation's commercial development knows, technology is the backbone of competitiveness. Whether we cite the research scientist, the laboratory engineer, or the basement tinkerer, our history is replete with examples of invention and innovation that have led to technological advantage and commercial gain.

In my own state, I can think of two examples of industrious inventors who operated out of a basement or garage during the first few years of their enterprise and came up with ingenious innovations that went on to earn considerable profit — Varo, Inc. in Garland, Texas, and E-Systems in Greenville, Texas.

In recent years, as escalating U.S. trade deficits amply testify, countries like Japan have followed this formula. In many cases, however, they have achieved their success by using *our* technology to enhance *their* competitive advantage.

Because of this common thread linking technology, commerce, and competitiveness, the flow of technology among the world's leading trading partners has become a subject of intense scrutiny. Nowhere is the concern for this issue higher than in the U.S. Congress, which has conducted hearings on several aspects of this matter over the past few years.

As a member of the Committee on Science, Space and Technology of the U.S. House of Representatives, I have been privileged to chair the International Scientific Cooperation Subcommittee, which, along with its sister Subcommittee on Science, Research and Technology, has considered the role of technology in economic competitiveness. We have heard testimony from a broad range of knowledgeable witnesses, from inside and outside the government, with considerable expertise on this issue.

Beginning in 1983, we examined the consequences of joint

research ventures to challenge Japanese technological advances. In 1984, we investigated the availability of Japanese scientific and technical information in the United States. We looked at the role of technical information in U.S. competitiveness with Japan in 1985, and in 1987, we examined ways to monitor technology flow between our nation and others. This year, we have had hearings on sharing foreign technology, and we asked the question "Should we pick *their* brains?"

These hearings have brought home to us a number of crucial points:

• We have learned that sophisticated scientific and technical work is being done beyond our borders on developments that will affect our commercial opportunites — in technologies as diverse as computers, semiconductors, fiber optics, biotechnology, and robotics.

 We have discovered serious deficiencies in this nation's ability to collect and disseminate foreign technical information.

• We have been sensitized to the importance of open information flows between national boundaries, as well as the negative aspects of erecting protective barriers against the free flow of information.

 We have uncovered some inequities between who offers and who receives scientific knowledge and information within the international community.

• We have recognized that it is sometimes our own provincialism that prevents us from sharing the technology that others develop.

Some have expressed the fear that we are allowing our competitors to take our technology and use it to exploit us commercially. And in our open system, where access to our federal research labs is open to all qualified applicants, there 's no doubt that our technology is being used by other countries to expand their commercial capabilities.

But the issue is not whether there is a net flow of technology out of this country and toward our competitors. The issue, rather, is how we manage and control the technology we produce. Our challenge is to balance the need for international scientific cooperation with the equally important need for the kind of good technology management necessary for our own competitiveness.

Obviously, adequate proprietary safeguards such as intellectual property rights, copyrights, and license agreements that are respected and observed internationally are paramount to effective technology management. Also important are renewed efforts to apply technology to product development and to emphasize domestic production capabilities which allow U.S. workers to gain experience — which requires retaining production in our own backyards rather than exporting it overseas — that will contribute to improving the nation's competitiveness.

Scientists view the world from a different perspective than some of us in the Congress. They tend to address global problems rather than national concerns, with little preoccupation on geopolitical dominance or national defense requirements, for example, which demand different Congressional priorities. I say this as a compliment, for scientists think more along the lines of breakthroughs for mankind than politicians do, and they can transcend parochial boundaries that often constrain politicians — no matter what country they come from.

In addition, scientific knowledge has traditionally been shared around the globe. Since it is difficult to halt the flow of ideas, scientists have long considered themselves part of a larger worldwide community in which national boundaries have no place.

Technological information, on the other hand, is more applicable to product development and is, therefore, more likely to be protected by proprietary restrictions among nations. It is here that we must balance international cooperation with proprietary protection using appropriate legal and strategic controls.

The Japanese have been very successful in taking advantage of our open research establishment to learn the fundamentals. They have been diligent and industrious in building a strong technological base from which to enhance their trading position. As a developing country after World War II, they felt justified in taking what they could from their more advanced trading partners. And since our system is so receptive to the world scientific community, we encouraged this kind of participation as appropriate to the free flow of information and ideas around the world.

We have not been as diligent in seeking scientific knowledge from international sources. But until fairly recently, we didn't have to be. Through the early 70s, by all accounts, the United States held an undisputed lead in scientific and technical advancement in the world. Indeed, our preeminent commercial position in world trade provided an obvious yardstick for measuring the degree of our technical dominance.

In addition, we faced some structural obstacles to accessing foreign technical information, aside from the notorious resistance in this country to learning foreign languages. Our system, in which 50% of all research is funded by the U.S. government, is open to anyone who qualifies for research positions.

The Japanese, on the other hand, follow a time-honored tradition that relies heavily on privately operated facilities. As a result, only 20% of Japan's research is undertaken in government-supported labs today. The balance is carried on in private facilities, where comparable access is more restricted. This situation has created a structural imbalance in the ways both the United States and Japan perceive their opportunities for cooperation.

But the world has changed significantly since the early 70s. Japan is no longer the technically backward society it was immediately after World War II. Having achieved a preeminent position among the world's commercial trading partners, Japan should be viewed as an equal partner in its relationship with these nations. It should also behave that way.

As a result of its changed status, Japan must function as a giver as well as a receiver of its technical knowledge. It should be willing to open its scientific establishment to the rest of the world just as mature modern nations have always done. Japan should also be willing to contribute to the development of the world's pool of basic science rather than merely exploiting existing scientific understanding for its own profit and gain.

Some strides have been made in gaining Japan's acceptance of this viewpoint. The recently signed cooperative agreement on science and technology between the United States and Japan formally acknowledges its changed status. The pact calls for both governments to provide "comparable access" to their governmentsponsored or -supported research facilities and activities, as well as to their scientific and technical literature.

A significant feature of this agreement is a series of steps designed to implement its provisions. These include an explicit commitment to open research and development systems; continued efforts to improve Japanese language training programs for U.S. scientists and engineers; and promoting comparable opportunities for U.S. researchers in Japanese government-supported research programs, with allowances for accommodations and other expenses.

We hope that this agreement will attract qualified U.S. researchers who seek overseas opportunities. We also hope it will encourage our Japanese partners to recognize their rightful place in the world scientific community and to follow through on their commitments to open their research facilities and contribute to basic scientific research. The escalating expense of "big science" and other projects makes it imperative that we continue to cooperate on these projects on an international scale.

But there is another dimension to this problem that must not be ignored. As a result of the agreement General MacArthur signed with the Japanese ending World War II, the United States now pays some five to six billion dollars a year to defend Japan. Forty-three years after the end of that war, it is time for Japan to share more equitably in these costs. Japan has the wherewithal to enlarge its contribution, and it is an unfair burden on its trading partners, as well as its allies, that it has not accepted this expanded commitment.

Since 1984, as the result of a treaty with the United States, Japan has taken some steps towards a greater degree of commitment to its defense. Japan agreed to defend its borders up to one thousand miles out to sea and has raised its contribution to implement that agreement. But as the costs of defense continue to rise, Japan should assume a greater share of this effort in line with its expanding economic status.

By some estimates, Japan is considered the number one economy in the world. The reasons for this success are many and varied, but one explanation stands out. On board the U.S.S. Missouri in 1945, the Japanese promised General MacArthur that they would not make war. And they didn't. Instead, they funneled their resources into consumer-related production, and now they make radios, televisions, automobiles, and microwaves for the world. Without the distraction of defense-related research and development to drain off finite capital and labor resources, they stand as the model of economic success in the world today. Surely, they can afford to expand their contribution to make the world a safer as well as a richer and more convenient place to live.

In the course of my career before coming to Congress, I have dealt with technical assistance agreements in Japan in the aluminum business and the cattle business. I have developed a great admiration for the Japanese people. They are often quite ingenious in the way that they appear able to improve on our inventions in less time than it takes them to return home after visiting our plants and factories.

But these days, Japan's role as an imitator and innovator is not enough. Japan's economic dominance makes it a powerful international force. As a full-fledged member of the world community of nations, Japan has an obligation to be a contributor as well as an imitator and innovator and to play by the same rules as the rest of its trading partners. The first small steps have been taken. Now it is time for the final leap to be made.

United States International Science and Technology Policy A "Balanced" Approach

By Deborah L. Wince

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The United States is at a crossroads in its international science and technology policy. The challenge facing the United States today and in the years to come is how to maintain and expand an open world system of exchange and cooperation in science and technology, without undercutting our national competitiveness and jeopardizing our security interests and responsibilities. Articulating and responding to that challenge — with specific policy directions and initiatives has been the number one priority in the Reagan Administration's international science and technology policy.

The United States has historically and culturally subscribed to and benefited from the tradition and practice of open access to the world's shared pool of scientific knowledge. We have benefited tremendously from the contributions foreign scientists and engineers have made to our research efforts and from the training our scientists and engineers have obtained abroad. Today, we derive considerable new benefits from the talent of foreign scientists and engineers who train at our universities and enter our work force. At the same time, we have contributed to other countries and to the world system as a whole by providing open access to our research facilities and education and training opportunities at our world-class universities and national laboratories. Without question, developing countries in the past, such as Japan and Korea, have derived immeasurable benefit from participating in our advanced education, and working at our national laboratories and in our private sector R&D training activities. Today, that tradition continues with advanced developing countries, such as China and India, taking full advantage of the unique educational and research opportunities our country affords.

Our university system remains the largest in the world, with approximately 150,000 foreign students enrolled in U.S. schools of science and engineering at the end of 1984. This year alone, there are about 30,000 Chinese students studying in the United States, mostly in S&T fields, and over 300 Japanese research fellows at the National Institutes of Health for three-year fellowships, with funding totaling some S8 million per year. Clearly, we have not, in recent years, taken advantage of comparable opportunities for U.S. researchers to work and study abroad. The imbalance in personnel exchange represents lost opportunities for U.S. and world science and should be rectified.

The question then is, Can the United States maintain its long held belief and practice that an open, flourishing system in international exchange and cooperation will bring expanded opportunities and benefits to all countries willing to participate and contribute? It has become accepted wisdom that where our nation will stand in the 21st century is ultimately dependent upon our continued preeminence in science and technology and in our ability to translate swiftly new knowledge and technologies from the laboratory into the marketplace. Can we then afford to relinquish our valuable research and development to trading partners without adequate reciprocity or a counterbalancing contribution?

In July 1987, foreign firms and governments directed a great deal of criticism at the administration for not inviting foreign companies to attend a White House-sponsored conference on the potential applications of high-temperature superconductors. The purpose of the conference was to stimulate U.S. industry and provide corporate managers with information on the latest scientific developments in superconductivity and to discuss potential strate-

gies the United States should adopt in the race to commercialize high-temperature superconductors and bring innovative new products to the world marketplace. Such government-industry meetings are commonplace in Europe and Japan, where similar topics are discussed and national R&D strategies are developed. It has never been the practice for these governments to invite U.S. officials or U.S. firms to such meetings as observers, let alone as full-scale participants and, to date, such invitations are not forthcoming. We are witnessing today an increasing number of government-industry sponsored R&D programs, such as EUREKA and the EEC's new Framework Project, in which non-EEC countries, including the United States, and their firms are specifically excluded from participation. These neo-protectionist government-sponsored or -supported R&D programs find their parallel in many of our government programs sponsored at national laboratories and universities, such as NSF's Engineering Research Centers, that are open to foreign participation, including that of private companies.

We can seek to redress these inequities by protecting our own R&D activities, but this limits the benefits that accrue to all parties from vibrant interchange and cooperation in science and technology. On the other hand, we can nurture and expand international science and technology cooperation to the benefit of all players by ensuring that all partners accept their fair share of responsibility and make equitable contributions to an open, international S&T system. This concept of comparable access and benefit should allow for some limitations on foreign participation in government-supported R&D, depending on the objective, structure, and scope of individual initiatives. Yet with this flexibility, we would like to see other countries allow and encourage foreign access to major components of their government-funded R&D activities, similar to that which the United States has allowed. We cannot continue to assume the risks and finance the bulk of the global output of basic research while other governments use their public resources to fund applied and developmental research in a proprietary or quasi-proprietary setting that produces a more immediate commercial payoff, especially when much of that payoff comes from selling the resultant products in the U.S. market.

It was in this atmosphere that the President, in his April 10, 1987 Executive Order on *Facilitating Access to Science and Technology*, directed U.S. agencies and departments to take steps to ensure that the U.S. will benefit from and fully exploit S&T research and development abroad, that the United States will establish equitable, two-way partnerships in S&T with foreign countries, that the United States will obtain reciprocal access to S&T activities with foreign countries, and that those foreign governments that wish to enter into S&T agreements have policies to protect intellectual property rights. The issue of intellectual property rights protection was taken one step further with the newly enacted Omnibus Trade and Competitiveness Act of 1988, which states that "Federally supported international science and technology agreements should be negotiated to ensure that intellectual property rights are properly protected."

Since the Executive Order was issued last year, the Office of Science and Technology Policy has taken lead responsibility to facilitate and monitor its implementation. To this end, we developed a coordinated U.S. government policy to reshape our S&T relationship with Japan with the result that on June 20, 1988, President Reagan and Prime Minister Takeshita signed a new U.S. – Japan Agreement on Cooperation in Research and Development in Science and Technology. This historic agreement is based on the principles of shared responsibilities, equitable contributions, adequate protection and fair disposition of intellectual property rights, acknowledged security obligations, and comparable access to government-sponsored or -supported R&D facilities and programs.

The new agreement incorporates provisions and initiatives to establish a more balanced and reciprocal partnership in science and technology. Specifically, it first sets forth the broad principles under which the governments of the United States and Japan will conduct their future science and technology relationship.

Second, it establishes cooperation in science and technology areas of national importance in which both countries have complementary capabilities and from which both countries will obtain equitable benefits.

Third, it calls for both governments to provide comparable access to their government-sponsored or -supported research facilities and activities, as well as to scientific and technical literature.

Fourth, it creates a broad management structure that will oversee the overall science and technology relationship and generate initiatives and policy recommendations to strengthen that relationship.

Fifth, as required by the Executive Order and the Omnibus Trade Bill, it sets forth provisions for the adequate protection of intellectual property and the distribution of intellectual property rights arising from the collaborative activities under the agreement.

Sixth, and finally, it details the shared security obligations of the United States and Japan in the area of collaborative science and technology information. It states that both countries will support the widest possible dissemination of information, subject to export controls, classification procedures, and intellectual property rights protection.

In my view, the new agreement will begin a long overdue process to redress the current imbalances in the flow of new knowledge and technology from the United States to Japan, without closing our borders to science and technology activities here in the United States. In this sense, it is a win-win situation.

No agreement is ever complete until it is fully implemented. Too often, as we have experienced with some U.S.-Japan agreements and bilateral political commitments, after they are signed and the pressure has subsided, nothing happens. We intend to make things happen as quickly as possible. To this end, a Joint High Level Meeting, at the ministerial level, chaired on the U.S. side by the science adviser to the President, Dr. William Graham, and on the Japanese side by the Minister of Foreign Affairs and Minister of State for Science and Technology, was held in Japan in October to breathe life into the agreement and to set the course for the next year's activities and new initiatives. This ministeriallevel meeting, to review the overall S&T relationship between the countries and monitor next year's implementation of the agreement and set the agenda, will be held on an annual basis hereafter.

In addition to strengthening bilateral S&T arrangements, the administration and, in particular, Dr. Graham, the science adviser, played a major role in developing a new OECD framework of principles for international S&T cooperation. At the May OECD Ministerial held in Paris, the Ministers endorsed this framework, first presented by Dr. William Graham in late 1987. Its adoption constitutes a major achievement for the U.S. government in pursuing our goal of supporting an open, flourishing S&T system. By adopting these principles, OECD nations are signifying their intention to provide adequate investment and commitment to excellence in the basic sciences. They are acknowledging that, in science and technology, as in economic relations, reciprocity and balanced access provide a solid foundation for stable, lasting cooperation. A shared partnership, such as the one encompassed by the U.S.-Japan S&T Agreement, will be the basis for all bilateral relationships in science and technology among developed countries.

There is growing bipartisan consensus emerging in the United States that we can no longer divorce our science and technology relationship from the strength of our economy and the security of the nation. The new administration must find a way to continue building on the foundation we have laid through our bilateral S&T negotiations and through the future-oriented OECD framework.

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