THE WHITE HOUSE

WASHINGTON

August 11, 1987

MEMORNADUM FOR MICHAEL DARBY
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BRUCE MERRIFIELD

FROM: EUGENE McALLISTER EM

SUBJECT: Superconductivity Act

The President's Superconductivity Initiative has been drafted by the Department of Justice and is currently working its way through the OMB legislative clearance process. We will want to get this bill up to the Hill when the Congress returns in September. This note is to ask for your suggestions and ideas on how we can help ensure passage on a fast track.

Some of you may have seen recent editorials and op-eds criticizing the President's initiative, in particular the FOIA reform provision. I think that it is important in planning a strategy for the President's bill that we anticipate this criticism and rebut it either by clarifying what it is the Administration is trying to achieve through the particular reform or providing a real example of why the reform is needed.

I would appreciate from you all, in particular, suggested rationales for the three provisions of the President's Initiative, or suggested talking points, e.g. on the Freedom of Information Act reform. In addition, I would appreciate any anecdotes or examples on why these reforms are being proposed, e.g. instances where Federal agencies have been forced to release commercially valuable technical data or information through FOIA. These should be examples we can use.

I realize that some of you may be out of the office over the month of August, but if you could provide me with some feedback over the next week, I would appreciate it.

Thank you very much.

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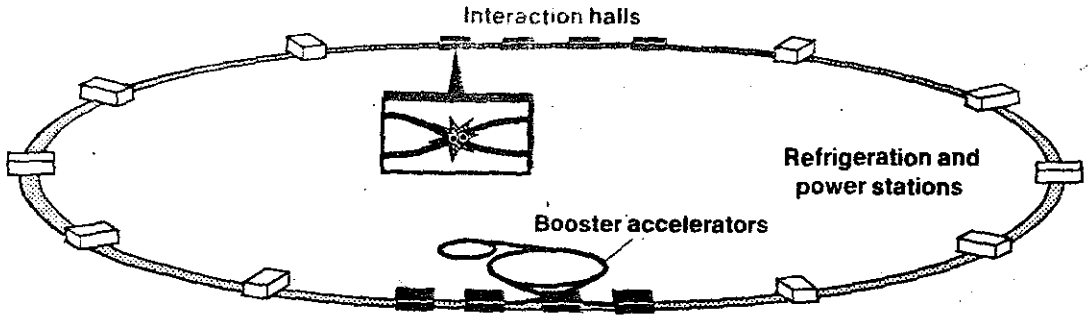
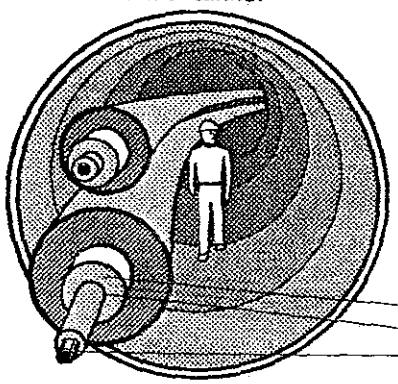


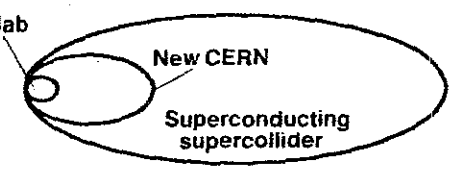
Cross section of tunnel



The proposed superconducting supercollider would accelerate protons to great speeds, smash them into each other and observe the new particles the collisions produce. Smaller booster accelerators begin the process by flinging protons into the accelerator's giant ring, where two proton beams, imprisoned by coils of superconducting magnets, speed around the 52-mile ring in opposite directions. The beams cross and collide in interaction halls.

Bending the particles' path requires powerful magnets. The power of electromagnets is enhanced through superconductivity — a state in which some materials at extremely low temperatures carry electricity without loss of energy.

Moving the particle beams at desired speeds requires accelerators of great size. The largest accelerators now in operation, both about four miles in circumference, are at Fermilab, in Batavia, Ill., and at the European Laboratory for Particle Physics (CERN), near Geneva. CERN is constructing a new accelerator that will be 16 miles in circumference.



The New York Times/Jan. 31, 1987

By BEN A. FRANKLIN

Special to The New York Times

WASHINGTON, Jan. 30 — The Administration announced today that it would immediately ask Congress for funds to start planning and building a giant $6 billion atom smasher.

The device, a superconducting supercollider in a 52-mile oval tunnel, would dwarf existing machines used to probe the secrets of matter and energy.

The project to build the world's largest research machine, in which subatomic particles moving at high speed would collide and burst, is as scientifically significant as America's 1969 manned landing on the moon, Secretary of Energy John S. Herrington said.

The device would accelerate atomic particles to an energy level 20 times greater than possible in existing laboratories. Mr. Herrington said that on completion in 1996, the supercollider would "bring answers to unsolved questions that have fascinated the world since the earliest times, such as what are the fundamental building blocks of matter."

The need for the device has been debated for years. Some scientists say it is crucial if the United States is to stay on the frontiers of particle physics. By enabling scientists to experiment at higher energies and smaller scales than before, proponents say, the supercollider may provide new insights into the elementary forces and particles of the universe.

Opponents of the project contend that it is too costly and unlikely to produce commensurate results.

At least 20 states have sought to be the home of the supercollider, but Mr. Herrington said a site decision was still months away at least.

The announcement by Mr. Herrington at a news conference this afternoon followed a series of showdown meetings at the White House on Thursday. Mr. Herrington was reported to have persuaded President Reagan to sup-

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New York Times
JAN. 31, 1987

NEXT

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UNIVERSITIES, PROFESSORS, STUDENTS, AND INDUSTRY: A PUBLIC BENEFIT

On the cover of the February/March 1986 issue of the MIT Technology Review, readers were asked, "Do Patents Corrupt Universities?" This headline introduced an article in that issue by Charles Weiner entitled, "Universities, Professors, and Patents: A Continuing Controversy." In that article, MIT Professor Weiner asserts patenting tarnishes the image of universities and gives rise to conflicts of interest that erode public trust. He further claims that not only often do involved faculty have their creditability questioned but that scientific exchange is restricted as both faculty and administrators seek to shore up patent positions.

Given a lack of sensitive attention to the basic values of the academy and individual and university potential conflicts of interest, it is clear each of the above assertions can come true. This article will explore steps universities have taken and are taking to avoid such unhappy results.

UNIVERSITY-INDUSTRY TECHNOLOGY TRANSFER MECHANISMS

As a condition precedent to discussing conflicts of interest, however, it is appropriate to deal briefly with the question of whether or not universities should be involved with industry at all, insofar as the contractual mechanisms of patent license agreements, consulting agreements, and research agreements.

While the above contractual forms of interaction with industry perhaps draw the most attention, it should be realized by far the most significant form of interaction of a university with industry is the provision of educated and trained graduates. Other forms of interaction and technology transfer by university to industry occur through publications in learned journals, technical conferences, and the like.

While not technology transfer mechanisms, it should also not escape our attention that universities and industries are also linked through endowment investments in company stock and through service of industry and university officers as university trustees and company directors.

NATIONAL INDUSTRIAL COMPETITIVENESS

We are in the midst of global economic revolution, featuring the rapid emergence of non-Western nations as new suppliers of the world's industrial goods. These nations enjoy advantages (at least temporarily) of low wage costs and the ability to quickly assimilate foreign technology and marketing methods.

To participate in this new economic order, industrialized nations are increasingly turning to innovation, seeking to leverage their intellectual capacity with capital to compete on a technological rather than a cost basis. The newly industrializing countries also are turning their attention to innovation, as their labor costs rise and automated production reduces the labor component of end products.

The United States has enjoyed the advantage of a high ratio of natural resources to population and an internationally competitive industry. The resource to population ratio is diminishing, and our industrial competition is faltering. The U.S. now is experiencing a year-by-year continuation of a negative balance of payments and increasing unemployment.

While certainly not "the" complete answer to this situation, at least one answer is to enhance the flow of university research results into industrial goods and services. This clearly has been occurring, particularly subsequent to the

enactment by Congress in 1980 of Public Law 96-517. This law not only provided legal rights to encourage university-industry interaction, but the debate that led to its nearly unanimous adoption in the House and Senate served to create a climate of awareness of the national significance of enhancing innovation.

UNIVERSITIES AND NATIONAL COMPETITIVENESS

So, is it appropriate a university and its faculty actively engage in those contractual mechanisms of interaction with industry which have "potential" for tarnishing the image of the university, eroding public trust and restricting scientific exchange? Can universities and their faculty manage such interactions to avoid such pitfalls? I believe the answer to both questions is yes.

Universities (their faculty and students) have a societal obligation to assist in the process by which results of their research, funded by the public, in turn benefit the public. The process of innovation of basic research is heavily people-dependent, requiring both entrepreneurial technology transfer staff and involved inventors to achieve success. Professor Weiner's alternatives such as a "national non-profit patent-handling body that would transfer the results of academic research to the public," in order to "avoid the pitfalls in patenting and commercializing the results of academic research" would significantly reduce the number of successful technology transfers. Indeed, an important fact that led to PL 96-517 was the showing only 3%-4% of more than 20,000 patents held by the government were licensed compared to the university experience of 25%-50% when universities held title and managed licensing.

There is no doubt potential pitfalls abound in commercializing results of academic research. But through careful attention to public interest and academic

principles, universities can successfully be active rather than passive participants in the innovative process. The keys are integrity and openness.

There have been two prominent centers of great entrepreneurial activity in the United States, one on each Coast. One is the Route 128 area around Boston and the other is the Silicon Valley area south of San Francisco. The relationship of MIT to the Route 128 area and Stanford to Silicon Valley is a matter of record. There is an entrepreneurial culture at both locations and the universities, their faculties, and their students have been very much a part of the culture. Despite their close interactions with industry, these institutions are world class, and it is debatable whether their interactions with industry have eroded public trust or that the quality of their research has deteriorated because of these close interactons.

Professor Weiner observes Stanford "may impair its image as an educational and research institution" by enforcing its basic recombinant DNA process patent against infringers on behalf of it and the University of California. Were Stanford not ready to enforce its patents, its public image as a responsible steward of its assets (in this case patents) would surely be impaired. A university can turn to society for funds to maintain its educational and research functions but can also take steps to help itself.

CORPORATE CONFLICT OF INTEREST

Generally, there is a tendency to focus more on the conflicts of interest of the individual rather than of the corporate body such as the university, a school, a department, or other entity within the university. The reader is first asked to accept that, in general, the issues of potential conflict

regarding patenting and licensing will emanate from the actions of the Technology Licensing Office (TLO). Let us also postulate that the locus for resolution of issues regarding potential conflict situations in most universities resides with the university Provost, who often will delegate responsibility for administration to a vice president or dean of research. This academic officer (which I will hereafter call the "Dean") often will interact with a university committee (hereafter "Research Policy Committee") composed of faculty and (at some universities) student members. While the Dean will seek guidance and recommendations of the Research Policy Committee, the Dean is the ultimate authority for questions of conflict of interest.

ORGANIZATION

There are organizational locations where the TLO generally should not reside to avoid at least perceptions of conflict. One is in the Office of the Treasurer or other university offices responsible for endowment investments. The concern here is that a technology derived from public funding not be directed toward a company solely because the Treasurer's Office has a significant investment in that company. That is, the TLO should select the licensee it judges most qualified and capable to develop the technology to a product, which may or may not be the company in which the university has a significant investment.

It is important to note in considering organizational structures to minimize conflict, it is largely perceptions of possible conflicts we seek to reduce. Whatever the organization, clear conflict avoiding procedures can be established for the TLO to follow. But no matter which procedures are followed or organizational mode, a determined critic could still claim any decision is based on inappropriate motives or criteria.

It is also worth considering that the TLO and the university's Sponsored Projects Office be organizationally separate. The TLO deals with the output of research and the Sponsored Projects Office deals with research coming into the university. Decisions regarding research to be performed at the university should be based on good science rather than potential commercializable results. For example, in a situation where the company does wish to support a line of research at the university from which it received a license, the Sponsored Projects Office should not be in a position where it could be perceived that it was influenced to make a decision to bend any normal academic criteria for evaluation and acceptance of the research project because of considerations regarding the license grant.

The viewpoints of deans and department chairmen are often critical in conflict reviews but should be only advisory insofar as the Dean's final decision regarding a conflicts of interest situation. This would be of concern in those universities where a sharing of royalty proceeds goes to the departments and schools of the inventors. It could be perceived there might be influence to bend principles in order to receive those scarce unrestricted funds. Again, recall, these factors largely relate only to the avoiding of "perceptions" of conflict.

An organizational locus where it also seems inappropriate to decide on matters of conflict of interest would be the schools' legal advisors. The decision making with regard to potential conflicts is often more subjective than objective. A conflict review from a legal aspect, such as a focus on the wording of regulations, can tend to miss the major public interest and academic issues and can easily lead to "gaming the system," as a matter is removed from the realm of principle to the realm of wording interpretations.

PUBLISHING RESTRICTIONS

Scientific advance is based upon the central tenet of university research, the prompt and open dissemination of research findings to others. But publication before patent filing will void the ability to obtain patents in most countries. Also, the value of many technologies will be greatly diminished to a company if all details are made available to competitors. Hence, a TLO or a faculty or student inventor will be subject to temptations to seek a publication delay.

But there can be no compromise on this issue. That is, under no circumstances should publication of sceintific research be delayed for commercial reasons such as to shore up a patent position or enhance a licensee's competitive position. No publication has been delayed by the Stanford TLO in its 17-year history.

This means not even noting the policy to a scientist with a wink that implies we are not serious about the policy; it means emphatic urging of rapid publication of scientific findings.

Few will remember who was second or third to publish. Of course, urging rapid publication may lose royalty dollars. But diversion of science from the pursuit of truth to pursuit of dollars is far, far greater loss.

INSIDER LICENSING

"Insider" licensing must be avoided. That is, a technology should not be licensed to a company solely because the company president is a major donor, the university has equity in the company, and so on. But this should not imply a top performing licensee should not receive new licenses. In such a case, the decision is based on performance not influence.

IDENTIFYING POTENTIAL CONFLICT OF INTEREST SITUATIONS

There are few of us that are in positions where conflict of interest could not be alleged. The scientists could be accused that public-funded research was redirected for benefit of a consulting client, teaching was slighted in order to write that potential best seller, graduate student research topics were selected to benefit one's company, and so on. Conflict "potential" cannot be escaped. Ultimately, we must rely on the integrity of the individual or institution. And for the public to have a confidence in the individual's or institution's integrity, the solution is a policy of openness and knowing that the public interest is a central objective in the individual's and institution's decision-making process and behavior.

Identifying potential conflict situations in connection with university/industry interactions requires great sensitivity by those involved in the process particularly in connection with contractual arrangements such as patent licenses or research agreements. In a prospective contractual relationship when a potential for conflict has been identified, the matter will be brought forward for university conflict reviews before proceeding further.

Potential for conflict exists when faculty and students (or the university as a corporate body) have a connection with the potential licensee or research sponsor (such as equity, membership on Scientific Advisory Board, long-term consulting in relationship, founder position, and the like). In a technology licensing arrangement, one has to assume such conflict potential exists whether the proposed license is exclusive or nonexclusive. For certain licensed technologies where the "show-how" of the inventors is critical, a nonexclusive license to a company (which has an exclusive consulting arrangement with the inventors) can be a de facto exclusive license.

CONFLICT REVIEW PROCEDURES

While reviewing potential conflict factors, it also is important that the goal of efficient transfer of the technology to the public be considered.

In general, a conflict review with the Dean will include the involved faculty member or students and the university administrative officer responsible for the license agreement or research agreement. The faculty member's dean or department chair or the students' advisor may also be involved in such meetings when appropriate.

In many cases, a meeting will not be necessary when the Dean determines in a review with the administrative officer bringing the conflict matter forward that appropriate mechanisms to prevent actual conflict are in place via the contractual agreement or a side agreement with the involved faculty member or if the connection with the company is so remote as to bring no practical potential for conflict.

Following are factors that might be reviewed in a potential conflict situation. There may be other factors relevant to the particular situation to be brought forward and some of the factors may not apply.

a. Personal Commitment of Faculty Member to Licensee in Relation to University Commitments. Here the consideration is largely of time commitments. Do prospective commitments to the company conflict with obligations of the faculty member to his or her student advising, teaching, research, and (for Medical School faculty) patient care?

b. Nature of Research at the University of the Faculty Member. A central factor addressed in review of conflict situations by Professor Ken Smith, Vice President for Research at MIT, is whether or not the

technology being licensed is "history" in the faculty member's laboratory. That is, if future research of the faculty member at the university does not involve the licensed technology, the potential for diversion of laboratory research to benefit the company's interests is largely removed.

The history test, as other conflict tests discussed in this section, must be implied with judgment. For example, many, if not most, cases from a medical school will involve continuation of an academic research decision by the involved medical scientist(s) that directly will benefit the prospective licensee. The Dean must balance the public interest in rapid public availability of the new medical therapy or diagnostic versus the practical effect of the perceived potential conflict. (God did not say decisions in life would be easy.)

c. Nature of student involvment if any. Will the proposed arrangement have any effect on the faculty member's students? Is the faculty member simultaneously the students' thesis advisor and corporate employer? Will the student's involvement with the company delay completion of his or her thesis? Will student support (from research sponsors) be affected?

d. Nature of Contractual Commitments of Sponsored Research in Which Faculty Member is Involved. If technology arose under sponsored research, is sponsor knowledgeable of proposed arrangement? Will future research support or research directions be influenced?

e. Publications, Tangible Research Property, Distribution. Will the proposed arrangement in any way affect prompt and open publication of research results or distribution of tangible research property?

f. Nature of Proposed License. Will financial and other terms be negotiated on an "arms-length" basis? Are there any unique clauses to deal with connection of faculty member to company? Is the proposed license exclusive or nonexclusive? Is the license arrangement the best means available to bring the technology forward for public benefit?

g. Prospective Involvement of Company with Stanford, Its Faculty or Students. These involvements could be research or gift support, planned hiring of a specific student, a company scientist's participation in research at the University, testing of the company's prototype product, etc. Do any of these involvements have potential for inappropriate influence?

h. Nature of confidentiality of Any Arrangement. (Note that it is not inappropriate to withhold from publication business matters of a license such as royalty terms or even announcement of a license if the company does not want its competitors to know that company is directing its resources toward a new competitive product.) We here are concerned with anything in connection with the proposed arrangement which might imply a constraint on the ability of the involved faculty or students to freely disclose their research results.

As noted earlier, any list cannot be all inclusive, nor will all of these factors be relevant to any particular case. Nor should one consider tabulation of such factors a check list, where all the checks must be one column for the arrangement to be approved or disapproved. In any review situation, the technology transfer objective also is a key consideration.