THE WHITE HOUSE

WASHINGTON

July 3, 1989

Professor R.W. Charlton
Vice-Chancellor and Principal
University of the Witwatersrand
One Jan Smuts Avenue
Johannesburg 2001
South Africa

Dear Professor Charlton:

Many thanks for your warm note of congratulations on the occasion of my appointment as Assistant to the President for Science and Technology and Director of the White House Office of Science and Technology Policy.

I am happy to be considered a member of your University family and, if your travels should bring you to Washington, please do let me know so that I could have the pleasure of taking you to lunch in the White House.

With warmest best wishes.

Sincerely yours,

D. Allan Bromley

DAB:lac

Office of the Vice-Chancellor and Principal

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

1 Jan Smuts Avenue, Johannesburg 2001 WITS 2050
Telegrams 'Uniwits' Fax: (011) 339-8215 Telephone (011) 716-3200

9 June 1989

Dr D Allan Bromley
Department of Physics
Yale University
New Haven
Connecticut 06520
UNITED STATES OF AMERICA

Dear Dr Bromley

I write to congratulate you, as the recipient of an Honorary Doctorate from this University, most sincerely on your appointment as Science Adviser to the President of the United States.

Please accept the good wishes of myself and my University. You will fill this important office with the distinction which has marked your whole career.

Yours sincerely

Bob Charlton

R W CHARLTON
Vice-Chancellor and Principal

RWC/sa/14/022

THE WHITE HOUSE

WASHINGTON

December 27 '69

Dr. Robert Correll:

Dear Bob:

Enclosed here on are the data for Miles Bluett that I mentioned in our recent conversation.

Best regards — and happy new year.

Sincerely

Ada

THE WHITE HOUSE

WASHINGTON

August 17, 1989

Dear Admiral Cooper:

Thank you for your invitation to speak to members of the Naval Submarine League (NSL) and the Johns Hopkins Applied Physics Laboratory at the Technical Symposium next May. I look forward to being with you on that occasion if possible.

When you have more details about the meeting and attendees, I will be interested in seeing them.

Sincerely,

D. Allan Bromley

Dr. D. Allan Bromley
Assistant to the President
for
Science and Technology

Admiral D. L. Cooper
Vice Admiral, U.S. Navy
(Undersea Warfare)
Washington, D.C. 20500

THE WHITE HOUSE
WASHINGTON

August 24, 1989

Dear Dr. Coles:

Unfortunately Mark Crawford's interpretation of my Senate confirmation hearing statements was quite the opposite of my intent. I am a strong supporter of the Human Genome Project and certainly did not imply, in the slightest, any interest in delaying or stretching it out. What I was attempting to do was to emphasize what, in my view, was an important cooperation between the instrument intensive groups at the Department of Energy's National Laboratories and the scientists in the NIH laboratories in evolving an effective and efficient approach to this challenging program.

Unfortunately, I find that all too many publication interpretations of formal statements such as mine tend to search for possible areas of controversy amplifying or manufacturing them as the need may arise.

Thank you for your interest,

Sincerely yours,

D. Allan Bromley
Assistant to the President
for
Science and Technology

Dr. L. Stephen Coles
Computer Science Department
University of Southern California
University Park
Los Angeles, California 90089-0782

COMPUTER SCIENCE DEPARTMENT

Henry Salvatori Computer Science Center
(213) 743-5501

August 4, 1989

Dr. Allan Bromley, Director
Office of Science and Technology Policy
The White House
Washington, D.C

Dear Dr. Bromley:

Reading Mark Crawford's News & Comment Report in *Science* (Vol. 245, p. 349, July 28, 1989, "Senate Committee Quizzes Bromley"), it stated that you "hinted that the Human Genome Project might be stretched out." Awaiting the development of new technology for sequencing and data analysis before making a commitment is in my view precisely wrong. The urgency with which this project must be pursued dictates that your Office must take the initiative in aggressively managing the development of this new technology. In this way we can continue the Human Genome Project mapping goals according to the schedule originally proposed by Dr. James Watson.

I have many ideas about the strategic and tactical approach to conducting this technology development program and would be happy to discuss them with you further at your convenience.

Sincerely yours,

L. Stephen Coles

L. Stephen Coles, M.D., Ph.D.
Lecturer in Computer Science
and Radiology

LSC/bas

THE WHITE HOUSE
WASHINGTON

August 24, 1989

Dear Dave:

Many thanks for your thoughtful note of July 31st which arrived while I was out of the country. I did indeed have to weigh the charms of Washington against those of a number of activities, such as STAC, where I had the very pleasant opportunity to meet on a regular basis with a great many old friends.

I look forward to an interesting few years here in Washington and know that I will have frequent occasion to call on these old friends for help and advice. You should consider yourself warned!

Sincerely yours,

D. Allan Bromley
Assistant to the President
for
Science and Technology

Dr. David H. Cohen
Vice President for Research
Dean of the Graduate School
Northwestern University
Evanston, Illinois 60201

NORTHWESTERN UNIVERSITY

VICE PRESIDENT FOR RESEARCH AND
DEAN OF THE GRADUATE SCHOOL

DAVID H. COHEN

EVANSTON, ILLINOIS 60201
312-491-3485

July 31, 1989

Dr. D. Allan Bromley
Henry Ford II Professor of Physics
and Director, A.W. Wright Nuclear
Structure Laboratory
Yale University
272 Whitney Avenue
New Haven, Connecticut 06511

Dear Allan:

On behalf of the Scientific and Technical Advisory Committee of Argonne National Laboratory, I offer our warmest congratulations on your appointment as Presidential Science Advisor. Your decision must have been extraordinarily difficult, knowing that accepting the new post might conflict with your ability to serve on STAC.

I wish you every success and would like to indicate my personal sense of reassurance that President Bush will have such able and accomplished counsel during a challenging period for the scientific enterprise of the nation.

With warmest regards,

Dave Cohen

David H. Cohen
Chairman, STAC

DHC/zg

THE WHITE HOUSE
WASHINGTON

August 24, 1989

Dear Warren:

I had certainly not forgotten the Warren Cheston of the University of Rochester in the 1950s, but was a little surprised to find him deep in the midst of the biomedical world.

Let me thank you for your note of congratulations and your invitation to present the Arthur Stern lecture.

As you can imagine, I am occupied about 200 percent of the time at present attempting to get my office appropriately staffed and in operation, but your invitation is one that I would be interested in accepting if it could perhaps be postponed until late this fall or sometime next spring when I hope to have things under control.

It was good to hear from you. You have picked a good year for your centenary and I shall look forward to seeing you sometime within the next few months.

With all best wishes,

Sincerely yours,

Allan

D. Allan Bromley
Assistant to the President
for
Science and Technology

Dr. Warren B. Cheston
Associate Director
The Wistar Institute
36th Street at Spruce
Philadelphia, Pennsylvania 19104-4268

THE WISTAR INSTITUTE

WARREN B. CHESTON, Ph.D.
ASSOCIATE DIRECTOR
(215) 898-3706

THIRTY-SIXTH STREET AT SPRUCE PHILADELPHIA, PA 19104-4268
PHONE: (215) 898-3700
TELEX #710 670 0328
TELEFAX #(215) 898-3995
CABLE ADDRESS: WISTARINST

August 14, 1989

D. Allan Bromley, Ph.D.
Director, Office of Science and Technology Policy
Old Executive Office Building
17th Street and Pennsylvania Avenue, N.W.
Washington, D.C. 20506

Dear Allan:

Congratulations on your appointment by President Bush and confirmation by the United States Senate. Your friends and colleagues wish you well on this important assignment.

In addition to sending congratulations, I am inviting you, at your convenience, to present the next Arthur Stern Lecture sponsored by The Wistar Institute. If you are able to accept this invitation, the occasion would give you an opportunity to discuss your policies and the goals of you office with representatives from a large conglomeration of universities, research institutes, and research/teaching hospitals in the Philadelphia area. I am certain that we will be able to assure you of an audience of the movers-and-shakers of the science, engineering, and medical communities of this area.

It may be that you are unfamiliar with The Wistar Institute and its programs. Our stature in the world of biomedical research can be attested to by Sam Broder of the National Cancer Institute. We devote our efforts totally to basic biomedical research and have along the way developed viral vaccines and cancer diagnostics and therapeutics which are manufactured and marketed by commercial organizations throughout the world. We shall be 100 years old in 1992.

Finally, it is more than possible that you have forgotten that we were graduate students together in the physics department at the University of Rochester. It is one of the reasons I have taken the liberty of writing to you.

Best personal wishes,

Warren

Warren B. Cheston, Ph.D.

WBC/gh

THE WHITE HOUSE
WASHINGTON

August 28, 1989

Dear Hirsh:

Thank you for bringing the study on the AIDs epidemic modeling to my attention. When Jim Wyngaarden comes on board as my Associate Director for Life Sciences, he will be contacting you on the issue you raised concerning the Survey on HIV propagation. I intend to place increased attention on life sciences in general, and welcome any information in this area that you feel should be brought to my attention. I agree that it is long past time when we should be doing something concrete about your excellent report.

Warmest personal regards,

Sincerely yours,

D. Allan Bromley
Assistant to the President
for
Science and Technology

Dr. Hirsh Cohen
International Business Machines Corporation
Thomas J. Watson Research Center
Post Office Box 218
Yorktown Heights, New York 10598

THE WHITE HOUSE
WASHINGTON

August 29, 1989

PERSONAL

Dear Marvin:

I was delighted to get your letter and must say that I look back on our efforts to sort out the Physics Department and the Wright Laboratory with more than a little nostalgia. What I badly need here in Washington is someone with your sense both of style and of how to get things accomplished efficiently and effectively. You did a tremendous job for me in both of these situations and I am truly grateful. Quite apart from that, it was fun!

I'm glad to hear that you have decided to redo your round the world venture, but am puzzled as to how you actually include both poles in this. I would suspect that the facilities would be marginal at best!

As you can imagine, I desperately miss Mary Anne and was prepared to do anything, up to and including kidnapping, to bring her to Washington but I understand that, with Megan at her present age, it really was not very feasible. In any event, I need someone to look after my interests back at WNS until I get back. I understand, via the grapevine, that Peter has made some rather dramatic changes in the place.

We are still in the process of getting settled in our new Bethesda home and I would feel much happier if we did not still own the one in North Haven. There is however precious little that one can do about the fact that the Connecticut housing market seems to have collapsed.

If any of your travels brings you to the Washington area, please do give me some warning so that I can have the

pleasure of taking you to lunch at the White House Mess. It is one of the few fringe benefits that go with this position.

Pat joins me in sending you our warmest best wishes,

Sincerely yours,

D. Allan Bromley
Assistant to the President
for
Science and Technology

Mr. C. Marvin Curtis
38 Castle Rock
Branford, Connecticut 06405

38 Castle Rock
Branford CT 06405

WEDNESDAY,
AUGUST 23RD

ALLAN —

YOU MAY BE GONE BUT YOU'RE CERTAINLY NOT FORGOTTEN SINCE ① I'VE JUST RECEIVED A COPY OF THE 1987 WUSL SYMPOSIUM PROCEEDINGS (WHO DID THOSE EXCELLENT PORTRAITS OF YOU?) ② I UNDERSTAND THAT THE CLEVE GRAY IS NOW ENSCONCED ON YOUR NEW OFFICE WALL (I'D LIKE TO BE CUSTODIAN OF ONE OF THE OTHERS - I WONDER WHERE THEY ARE) AND ③ ALONG WITH BOTH OF YOUR ADDRESSES, MARY ANNE WAS GOOD ENOUGH TO SEND ME YOUR SHEETS OF YOUR CONFIRMATION HEARINGS - THESE MUST HAVE BEEN FOUR OF YOUR FINEST HOURS! ALONG WITH MY PART-TIME JOB AS A RECREATIONAL THERAPIST (AND I MAJORED IN ENGLISH!) AT A LOCAL HEALTH CARE FACILITY FOR OLDER PEOPLE WHICH I FIND EXTREMELY REWARDING, I REMEMBER WITH GRATITUDE YOUR KEEPING ME BUSY BY PERSUADING ME TO HELP OUT WITH THAT PHYSICS GRADUATES REUNION LAST MAY. TO ALL OF WHICH I ADD - BY LOOKING BACK ON MY WORKING RELATIONSHIP WITH YOU THROUGH THE YEARS (TOPPED BY THAT VERY SPECIAL TEAM FOR MY RETIREMENT). AND TO THINK THAT IT ALL BEGAN WITH THAT ONE WORD — STYLE! AT ANY RATE, BEFORE THIS PEN RUNS OUT OF THE INK IT APPEARS TO BE LOSING, I JUST THOUGHT I'D LIKE TO SEND YOU - AND ANY — SOME LOCAL GREETINGS! ALL THE BEST TO BOTH OF YOU NOW AND ALWAYS — AND THANKS!

THIS IS WHAT HAPPENS WITHOUT A HAND! I'M RATTLED!

LL

PS — I'VE DECIDED TO GO AROUND THE WORLD AGAIN, THIS TIME INCLUDING BOTH POLES!

PPS — THIS NEED NOT BE ANSWERED. LL

THE WHITE HOUSE
WASHINGTON

August 30, 1989

Dear Paul:

Many thanks for your very interesting letter of August 23 addressing the question of low-cost access to space. This is an extremely useful summary and I shall have frequent occasions to refer to it. Beyond that, I will look forward to discussing some of these possible activities with you in the near future.

Again, my thanks for writing.

Sincerely yours,

D. Allan Bromley
Assistant to the President
for
Science and Technology

Dr. Paul J. Coleman, Jr.
President
Universities Space Research Association
The American City Building, Suite 212
Columbia, Maryland 21044

Withdrawal/Redaction Sheet
(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
01a. Letter	To: Allan Bromley From: Paul Coleman Re: Low-cost Access to Space (5 pp.)	8/23/89	(b)(1)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Correspondence Files
WHORM Cat.:
File Location: D. Allan Bromley Correspondence - Presidential - C [1989]

Date Closed:	2/8/2010	**OA/ID Number:**	62003-007
FOIA/SYS Case #:	2005-0336-F	**Appeal Case #:**	
Re-review Case #:		**Appeal Disposition:**	
P-2/P-5 Review Case #:		**Disposition Date:**	
AR Case #:		**MR Case #:**	
AR Disposition:		**MR Disposition:**	
AR Disposition Date:		**MR Disposition Date:**	

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P-1 National Security Classified Information [(a)(1) of the PRA]
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P-3 Release would violate a Federal statute [(a)(3) of the PRA]
P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [a)(5) of the PRA]
P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

Freedom of Information Act - [5 U.S.C. 552(b)]

(b)(1) National security classified information [(b)(1) of the FOIA]
(b)(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
(b)(3) Release would violate a Federal statute [(b)(3) of the FOIA]
(b)(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
(b)(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
(b)(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
(b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
(b)(9) Release would disclose geological or geophysical information

Withdrawal/Redaction Sheet
(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
01b. Report	Low-cost Access to Space: Some Relevant Activities (7 pp.)	7/25/89	(b)(1)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Correspondence Files
WHORM Cat.:
File Location: D. Allan Bromley Correspondence - Presidential - C [1989]

Date Closed:	2/8/2010	**OA/ID Number:**	62003-007
FOIA/SYS Case #:	2005-0336-F	**Appeal Case #:**	
Re-review Case #:		**Appeal Disposition:**	
P-2/P-5 Review Case #:		**Disposition Date:**	
AR Case #:		**MR Case #:**	
AR Disposition:		**MR Disposition:**	
AR Disposition Date:		**MR Disposition Date:**	

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P-1 National Security Classified Information [(a)(1) of the PRA]
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P-3 Release would violate a Federal statute [(a)(3) of the PRA]
P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [a)(5) of the PRA]
P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

Freedom of Information Act - [5 U.S.C. 552(b)]

(b)(1) National security classified information [(b)(1) of the FOIA]
(b)(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
(b)(3) Release would violate a Federal statute [(b)(3) of the FOIA]
(b)(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
(b)(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
(b)(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
(b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
(b)(9) Release would disclose geological or geophysical information

THE WHITE HOUSE
WASHINGTON

August 30, 1989

Dear Paul:

Many thanks for your very interesting letter of August 23 addressing the question of low-cost access to space. This is an extremely useful summary and I shall have frequent occasions to refer to it. Beyond that, I will look forward to discussing some of these possible activities with you in the near future.

Again, my thanks for writing.

Sincerely yours,

D. Allan Bromley
Assistant to the President
for
Science and Technology

Dr. Paul J. Coleman, Jr.
President
Universities Space Research Association
The American City Building, Suite 212
Columbia, Maryland 21044

THE WHITE HOUSE

WASHINGTON

August 31, 1989

MEMORANDUM FOR RICHARD COOK

FROM: D. ALLAN BROMLEY DAB

SUBJECT: NOVA PROGRAM RECEPTION SEPTEMBER 25
AIR AND SPACE

I would assume that you would not object to my inviting someone with this occasion DAB

You have asked for suggestions of possible persons associated with OSTP whom you might invite to the above mentioned reception. I would suggest:

1. Dr. James Wyngaarden, Director, NIH
   (will be OSTP Associate Director)

2. Dr. Thomas Ratchford, Executive Director, AAAS
   (will be OSTP Associate Director)

3. Dr. Judith Bostock, OSTP
   (Special Assistant to the Director)

4. Dr. James Decker, OSTP
   Assistant Director for Physical Sciences

5. Dr. Nancy Maynard, OSTP
   Assistant Director for Environmental Science

6. Ms. Michelle Van Cleave, OSTP
   Assistant Director for Defense Science

Others not in OSTP whom you might wish to invite would be:

Dr. Erich Bloch, Director NSF
Dr. Jack Gibbons, Director OTA
Dr. Craig Fields, Director DARPA
Dr. Robert Hunter, Director OER/DOE
Dr. Gordon Oehler, Senior Scientist, CIA
Dr. Nyle Brady, Senior Scientist, AID
Mr. Thomas Murrin, Deputy Secretary, DOC

I appreciated your visit and the brief papers you left with me have been most helpful. We have very real problems and I have appreciated your input concerning them.

I look forward to meeting your Chairman when he is next in town.

THE WHITE HOUSE
WASHINGTON

September 13, 1989

MEMORANDUM FOR LOIS HAMATY
National Science Board
National Science Foundation

SUBJECT: Paul Chu's Medal of Science Certificate

Professor C.W. (Paul) Chu of the Texas Center for Superconductivity at the University of Houston was here in Washington recently, serving on an ad hoc panel that I've assembled.

He mentioned to me at that time that he had never received the certificate -- suitable for framing -- that was supposed to have accompanied the Medal of Science which he was awarded a year ago, at the same time I received mine. I told him I would make contact with you to see what had happened in his case, and to make sure that if the original had become lost a duplicate would be made up and forwarded to him.

I would very much appreciate your taking care of this matter or directing me to the appropriate person who will make it happen.

With all best wishes,

D. Allan Bromley
Assistant to the President
for
Science and Technology

THE WHITE HOUSE
WASHINGTON

September 15, 1989

Dear Dr. Hill:

Many thanks for your letter of August 28 and for your kind comments on our recent meeting. I do indeed know that Tom Ratchford has been depending upon you for copies of many of your policy studies and reports and in many cases he has been passing them on to me. I have been very much interested not only in the content but also in the very high quality that is evident in all of those that I have seen.

I much appreciate your sending me a copy of your paper on "Agency Responsibility for Civilian Technology," which I have read with very real interest. It is indeed very much pertinent to my discussions with the people in the Department of Commerce, and as these discussions proceed, I expect to be back to you for further advice and counsel.

I look forward to working with you and am clearly going to count on the CRS for very important input to OSTP activities.

With all best wishes,

Sincerely yours,

D. Allan Bromley
Assistant to the President
for
Science and Technology

Dr. Christopher T. Hill
Senior Specialist, Science and Technology Policy
Congressional Research Service
The Library of Congress
Washington, D.C. 20540

Congressional Research Service
The Library of Congress

Washington, D.C. 20540

August 28, 1989

Dr. D. Allen Bromley, Director
Office of Science and Technology Policy
Executive Office of the President
Washington, D.C. 20506

Dear Dr. Bromley:

It was a pleasure to meet you and to hear some of your views on American science and technology policy issues at the meeting with congressional support agency staff today at the Library of Congress. Speaking for myself, I look forward to the opportunity to work with you and your staff as we assist our respective branches of this great Government. My colleagues all seemed to be impressed and pleased with your views and your style.

I am sure you know that Tom Ratchford has already called upon us for copies of many of our policy studies and reports, which we are pleased to provide so long as our congressional requesters have not imposed restrictions on the dissemination of work we do for them.

Following up on the brief small-group conversation after the meeting on government organization for the support of industrial technology, I am taking the liberty of sending along a very brief review of this issue that I prepared for the CRS publication, CRS Review. Perhaps it will be of some use to you as you work with Deputy Secretary Tom Murrin and others to unscramble this important subject.

Sincerely,

Christopher T. Hill, PhD
Senior Specialist
Science and Technology Policy

enc.

Agency Responsibility for Civilian Technology

Christopher T. Hill

Calls for the Federal Government to spur civilian technology have intensified. An important issue is, what agency should be in charge?

The role of the Federal Government in assisting the development and application of new civilian technology has grown slowly but steadily since the mid-1960s. The slow growth reflects a tension between the belief that the market can deliver new technology at an adequate pace without government assistance or that such help would be ineffective, and the belief that institutional barriers and limitations in the real marketplace inhibit the ability of industry to perform optimally. However, the rapid erosion of America's technological lead in many fields vis à vis other nations and the slow growth in productivity since the early 1970s have led to renewed calls for the Government to spur civilian technology.

During the Reagan administration the climate for industrial innovation was improved by, for example, enhancing tax incentives for R&D, establishing the Small Business Innovation Research program, and reducing antitrust barriers to cooperative research. However, disagreement over the Federal role led to case-by-case and largely uncoordinated efforts at direct financial assistance.

Until recently, no Federal agency had assumed a lead role in financing civilian technology. Now, however, both the new Federal Technology Administration (FTA) in the Department of Commerce and the Defense Advanced Research Projects Agency (DARPA) in the Department of Defense have such responsibilities. Deciding the proper role of each agency has become a key policy issue.

DARPA's Role

DARPA was established in 1958 as an exploratory research agency for DOD. With a budget today of a little more than a billion dollars and a staff of about 160, many on temporary assignments from other agencies or from outside Government, it supports early-stage, high-risk R&D projects on technologies that may have military applications but that are not of immediate interest to the services.

DARPA has contributed to the development of many "spin-offs;" i.e, technologies that subsequently have found important commercial applications, including semiconductor electronics, computers, composite materials, and artificial intelligence.

In the mid-1980s DARPA has more explicitly assisted development of essentially civilian technologies by providing matching funds for multi-firm research consortia in such fields as semiconductor chips (SEMATECH) and automated machine tools (the National Center for Manufacturing Sciences). Some argue that DOD support of key civilian sectors has become important to national security because some civilian technologies are now more advanced than military ones, and because some military systems now depend on commercial products made by industries that are threatened by foreign competition or have moved abroad.

Another reason for DARPA's growing support of civilian technology is that it has had more resources than civilian agencies, especially during the defense buildup of the past decade. Only DARPA had the budget, staff, and procedures to administer a program like SEMATECH with its annual appropriation of $100 million. Yet another rationale for DARPA's role is that many advanced technologies have both military and civilian applications. DARPA's current initiatives in high-definition television (HDTV) and high-temperature superconducting materials have been justified on this ground.

Department of Commerce's Role

For decades the Department of Commerce has been responsible for science and technology

Christopher T. Hill is a CRS senior specialist in science and technology policy.

through the Patent and Trademark Office (PTO), the National Oceanic and Atmospheric Administration (NOAA), the National Bureau of Standards (NBS, now the National Institute of Standards and Technology, or "NIST"), and the National Technical Information Service (NTIS).

These activities were consolidated under an Assistant Secretary for Science and Technology in 1962, and under a statutory Assistant Secretary for Productivity, Technology and Innovation (OPTI) in 1980. During the Reagan era, the operating responsibilities for NBS and PTO were removed from OPTI and placed directly under the Secretary of Commerce. Since NOAA had become independent of the other programs some years before, OPTI then oversaw only NTIS and several miscellaneous technology programs, including activities to transfer federally owned technology to the private sector and State and local governments pursuant to the Stevenson-Wydler Technology Innovation Act of 1980. Authority given to OPTI by that Act to fund cooperative industrial technology centers was never exercised.

The Technology Competitiveness Act of 1988 (Title V of P.L. 100-418, the Omnibus Trade and Competitiveness Act) and P.L. 100-519, the FY89 NIST Authorization Act, authorize the Department of Commerce to establish stronger, better coordinated policies and programs in support of civilian industrial technology development and transfer. Together they (1) renamed the NBS as NIST and gave it new authorities to fund regional centers for the transfer of manufacturing technology; to establish a clearinghouse for State and local programs related to productivity, technology and innovation; to assist State-based technology extension services; and to provide technical evaluation of non-energy related inventions; (2) established in NIST an Advanced Technology Program (ATP) to financially assist firms and consortia that do R&D related to industrial technology; (3) established in the Department a new Undersecretary for Technology to direct a new Federal Technology Administration (FTA) that would include NIST, NTIS, and the authorities under OPTI; and (4) established in FTA a new Assistant Secretary for Technology Policy.

However, funding for FTA and NIST has not matched the expectations in the two acts of 1988. For FY89 NIST received $7.5 million to fund regional centers that transfer manufacturing technology developed at NIST to the private sector. Because the authorization bills were enacted after the FY89 appropriations process was well along, because of the Federal budget deficit, and because of a lack of enthusiasm for the new authorities in some quarters, no funds for the other new authorities, including ATP, were requested by the President or appropriated by the Congress for FY89. The President's FY90 budget requested no money for any of the new FTA or NIST authorities. However, temporary appointments have been made to leadership posts in FTA and ATP.

Proposals for Other Agencies To Lead

Despite the establishment of FTA and the ATP, some in Congress and among the public support creation of a separate technology agency, sometimes referred to as a "civilian DARPA" or a Department of Science and Technology. It would help industry accelerate the commercialization of new and emerging technologies having high but uncertain potential for civilian applications by jointly funding R&D efforts. The ATP at NIST already has this authority, but it has no money to spend, and calls for a civilian DARPA may reflect ATP's limited visibility and doubts about whether ATP can meet the challenge.

Policy Issues

While debate continues over whether the Federal Government should fund civilian industrial technology directly, much current discussion centers not on whether, but how. One issue is whether Congress should continue to fund cooperative industrial R&D consortia on a case-by-case basis or should delegate the responsibility to an executive branch agency and give it the needed financial resources. Case-by-case support must be channeled through one agency or another, while delegation of authority keeps alive the issue of how an agency should decide who gets how much to do what.

A second major issue is whether to continue to depend on DARPA, to give the ATP in the Department of Commerce the resources to support civilian technology or to create another entity to do the job. Considerations here include whether the operating style (including security classification) and incentives at DARPA are well matched to industry needs, whether DARPA can continue to play this role in an era of shrinking defense budgets, and whether industry is sufficiently confident of the Commerce Department's long-term commitment to technology to embrace its assistance. Other issues are whether supporting civilian technology might distract DARPA from its defense mission and whether the ATP should be given a higher status, perhaps reporting directly to the Undersecretary of Commerce for Technology, to ensure access to key decision makers in other agencies and in industry. Removing ATP from NIST might also allay concern that ATP may be funded by diverting funds from established NIST standards-related research programs. ■

THE WHITE HOUSE
WASHINGTON

September 20, 1989

Dear Dr. Clodius:

Thank you for your invitation to address the Council on Research Policy and Graduate Education at the November 20, meeting of the National Association of State Universities and Land-Grand Colleges. I accept the invitation and look forward to discussing science policy and research universities with members of the Council.

With best wishes,

Sincerely,

D. Allan Bromley
Assistant to the President
for
Science and Technology

cc: Dr. Thomas Collins

Dr. Robert L. Clodius
President
National Association of State Universities
and Land-Grant Colleges
One Dupont Circle, N.W.
Suite 710
Washington, DC 20036-1191

THE WHITE HOUSE

WASHINGTON

September 22, 1989

Dear Mrs. Chennault:

Many thanks for your letter of September 6 and your congratulations on my confirmation on my new position. I much appreciate your writing and also your strong recommendation for Dr. Tony Yen, whom as yet I have only had an opportunity to meet with rather briefly.

You may be interested in knowing that my Associate Director for Engineering and Physical Sciences -- a Presidential appointment that requires Senate confirmation -- will be Professor Eugene Wong, who for many years has been chairman of the combined Departments of Electrical Engineering and Computer Science at the University of California in Berkeley, and who was born in China. He is one of the nation's most outstanding people in his field, and I consider myself extraordinarily fortunate to have been able to attract him to the OSTP staff.

Again, my thanks for writing and for bringing me not only your own congratulations but those of the Republican Asian Assembly, which you chair.

Sincerely yours,

D. Allan Bromley
Assistant to the President
for
Science and Technology

Mrs. Anna C. Chennault
1511 K Street, N.W.
Washington, D.C. 20005

THE WHITE HOUSE

WASHINGTON

October 13, '89

Prof Thomas Cech:

Dear Tom:

Warmest congratulations on the Nobel award. Had not realized that you and Sid had been working on the RNA question on tracks as parallel as I now learn.

It is a great event, chronologically, for you — and one much merited — but it also is a great event for American science. Both personally and on behalf of the President — from whom you will be hearing directly — warmest thanks and congratulations.

Sincerely

Duke

From: Field Marshal Lord Carver GCB, CBE, DSO, MC

HOUSE OF LORDS

19th October 1989

Dear Dr Bromley,

SELECT COMMITTEE ON SCIENCE AND TECHNOLOGY

SUB-COMMITTEE II - GREENHOUSE EFFECT

I am writing to thank you very much for meeting me and other members of our Sub-Committee on the greenhouse effect when we visited Washington three weeks ago. We learned a great deal from our conversation and you were very kind to spare us so much of your time.

On the whole, the evidence we received in the United States both on the science of the problem and on the responses, confirmed that which we had heard in the United Kingdom. But we also gained new insights and have adjusted the report which we shall be making to the House accordingly.

You may be interested in seeing our report when it is published in the latter part of November and I shall arrange for you to be sent a copy.

Yours sincerely,

Michael Carver

CARVER

Dr. Allan Bromley,
Director Designate,
Office of Science and Technology
Policy
Room 358,
Old Executive Office Building,
WASHINGTON DC 20506,
U.S.A.

Acknowledge and ask for copy

THE WHITE HOUSE

WASHINGTON

December 18, 1989

Dear Lord Carver:

Many thanks for sending me a copy of the report on the greenhouse effect published by the Select Committee on Science and Technology.

This is an excellent document, and I congratulate you and your colleagues on it. It will be most helpful to us in our continued study of greenhouse problems.

You will have noted perhaps that at Malta, President Bush announced the meeting that I had mentioned briefly to you during our meeting here in Washington. Since that time, the scope has expanded somewhat to include economics as well as science relating to global change; this reflects our growing recognition in this country that we very much needed a better hold on and understanding of the economic consequences of possible courses of action in order to be able to develop responsible policies.

Early in the new year, the President will be forwarding an official invitation to Prime Minister Thatcher, inviting her to send her chief science, economics and environmental officials to a meeting here in Washington, now tentatively scheduled for late April.

Again, many thanks for your report. It ~~was~~ a pleasure meeting you in Washington, and I look forward to the crossing of our paths again in the not too distant future.

With warmest best wishes for Christmas and the new year,

Sincerely yours,

Allan Bromley

D. Allan Bromley
Assistant to the President
for
Science and Technology

Field Marshal Lord Carver, GCB, CBE, DSO, MC
House of Lords
Westminster
London SW1A 5AA
England

8920633

From: Field Marshal Lord Carver, GCB, CBE, DSO, MC

HOUSE OF LORDS

24th November 1989

Dear Dr Bromley,

It was kind of you to say that you enjoyed meeting our Committee when we visited Washington.

I am delighted to enclose a copy of our report which is published on 28th November.

Yours sincerely,

Michael Carver

CARVER

Dr. Allan Bromley,
Assistant to the President
for Science and Technology,
The White House,
WASHINGTON.
U.S.A.

THE WHITE HOUSE
WASHINGTON

November 13, 1989

Dear Lord Carver:

I too enjoyed our visit and am pleased that your visit to the United States proved helpful. I would indeed appreciate a copy of your committee report on its completion. Thank you for thinking of me.

With all best wishes,

Sincerely,

D. Allan Bromley
Assistant to the President
for
Science and Technology

Field Marshal Lord Carver
House of Lords
Westminster
London SW1A 5AA
England

"CORRESPONDENCE TRACKING"

TYPE: Information DOCUMENT NUMBER: 8920633

****

FROM: FIELD MARSHAL LORD MICHAEL CARVER
HOUSE OF LORDS - ENGLAND

TO: BROMLEY

DATE OF
CORRESPONDENCE: 11/24/89

SUBJECT: ENCLOSING A COPY OF A REPORT FROM THEIR MEETING WITH BROMLEY IN NOVEMBER.

****

ASSIGNED TO:

ACTION REQUIRED: NONE

****

SENDER'S DUE DATE: OSTP DUE DATE:

DATE COMPLETED: 12/12/89

****

COPIES TO: D. Allan Bromley
Nancy Maynard

****

REMARKS: "GREENHOUSE EFFECT" BOOK (1) DAB (2) MAYNARD (3) FILES

DATE RECEIVED: 12/06/89 FILE: NEOB

THE WHITE HOUSE
WASHINGTON

October 27, 1989

Dear Mr. Cohen:

I am returning to you herewith an edited version of the transcript of our May 11th interview in New Haven.

I am enclosing also a copy of a recent photograph with President Bush as you requested.

I would appreciate it if you would be good enough to send me a copy of your article when you have completed it.

All best wishes,

Sincerely yours,

D. Allan Bromley
Director-designate
Office of Science and Technology Policy

Enclosures: Transcript and photograph

Mr. David M. Cohen
131 Westwind Road
Wakefield, Rhode Island 02879

131 Westwind Road
Wakefield, RI 02879
July 3, 1989

Dr. D. Allan Bromley
Science Adviser to the President
Executive Office of the President
Office of Science and Technology Policy
Washington, DC 20506

Dear Dr. Bromley:

Enclosed please find a verbatim copy of my interview with you on May 11, 1989. While this text will not be augmented save by a brief synopsis of your earlier service in Washington and at Yale, I shall be forced to remove portions to reduce it to a length suitable for publication. My editor and I have not yet finalized these deletions and shall not likely do so until the first weeks of September (publication slated for the middle to the end of November). At that time we shall send you another copy, if you would like to look at it.

In the meantime, I would like to make three small requests of you. First, read over the text and make note of any points that you believe have been mistranslated--the words are exact, though the punctuation always carries the possibility of belying the intent of your words. Second, could you determine for me whether the statement attributed by you to Philip Handley on page 11 is a direct quote. Finally, I would appreciate it if you would have your secretary send a picture of you with President Bush to me for publication at the above address, if one is currently available.

Thank you again for your time and cooperation. Please contact me if you have any comments.

Sincerely,

David M. Cohen

Here is the revised edited version DAB.

The following is the entire text from an interview with President Bush's new science advisor appointee Dr. D. Allan Bromley, the Henry Ford II Professor of Physics at Yale and director of the newly opened A. W. Wright Nuclear Structure Laboratory, conducted on May 11, 1989.

Yale Scientific: First of all, I think we should start out by talking about what your duties will be as the new science advisor.

Dr. D. Allan Bromley: I wear three hats. The first of those is as Assistant to the President for Science and Technology. That's a new position that President Bush has created which raises the science advisor's position within the inner circle of the White House by several notches. It raises it specifically to the same level as National Security Advisor.

The second hat is as the director of the Office of Science and Technology Policy in the White House. The third hat is as chairman of a new body which will be the President's Council of Science and Technology Advisors. ~~Now~~, It turns out that the first and third of those are appointments that the President can make as he sees fit. The second, however, is a position which reports both to the Congress and to the President as a consequence of the legislation which set up the office back in 1976. For that reason, as director of that office ~~you~~ I require Senate confirmation.

YS: Obviously, you will be holding all three offices at once, so you will have more influence. It has been remarked in some of the early articles concerning your appointment that you are going to have a lot more influence than [Dr. William R.] Graham who is the current science adviser. In what particular ways do you think that you will have more influence with the President and how do intend to use that influence?

DAB: First of all, I think even before the election, then candidate Bush, now President Bush, made it very clear that he intended to increase the visibility and the position of his Science and Technology Advisor, which is sort of the code ~~word~~ which covers those three official titles, within the White House. This was a recognition on his part that increasingly the decisions of consequence that he faces that boil up through the system and are not decided elsewhere in government — that finally come to his office for decision increasingly are those that contain substantial science and technology components. So, Mr. Bush was very sure all through the campaign, and now that he wants to

emphasize both science for policy and policy for science at the highest levels of the White House.

YS: Do you have any personal items on your agenda in terms of science issues?

DAB: That is a state that I try painfully to avoid because to be an effective member of the inner circle at the presidential level it is essential that you be viewed as a member of the team and when it comes to that team it is your background in science and technology but specifically not just someone coming in with your own agenda that you are going to try and push. Your function is to make sure that the President has the alternatives available to him that involve science and technology, or that effect science and technology, sharply delineated so that he understands what the implications are of the various choices that he must make, as clearly as possible. Then, once the President makes his decision, it will be my function to do everything I can to insure that those decisions get implemented.

One of the ways of doing that is specifically to coordinate activities across the whole spectrum of the Federal government. Frequently now, there are cases where different agencies may be addressing similar, related, or even the same problems, but there isn't very much coordination. So, they may sometimes be working together in very harmonious fashion, and at other times they may be completely at cross purposes. So, my function will be to try to make sure, first of all, that the President's decisions actually get acted on in the way he intends them to be acted on, and secondly that it be done in an efficient way, efficient and effective in terms of what it is costing the taxpayer and in terms of what it is producing.

YS: You have no areas in the scientific community right now that you have recommendations on or you feel aren't being acted on?

DAB: Of course. There, each are a number of those, and obviously it will be my function to bring matters to the President. One of the other responsibilities is to be his early warning system. If it is a problem that is of sufficient magnitude and of sufficient importance that it merits Presidential attention, then it will be my responsibility to make sure that ~~that~~ it comes to his attention.

YS: Are there any topics in particular?

DAB: I am not going to go into detail as yet on this because, first of all, I am not in place in Washington. The one thing I absolutely will not do is to appear as a ~~spokesman~~ or representative for the scientific community. That's absolutely the wrong thing for me to be doing. The areas that I think are important to the country and to the President, areas the President will necessarily have to take a look at, I will mention. They come in two classes.

First of all, there are issues which fall under the general rubric of science for policy. These are the kinds of questions where, in the absence of an active science advisor, the other participants in the inner circle might very well not recognize that science and technology have anything to contribute to the issue under discussion. However, in fact, the issue under discussion might have substantial impact on science and technology. ~~So~~, both of those aspects are important.

Let's just consider what a few of those might be. Obviously, today one of the major areas is that of industrial competitiveness in the international marketplace. If we don't have a strong, ~~protected~~ economy, we are not going to have the resources to do any, ~~of the~~ or many, at least, of the other good things that ~~the others are going to have?~~ ~~So, that's very hard~~. Science and technology obviously plays an important role. We come immediately when we start considering ~~that area~~ to a second area of concern, and that's education and training.

We are in a very difficult position at the moment, ~~kind of~~ paradoxical~~ly~~. To caricature the situation, let me say that ~~the~~ education at the pre-college level in this country ~~the situation~~ can only be classed as scandalous. At the college level, because we unique among the developed nations ~~in~~ have no centralized control or definition of what a college education should provide, we have peaks of excellence which will match the very best anywhere in the world, and we have troughs of mediocrity which defy description. On the average, however, I think that we are competitive with the rest of the world at the college level. At the graduate level we still set the standard for worldwide activity. The reason we are able to do that, be so bad ~~in~~ pre-college, and yet set the standard for the graduate level, is simply because we are prepared to sacrifice a very large fraction of our young people along the way, prepared to let them drop out of the system. That fraction is much too high for this nation to ~~continue~~. We let this continue, very definitely, at our own peril.

~~Our~~ education and training is very important because in order for us to remain competitive we are going to need new knowledge and ~~we are going to need~~ young minds trained to use that new

knowledge creatively. We put a tremendous drain, again unique in this country, on our research universities because in other countries research and education are not considered to be synergistic and symbiotic the way they are here and so frequently the research is done somewhere else, not at the same places where they teach, their education. It is important to recognize, too, that although most of the discussion thus far has focused on the professional, the Ph.D., the bachelor's candidate, there is an enormous need, a growing need, in this country for public with sufficient literacy that we get technicians, technicians and trained personnel to work at the middle levels in industry, in military, in space activities, in just about any sort of activity you care to name. We are very short of people in that middle range. Of course, we are also very short of people at the upper levels. In the early 1990's we are going to be short something like 250,000 computer scientists a year, somewhere between 35 and 50,000 engineers, in almost branches of activity in engineering per year, and there's not much we can do about that now because the pipeline is simply ten years long. If we are going to effect things, we have to start ten years before the time we want that effect to be evident. ~~So, that's education and training, and I could go on all afternoon on that one.~~ But another major area is the environment.

President Bush has spoken extensively on that, and you need only consider the greenhouse effect, acid rain, waste disposal, the destruction of tropical forests, and see the tremendous spectrum of problems that we face. They're not bounded in any way by national or political boundaries; they are global problems. That, of course, brings in immediately the whole question of international science and technology. Very frequently, illustrated for example in the case of India and Brazil in 1982, when Indira Gandhi came to Washington, and in 1986, when President Sarney came from Brazil to Washington, it was clear to both sides of the discussion that it was very important for the U.S. to start talking with India and to Brazil. We had pulled farther and farther apart, politically, from a situation where decades ago we were the closest of collaborators on the world scene to a situation we barely communicated in any area. As Indira Gandhi and President Reagan and Sarney and President Reagan discussed this over a period of days, it became clear that the one area where we could begin to talk to one another again and collaborate on the basis of equals bringing contributions from both sides to the table, leads from both sides to the table, was in science and technology. So, those programs were initiated; they have been successful.

The wonderful thing about the news is that once the channels are open and once we start talking to one another about specific projects

in science and technology, very quickly we see the channels broaden so that on other matters we can begin talking to one another again. So, International science and technology is increasingly recognized as an important part of our foreign relations. No question about that, and it is one that I think will increase whether or not we try to increase it.

Another general area of concern is that of industry. Energy is after all the ultimate resource. If you have abundant energy, then you can have as much pure water as you want, you can have as big an agricultural enterprise as you want by fixing nitrogen from the air, liberating phosphorous from the rocks, pumping this pure water to irrigate your crops. We tend to forget 1973; we tend to be a little hazy about 1978 now that there's adequate petroleum around again. Though I must say that this past summer and this present summer we are going to see dramatic price increases which will focus attention on the energy problems. In the long term we have the challenge of coming up with a renewable energy source that will replace our dependence on fossil fuels. The greenhouse effect may accelerate this process, but we have to be able to do it in a way that has an acceptable social and economic cost. That's a real challenge.

YS: With respect to the energy, there has been talk of the possibility of cold fusion which seems to appears to be without support. At the same time the United States has focused on fusion as a source of energy and has followed several paths.

DAB: Two primarily.

YS: In the past the laboratories seem to have been without collaboration. Each has been pursuing its own alternatives. I believe it was the Tokamak system that was mothballed without use.

DAB: No, that was the Mirror that was mothballed.

YS: How do you feel about fusion and do you believe it needs to be pursued at such a rate that the scientists go crashing by and spend $350 million without ever testing it?

DAB: That's not quite a fair characterization. First of all, in this country and in the rest of the world we are following two approaches to duplicating the solar energy source. One of those is magnetic confinement; the other is inertial confinement. Now, in the magnetic confinement system in the days when the mirror machines were first

being developed at Livermore, for example, it was not at all clear to anybody that there was any one solution that would work better than any other. At Oak Ridge they had something called the bumpy torus; at Princeton they had the stellarator, and at Livermore they had the magnetic mirror machines. It was the Soviets who actually came up with the Tokamak configuration which is essentially a toroid with a very complex magnetic field which avoids the common problem of these machines. All of them simply because of the electromagnetic principles have an unholy tendency to turn themselves inside out. No matter how you try to confine the plasma, if you are not incredibly careful, you quickly find yourself with the plasma outside and the vacuum inside which is not what you had in mind. ~~Now~~, the fact that the Mirror machine was abandoned was simply a recognition that we had been building it over more than a decade, and during that time we learned enough about the processes involved and the instabilities, the difficulties involved, so that it was already clear that we were far enough in our understanding that we could back one course in magnetic confinement rather than several. So, the focus has been now on the Tokamak; clearly, the Tokamak is the winner in ~~that~~ this particular horse race.

In the inertial confinement business what we try to do is to take a small pellet and ignite it.

YS: Like NOVA?

DAB: Yes, but that's not the only approach. That's the one that uses electromagnetic energy. There are ~~people~~ groups studying ways of doing ~~this in~~ the ignition heavy ion beams, xenon beams, for example, proton beams, electron beams, and the whole question at issue is how do you most effectively couple the energy from whatever kind of driver you are using into the actual fuel pellet. You can understand that if you take a ~~little~~, little glass balloon full of fuel and you irradiate it with a laser beam, there is a great tendency for the laser light to reflect off the pellet and do you not much good at all. In fact, ~~in that case~~ you have to shape the laser pulse very carefully, first, to roughen up the surface of your fuel pellet and ,then, to hit it with the full power of your laser because you are going to try to compress it by a factor of about 10,000. Here again, major progress has been made.

Although most of the work in this country is classified still, the Japanese and the Europeans are talking about it quite openly. ~~That is~~ They put to put the fuel pellet inside a little volume made of a heavy metal, like gold. ~~You~~ fire the energy in, ~~and~~ it interacts with the gold and ~~makes~~ produces an enormous density of X-rays, soft X-rays, and the soft X-

rays then compress the fuel pellet and ignite the fusion. ~~So, that~~ This approach, the indirect drive ~~approach~~, is the one that is being pushed most heavily everywhere in the world now. ~~The~~ These two approaches, ~~the~~ magnetic ~~confinement~~ and ~~the~~ inertial confinement, look as though they are ~~on a~~ tracks which would lead to a demonstration of actual ignition by the end of the century. That's where we are now. We can't afford not to continue that research because if we could pull it off, these would provide a renewable, essentially inexhaustible, energy source for the future.

YS: Getting back to the international forum with the Japanese and the Europeans in fusion research, how important do you feel is it for the United States to enter into international projects like space research, supercolliders, or any large-scale, science project?

DAB: I am strongly in favor of international collaboration in any instance where it makes sense. What I mean by that is in any instance where there really is going to be some collaboration, and it's not either some form of foreign aid or cosmetic trimming on the project. In other words, all sides in the collaboration have to have something concrete to bring to the project. You have mentioned one or two of what are now known as the ~~major projects~~. There's the superconducting supercollider, the space station, the space plane, the human genome mapping, and the compact ignition Tokamak, just to name ~~six~~ five of them. I think in all of them you are going to see international cooperation.

YS: How much do you think the United States ought to encourage it?

DAB: I think we should actively encourage it.

YS: Any particular nations, or just the most highly advanced ones?

DAB: The ones that have the most to contribute and are most interested in getting involved with us. I think that doesn't mean just Japan or Western Europe, for example. To take a specific instance, in the superconducting supercollider the Indian government is one of the very first to make a formal statement that they were prepared to contribute $50 million towards the initial work on the SSC.

YS: You visited China about ten years ago. At that time you wrote in a book upon returning that the Chinese were sufficiently along and it was necessary for the Americans to help them and to cooperate with

them. There was a good opportunity for a nation coming along in that sense that could help us someday in the sciences. How much emphasis should we put on helping other nations to develop to the point where they can help, they can provide scientific resources to us, manpower or other resources?

DAB: We have to be rather careful about the question of manpower because while it is demonstrably true that we are very dependent upon scientific and technical personnel from other countries who are coming here to be trained, particularly in higher education, because they recognize the ~~development~~ of our higher education, it is also true that the countries from which they come are increasingly concerned about what they view as a brain drain, what they view as our attracting their best people and retaining them here for our benefit and not for theirs. ~~So,~~ In terms of manpower we ~~have~~ a delicate issue.

One of the most important contributions that the U.S. has made to the development of the world as a whole has been education of students worldwide. In terms of cooperating with other countries, developing countries, some which are part way along the development route, I think that we have to treat them as individual cases. When cooperation has the potential for opening up channels of communication, where cooperation in the long run will develop broader markets for us and will provide us with greater contact with a global market, I think we should be all for it.

YS: Also, in the international community there has been a great uproar over the fact that the Japanese have caught up to us in the so-called research areas, for example supercomputer development.

DAB: ~~First of all~~, I think ~~it is a little wrong~~ the specific example you have chosen. But, in general, it is true that for several decades after World War II we simply had unquestioned leadership in practically all fields of science and technology. The fact that other countries, by focusing their efforts on particular segments, have moved up equal to us, and in some cases ahead of us, is not either wrong or surprising. It is a perfectly natural development. We have to recognize that overall we still have, by a very large margin, the world's strongest science and technology enterprise. But, Japan and Western Europe, in particular, have focused their efforts on very carefully chosen parts of the international market. ~~So,~~ They have been a little faster at focusing on the fact that they are dealing with an international market than we have.

In some cases, for example, like the one you mentioned, supercomputers, it is not clear that the Japanese, with their fifth generation approach, have really accomplished what they set out to do. Just when they focused on the fifth generation of computers and the idea of building ever more powerful mainframes, in this country and in most of the rest of the world the attention went exactly the opposite direction to decentralize, to have small units that talk to one another. Now, it is true that in the supercomputer per se we have had the unfortunate fact that just within recent weeks the ETA company, which was one of our important supercomputer producers, has just decided that it is not an economically viable operation. That leaves us only with one major manufacturer, and that is Cray. Cray is betting the company on the use of gallium arsenide. If that works, they will have an enormous headstart on the rest of the world. If for some reason it doesn't work, then we will have gone a long way to losing our leadership in a field that we clearly started, developed, and brought to fruition. But what you hear from Japan more frequently than the fact that they have moved ahead of us in basic research areas is that they have been more effective in using basic research results in making them into marketable goods and services. That has been done by very careful planning and design; They have focused on doing that specifically.

The other thing to bear in mind is the subject of a book that was just published last week by the MIT Press called *Made in America.* It highlights one of the very serious problems that we have in this country. That is that there is a myth that this country has moved in a more or less inexorable fashion from an agricultural economy to a manufacturing economy to a service economy. The myth is that when we move from one of those economies to the next in this evolutionary process, we can essentially forget the ones that have gone before. That is simply, demonstrably wrong. You can't really produce a strong manufacturing economy without having an agricultural economy backing it up. And you can't produce a reliable, strong service economy, if you don't have a strong manufacturing economy backing it up.

What is most striking, in terms of contrast, between us and the Japanese is that we tend to reward engineering and technological developments of the Nobel Prize caliber, the major breakthroughs, the revolutionary changes, and we don't pay much attention to those small little changes on the production line that allow you to get your product out two or three days earlier, a little more reliably, a little cheaper; those are the qualities that in the long run buy you market share. The Japanese have focused on those evolutionary changes in

engineering, production, manufacturing to a much greater extent than we have, and they have paid off handsomely for them. ~~Because~~ In one industry after another in steel, in consumer electronics, in semiconductors, and recently in automobiles, by targeting a particular world market and by focusing their attention on doing it better, quicker, and cheaper, even though we made the original invention, the original breakthrough, the fact that they can get there before us with a slightly cheaper product that will last a little bit longer means that they have the market share.

YS: In this era of budget cuts, the deficit, and the enormous debt there has been a big issue made of the fact that the United States tends to support a lot of big science projects and doesn't focus as much on the littler science projects.

DAB: That I think is a misconception.

YS: Well, in the sense that there are billions of dollars being spent on the supercollider that could be spread over many little projects.

DAB: That's even a bigger misconception. First of all, the fact is that big projects by their very nature attract ~~press attention, attract~~ media attention; they attract Congressional attention. Nobody hears about the fact that the NIH [National Institute of Health], the NSF [National Science Foundation] are spending something like three-quarters of their budgets on individual investigators around the country. Nobody hears about that unless one of them does ~~something that gets him~~ the Nobel Prize. But when a group of people come together and propose the superconducting supercollider, that gets everyone's attention very quickly because it is a big lump of money from domestic accounts.

The fact is that the amount of our resources, as a nation, that are tied up at the moment in big projects is very small; it's really very small, it's only a few percent. The second thing is that one of the very large misconceptions in the whole community is that funding is interchangeable--that we have something called the science budget, and if we don't spend it for A, it's available to spend on B, C, D, etc. That doesn't work at all because particularly ~~on~~ big projects we must recognize that the decision as whether to go forward or not to go forward is not even primarily scientific and technological based. It is based on national prestige; it is based on whether someone believes that by doing this particular project or building this particular device we are going to stimulate a whole new generation of students to go

into scientific and technological careers. It has, in each case, a whole series of other dimensions and that's why it gets to a Presidential level. In science and technology it's just one of the inputs that the President has to consider when the decision is made. Because of that the science budget is built from the bottom up, not from the top down, and that's one of the things that is unique about this country. In most other countries what you say is rather close to the truth. The government is presented with a package; this is the science budget, take it or leave it. Either they buy it, or they don't buy it. In this country what you do is put the pieces together in all the different agencies and all the different parts of the Federal government, each working for their own reasons to fulfill their own missions. When you get it all done, then you add up all the pieces and say this is the science budget for year X. So, the idea that you can use that funding to do something else is absolutely wrong. In fact, there is a very good argument that a lot of people will make that precisely the converse is true--as the total amount being spent on science goes up with large increments, then it is much easier to add a few million here or there to take care of a lot of small projects.

YS: Another major issue in science as of late has been the new biological inventions, the recombinant DNA, the gene splicing, where the biologists are starting to "tinker" with some of the building blocks of life.

DAB: That's an inflammatory characterization.

YS: That is the characterization often used.

DAB: Yes, that is the characterization used, I understand.

YS: I am wondering how you feel about in particular the attempts to use the anti-frost bacteria on crops, the idea of allowing them into the environment, and the idea of allowing scientists to experiment on human biological material.

DAB: Well, look, There is no question that this is the era of the biologist just as the fifties, let's say, and the forties were the era of the physicist. Now, there's no question also that what has made this new era possible is the instrumentation and the technology that were developed by physicists and chemists in prior decades. I remember a famous quote from Philip Handley, when he was President of the National Academy of Sciences; he said that biology had been moved

As a quote

forward by five decades in the prior five years by using the tools of the physicist." Now granting that we can do all those things that you just mentioned, then the ~~question is, the question that is~~ question that is generally raised is, should we be tinkering with the building blocks of life? Should we be experimenting on human cells and tissues?

~~Well,~~ The question you have to ask yourself is who among us is sufficiently wise and sufficient arrogant to say in advance whether a particular line of research that has the potential for coming ~~out~~ up with a fundamental understanding of the causes of cancer just as much as it has for doing anything should be stopped? It is a question that I think is as old as the human race. It would not surprise me in the slightest that when fire first appeared, people ran around in circles worrying, "My God, what have they done. They're going to destroy the world." Any new discovery of fundamental significance has the potential to be misused. By the same token it also has the potential to do enormous good. So, from the point of view of basic understanding of the universe we live in and our role in it, in my view, it would take ~~a~~ astounding arrogance for someone to say, "Look, I don't like what might come out of that research, and therefore we shouldn't do it."

YS: They just launched the Magellan from the Space Shuttle a few weeks ago but considerably behind their projected schedule. One of the main issues in the space program has been whether we've become too focused, whether we are putting too much into the manned program, and whether we are putting too much into the shuttle. How do you feel about that?

DAB: ~~Well~~, I obviously feel it is a serious question. The balance between the manned and unmanned programs is one that has bothered everyone of the spacefaring nations. It is one that is bothering the Soviets, it's one that is bothering the French, and it is one that is bothering us. One of the obvious inputs that works to drive the program for the manned side of the system is simply that the public is vastly more interested in programs that put people into space than programs that put things into space. For that reason NASA[National Aeronautics and Space Administration] and its equivalents in other countries have succumbed to the temptation to focus the program in the manned direction because it is vastly easier to convince Congress or other funding agencies to react to public interest and enthusiasm and to provide funding. As in most other activities there is always the feeling that there is never enough funding. In turn the decisions get made, and I think that a lot of people are prepared at the

moment to make the case that we perhaps have gone too far in our dependence on shuttles.

The reason is obvious. The people who are responsible for making the shuttle work as a delivery system into space were terrified that if we started doing a lot of other things we would end up dragging out the shuttle program. That's intimidating just because of lack of funding. There's no enthusiasm for really addressing alternatives on either side. Now, I think that the recognition is there that there are a great many space based activities that really do not benefit from having man present. There are a lot which would be impossible without one, but we have to try and find a balance.

YS: In lieu of NASA starting up an extensive unmanned space program in the near future, do you think that the United States government should encourage private contractors and private industry to build simple launch rockets?

DAB: That's a very substantial topic, as you know, at the moment. It is one where I have a conflict of interest in one way because the president of the company that is doing that is one of my graduate students. Joe Allen, who is the first physicist-astronaut, got his Ph.D. here in the sixties, subsequently was an astronaut and then resigned from NASA. He is now president of Space Industries, Inc. The commercially developed space facility, (CDSF) that they have proposed is what they would like to present as an interim alternative. As the recent National Research Council study pointed out, in something like thirty months from the go-ahead they could have space in orbit that would give micrograv access, and the total cost would be about two billion. The official NASA statement is that for 16 billion dollars they will have a vastly more capable, more elaborate space station available around about 1996. Unfortunately, the NASA station started out at a cost of eight billion, is now at sixteen, and my own worry is that we have not really given enough thought as of yet to what we will be able to put in that station or what the station will cost us.

I have no question whatever that we are going to eventually launch a space station that will be our stepping out point toward the rest of the universe. Mankind is never going to be satisfied to be confined to this one small planet. So, we are going to have a space station. It is a question of what kind of a space station, whether we should do it in phases, starting smaller and moving to larger, whether we should build these things in modular fashion so they're expansible. These are very, very difficult questions because just as

in the case of the Shuttle, those people who favor the very large or the large station feel that any funds spent on the small one are just going to slow up and, perhaps, derail the larger one. In particular, I think that is true of the major contractors who are going to be providing the big space station. They are obviously not happy about the fact that somebody else is going to come in and perhaps either postpone the space station or perhaps change its design substantially. But, I think, in general, that in NASA and in much of the other major government work, especially in the Department of Defense, one of the elections that we must consider is that of getting more entrepreneurs involved, more small companies that will perhaps bring new views, new ideas, new approaches. Certainly, this is important.

YS: Also in the space program is the idea of going to Mars with the Soviets. The Soviets have just had problems with both Phobos I and II. Do they have anything to offer us?

DAB: Oh, yes. Collaborating with the Soviets clearly has mutual advantages, no questions about it. For example, one of the important pieces of hardware that the Soviets can bring to the table in any such collaboration is their heavy lift device [the Energia] which can put a lot more material into orbit more economically. But the astronauts who were most directly involved in the Apollo-Soyuz mission are very much convinced that

YS: Perhaps one of the biggest areas of crossover between science and policy was President Reagan's 1983 decision to start up the Strategic Defense Initiative, "Star Wars". At the time it was first proposed, a number of members of the scientific community . . .

DAB: The most highly vocal part.

YS: . . . decided that they would not take any funding from this project.

DAB: Again a general misconception. This statement you just made is true of a small group of people, mostly concentrated at the University of Illinois and at MIT who got enormous press coverage for their statement to this effect. It in no sense represented the community.

YS: I am aware of a case at the University of Rhode Island about four years ago in which a professor was hounded basically because he was the only person on campus taking money.

many of the problems involved in harmonizing such different technologies as those used in the US and Soviet space programs, a much better solution is to suggest that our foreign collaborators, "meet us there!"

A lot of people said initially that the computer programs and the actual physics behind it was such a fantasy that it wasn't necessarily going to come true in any conceivable amount of time.

DAB: There are two reasons for that. You have to understand that at the end of World War II after nuclear weaponry was first used, Bernard ~~Golding~~ wrote a little book called *The Ultimate Weapon*. The thesis of that book was that there was no defense against nuclear weaponry. That was the basis for our strategic posture for a number of decades.

But two things happened that changed this situation. For a number of decades ~~Golding's~~ statement was absolutely true. There was no defense. But then two things ~~have~~ changed. First of all, the accuracy with which nuclear weaponry, particularly missiles, can be directed to their targets, ~~so,~~ you can take out surgically specific targets. It is not generally recognized, ~~and~~ it wasn't until the last years of President Carter's administration, that in a Presidential directive he changed the targeting instruction on our weaponry, and as far as we know the Russians did equivalently, from targeting major population centers to targeting military centers. ~~because~~ given the accuracy we had prior to that, it didn't make very much sense to try to target specific military targets. You just targeted a large population area, and you held the two populations hostage. The tremendous increase in precision was the first change in the equation.

The second major change was our ability to handle information. ~~That's downright~~ many orders of magnitude. ~~Now~~ The usual statement is made that we ~~couldn't take~~ 20 million lines of code to direct the Strategic Defense Initiative. ~~Well~~, the obvious conclusion that the listener is to draw is that it could never work. The fact is that the airspace control in the United States, the FAA [Federal Aviation Administration] control system, has about twenty million lines of code. A good many tens of thousands, if not millions, of Americans each day trust their lives to it. With some reluctance, I must say. Last night it took me five and a half hours to get from National to LaGuardia, one simple shuttle, so the FAA sometimes has problems; the weather was bad. Those are the two major changes that have happened.

~~Now~~, there have been a number of studies. Probably, the most technically sophisticated study of the whole situation was that carried out by the American Physical Society ~~on the strategic defense diplomacy~~. Their report is a very balanced work done by an outstanding group of people. Their executive summary, however, got

tilted rather badly from the body of the report itself. It came out much more negative than the report did. The press conference that a few people gave based on the executive summary moved the whole thing to the front.

The key thing involved here is that there is a misconception from the very beginning about what President Reagan was talking about. This idea that President Reagan was talking about an impenetrable umbrella over the U.S. was pure nonsense. Nobody, including President Reagan ever believed that would make sense. But, what he was talking about was putting a lid over your adversary and trying to minimize the number of missiles that get out through that lid that you have to contend with the rest of the way, when they come toward you.

That aside, the very important consideration is that no matter who in this country may be utterly convinced that it won't work, that it'll never work, it is patently obvious that Mr. Gorbachev and the Soviets are absolutely convinced that it will work. I don't think anyone would have believed that the Soviets would have come back to Geneva and that we would have an INF treaty in the absence of the Strategic Defense Initiative. Furthermore, it is important to recognize that the Soviets have been working on a strategic defense initiative of their own for more than fifteen years, and they are currently spending, according to the best information that I have, something more than five times as much per year as we are on theirs. So, if for no other reason than to prevent ourselves from being blindsided, we have to continue our own research.

It is important to recognize that we are in a research phase at the moment, and we don't know whether it's technically, or economically, or politically feasible to move beyond the research stage. We are not going to know that until the early nineties at least; that's the reason we continue we have a lot of research to do. In that research, unhappily, classification and security are things that hurt us in this country much more than any potential adversary because we haven't been able to tell our own public what the successes have been and what the failures have been. So, the discussion in this country has tended to be rather uninformed and emotional. The adversaries usually know pretty much what we are up to rather soon after we do it. Security works against us in that respect. As far as I'm concerned we have to continue the research program and explore it to know what can be learned from that in terms of the feasibility of the system as a whole.

YS: Something more on the technology side, but equally a policy issue. For a while the Reagan administration was rather hesitant to admit that there was a problem with acid rain; they were simply studying it.

DAB: That's not true. It is going to cost to reduce the sulfur and nitrogen oxides emission to the level that is being discussed here literally billions of dollars. One of the best ~~papers~~ analysis of that fact was done by John Sununu, the former governor of New Hampshire, published in a National Academy publication. What the Reagan administration was saying was, "Look, for something that is going to cost this much and is going to be paid by the U.S. taxpayer, we have to be convinced that it is going to work." In the early stages there was no question that we did not have a good enough data set to really understand what were the issues. We could dump $30 ~~million~~ billion into the Middle West and at that time could possibly have seen no significant effect anywhere except for ~~possibly~~ a large hole in the national budget. argue

I ~~think~~ that the Reagan administration may well have been somewhat slow to react to more information as it became available. By the same token the Canadian administration was overfast to react because it became sort of a one issue that any politician could ride to some publicity. As an old Canadian, I was appalled at some of the statements that were made. The situation has settled down now, and I think that both sides agree that we do know enough to begin to make some actual changes in the system. Those changes are getting underway, and so the emotional, hysterical aspect of acid rain is, I think, well behind us.

We still have to keep doing some research to understand better how various biological systems react. That's one of the weak points in current We know how the acid rain gets there in a lot of cases, but it is not at all clear how it really reacts. I'll give you a case in point. One of the problems that people are beginning to focus on, particularly in Germany and Sweden, is the fact that when you have nitrogen oxides mixed with the sulfuric oxides they act like fertilizers. ~~So~~, your spruce trees grow like crazy, and instead of closing down shop and preparing for the winter they are charging along in the late fall and not prepared for winter. When the first heavy frost comes, that's what kills them. It is not the sulfur oxide, but rather the fact that they are being overstimulated by the nitrogen oxides. ~~Now~~, nobody knows whether that is true or not, but it is an interesting concept. It's new, it has to be looked into, and it has to be understood. It raises all sorts of questions. As long as you can happily believe that

with the biosphere.

it is sulfur oxides which are doing all the damage, you can say, "Alright, let's go ~~and~~ fix the power plants. We can take care of them." But, if it turns out that the nitrogen oxides are causing more of a problem, they come from moving sources, they come from the automobiles which are more difficult to control.

YS: A couple of weeks ago the Los Angeles region announced its proposal for removing a lot of the pollution. A lot of people heralded it as a major solution; a lot of people said that it was far too extensive and far too costly for what it is supposed to achieve. What do you think of it as a model of the future?

DAB: I don't ~~believe I know~~ know the details of it, but it is clear that any time you address public policy issues of this sort, in the last analysis you have to come to a political decision. The decision is going to be made ~~politically~~ by the public, because here you are doing something that will impact the lives of the individual citizens. It is a question of what they are prepared to pay for a better environment. It is nothing that you are going to be able to impose from Washington, so you can always expect ~~that~~ kind of debate.

The thing that I worry about is that there is enough science and technology brought into the discussion so that you don't have the situation we used to back ~~about~~ a number of years ago when ~~the~~ Congress moved forward to impose limits on the pollutant emissions from automobiles and only after this had become law did they come to the National Academy of Sciences to ask whether it was possible ~~to~~ achieve those limits. That's the kind of thing that undermines public confidence in the whole process. It is important that ~~new~~ science and technology underlie the regulations that we ~~produce~~.

YS: Two final questions. First of all, this work is going to take you away from Yale. Are you willing to stay as long as Bush stays in the White House or would you only serve one term, if Bush were to be reelected?

DAB: One never predicts that far in advance. I'm certainly not about to do it now.

YS: Would you come back to teaching?

DAB: Yes, I have every intention of coming back here, and I will be on leave. How long I will be in Washington is ~~something of an~~

uncertain~~ty~~ at this point. ~~But,~~ ~~at~~ At the moment it looks like it is going to be ~~about~~ at least three and a half years.

YS: One final question. The appointment itself--what are your thoughts on what it means to the Yale community?

DAB: ~~Well~~, It means ~~they are~~ Yale is going to have to find somebody else to teach the courses that I have been teaching. That's the first and sort of crass, crude impact. I suppose that being selected for this ~~brings~~ position brings additional visibility to Yale science, but I don't think it means anything very major, in fact. Much of the impact will be on me. To leave just now, after having spent several years getting ~~brand~~ new, major research facilities, one of the three most powerful in the world, running. Not to be able to use it is unpleasant. I enjoy teaching, so I am going to miss it, but ~~this type of offer~~ is very difficult to pass up.

The offer of this type position in my field is difficult

Happily, my long time friend and colleague, Prof. Peter Parker, will take over as Director of the Wright Laboratory and I know that, as always, he will do a superb job.

THE WHITE HOUSE

WASHINGTON

November 3, 1989

Dear Rollie:

This is an unhappily belated reply to your letter of September 23 concerning the University of Bridgeport symposium on the environment, transportation and energy. Unfortunately, it simply would be impossible for me to attend, much as I would like to.

The President has asked me to chair the Domestic Policy Council Working Group on Global Change and to try to pull together a coherent, government-wide point of view on what is becoming an increasingly controversial issue. As part of that activity, he has asked me to spend this coming week at a meeting at The Hague, and when I come back, we will be absolutely in the midst of the busiest few weeks of our entire year, as the President's budget for fiscal year 1991 is given its final review. I have an arrangement with Richard Darman, the Director of OMB, so that I sit in as an active participant with him in these reviews, to carry out the science and technology cross-cutting and coordination function. All this being the case, I simply could not be away on November 17.

From all that I hear down here, UI is in the midst of an even more interesting period than during my years on the Board.

I must say that I miss those contacts, despite the fact that life here is anything but prosaic or dull.

Please give my warmest regards to all my old friends at UI and, in particular, please thank Jim Crowe and everyone else involved for the invitation to participate in the affair at the University of Bridgeport. I very much regret that it simply is impossible for me.

With warmest best wishes,

Sincerely yours,

D. Allan Bromley
Assistant to the President
for
Science and Technology

Mr. Roland W. Comstock
Senior Vice President, Corporate Affairs
United Illuminating Company
80 Temple Street
New Haven, Connecticut 06506

Roland W. Comstock
Senior Vice President
Corporate Affairs

UI United Illuminating
80 Temple Street, New Haven, Connecticut 06506-0901

September 23, 1989

Dr Allan Bromley
6716 Tulip Hill Terrace
Bethesda, Maryland 20816

Dear Allan:

Jim Crowe asked me to drop you a note concerning an event described in the enclosed materials. The sponsors are anxious to have you as a keynote speaker and you may have already been contacted about it. Although your presence certainly would add lustre both to the program and to UI, the purpose of this note is not to put the arm on you. The 'formal' invitation will come directly from the sponsors. However, Jim thought some background might be useful.

The event is being sponsored by the Connecticut Energy Advisory Board of which Jim is a member. The CEAB is a statutorily-created board consisting of representatives from state government (both bureaucrats and elected officials), business and utilities, together with the energy conservation advocacy groups. The purpose is to seek consensus on state energy policy elements in a non-regulatory and mostly non-adversarial forum. As respects UI, these elements can then be reflected in such areas as rate design and other demand-side management programs as well as provide us early opportunity to affect legislation. Beyond that, consensus elements of energy policy can more easily be reflected in appropriate legislation.

It's an effort at least worthy of UI's support and participation and one which holds some promise of constructive result. If nothing else, it at least provides us the opportunity to show that not all utility folks have horns.

Whether or not you are able to participate, when contacted you can do Jim/UI a favor by indicating that we have been in touch with you about all this. If you need any further information, either Jim or I would be happy to respond.

As you might surmise, our bid for PSNH requires mounting a political campaign in New Hampshire that in many ways parallels the Seabrook-related effort in Washington. As a result, both George and I are spending substantial time there. To the extent the outcome depends on politics...and it does to some significant extent...then I think we are rapidly gaining the edge up there. However, there are so many potential show-stoppers--financial, legal and regulatory--that final outcomes are uncertain at this point. But meanwhile, forgive me for saying that making 'war' is such great fun. It's my second favorite thing to do.

Cheers,

Ellie

DRAFT 09-12-89

CONNECTICUT ENERGY ADVISORY BOARD: CONGRESSIONAL FORUM

THE ENVIRONMENT, TRANSPORTATION & ENERGY

POLICY ISSUES FOR THE 1990's

Friday, November 17th, 1989
University of Bridgeport
Recital Hall

9:00 A.M. Welcome - Janet Greenwood, President, University of Bridgeport

9:15 A.M. Forum Overview - James Sandler*, Chairman, Energy Advisory Board

9:30 A.M. Keynote Address - President's Science Advisor, Allan Bromley

10:15 A.M. Coffee Break

10:30 A.M. Panel Discussion - "The Problem: Supply & Environment"

Chairman - Congressman Bruce Morrison, Third District

Jim McKenzie *
World Resources Institute

Rick Piltz *
Renew America

Bob Greenis *

Richard Hill * CEAB

12:00 Noon Lunch

1:00 P.M. Address - Governor O'Neill

1:30 P.M. Panel Discussion - "The System: Transportation in West CT"

Chairman - Congressman John Rowland, Fifth District

Commissioner William Burns
Department of Transportation

Horace McDonnell, CEO
Perkin-Elmer

Charles Stokes
University of Bridgeport

Jim Crowe * CEAB
United Illuminating

3:00 P.M. Coffee Break

3:15 P.M. Panel Discussion - "The Future: Alternative Fuels/Mass Transportation"

Chairman - Congressman Christopher Shays, Fourth District

David Garrett *
U.S. Department of Energy

Representative Joel Gordes *
Energy & Public Utilities Committee

Warren Liebold, Sierra Club *

American Petroleum Institute

4:45 P.M. Summary - Workshop Chairman, Jim Sandler *

Each panel: One speaker gives 20-minute address, other speakers give 10-minute response, 20 minutes panel discussion, 20 minutes Q & A w/audience. Speakers and Committee need to draft four key presentations.

* confirmed

CONNECTICUT ENERGY ADVISORY BOARD

CONGRESSIONAL FORUM

The Environment, Transportation & Energy

Friday, November 17th, 1989
University of Bridgeport

Panel No. 1: The Problem/ Supply & Environment -

Topic Issues:

- o near future petroleum supply problems
  energy security
  petroleum dependence (i.e. 50%+ imports)
- o global warming
- o air quality

Panelists:

- o Rick Piltz, Renew America
  author of "Reducing the Rate of Global Warming: the States' Role"

- o Jim McKenzie, World Resources Institute
  Senior Associate - Climate, Energy, and Pollution
  (Formerly, energy policy analyst for the Union of Concerned Scientists)

- o Bob Greenis
  graduate, MIT School of Engineering
  private consultant

- o Richard Hill, Connecticut Energy Advisory Board

CONNECTICUT ENERGY ADVISORY BOARD

CONGRESSIONAL FORUM

The Environment, Transportation & Energy

Friday, November 17th, 1989
University of Bridgeport

Panel No. 2: The System: Transportation in Western Connecticut -

Topic Issues:

- o current transportation system in SW Connecticut
- o transportation & economic development
- o transportation & the quality of life
- o ConnDOT's Transit Study

Panelists:

- o Jim Crowe
  Vice-President, United Illuminating
  Member, Connecticut Energy Advisory Board

THE WHITE HOUSE

WASHINGTON

November 3, 1989

Dear Mr. Doyle Conner:

I appreciate your inquiry about the risks of pesticide residues in food and the environment. This is a timely issue, one that has also been raised by a number of other citizens.

On October 26 President Bush proposed a comprehensive program to enhance food safety for all Americans. The President's plan is designed to eliminate unacceptable risks to the public health, and to provide for more orderly regulation of pesticides and their use.

President Bush's plan was developed with input from the private sector and from all the relevant government agencies. The result is a sensible approach to complex and contentious issues, which takes into account the varied private interests and represents an unprecendented consensus among the federal agencies involved.

I am enclosing a copy of the press release which summarizes the President's plan. I think you will find it responsive to the concerns you have expressed.

If after you have had a chance to study the President's Food Safety Plan questions remain, please do not hesitate to get in touch with me again.

Thank you very much for bringing this important issue to my attention.

With all best wishes,

Sincerely yours,

D. Allan Bromley

Assistant to the President
for
Science and Technology

Enclosure

Mr. Doyle Conner
Commissioner
Department of Agriculture
& Consumer Services
State of Florida
The Capitol
Tallahassee, Florida 32399-0810

STATE OF FLORIDA

FLORIDA DEPARTMENT OF AGRICULTURE & CONSUMER SERVICES

DOYLE CONNER COMMISSIONER ★ THE CAPITOL / TALLAHASSEE 32399-0810

September 6, 1989

Dr. Allan Bromley
Science Advisor to the President
Office of Science and Technology Policy
17th Street & Pennsylvania Avenue, NW
Washington, DC 20506

Dear Dr. Bromley:

In 1987, the National Academy of Sciences published a report entitled, "Regulating Pesticides in Food - The Delaney Paradox", which expressed concern with the oncogenic risks from fungicides used in production of the American food supply. As the regulatory agency responsible for the safety of the food supply in our state as well as the lead agency in pesticide enforcement, I am, indeed, concerned with media reports regarding new EPA findings of toxic effects of the use of certain fungicides. Alternatives do exist, but the alternative fungicide chemicals are likewise mentioned as potentially harmful within the scientific review presented by the National Academy of Sciences. If the chemicals present a significant risk within our diet, they should not be used. However, it has been difficult for me to assess the significance of such risks from the fragmented information we have been able to receive.

The paramount issue is the production of a safe and adequate food supply available to all socioeconomic classes. We are very proud of the contribution the State of Florida has made to the nutrition and availability of food in this nation through our vast and productive agriculture. However, the same subtropical and humid environment of the State of Florida and other Southern states which allows this enormous productivity, also requires fungicides for control of many plant diseases. Therefore, the safety and availability of fungicides is of significant interest and concern to us.

Because most registered and effective fungicides currently available have been targeted within recent studies as presenting potential health risks and since no alternatives for fungal control currently are registered or available, I would respectfully call upon you within your authority as Science Advisor to the President to catalyze and guide the organization of an interagency consensus panel involving the Departments of Agriculture and Health and Human Services, and the Environmental Protection Agency to review the overall question of health risks involving currently registered antifungal pesticides. The health risks that these fungicidal chemicals pose to our citizens need to be critically evaluated versus the risk of lessened food availability and to risk of increased consumption of toxic fungal metabolites.

I would request that such a consensus panel review this subject at the earliest possible time for we do not wish to continue utilizing chemicals that may pose significant risks. If it is the consensus opinion of scientists, regulators, and the medical profession that the use of these fungicidal chemicals pose no more than a negligible risk to all age groups, then we can continue to control in a safe manner the fungi which so broadly attack our food and vegetable crops.

I am transmitting my request to your office as well as to the Secretaries of the Departments of Agriculture and Health & Human Services, and the Administrator of the Environmental Protection Agency due to the multiagency and broad nature of the fungicide issue.

Thank you very much for your consideration of my request for it is one of critical importance to the agricultural food production in our state and in our nation.

With kind regards, I am

Sincerely,

Doyle Conner

Doyle Conner
Commissioner

DC/rh

cc: Secretary Clayton Yeutter
Secretary Louis Sullivan
Administrator William Reilly
Congressional Delegation
Deputy Secretary Jack Parnell
Asst. Secretary Jo Ann Smith
Commissioner Frank Young
Dr. Martha E. Rhodes
Dr. Dan Smyly
Dr. Bill Pace

Jim Montgomery
Commissioner
PM

Dear Mr. Doyle Conner:

I appreciate your inquiry about the risks of pesticide residues in food and the environment. This is a timely issue, one that has also been raised by a number of other citizens.

On October 26 President Bush proposed a comprehensive program to enhance food safety for all Americans. The President's plan is designed to eliminate unacceptable risks to the public health, and to provide for more orderly regulation of pesticides and their use.

President Bush's plan was developed with input from the private sector and from all the relevant government agencies. The result is a sensible approach to complex and contentious issues, which takes into account the varied private interests and represents an unprecendented consensus among the federal agencies involved.

I am enclosing a copy of the press release which summarizes the President's plan. I think you will find it responsive to the concerns you have expressed.

If after you have had a chance to study the President's Food Safety Plan questions remain, please do not hesitate to get in touch with me again.

Thank you very much for bringing this important issue to my attention.

With all best wishes,

Sincerely yours,

D. Allan Bromley
Assistant to the President
for
Science and Technology

Enclosure

Mr. Doyle Conner
Commissioner
Department of Agriculture
& Consumer Services
State of Florida
The Capitol
Tallahassee, Florida 32399-0810

OSTP:JBWyngaarden:mcq:10/27/89

"CORRESPONDENCE TRACKING"

DOCUMENT NUMBER: 8910011

TYPE: Action Item DATE OF CORRESPONDENCE: 09/06/89

FROM: Florida Department of Agri.
Doyle Conner, Commissioner

TO: Bromley

SUBJECT: Oncogenic risks from fungicides used in production of American food supply.

ASSIGNED TO: Nancy Maynard
James Wyngaarden

ACTION REQUIRED: Comments to DAB

SENDER'S DUE DATE:

OSTP DUE DATE: 09/22/89

DATE COMPLETED:

COPIES TO: NEOB files

FILE: EOB PENDING DATE RECEIVED: 09/11/89

REMARKS: Dr. Bromley askes for comments. Received another one on this subject Record 8910004 assigned to Nancy Maynard so sent her copy too. jj

THE WHITE HOUSE

WASHINGTON

November 22, 1989

Dear Secretary Cavazos:

I appreciated the opportunity you gave me to speak to the participants of the First National Conference of the Dwight D. Eisenhower Mathematics and Science Education Improvement Program on November 2. As you know, I have a great personal interest in strengthening the nation's science and mathematics education programs, as well as my professional interest as a scientist working in the public policy arena.

I would like to call your attention to Title III of Report 101-128 of the U.S. Senate Committee on Appropriations which included the following paragraph:

> In addition, the Committee is concerned about the failure of the Department of Education and the National Science Foundation to cooperate more readily on steps to improve math, science and engineering education. Too often the NSF's educational materials have not had the chance to be properly distributed through the extensive education network. For this reason, the Committe directs the OSTP to take immediate steps to improve any and all coordination problems between the two agencies and to report to the Committee by March 1, 1990, on the progress they have made on this matter.

To reply to the Senate Committee on Appropriations in a timely fashion, I would like to meet with you and Erich Bloch as soon as possible to discuss ways by which our agencies can comply with the Committee's request. If you have no objection, I will have a member of my staff contact your office to arrange the meeting for us. I look forward to seeing you soon.

Sincerely,

D. Allan Bromley
Assistant to the President
for Science and Technology

The Honorable Lauro F. Cavazos
Secretary of Education
400 Maryland Avenue S.W.
Washington, D.C. 20207

THE WHITE HOUSE

WASHINGTON

November 22, 1989

Dear Mr. Bloch:

I commend you and your staff for the outstanding program the National Science Foundation provided this year for the Presidential Awardees in Teaching Mathematics and Science. There was no doubt that the teachers were most appreciative of the ceremonies acknowledging their expertise and dedication to their profession.

I would like to call your attention to Title III of Report 101-128 of the U.S. Senate Committee on Appropriations which included the following paragraph:

> In addition, the Committee is concerned about the failure of the Department of Education and the National Science Foundation to cooperate more readily on steps to improve math, science and engineering education. Too often the NSF's educational materials have not had the chance to be properly distributed through the extensive education network. For this reason, the Committee directs the OSTP to take immediate steps to improve any and all coordination problems between the two agencies and to report to the Committee by March 1, 1990, on the progress they have made on this matter.

To reply to the Senate Committee on Appropriations in a timely fashion, I would like to meet with you and Secretary Cavazos as soon as possible to discuss ways by which our agencies can comply with the Committee's request. If you have no objection, I will have a member of my staff contact your office to arrange the meeting for us. I look forward to seeing you soon.

Sincerely,

D. Allan Bromley
Assistant to the President
for Science and Technology

The Honorable Erich Bloch
Director, National Science Foundation
1800 G Street N.W.
Washington, D.C. 20550

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20506

February 7, 1990

MEMORANDUM FOR D. ALLAN BROMLEY

FROM: KATHERINE L. YURACKO KLY

SUBJECT: BRIEFING MEMORANDUM - MEETING WITH ERICH BLOCH AND LAURO F. CAVAZOS ON WEDNESDAY FEBRUARY 7, 1990 AT 3:30 pm AT THE DEPARTMENT OF EDUCATION, 400 MARYLAND AVE. S.W.

PURPOSE: To discuss general guidance for the OSTP report to Congress on DoEd-NSF coordination.

OTHER PARTICIPANTS: Erich Bloch
Lauro F. Cavazos
J. Thomas Ratchford

ISSUES FOR DISCUSSION: OVERVIEW OF OSTP REPORT TO CONGRESS:

The problem:

Improved coordination between the NSF and the DoEd is needed. The Senate Appropriations Committee has stated that "the NSF's educational materials have not had the chance to be properly distributed through the extensive education network." We need to address whether DoEd's existing delivery systems should and can be used more effectively to distribute NSF materials in math and science education.

Proposed strategy for solution:

SHORT TERM: develop coordinating mechanisms between DoEd and NSF.

LONG TERM: establish a FCCSET committee to coordinate activities of all federal agencies in math and science education.

Possible impediments:

DoEd feels hampered by overly prescriptive language in their authorizing legislation.

SPECIFIC QUESTIONS:

1. What steps should be taken by NSF and DoEd to set up a formal coordination network?

2. At what level should coordination take place? Who specifically will chair the coordination effort for each side?

3. Given existing legislative constraints on DoEd programs, how much of this coordination problem can be dealt with administratively?

4. If DoEd programs are indeed over-prescribed by Congress, should we propose that Congress relax the legislative constraints? What are suggested specific steps we might propose?

5. What should Bloch and Cavazos say regarding these coordination activities in their upcoming Congressional testimony?

Attachments:

A. Preliminary Draft Outline of Report on DoEd-NSF Coordination
B. DoEd and NSF Program Descriptions
C. DoEd and NSF Budget Summaries
D. Senate Appropriations Committee Directive

DRAFT

OUTLINE OF REPORT TO SENATE ON NSF/DoEd coordination

I. INTRODUCTION

The purpose of the report is to
A. comply with the request of the Senate Committee.....and
B. report on OSTP plans for improved coordination among all of the agencies with respect to math/science/engineering/technology education.....

II. PROGRAM DESCRIPTIONS

A. DoEd Programs (very brief descriptions)
   1. Eisenhower Math/Science Education Program
   2. Compensatory Education Program (Chapter 1)
   3. Fund for Innovation in Education (FIE)
   4. National Diffusion Network
   5. Office of Education Research and Improvement Programs
   6. Office of Postsecondary Education Programs

B. NSF Programs (very brief descriptions)
   1. Teacher Preparation and Enhancement
   2. Materials Development, Research, and Informal Science Education
   3. Undergraduate Science and Engineering and Mathematics Education
   4. Research Career Development
   5. Studies and Program Assessment

C. Commonalities in Purpose of Programs
   1. Teacher training
   2. Improvement of Instruction
   3. Underrepresented Groups
   4. Data Collection and Analysis

D. Dissemination Mechanisms
   1. DoEd: regional centers, ERIC, NDN, networks with state education officials
   2. NSF: publications by agency and by grant recipients

III. AGENCY COORDINATION

A. Existing Mechanisms for Coordination
   1. Informal contact for information exchange at program managers' level
   2. Contact regarding jointly funded programs

B. New Mechanisms to be Implemented
   1. Formal coordination
      a. Under Secretary of Education and Director of NSF
      b. Assistant Secretaries of Elementary and Secondary Education, Education Research and Improvement, and Postsecondary Education, and the Associate Director of NSF Science and Engineering Education Directorate
   2. Use of DoEd dissemination networks to publize appropriate NSF projects
   3. Request legislative change for DoEd programs for which the existing legislation may be too prescriptive

C. FCCSET

DEPARTMENT OF EDUCATION PROGRAMS

Dwight D. Eisenhower Mathematics and Science Education Program

The Eisenhower program is the largest single DoEd program devoted exclusively to the improvement of math and science education. The primary purpose of the program is to improve teacher training and instruction in math and science at the precollege level. The program is divided into two main components: the state grant program and the national program.

Under the state grant program, the majority of funds pass through the state to local districts to support a variety of teacher training and instructional improvement projects. Some funds are retained at the State level to support demonstration and exemplary programs.

The Eisenhower national program primarily supports projects of national significance designed to improve the quality of teaching and instruction in math and science.

Compensatory Education Program (Chapter 1)

The Chapter 1 program, the largest federal elementary and secondary education program, provides compensatory education to educationally disadvantaged students in reading and math. About half of all students served by Chapter 1 receive some math instruction, primarily in the early elementary grades.

Star Schools
Fund for Innovation in Education Technology Education

These programs support the instructional use of high-technology equipment in precollege math and science education.

Higher Education Minority Science Improvement
Graduate Assistance in Areas of National Need
Fund for the Improvement of Postsecondary Education --
Comprehensive Program for Math and Science

These programs, under the Office of Postsecondary Education, all support the improvement of math and science education.

NATIONAL SCIENCE FOUNDATION PROGRAMS

Teacher Preparation and Enhancement

This activity focuses on improving precollege science and math education through effective preservice and in-service teacher training. In FY 1991, emphasis will be placed on the Statewide Initiatives to forge strong Federal-State partnerships to restructure pre-college education throughout the Nation.

Materials Development, Research, and Informal Science Education

This activity focuses on the need for a consistent pattern of elementary and secondary school science and math instruction. A major effort is to develop improved instructional materials for science in the secondary schools. Informal science activities and research about the teaching and learning process will also be emphasized. Programs to develop and demonstrate the use of modern technology in addressing educational problems will continue.

Undergraduate Science, Engineering, and Mathematics Education

Continued emphasis will be placed on strengthening college instrumentation and laboratories. Comprehensive regional centers for minorities and other model collegiate programs to stimulate the participation of women, minority, and disabled students in curricula leading to science careers will be increased to support approximately 15 centers by FY 1991. Efforts to enhance the currency of undergraduate faculty and to improve the undergraduate curricula will also increase.

Research Career Development

For FY 1991, the number of new three-year graduate fellowships will be increased to 1100, completing the planned doubling of the program from its level in FY 1987. This includes continuation of a "Women in Engineering" program offering to attract more women into the Nation's engineering faculty. The funding will also permit an expansion of the Young Scholars Program for talented high school and middle school students.

Studies and Program Assessment

This includes studies of national and international trends relevant to science education, collecting and analyzing data on science and engineering education, and supporting policy studies.

DEPARTMENT OF EDUCATION BUDGET SUMMARY

MATH AND SCIENCE PROGRAMS

Title	1989 Appropriation	1990 Appropriation	1991 Proj.
OESE			
Chapter 1 Basic and Concentration Grants.....	1/	1/	N/A
School Improvement Programs:			
Eisenhower Mathematics and Science Education State Grants.....	$128,440,000	$126,837,000	$228.8 M
OERI			
Research and Development Center in Mathematics.....	500,000	—	N/A
Research and Development Center in Science.....	500,000	500,000	N/A
Star Schools.....	7,900,000 2/	8,100,000 2/	--
Fund for Innovation in Education:			
Technology Education.....	1,000,000	—	--
Eisenhower Mathematics and Science Education National Programs.....	8,892,000	8,781,000	9.2 M
OPBE			
National Study of Title II programs.....	750,000	—	---
OPE			
Higher Education Minority Science Improvement..	5,307,000	5,416,000	5.6 M
Graduate Assistance in Areas of National Need..	12,844,000	15,793,000	N/A
Fund for the Improvement of Postsecondary Education—Comprehensive Program for Math and Science.....	1,000,000	2,900,000	N/A
Total.....	167,133,000	168,327,000	

1/ The total 1990 appropriation was $4,593,258,000. Approximately 47 percent of students served by Chapter 1 receive remedial assistance in mathematics, sometimes combined with reading. Therefore, an estimate is not available.

2/ About 55 percent of funds appropriated for Star Schools are used for mathematics and science. The remainder is used primarily for foreign language and teacher training.

N/A not available

Summary of Request

(Millions of Dollars)

Subactivity	FY 1989 Actual	FY 1990 Request	FY 1990 Current Plan	FY 1991 Request
Teacher Preparation and Enhancement	$63.66	$68.50	$81.00	$89.60
Materials Development, Research, and Informal Science Education	43.99	49.00	48.00	61.50
Undergraduate Science, Engineering, and Mathematics Education	28.00	30.00	34.00	50.00
Research Career Development	30.98	38.00	36.90	44.90
Studies and Program Assessment	4.50	4.50	4.37	5.00
Total, Activity	$171.13	$190.00	204.27	$251.00

Summary by Educational Level

(Millions of Dollars)

Educational Level	FY 1990 Current Plan	FY 1991 Request	Change	
			Amount	Percent
Pre-college	$140.37	$165.10	$24.73	17.6%
Undergraduate	34.00	50.00	16.00	47.1
Graduate	29.90	35.90	6.00	20.1
Total, Activity	$204.27	$251.00	$46.73	22.9%

COMMITTEE RECOMMENDATION

The Committee recommends an appropriation of $1,500,000 for the activities of the Council on Environmental Quality. This is an increase of $639,000 above the House allowance and the budget request and an increase of $650,000 over the fiscal year 1989 appropriation.

The Committee understands that both the House and Senate currently have legislation pending that will assign the Council new responsibilities and emphasize the importance of integrating global environmental concerns into Federal policy decisions. Furthermore, there are indications that the President envisions an enhanced role for the Council during his administration. Thus, the Committee believes an appropriation of $1,500,000 is justified and expects the Council to give priority to using them to hire staff to implement the recent G–7 accord on global change.

The Committee is concerned that over the past several years the Council has not produced its annual environmental quality report in a timely manner. The Committee urges the administration to look closely at the activities and priorities of the Council and directs the Council to issue its annual environmental quality report in an expeditious manner.

NATIONAL SPACE COUNCIL

Appropriations, 1989	
Budget estimate, 1990	$563,000
House allowance	1,200,000
Committee recommendation	900,000

PROGRAM DESCRIPTION

The National Space Council was reestablished by section 501 of Public Law 100–685. Its primary function is to provide advice and assistance to the President on national space policy and strategy. The Council has been directed by the President to review U.S. Government space policy, including long-range goals, and develop a strategy for national space activities. The Council will also develop recommendations for the President on space policy and space-related issues and will encourage cooperation and exchange among the civil, national security, and commercial space sectors. In addition, it will monitor and coordinate implementation of the President's national space policy by executive departments and agencies, and will resolve differences concerning major space and space-related policy issues. The Council is composed of the Vice President as Chairman, the Secretaries of State, Treasury, Defense, Commerce, and Transportation, the Director of the Office of Management and Budget, the Chief of Staff to the President, the Assistant to the President for National Security Affairs, the Assistant to the President for Science and Technology, the Director of Central Intelligence, and the Administrator of the National Aeronautics and Space Administration.

COMMITTEE RECOMMENDATION

The Committee recommends $900,000 for the National Space Council. This is $337,000 above the administration's request, but $300,000 below the House allowance.

The Committee expects a progress report on the Council's efforts to assist the President in developing a long-term exploration of space initiative by April 1, 1990.

OFFICE OF SCIENCE AND TECHNOLOGY POLICY

Appropriations, 1989	$1,587,000
Budget estimate, 1990	2,997,000
House allowance	2,027,000
Committee recommendation	2,997,000

PROGRAM DESCRIPTION

The Office of Science and Technology Policy [OSTP] was created by the National Science and Technology Policy, Organization, and Priorities Act of 1976 (Public Law 94–282) and provides advice to the President concerning policies in science and technology and on the utilization of science and technology in addressing important national problems. OSTP also supports other organizations within the Executive Office of the President with regard to issues involving science and technology considerations; reviews and analyzes the research and development budgets and programs of the Federal Government, in concert with the Office of Management and Budget; coordinates research and development programs of the Federal Government; and fulfills other obligations, duties, functions, and activities mandated by the National Science and Technology Policy, Organization, and Priorities Act of 1976.

COMMITTEE RECOMMENDATION

The Committee recommends $2,997,000 for the Office of Science and Technology Policy [OSTP]. This amount is the same as the administration's amended request and $970,000 above the House allowance. This amount is $1,410,000 above the fiscal year 1989 level.

The Committee recommends that the President's amended budget request, submitted to Congress in July, be funded at the proposed level. This increase will provide funds for additional resources for OSTP and initiation of the President's Council of Science and Technology Advisors [PCAST].

The Committee notes that since fiscal year 1980, total Federal R&D has continued to grow from $29,800,000,000 to $58,800,000,000 in fiscal year 1988. However, of this $29,000,000,000 increase, $24,400,000,000 (84 percent) was defense R&D. Civilian R&D, on the other hand, through fiscal year 1988 has not kept pace with inflation. In fact, it has been cut by more than 9 percent in real terms since 1980. At the same time, defense R&D has more than doubled to $39,500,000,000 constituting 82 percent real growth.

The Committee is concerned with this imbalance between civilian and defense R&D. Therefore, the Committee requests the President's science advisor to prepare and submit a report by February 1, 1990, analyzing the balance between defense and nondefense re-

search and development. In addition, the report should include recommendations as to how this mix of Federal R&D support might be reoriented to better support the Nation's priorities in science and technology.

In addition, the Committee is concerned about the failure of the Department of Education and the National Science Foundation to cooperate more readily on steps to improve math science and engineering education. Too often the NSF's educational materials have not had the chance to be properly distributed through the extensive education network. For this reason, the Committee directs the OSTP to take immediate steps to improve any and all coordination problems between the two agencies and to report to the Committee by March 1, 1990, on the program they have made on this matter.

Finally, consistent with the Committee's interest in global change research, OSTP is directed to outline what it believes to be the principle scientific questions that are in greatest need of attention and report to the Committee by May 1, 1990 on how the existing interagency Committee on Earth Sciences research strategy plans to answer these questions.

FEDERAL EMERGENCY MANAGEMENT AGENCY

Appropriations, 1989	$633,712,000
Budget estimate, 1990	816,273,000
House allowance	648,928,000
Committee recommendation	655,198,000

The Committee recommends an appropriation of $655,198,000 for the Federal Emergency Management Agency [FEMA] in fiscal year 1990. This amount is $161,075,000 less than the budget estimate and $6,270,000 above the House allowance.

GENERAL DESCRIPTION

FEMA is responsible for coordinating Federal efforts to anticipate, prepare for and respond to a spectrum of major civil emergencies. The Agency also works to assure the effectiveness of the National Civil Defense Program and the availability of civil defense systems and resources in coping with all manmade and natural disasters; consolidates the programs aimed at preventing and mitigating the effects of potential disasters with the programs designed to deal with the disasters once they occur; coordinates and plans for the emergency deployment of resources that are used on a routine basis by Federal agencies; and helps to coordinate preparedness programs with State and local governments, private industry, and voluntary organizations.

FEMA's budget submission describes several principal activities, including:

Civil defense.—This activity provides for the development of plans and functional emergency capabilities to mitigate, prepare for, respond to, and recover from attack-related emergencies, which creates the capability to respond to emergencies caused by natural and technological hazards. It has financial and technical assistance programs which support State and local organization requirements, and operating costs. Federal civil defense objectives and support

THE WHITE HOUSE
WASHINGTON

November 29, 1989

Dear President Cyert:

Thank you for your letter of November 7. I have become aware of the situation you describe of the increased competition for research funds, the high priority ratings required for support and the possibility of a much reduced award rate during the coming year. I know these factors can discourage young scientists, particularly those just finishing postdoctoral work.

The current constraints are a result of the necessity to control Federal expenditures in an effort to mitigate the deficit. I am optimistic that these constraints will be temporary. The present situation reminds me somewhat of the double digit inflation years of 1979 to 1982 when, in spite of an increasing current dollar budget, the NIH lost 14% of its purchasing power through inflation. That, too, was a time of discouragement for young scientists, but beginning in 1982 we entered a period of expansion. During the next seven years the NIH budget doubled, representing a 40% real growth. The number of new and competing awards never fell below 5,000, the total number of awards increased by about 5500 and special measures were developed to encourage and stabilize young scientists in the system.

Even during the present constrained period there are indications of increased needs for scientists in years ahead. The National Science Foundation foresees an expanded need for doctoral level scientists in the United States in both industry and academia, attributable both to growth factors and to the retirement of an exceptionally large cohort of faculty in the next decade. Thus there is, in my view, every reason to continue to encourage young people to enter science.

We will certainly need to watch carefully the balance between training and opportunity. I know that it is difficult for young graduates to appreciate the cyclical nature of such relationships when they are entering the job market during a period of retrenchment. NIH will be looking at various maneuvers to make certain that as large a share as possible of first-time and young applicants enter the system. We will assist in any way we can from this office. It is critically important that the nation not lose the contribution of these newly trained scientists.

Thank you for writing about this important matter.

Sincerely yours,

D. Allan Bromley
Assistant to the President
for
Science and Technology

Richard M. Cyert, Ph.D.
President
Carnegie Mellon University
5000 Forbes Avenue
Pittsburgh, Pennsylvania 15213-3890

8920356

Carnegie Mellon

Office of the President
Carnegie Mellon University
5000 Forbes Avenue
Pittsburgh, Pennsylvania 15213-3890
412-268-2200

November 7, 1989

Dear Dr. Bromley:

One of the problems in our science funding that bothers me considerably is the situation in NIH. I am a member of the National Advisory General Medical Sciences Council and see that the shortage of funds in the face of increased costs of doing science has significantly raised the priority ratings required for grants.

At the same time, I know that we have stimulated an increase in the supply of researchers in biology and biochemistry through fellowships and hortatory campaigns. Now, as this supply of students finishes their postdoctorate work and enters universities that need them badly, they will have great difficulty in pursuing their research. Many will, thus, be driven from their fields.

The situation is extremely bad and will result in bitterness and ruined lives. I think the situation is desperate and calls for some action to help avert an imminent crisis. I know budget cuts, rather than increases, are the order of the day, but this situation deserves close scrutiny.

Sincerely,

Richard M. Cyert

Richard M. Cyert, Ph.D.

Dr. D. Allan Bromley
Assistant to the President
for Science and Technology
The White House
Washington, DC 20500

"CORRESPONDENCE TRACKING"

TYPE: Action Item DOCUMENT NUMBER: 8920356

****

FROM: RICHARD M. CYERT
CARNEGIE MELLON UNIVERSITY

TO: BROMLEY

DATE OF
CORRESPONDENCE: 11/07/89

SUBJECT: CONCERNED ABOUT NIH FUNDING.

****

ASSIGNED TO: James Wyngaarden

ACTION REQUIRED: DRAFT RESPONSE FOR DAB SIGNATURE

****
SENDER'S DUE DATE: OSTP DUE DATE: 11/27/89

DATE COMPLETED:

****

COPIES TO: JUDY BOSTOCK
Nancy Maynard

****

REMARKS:

DATE RECEIVED: 11/13/89 FILE: NEOB

THE WHITE HOUSE
WASHINGTON

December 7, 1989

Dear Hirsh:

I was delighted to learn from your letter of November 6, which arrived while I was in the Netherlands, that you had joined Ralph Gomory at the Sloan Foundation.

You are absolutely correct that one of the major thrusts in my office will be that of trying to obtain a more effective flow of technology know-how and research results between the federal laboratories and the private sector. We have all looked at this from various angles over the years and, as you note, there have been a large number of reports but very little action.

I am committed to having a draft technology policy for the United States available sometime in the early part of 1990 and to having a section on technology transfer in that document. I would very much like to talk with you and Ralph about it, and once we get a draft of even a preliminary sort, I would be very appreciative if you and Ralph would be willing to take a look at it and let me have your comments.

I tend to distrust even the term "technology transfer," because it implies that there is the possibility of selecting a technology, neatly wrapping it at some Place A, then transferring it in some magical fashion to Place B, where it can be unwrapped and immediately utilized with full effectiveness by the recipients, who may well have no background whatsoever for that use. I believe that the whole term has given the process something of a bad name, and we should come up with something quite different. In my view, what we require is a continuous process, with human contact all along the way, so that the technology gets transferred more or less automatically with people who really understand how to use it and what sort of infrastructure is required before the transfer makes any sense.

I remember well at Yale that we worked for years to make some of this work. In the early days, we had meetings

chaired by our president, Kingman Brewster, and later Bart Giamatti, where we invited CEOs of major corporations to spend a day on campus, where they were entertained and edified by a few of the senior faculty. These meetings always ended with a great flurry of enthusiasm, and after the CEOs went home, they regularly told their vice presidents for R&D to contact Yale and make something happen. At this point, everything fell apart because at the time there really was no central focus within the university where such calls could either be received or acted upon. A few years ago, I was instrumental in setting up an Office of Cooperative Research, directed by an individual who had spent a very large fraction of his life in a major chemical industry, with the office charge being that of providing an interface between what was going on within Yale and the interests of the Yale faculty members with the interests of the external callers. In only some six months, this office was a remarkable success and a whole series of ongoing, very productive collaborations and cooperations had been arranged and were in place. Although the national laboratories I know, in many cases at least, have such offices, I have never been convinced that they have been given adequate visibility and clout within the individual laboratory organizations to actually be able to make things happen. In our Yale case, the director of this Office of Cooperative Research reported directly to the provost and president and had real authority. What I have been trying to do recently is to stimulate the creation of such an office in the national laboratories, staffed with people reporting directly to the laboratory director and given adequate authority, again, to make things happen and to follow through on requests and demonstrated interest from external organizations.

I must also say, of course, that I have been very much impressed by the fact that the Japanese, the Germans, and even the French, have been much more aggressive and effective at utilizing the mechanisms that do exist in our national laboratories than have our American colleagues.

The problem remains a vitally important one if we are to have any hope of retaining any kind of economic competitiveness, and I would welcome any of your thoughts on it. I appreciate your passing on a copy of the ERAB report. It does have an excellent executive summary, and in my opinion, the Department of Energy laboratories have been paragons in this area, as compared to all the other federal laboratories.

It was good to hear from you, and I look forward to working with you.

With warmest best wishes,

Sincerely yours,

D. Allan Bromley
Assistant to the President
for
Science and Technology

Dr. Hirsh Cohen
Program Officer
Alfred P. Sloan Foundation
Suite 2550
630 Fifth Avenue
New York, New York 10111-0242

ALFRED P. SLOAN FOUNDATION
SUITE 2550
630 FIFTH AVENUE
NEW YORK, N. Y. 10111-0242

HIRSH COHEN
PROGRAM OFFICER

(212) 649-1649
FAX (212) 757-5117

November 6, 1989

The Honorable D. Allan Bromley
Assistant to the President
for
Science and Technology
The Old Executive Office Building
17th Street and Pennsylvania Ave., N.W.
Washington, D.C. 20506

Dear Allan,

From your own comments in the press and from other activities I observe, there is and will continue to be pressure to use the federal laboratories more effectively in producing useful technology for industry.

I studied the DOE laboratories a few years ago and I do not think much has changed since then. I see a number of new studies being discussed or actually starting and I worry that the studies will never lead to actions. I am sending a copy of the ERAB report which has a fairly efficient executive summary.

By the way, I have left IBM (after 30 years) and have joined Ralph Gomory at the Sloan Foundation.

Sincerely yours,

Hirsh Cohen

Hirsh Cohen

Enclosure

THE WHITE HOUSE

WASHINGTON

December 14, 1989

Dear Mr. Campbell:

Thank you for your recent letter and your kind words of congratulations on my appointment.

I have passed your proposal along to my Associate Director for Physical Sciences and Engineering for review. Unfortunately, I have an extremely small staff and they are spread fairly thin. However, if time permits, someone will endeavor to review your proposal.

Sincerely,

D. Allan Bromley
Assistant to the President
for
Science and Technology

Mr. James C. Campbell
Rural Route #4
Golf Club Road
Smiths Falls, Ontario, K7A 4S5

James C. Campbell

RR#4, Golf Club Road, Smiths Falls, Ontario, K7A 4S5 - Phone (613) 283 4703

November 23, 1989

Office of the President of the United States
White House, 1600 Pennsylvania Avenue NW
Washington, DC, USA, 20500

Dear Mr. Allan Bromley:

May I please congratulate you on your appointment as President Bush's chief science advisor which was reported in the Queen's Alumni Review issue of November-December 1989.

My recent time at Queen's was marked by an idea which would be valuable in light of recent developments and I wish to briefly discuss my thoughts.

Discussions of the concept initially led to a patent search, however research found an article in Scientific America, (April 1982, page 44-46) which suggested the technique was currently in use and was applied to ocean going oil drilling platforms.

Briefly, the concept uses tension members, rods cables or wires, to hold floating structures down to the sea floor. Thus the displacement is constant regardless of the loads applied. The weight of vehicles reduces the tension force holding down the structure, but can never go "slack" or buckle in compression. (The tension members may be made to "float" in order to support their own weight in very deep applications.)

This concept may be combined with the contemporary suspension bridge, such as the Golden Gate Bridge, to make a submerged tunnel held down below the waves for trains or cars across large bodies of water. (Please see the illustration)

I believe that such projects, as part of a "Caribbean Interstate", could bring prosperity to the area which is the best safeguard for peace and the drug problem.

The railway industry has given way to trucks and perhaps ships could soon compete against faster more versatile forms of traffic such as the submerged tunnel concept discussed here.

I have enclosed a brief description of myself and I would be pleased to discuss this concept further at your convenience.

Sincerely,

James Campbell

enclosure:

years of research in carbohydrate chemistry.

Thomson: George Thomson, Arts'62, Law'65 (LLM Berkeley), Toronto, was recently named Deputy Minister of Labor, with the Ontario government.

Tourchin: Bob Tourchin, Sc'65, MBA'67, has been appointed Manager, Materials Handling, with Dofasco Steel.

Yates: Roger Yates, Sc'64, and his wife Norma have moved to Dallas, TX, from Newcastle/Toronto. Roger is Vice-President and General Manager of a new branch of Hatch Associates Consultants, Consulting Engineers. Roger and Norma have four sons, two of whom have Queen's connections; Barry, Com'88, and Andrew, Arts'91.

1970-79

Alexander/Kelly: Howard Alexander, Mus'74, and Kim Kelly, Com'81, plan to marry on Feb. 10, 1990. They will be living at 233 Macdonald, Box 359, Terrace Bay, ON P0T 2W0

Annan: David Bruce Annan, Arts'74, MBA'77, was recently appointed Assistant Vice-President, Marketing and Development, Cantel Inc., Canada's largest cellular network. He has been with Cantel in Toronto, since its beginnings in 1985, following a career with Bell Canada. David Bruce and his wife Kathryn live in Oakville, ON.

Bartlett/Bedal: The Rev. Ross Bartlett, Arts'79, MDiv'82, MA'82, and Penny Bedal, Arts'84, have moved to Maple, ON, where Ross is Minister of Maple United Church. Penny continues her work as an historic interpreter at Montgomery's Inn in Etobicoke. Friends are invited to contact them at 9944 Keele St., Maple, ON L6A 1R6.

Berofe: Stephen Berofe, Arts'72, is Director of Marketing for Oak Street Music, which is Fred Penner's record label. Stephen welcomes contacts with Queen's alumni from Arts'72 or Arts'73 at 301-140 Bannatyne Ave., Winnipeg, MB R3B 3C5. Phone (204) 957-0085.

Grad appointed Bush's science advisor

D. Allan Bromley, Sc'48, MSc'50, DSc'81, one of the world's leading nuclear physicists, has been appointed President George Bush's chief science advisor.

Allan, a 63-year-old native of Westmeath, ON, has assumed responsibility both for "science for policy" and "policy for science."

In the former role he will be responsible for evaluating how federal policy decisions will impact on science, and in the latter for co-ordinating Washington's policies regarding science and technology — including federal support, as well as for American involvement in international science.

Allan, who is the Henry Ford II Professor of Physics and Director of the A.W. Wright Nuclear Structure Laboratory at Yale University, has known George Bush for many years. In a recent interview he told reporter Walter Sullivan of the *New York Times* that he will be a member of the President's "inner circle" of advisors.

Since the science advisor makes no important decisions himself, his influence depends heavily on his personal relationship with the President and other powerful figures in the White House. According to Sullivan, Allan Bromley's title, which is new, "suggests that the Bush administration will place more importance on the advising than did the Reagan administration."

Allan Bromley

Allan has served in past in a number of influential positions within the American scientific community, including as president of the American Association for the Advancement of Science in 1981.

Following his graduation from Queen's, Allan earned his doctorate at the University of Rochester and became an assistant professor there. He then worked for a time at Atomic Energy of Canada Ltd. before joining the faculty at Yale in 1961. He was chairman of the physics department there from 1970 to 1977.

Brown: Ian Brown, Arts'73 (MA, Waterloo), in November 1988 was reelected to a fourth term as a trustee on the Durham Board of Education, representing public school ratepayers in Whitby, ON. In June 1989, Ian was elected Chairman of the Board.

Brownhill: Peter Brownhill, Sc'71, is Assistant Vice- President (Bell Information Systems) with Bell Canada. Peter's new address is 1413 Micmac St., Ottawa, ON K1H 7N4.

Campbell: Catherine Campbell, Mus'79 (MLS Western), has a two-year contract with WUSC as a librarian at the Chitedze Agricultural Research Station at a village near Lilongwe, the capital of Malawi, Central Africa. She may be contacted c/o Chitedze Agricultural Station, PO Box 158, Lilongwe, Malawi, Central Africa.

Campbell: Jane Campbell, Arts'72, is teaching at Payap University, Chiang Mai, Thailand, for the year 1989-90. She is on leave from the City of York Board of Education.

Conway: Sean Conway, MA'77, MPP for Renfrew North, was recently named Minister of the three ministries dealing with education in the Ontario Government: Education; Skills Development; and Colleges and Universities.

Court: David Court, Com'79 (MBA Harvard), Toronto, was recently elected a Principal in the management consulting firm McKinsey & Company.

Craig: Darryl Craig, Artsci'76 (BEd Toronto, MEd U.B.C.), has been appointed Principal, Birchwood School, Fort McMurray, AB. Darryl was Vice-Principal at Westwood Community High School in Fort McMurray for the past three years.

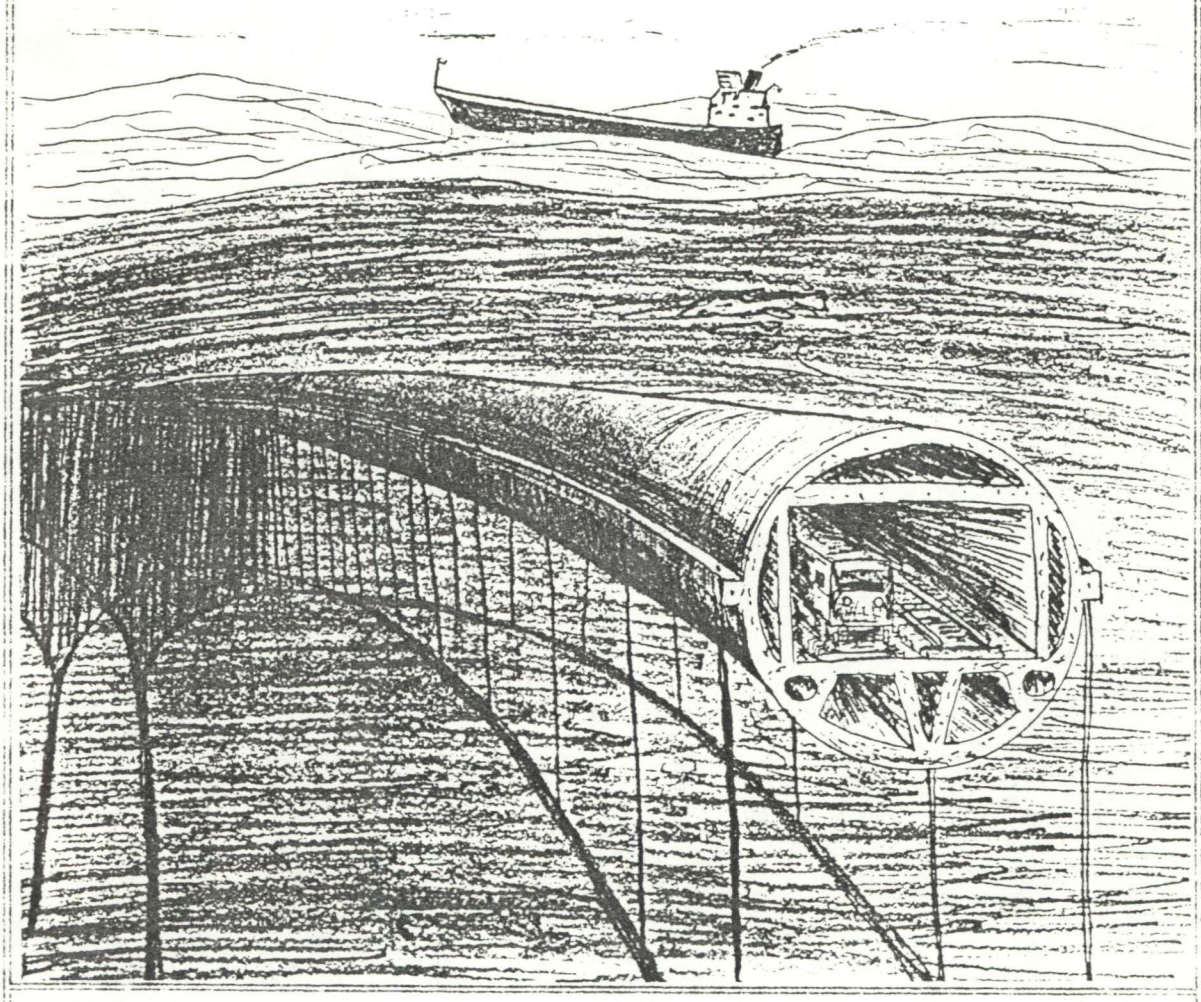
Crothers: Carlyle Crothers, Sc'70, and his family are trying a mid-life adventure. They have moved to North Port, Long Island for better sailing and less taxes! Carlyle is Director of Manufacturing with Koll Morgan. His son Doug is a member of Sc'93.

Cullimore: Darlene Cullimore, MEd'78 (BA, MA Manitoba), has been appointed Executive Director, Eastern Ontario Centre for Entrepreneurship, in Kingston.

D'Angelo: Murray D'Angelo, MBA'79, has been promoted to Senior Manager, Commerce Lending, responsible for all of the National Bank's commercial lending activities in Western Canada. In August, Murray and his family moved from Oakville, ON, to Calgary. (See 1970s Births.)

Davies: Bryan Davies, MPA'73 (BCom Toronto), was recently appointed Deputy Treasurer of the Ontario Government. Bryan was formerly Deputy Minister of Housing.

Fraser: Donovan Fraser, Arts'76 (BEd Ottawa), Whitby, ON, has been appointed Multiculturalism Consultant for the Durham Board of Education.



RAILWAY TUNNEL FLOATING UNDER THE SURFACE

OF A BODY OF WATER

FOR FAST

MASS TRANSIT AND CONTAINER FREIGHT

A Conceptual Proposal

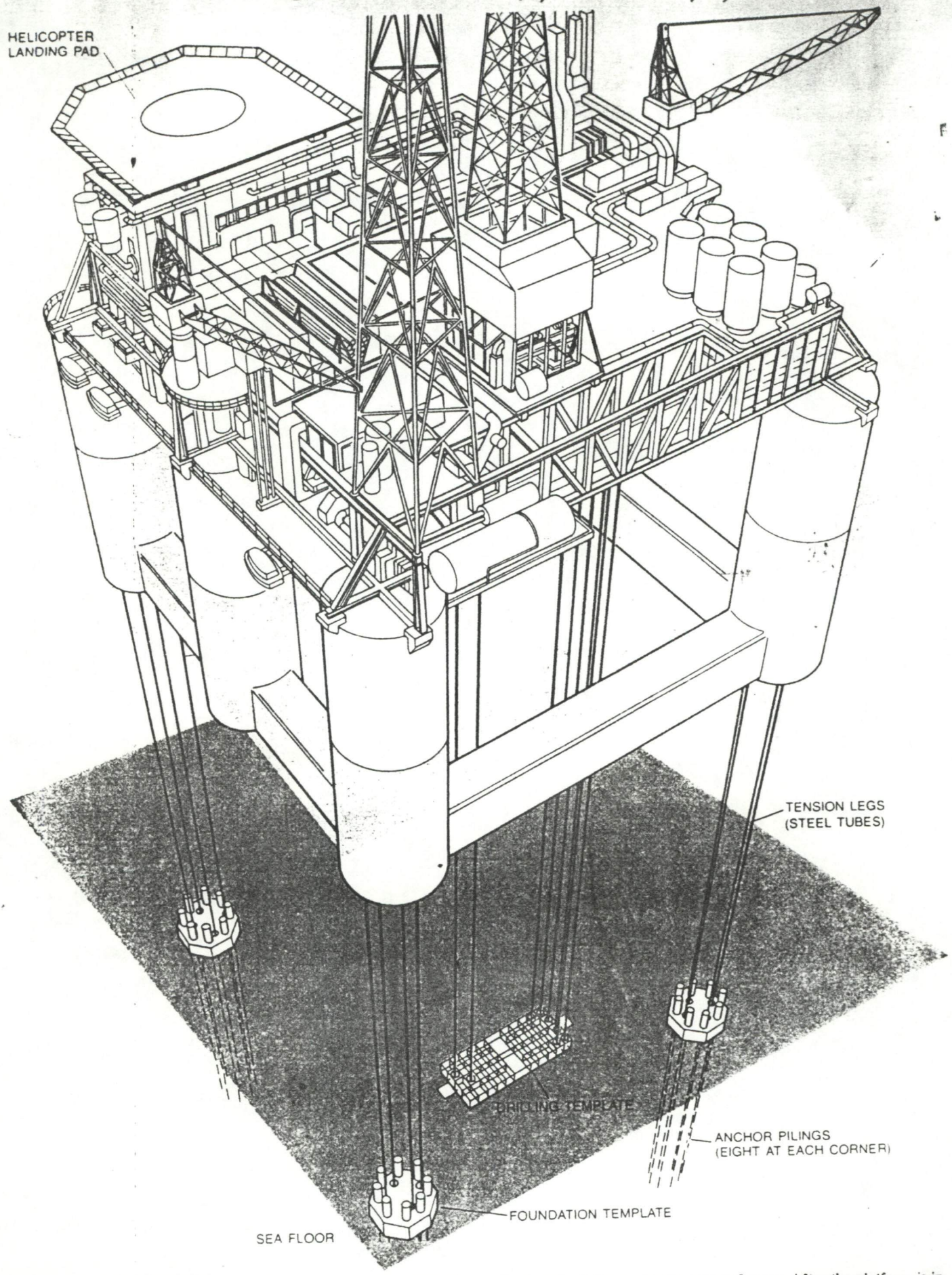
by

James C. Campbell

Printed

September 25, 1989

Scientific Am. April 82 – pages 44-46



HUTTON TENSION-LEG PLATFORM illustrates the complexity common to all large offshore oil structures. The topside facilities rest on a buoyant hull designed to yield with the waves. The hull is held down by four groups of highly tensioned tubular-steel tethers anchored to the sea floor by preset foundations at each corner. The tethers pull the hull down so that they will never go slack even in the trough of the maximum expected wave. After the platform is in place wells will be drilled through conductors that will guide the drill pipe through a drilling template on the sea floor. In the heaviest seas the platform may swing as much as 79 feet from the vertical but will at the same time remain level. The Hutton platform is being developed by Conoco, a division of E. I. du Pont de Nemours & Company.

The third project of advanced design is the tension-leg platform (TLP). Whereas steel-template platforms and concrete gravity-base platforms are regarded as fixed structures, the tension-leg platform is a compliant structure: it has the ability to yield to the waves in a controlled manner. Tension-leg platforms have two main structural elements: a floating hull similar to a semisubmersible drilling rig but much larger, and an array of highly tensioned vertical tethers at each corner. The tethers, fashioned out of high-tensile-strength steel tubes, pull the floating hull down so far that they never go slack even in the trough of the maximum wave estimated to come once every 100 years. Although the tether system allows a degree of lateral motion, it prevents the heave, or vertical motion, associated with free-floating craft such as drilling vessels.

The floating hull must be designed with a careful balance between buoyancy and freeboard (the part of the hull above water) in order to handle extreme troughs as well as maximum crests. The great advantage of tension-leg platforms is their relative insensitivity to the increase of cost with the increase in the depth of the water: other things being equal, only the tethers need to be lengthened. As the offshore industry sensed that it was reaching the economic depth limits for fixed structures its attention shifted toward compliant structures and particularly to the TLP. A secondary but important economic advantage of the TLP is that it can be untethered and anchored at a new site. At the Offshore Technology Conference of last year many more technical papers were concerned with TLP's than were concerned with any other innovative design.

The Hutton platform, being developed and built by Conoco, Inc., for the British sector of the North Sea, is the first commercial tension-leg platform. Like the concrete gravity-base cells, the TLP hull is constructed in a large dry dock and moved to a deep-water mating site, where it can be submerged to receive its topsides. After mating, the hull and topside assembly is towed to the installation site, submerged to allow its tethers to be connected to preset foundations and deballasted to tension the tethers. The dynamic response of a tension-leg platform can be likened to that of an inverted pendulum except that the platform is held level by the pantographlike configuration of its tethers. In the heaviest seas the Hutton platform, riding in 485 feet of water, is designed to swing as much as 79 feet from the vertical and so to diminish wave impact.

Before the Hutton platform is installed a drilling template will be emplaced on the sea floor within the perimeter of the tether foundations. A semisubmersible drilling rig will then predrill 13 directional wells, which can be connected to the topside piping when the platform arrives. In this way production can start much earlier than it would if all 24 of the projected wells had to be drilled after the platform was in place.

The TLP design was selected for the Hutton platform for three reasons. First, the lifetime of this particular field is expected to be shorter than that of other fields in the North Sea, so that a reusable platform has an extra advantage over a fixed structure. Second, the field happens to be one where little gas is released as the oil pressure in the field is reduced. As a result there will be no need to inject gas back into the field as oil is withdrawn, an operation that adds considerably to the weight the platform must carry. Third, the estimated cost of the tension-leg platform was essentially the same as the cost of a steel-template platform. For these reasons the sponsors concluded that the novel TLP design merited a demanding test. If the Hutton platform can prove its worth in the rigorous environment of the North Sea, much valuable information will be gained for future installations worldwide. The Hutton project may therefore be a milestone in the development of offshore platforms.

Withdrawal/Redaction Sheet
(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
02a. Letter	From: James Campbell Re: Summary of qualifications [personal information redacted] (1 pp.)	11/89	(b)(6)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Correspondence Files
WHORM Cat.:
File Location: D. Allan Bromley Correspondence - Presidential - C [1989]

Date Closed:	2/8/2010	**OA/ID Number:**	62003-007
FOIA/SYS Case #:	2005-0336-F	**Appeal Case #:**	
Re-review Case #:		**Appeal Disposition:**	
P-2/P-5 Review Case #:		**Disposition Date:**	
AR Case #:		**MR Case #:**	
AR Disposition:		**MR Disposition:**	
AR Disposition Date:		**MR Disposition Date:**	

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P-1 National Security Classified Information [(a)(1) of the PRA]
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P-3 Release would violate a Federal statute [(a)(3) of the PRA]
P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [a)(5) of the PRA]
P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

Freedom of Information Act - [5 U.S.C. 552(b)]

(b)(1) National security classified information [(b)(1) of the FOIA]
(b)(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
(b)(3) Release would violate a Federal statute [(b)(3) of the FOIA]
(b)(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
(b)(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
(b)(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
(b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
(b)(9) Release would disclose geological or geophysical information

Withdrawal/Redaction Sheet
(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
02b. Letter	From: J.D. McGeachy Re: Letter of Recommendation for James Campbell [personal information redacted] (1 pp.)	10/16/89	(b)(6)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Correspondence Files
WHORM Cat.:
File Location: D. Allan Bromley Correspondence - Presidential - C [1989]

Date Closed:	2/8/2010	**OA/ID Number:**	62003-007
FOIA/SYS Case #:	2005-0336-F	**Appeal Case #:**	
Re-review Case #:		**Appeal Disposition:**	
P-2/P-5 Review Case #:		**Disposition Date:**	
AR Case #:		**MR Case #:**	
AR Disposition:		**MR Disposition:**	
AR Disposition Date:		**MR Disposition Date:**	

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P-1 National Security Classified Information [(a)(1) of the PRA]
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P-3 Release would violate a Federal statute [(a)(3) of the PRA]
P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [a)(5) of the PRA]
P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

Freedom of Information Act - [5 U.S.C. 552(b)]

(b)(1) National security classified information [(b)(1) of the FOIA]
(b)(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
(b)(3) Release would violate a Federal statute [(b)(3) of the FOIA]
(b)(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
(b)(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
(b)(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
(b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
(b)(9) Release would disclose geological or geophysical information

Withdrawal/Redaction Sheet
(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
02c. Letter	From: A. van Eyken Re: Letter of Recommendation for James Campbell [personal information redacted] (1 pp.)	10/25/89	(b)(6)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Correspondence Files
WHORM Cat.:
File Location: D. Allan Bromley Correspondence - Presidential - C [1989]

Date Closed:	2/8/2010	**OA/ID Number:**	62003-007
FOIA/SYS Case #:	2005-0336-F	**Appeal Case #:**	
Re-review Case #:		**Appeal Disposition:**	
P-2/P-5 Review Case #:		**Disposition Date:**	
AR Case #:		**MR Case #:**	
AR Disposition:		**MR Disposition:**	
AR Disposition Date:		**MR Disposition Date:**	

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P-1 National Security Classified Information [(a)(1) of the PRA]
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P-3 Release would violate a Federal statute [(a)(3) of the PRA]
P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [a)(5) of the PRA]
P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

Freedom of Information Act - [5 U.S.C. 552(b)]

(b)(1) National security classified information [(b)(1) of the FOIA]
(b)(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
(b)(3) Release would violate a Federal statute [(b)(3) of the FOIA]
(b)(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
(b)(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
(b)(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
(b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
(b)(9) Release would disclose geological or geophysical information

CAREER PLANNING AND PLACEMENT

Queen's University
Kingston, Canada
K7L 3N6
Tel 613 545-2992
Fax 613 545-3856

April 28, 1989

Mr. James C. Campbell
R.R. #4
Golf Club Road
Smiths Fall, Ontario
K7A 4S5

Dear Mr. Campbell:

Thank you for letting me use your resume in our "20 Best Resumes" booklet. Your resume was chosen because it is one of the BEST I have seen when checking through our Graduate Registry System files (115 files), and also from resumes that I have collected in my counselling appointments.

As I mentioned over the phone, I will be sending you a copy of the booklet when it is published in September. If your address will be different, please make a note of this on the attached waiver form.

Would you please sign the attached waiver and return it to me at Career Planning and Placement.

Thank you, again, and Good Luck.

Sincerely,

Cathy Purcell

Cathy Purcell (Mrs.)
Career Counsellor

ad
encl.

P.S. Thank you for the revised copy & duck story I missed you.

Withdrawal/Redaction Sheet
(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
02d. Resume	Resume of James Campbell [personal information redacted] (3 pp.)		(b)(6)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Correspondence Files
WHORM Cat.:
File Location: D. Allan Bromley Correspondence - Presidential - C [1989]

Date Closed:	2/8/2010	**OA/ID Number:**	62003-007
FOIA/SYS Case #:	2005-0336-F	**Appeal Case #:**	
Re-review Case #:		**Appeal Disposition:**	
P-2/P-5 Review Case #:		**Disposition Date:**	
AR Case #:		**MR Case #:**	
AR Disposition:		**MR Disposition:**	
AR Disposition Date:		**MR Disposition Date:**	

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

P-1 National Security Classified Information [(a)(1) of the PRA]
P-2 Relating to the appointment to Federal office [(a)(2) of the PRA]
P-3 Release would violate a Federal statute [(a)(3) of the PRA]
P-4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
P-5 Release would disclose confidential advice between the President and his advisors, or between such advisors [a)(5) of the PRA]
P-6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Removed as a personal record misfile.

Freedom of Information Act - [5 U.S.C. 552(b)]

(b)(1) National security classified information [(b)(1) of the FOIA]
(b)(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
(b)(3) Release would violate a Federal statute [(b)(3) of the FOIA]
(b)(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
(b)(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
(b)(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
(b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
(b)(9) Release would disclose geological or geophysical information

THE WHITE HOUSE

WASHINGTON

December 18, 1989

Dear Fred:

I was delighted to get your letter and to be brought up to date on your Norwegian trip. I particularly appreciated the photographs taken at the department reception at Yale.

You can be certain that Bethesda has indeed changed in the past fifty-five years, and I am not at all certain that the change has been entirely for the better. We now, however, are reasonably established and at least have no more cardboard boxes in evidence.

You are more than correct that, among many other things, my new position qualifies as an intensive learning experience!

Pat joins me in sending you and Aud our warmest best wishes for Christmas and the new year.

Sincerely yours,

D. Allan Bromley
Assistant to the President
for
Science and Technology

Mr. Fred W. Curtis
37 Robbinsville-Edinburg Road
Robbinsville, New Jersey 08691

FRED W. CURTIS
37 ROBBINSVILLE-EDINBURG RD.
ROBBINSVILLE, N.J. 08691
Tel. (609) 259-9242

Nov. 3, 1989

Dear Allan and Pat:-

It's been a long time since I saw you at your "goodbye" party in Gibbs, but I've thought of you often and wonder how you like the Washington rat race! You were fortunate to find a house so quickly. I'm sure the Bethesda that I knew fifty-five years ago, when I used to run down to Washington to court my first wife, has changed a wee bit but certainly it must be still a lovely area.

Mary Anne has been kind enough to send me your addresses, both home and office, so this is just a hello to you in your new home. Enclosed are some snaps that Aud took. Hope they will recall pleasant memories of Yale.

I know it's a bit late, but thanks so much for your letter, Allan, of a couple of months ago. Believe me, I got a kick out of receiving a letter with that three word return address--The White House!

We haven't been on any more long trips such as our wonderful Norwegian experience in June, but we travel to Southbury, Shelburne Falls, and Rochester to keep our kids in line, and keep well by walking and bicycling. Lately we have done a lot of baby sitting for our friends, and believe me, keeping 2 year to 16 year old kids happy and well while their parents are away for a few days is a mind boggling, back breaking, and time consuming job. Oh well, we seem to thrive on it.

I hope you both are well. Audrey joins me in sending

Best regards.

Fred

THE WHITE HOUSE

WASHINGTON

January 29, 1990

Dear Bill:

This is just a brief note of appreciation for your time and effort in arranging for me to learn more about your laboratory and about the activities in your state in geothermal and ocean thermal gradient energy research. I was much impressed by what I learned and by the imaginative approach that you and your colleagues to exploiting the unique resources of your state. The aquaculture activities I found particularly interesting as ancillary developments to the energy programs, and I look forward to keeping in touch concerning all of these activities.

I regret that the weather on the big island chose not to cooperate, but I very much appreciate all your efforts in trying to make it possible for me to see a cross-section of the exciting work that you have underway.

With warmest best wishes,

Sincerely yours,

D. Allan Bromley
Assistant to the President
for
Science and Technology

Dr. William R. Coops
Managing Director
National Energy Laboratory of Hawaii
220 South King Street
Suite 820
Honolulu, Hawaii 96813