

Originally Processed With FOIA(s):

1998-0004-F[1]; 2005-0336-F

FOIA Number:

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FOIA MARKER

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Record Group/Collection: George H.W. Bush Presidential Records
Collection/Office of Origin: Chief of Staff, White House Office of
Series: Sununu, John, Files
Subseries: White House Offices Files

OA/ID Number: 29184
Folder ID Number: 29184-001

Folder Title:
Science and Technology (Bromley) (1991) [1]

Stack:	Row:	Section:	Shelf:	Position:
G	15	25	6	1

Withdrawal/Redaction Sheet

(George Bush Library)

Doc. No. / Type	Subject/Title	Date	Restriction	Classification
01. Memo	From D. Allan Bromley to John Sununu Re: The President's November Trip to Japan (1 pp.)	9/30/91	(b)(1)	
02. Paper	Strategy for Requesting SSC Funding (3 pp.)	9/26/91	(b)(1)	C
03. Memo	From Ragle (OEOB) to Patterson (OEOB) Re: 9/19/91 Cable From American Embassy Tokyo to Department of Energy on SSC: The Visit of DOE Assistant Secretary Harper and Nobel Laureats (2 pp.)	9/20/91	(b)(1)	
04. Memo	From D. Allan Bromley to John Sununu Re: HPCC Legislation [FOIA RESTRICTIONS REDACTED] (1 pp.)	7/12/91	P-5 , (b)(6)	
05. Memo	From D. Allan Bromley to John Sununu Re: Attached newspaper articles (1 pp.)	n.d.	P-5	
06. Memo	From D. Allan Bromley to John Sununu Re: Computer Deal Involving Mecca (1 pp.)	10/7/91	(b)(1)	
07. Memo	From D. Allan Bromley to John Sununu Re: Japanese Visit (3 pp.)	10/21/91	(b)(1)	
08a. Memo	From D. Allan Bromley to John Sununu Re: Technology and a Productive America (1 pp.)	10/8/91	P-5	

Page 1 of 2

Collection:

Record Group: Bush Presidential Records
Office: Chief of Staff to the President, Office of the
Series: Sununu, John, Files
Subseries: White House Offices Files
WHORM Cat.:
File Location: Science & Technology
 (Bromley) (1991) [1]

Pinksheet Number: KO0821
OA/ID Number: 29184-001
Date Closed: 12/29/2004
FOIA/Sys Case #: 1998-0004-F[2]
Re-review Case #: 2005-0426-S
P-2/P-5 Review Case #:

Withdrawal/Redaction Sheet

(George Bush Library)

Doc. No. / Type	Subject/Title	Date	Restriction	Classification
08b. Paper	From D. Allan Bromley to John Sununu Appendix 1: The Role of Technology in Bush Administration Policies (4 pp.)	n.d.	P-5	
08c. Paper	From D. Allan Bromley to John Sununu Appendix 2: Current Bush Administration Policies that Affect Technology (3 pp.)	n.d.	P-5	
08d. Paper	From D. Allan Bromley to John Sununu Appendix 3: Proposal for a Conference on "Technology for a Productive America" (2 pp.)	n.d.	P-5	
09a. Memo	From D. Allan Bromley to POTUS Re: Progress Report of the PCAST Panel on Science, Technology, and National Security (2 pp.)	10/8/91	(b)(1)	
09b. Memo	From The Panel on Science, Technology, and National Security to D. Allan Bromley Re: Progress Report of the Panel on Science, Technology, and National Security of the President's Council of Advisors on Science and Technology (PCAST) (4 pp.)	10/7/91	(b)(1)	
10. Memo	From D. Allan Bromley to John Sununu Re: EOS Engineering Review (4 pp.)	8/12/91	P-5	
11. Memo	From D. Allan Bromley to POTUS Re: Global Change Research Institutes (3 pp.)	8/12/91	P-5	

Page 2 of 2

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THE WHITE HOUSE
WASHINGTON

Date: November 21, 1991

FOR: ALLAN BROMLEY

FROM: **GOVERNOR JOHN H. SUNUNU**

- ☐ Action
- ☐ Your Comment
- ☐ Let's Talk

XX ☒ FYI

American Electronics Association

AEA

5201 Great America Parkway, Santa Clara, California 95054. Telephone: (408) 987-4200
1225 Eye Street, N.W., Suite 950, Washington, D.C. 20005. Telephone: (202) 682-9110

November 12, 1991

AC/TM

The Honorable John H. Sununu
Chief of Staff to the President
The White House
West Wing - First Floor
Washington, DC

THE CHIEF of STAFF
has seen

Dear Governor Sununu:

On behalf of the Advanced Technology Coalition we want to thank you for meeting with us on October 23, 1991 to discuss the problems facing U.S. manufacturers of critical technologies. We appreciate receiving the Administration's views on this issue, but would like to re-state our priorities.

The United States is facing intense competition in the development of microelectronics, computer systems and software, flat panel displays, machine tools, and a range of other vital technologies which will influence our future manufacturing prowess and economic welfare. Already this competition has eroded U.S. leadership severely in a number of critical high technology sectors. Nonetheless, U.S. manufacturers of these products are striving to meet these challenges through increasing expenditures on research and development, improving their management and commercialization of technology, expanding their businesses to overseas markets, and initiating programs to improve productivity and overall quality.

These efforts alone cannot succeed, however, unless a number of steps are taken by the federal government to stimulate long term economic growth and investment in critical, high risk technologies.

The Bush Administration must demonstrate leadership in responding to the formidable challenges the U.S. faces in technology development. Employment in the American electronics industry has decreased by more than 150,000 workers since November, 1989. In the 1980's, 1.2 million U.S. manufacturing jobs were lost. A decreasing defense budget, increasing pressures from a slow U.S. economy, and strong foreign competition supported by their governments, have discouraged private investment in high technology. It will be difficult for some of our companies to remain viable, much less to support long-term R&D in key technologies which are the building blocks for our future industrial base.

Thus far, industry, Congress, and the Administration have responded to these issues in a fragmented, ad-hoc manner, which has left the U.S. unable to focus resources most effectively and to establish long term national goals. If we had taken such an approach to the challenges posed by the Russian space program thirty years ago we would not have reached the moon -- which spurred investment in science and technology -- nor pioneered the revolution in electronics -- which has fueled our economic growth and protected our national security. As we once addressed these challenges to our economic welfare, the President now needs to draw national attention to these issues and to make technology and productivity growth a top priority of the Administration.

We urge you to incorporate the following technology competitiveness recommendations, which enjoy broad-based support among private sector organizations, in the Administration's Economic Growth Initiative and FY 1993 budget proposal:

- o Technology Administration -- A severe lack of funds and personnel has hampered the Department of Commerce Technology Administration's ability to fulfill its critical role of helping industry strengthen the U.S. manufacturing base, improve commercialization of federal R&D, promote technology transfer and international technology and manufacturing cooperation, and expand U.S. access to Japanese scientific and technological information. We recommend that the President include \$10 million for the Technology Administration in his FY 1992 budget proposal. This funding level was authorized by the Senate Commerce Committee in S. 1034, the American Technology Preeminence Act, which was unanimously reported by the Committee.
- o National Institute of Standards and Technology -- We applaud the President's commitment to double NIST's internal budget in five years to \$349 million in FY 1996. In keeping with this pledge, we support the President's stated intention of providing \$231.5 million for NIST's vital measurements, standards and R&D programs in his FY 1993 budget proposal.
- o Advanced Technology Program -- To have a meaningful, sustained effort in supporting industry-led efforts to develop pre-competitive generic technologies with significant economic potential, we urge the President to include \$100 million for ATP in his FY 1993 budget proposal.
- o National Science Foundation -- We commend the President's commitment to double the NSF budget, culminating with a total of \$3.2 billion in FY 1994. We support an FY 1993 budget that will place the Foundation on this doubling track. We also urge the President to provide additional resources for NSF's joint industry/university research programs, such as the Engineering Research and Science and Technology Centers.
- o Industry-Led Research Consortia -- We recommend the President's continued support for industry-led research consortia, such as SEMATECH and NCMS, that are effectively promoting collaborative R&D that leads to commercial innovation.
- o Long-Term Federal Research Initiatives -- Coordinated, long-term federal research initiatives, such as the High Performance Computing and Communications Initiative, should be supported and duplicated. The defining characteristics of a successful initiative that should guide initiatives in advanced materials, manufacturing, and other areas are: national goal-setting, coordination of federal efforts, and industry input.
- o Defense Advanced Research Projects Agency -- DARPA has successfully fostered cutting-edge technology needed for superior defense systems of the future. DARPA's efforts also have strengthened industry competitiveness in many critical technology areas. We urge the President to support Congress' FY 1990 goal of two percent real growth each year for five years for DARPA. We also urge you to encourage interagency initiatives on critical technologies.
- o Technology Development and Transfer -- Support for commercially relevant, pre-competitive generic technology R&D and the transfer of federal R&D to the private sector should be a priority of all federal research agencies. DOD's MANTECH and NASA's Technology Utilization Program are examples of initiatives that should be encouraged and much more needs to be done.
- o Workforce -- In implementing the President's "America 2000" education plan, we urge you to keep in mind our industries' need for technically skilled workers.
- o Private Sector Input -- To improve the overall utility of federal R&D investment, work with us to establish formal mechanisms for private sector involvement in setting federal R&D priorities.

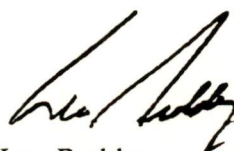
As our letter indicates, there is growing consensus among a variety of private sector groups on what should be done to ensure America's industrial and technological leadership. The above list of critical actions represents the foundation of a consensus, private sector technology competitiveness strategy. We will provide you with additional recommendations that are advocated by a variety of private sector organizations. We also are eager to develop an active working relationship with the relevant executive branch staff in order to flesh out specific initiatives to refocus national R&D priorities. Over the course of the next few weeks our organizations will contact you and your staff directly to develop these relationships.

We look forward to your response on these recommendations and to working with you on making U.S. technology competitiveness and long-term productivity growth a reality.

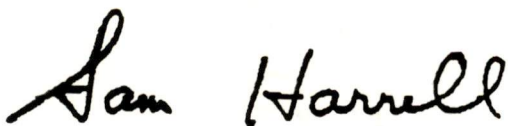
Sincerely,



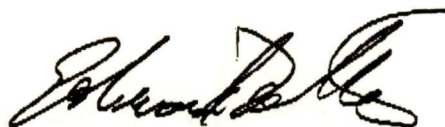
J. Richard Iverson
President and CEO
American Electronics Association



Leo Reddy
President
National Coalition for Advanced
Manufacturing



Sam Harrell
President
SEMI/Sematech



Edward A. Miller
President
National Center for Manufacturing Sciences



A. A. Procassini
President
Semiconductor Industry Association



Kent Hughes
President
Council on Competitiveness



Arvid Larson
Chairman
IEEE-USA Technology Policy Council

THE WHITE HOUSE
WASHINGTON

September 30, 1991

THE CHIEF of STAFF
has seen

MEMORANDUM TO JOHN SUNUNU

FROM: D. ALLAN BROMLEY *Alan*
SUBJECT: The President's November Trip to Japan

Trip postponed

It is becoming clear that science and technology issues will be an important part of the President's agenda on his forthcoming Japanese trip. My staff is working with the appropriate NSC staff to prepare the necessary briefing and background material.

I will take a group to Japan for the week of October 14 during which I shall meet with a number of the senior Japanese scientific and political figures as well as co-chair the second annual meeting of the US/Japan Joint Commission on Science and Technology.

Among other items, I shall be working to prepare the Japanese for the President's request to Prime Minister Kaifu for Japanese participation in the construction of the Superconducting Supercollider. Working with Henson Moore and others at DOE, we have developed a strategic plan that we hope will neutralize opposition to this participation within the Japanese academic and scientific communities. We have provided this plan to the group chaired by Andy Card for its comments and, we hope, approval. A copy is attached hereto.

As you know, the Japanese have also been very concerned regarding US lack of financial support for their Human Frontiers Program based in Strasbourg, France. I believe that a response from us now would contribute in a major way to increasing the chances of a positive Japanese response to SSC; after checking with our embassy in Tokyo, I have learned that \$3.5 million should have the desired effect. I convened an informal interagency meeting and have commitments from NSF, NIH, DOE and NASA to collectively provide such funds in FY92. By letting the Japanese know of our intentions in October and having the President make the formal announcement during his visit, we can allow the Japanese to evolve a positive response to this much awaited initiative on our part.

Because of the general science and technology aspects of the President's visit and the SSC negotiations in particular, I would like to request that I accompany him on this trip to provide a continuity and coordination in supporting him in these S&T areas.

Attachment

~~CONFIDENTIAL~~

9/26/91

CLOSE-HOLD

STRATEGY FOR REQUESTING SSC FUNDING

Low investment by Japan in basic research has long been an issue between our two countries. It was a substantial consideration in the negotiation of the U.S.-Japan Science and Technology Agreement (STA) signed by President Reagan and Prime Minister Nakasone in 1988. It also prompted Nakasone to propose a significant increase in Japanese basic research funding at the Venice Economic Summit. This proposal resulted in the Human Frontier Science Program (HFSP) initiative, but at a level that turned out to be approximately \$25 million/year, rather than at the billion dollar per year level initially discussed.

The Japanese scientific and academic communities generally oppose Japanese participation in the SSC. They view it as a threat to increased funding for Japanese universities (and academic research); this university funding currently is at a level of about \$10 billion. Japanese academics, led by Prof. Akito Arima, President of the University of Tokyo, are pressing Monbusho hard for an increase of \$1 billion per year.

Support for the SSC from the Japanese academic and scientific communities (or at least their neutrality) is important to building a consensus in Japan favorable to substantial funding for the SSC especially because there are indicators that the industrial sector supports Japanese participation. The following is an outline of a U.S. proposal for Japanese support that casts the issue in terms of increased Japanese funding for basic research. One should note that the basic research capabilities of Japanese universities is very weak, contributing to a better than 10-1 disparity in the flow of science and engineering students and researchers between the U.S. and Japan.

To succeed, any U.S. strategy should address the following concerns:

- o The understandable fears of the Japanese university research community that partnership in the SSC might divert funds from other activities to which they assign high priority.
- o The urgent requests from the Japanese for U.S. partnership in their proposed Human Frontier Program.
- o The desire of the Japanese to gain full membership in the international scientific and scholarly community, and in fact, among these viewed as providing world leadership in science and culture.
- o The importance to the Japanese bureaucracy of a direct approach from President Bush to Prime Minister Kaifu.

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PER NSC WAIVER, 1500 201-02
By SS NARA, Date 11/1/23

~~CONFIDENTIAL~~

- o The importance to the Japanese university community of a direct approach by the President's Science Advisor and other U.S. government officials to leaders of that group.

Elements of such a U.S. proposal could be:

- o Japan should immediately increase its contributions to basic research by \$300 million/year.
- o Over a ten-year period, this increment should be front-loaded toward the SSC, such that over the decade the SSC would receive \$1.5 billion and other basic research in Japan would receive \$1.5 billion.
- o A portion of the increment could also go to Japanese academic researchers in other international programs such as Global Change Research and Human Genome.
- o Beyond 10 years, the Japanese would have a permanent increase in its academic research base of \$300 million/year.

The Japanese government characterization of a decision to accept the U.S. proposal would be that it was a political decision in response to U.S. political pressure. The downside of this approach is that the U.S. would be viewed as interfering in internal Japanese matters. The Japanese academic research community would, however, be a major beneficiary of this decision, which would also result in amelioration of a long-standing irritant in U.S.-Japanese relations, perceived Japanese underinvestment in basic research.

There are a variety of "sweeteners" that could be added to the U.S. proposal that would make such an agreement more attractive to the Japanese. A few examples are:

- o U.S. initiative to increase cooperation between U.S. and Japanese universities to raise their level of basic research.
- o U.S. funding of the Human Frontier Science Program.

Note that the approach described above deals entirely with academic basic research. The beneficiaries on the Japanese side of increased Japanese government funding and of U.S. initiatives would be universities and academic researchers. The longer-term results would be to accelerate the advance of Japanese universities into world-class

~~CONFIDENTIAL~~

3

research and enhance the world's storehouse of new knowledge through this enhanced basic-research capability, and to help redress the current imbalance in flows of scientific and engineering personnel between the U.S. and Japan.

NATIONAL SECURITY COUNCIL

20-Sep-1991 08:25 EDT

MEMORANDUM FOR:

PATTERSON@OEEOB@MRGATE

FROM:

VMSMail User RAGLE
(RAGLE@OEEOB@MRGATE)

SUBJECT:

GESCAN

<CLAS> UNCLASSIFIED<DTG> 190917Z SEP 91
<ORIG>FM AMEMBASSY TOKYO
<SUBJ>SSC: THE VISIT OF DOE ASSISTANT SECRETARY HAPPER
AND NOBEL LAUREATES

<TEXT>

UNCLAS TOKYO 17216
DEPARTMENT FOR OES/S
DEPARTMENT OF ENERGY FOR THAD GRUNDY, IE-10
- BEN WEAKLEY, ER-1

E.O. 12356: N/A

TAGS: ENRG, JA

SUBJECT: SSC: THE VISIT OF DOE ASSISTANT SECRETARY HAPPER
AND NOBEL LAUREATES

~BEGIN SUMMARY~

1. SUMMARY: PROMINENT JAPANESE SCIENTISTS RECOMMENDED
THAT THE USG PLACE THE PROPOSAL FOR GOJ PARTICIPATION IN
SSC IN THE BROADER CONTEXT OF COOPERATION IN BASIC
RESEARCH. THEY OFFERED TO ARRANGE PRESS INTERVIEW FOR THE
NOBEL LAUREATES IN THE PARTY OF DOE ASSISTANT SECRETARY
HAPPER VISITING HERE OCTOBER 1-4. END SUMMARY.

~END SUMMARY~

2. ON SEPTEMBER 18, SCICOUNS AND DOE STAFF WERE VISITED
BY THREE PROMINENT PROFESSORS FROM THE UNIVERSITY OF TOKYO
AND KEK WHO ARE STRONG SUPPORTERS OF THE SSC AND ARE
ACTIVELY INVOLVED IN INTERNATIONAL RESEARCH PROGRAMS FOR
SSC PARTICIPATION.

REGARDING THE FORTHCOMING VISIT BY NOBEL LAUREATES AS WELL
AS SCIENCE ADVISOR BROMLEY AS PREPARATORY STAGES FOR THE
PRESIDENT'S VISIT IN NOVEMBER, THEY SUGGESTED SEVERAL
IDEAS TO HELP BUILD UP NATIONAL UNDERSTANDING AND
CONSENSUS AMONG JAPANESE SCIENTISTS.

3. THE PROFESSORS CRITICIZED THE PRESENT JAPANESE MEDIA'S
APPROACH TO THE SSC PROJECT FOR HIGHLIGHTING THE POLITICAL
ASPECTS AND EXAGGERATING ITS COST. THEY STRONGLY
SUGGESTED THAT THE NOBEL LAUREATES GIVE INTERVIEWS TO THE
PRESS TO CORRECT SUCH A NEGATIVE IMAGE OF THE SSC AND MORE
IMPORTANT TO SHIFT EMPHASIS TO THE SCIENTIFIC MERITS OF
THE SSC. THE PROFESSORS OFFERED TO COOPERATE WITH EMBASSY

IN SETTING UP THE INTERVIEWS WITH NOBEL LAUREATES BY LEADING NEWSPAPERS SUCH AS ASAHI, YOMIURI, NIHON KEIZAI PLUS KYODO NEWS AGENCY. ONCE THE PRESENT PROVOCATIVE ATMOSPHERE IS MITIGATED, THE PROFESSORS BELIEVE IT WILL BECOME EASIER TO CONVINCE HEADS OF THE SCIENCE COMMUNITIES WHO WILL ADVISE THE DECISION MAKERS.

4. THE PROFESSORS ALSO SUGGESTED USG PERHAPS IN THE PERSON OF PRESIDENT BUSH, HIMSELF, PROPOSE A NEW TEN-YEAR U.S. - JAPAN PROGRAM TO COOPERATE IN BASIC RESEARCH. THE SSC PROJECT WOULD BE INCLUDED IN THE UMBRELLA AGREEMENT. DETAILS AND DISTRIBUTION OF FUNDS CAN BE DISCUSSED LATER. IN THIS WAY, THE SCIENTIFIC COMMUNITY WOULD NOT SEE IN SSC A DANGER TO BADLY NEEDED FUNDING INCREASES FOR UNIVERSITY SCIENCE AND GOJ WILL FIND IT MORE REALISTIC AND JUSTIFIED TO PARTICIPATE IN THE PROJECT.

5. COMMENT. THE VIEWS EXPRESSED BY THESE THREE PROFESSORS ON PACKAGING THE SSC INVITATION IN A BROAD INITIATIVE ON BASIC RESEARCH ARE SIMILAR TO THE EMBASSY'S RECOMMENDATION. (REFTEL PARA 4 AND 5)
END COMMENT.
ARMACOST

<SECT>SECTION: 01 OF 01

THE WHITE HOUSE
WASHINGTON

Date: July 23, 1991

FOR: ROGER PORTER

FROM: GOVERNOR JOHN H. SUNUNU

☐ Action

☐ Your Comment

XXX ☒ Let's Talk

☐ FYI

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Document Partially Declassified
(Copy of Document Follows)
 By JP (NLGB) on 10/28/05

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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]
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 (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

July 12, 1991

MEMORANDUM FOR JOHN SUNUNU

FROM: D. ALLAN BROMLEY

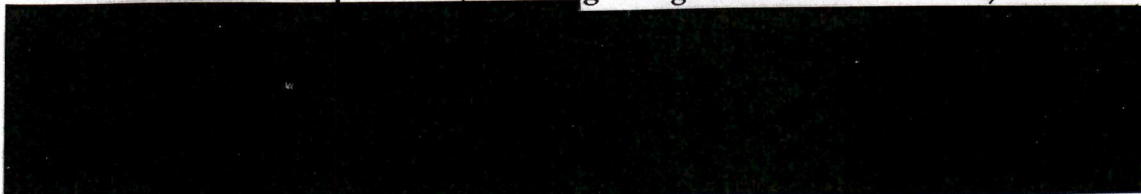
man

2 A x e d
THE CHIEF of STAFF
has seen

SUBJECT: HPCC legislation

I would like to bring you up to date on the legislation to authorize the President's High Performance Computing and Communications (HPCC) Program.

- o Yesterday the House passed a bill (H.R. 656) to authorize the President's high performance computing and communications initiative. Although there remain some concerns, such as the impacts of certain language on foreign participation and a "Buy American" provision, as a whole the bill is a considerable improvement over the original version. The Administration has stated that if certain changes were made, passage would not be opposed.
- o On the Senate side, the Energy Committee and the Commerce Committee have each passed a high performance computing bill -- S. 343 and S. 272, respectively. The Committees are currently negotiating to produce a single, comprehensive package and may complete a final draft by early next week. Although we are withholding judgment until we see such a draft, it appears that again considerable improvements have been made.
- o It is possible that the Senate may amend the House bill and send it back, rather than holding a formal conference. This has the advantage to us of keeping the House number and sponsors (including Congressman Bob Walker) on the bill,



(b)(6)

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 (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

J

THE WHITE HOUSE
WASHINGTON

MEMO TO: JOHN SUNUNU
FROM: ALLAN BROMLEY

As is clear from the attached
they haven't made up their minds.
Santo is really a lame duck.

Alan

THE CHIEF of STAFF
has seen

UNCLASSIFIED

PAGE:0032

CDS

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S

442745MIDB

UPID

HEADER

RTTUZYUW RUMJBPA3720 2910932 MTMS-UUAA--RUEBHAA.

ZNR UUUA ZYN

R 180932Z OCT 91

FM FBIS OKINAWA JA

TO AIG 4583

ACCT FBOW-EWDK

BT

CONTROLS

UNCLAS 4A

SERIAL: OW1810093291

BODY

COUNTRY: JAPAN

SUBJ: GOVERNMENT TURNS DOWN BID FOR U.S. SUPERCOLLIDER FUNDING

SOURCE: TOKYO KYODO IN ENGLISH 0731 GMT 18 OCT 91

TEXT:

((TEXT)) TOKYO, OCT. 18 KYODO -- JAPAN ON FRIDAY TURNED DOWN A U.S. REQUEST FOR FINANCIAL SUPPORT FOR ITS MULTIBILLION DOLLAR HIGH-ENERGY RESEARCH SUPERCOLLIDER PROJECT, WHICH IS LIKELY TO DEVELOP INTO A POLITICAL MATTER WHEN U.S. PRESIDENT GEORGE BUSH VISITS JAPAN IN LATE NOVEMBER.

AKIKO SANTO, DIRECTOR GENERAL OF THE SCIENCE AND TECHNOLOGY AGENCY, TOLD A PRESS CONFERENCE THAT THE JAPANESE GOVERNMENT MADE IT CLEAR DURING TWO DAYS OF SCIENCE TALKS WITH U.S. OFFICIALS WHICH CONCLUDED EARLIER IN THE DAY THAT FINANCIAL HELP AT THIS MOMENT IS DIFFICULT DUE TO THE BUDGETARY CONSTRAINTS.

"WE ARE NOW PREOCCUPIED WITH CEMENTING THE BASIS FOR JAPAN'S BASIC SCIENCE RESEARCH," SHE SAID.

WHILE EXPRESSING UNDERSTANDING OF THE DIFFICULTIES FACING JAPAN, THE U.S. TEAM, HEADED BY ALLAN BROMLEY, A SCIENCE ADVISER TO BUSH, PUT PRESSURE ON JAPAN BY SAYING THAT THE PROJECT IS CERTAIN TO BE HIGH ON THE AGENDA DURING THE JAPAN-U.S. SUMMIT MEETING, JAPANESE OFFICIALS SAID.

THE U.S. SIDE PROPOSED THE CREATION OF A SPECIAL FUND IN JAPAN TO FINANCE THE 8.2 BILLION DOLLAR SUPERCONDUCTING SUPER COLLIDER FACILITY NOW UNDER CONSTRUCTION IN TEXAS.

BUT THE JAPANESE TEAM REJECTED THE PROPOSAL, ARGUING THAT SUCH A BIG OUTLAY WOULD CONSTRAIN OTHER PROJECTS IN JAPAN.

THE SUPERCOLLIDER PROJECT, SCHEDULED TO BE COMPLETED IN 1999, INVOLVES CONSTRUCTION OF AN 85-KILOMETER CIRCULAR TUNNEL, WHERE PROTONS WOULD HURTLER IN OPPOSITE DIRECTIONS AT NEAR THE SPEED OF LIGHT, EVENTUALLY COLLIDING TO RECREATE THE FORCES PRESENT AT THE ORIGIN OF THE UNIVERSE, ACCORDING TO SCIENTISTS.

SANTO SAID THE U.S. DELEGATION DID NOT SPECIFY THE SCALE OF FUNDING IT WANTS FROM JAPAN, BUT JAPANESE GOVERNMENT SOURCES SAID EARLIER IN THE WEEK THAT BUSH, DURING HIS NOVEMBER TOUR TO JAPAN, COULD SEEK UP TO 1.6 BILLION DOLLARS IN AID.

THE LAW THAT ESTABLISHED THE SUPERCOLLIDER PROJECT REQUIRES THAT AT LEAST ONE-THIRD OF THE FUNDS MUST COME FROM SOURCES OUTSIDE THE FEDERAL GOVERNMENT. THE STATE OF TEXAS HAS ALREADY PROMISED 1

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CONTROLS

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SERIAL: OW1910140991

BODY

COUNTRY: JAPAN

SUBJ: GOVERNMENT MAY COOPERATE IN U.S. SUPERCOLLIDER PROJECT

SOURCE: TOKYO KYODO IN ENGLISH 1326 GMT 19 OCT 91

TEXT:

((TEXT)) TOKYO, OCT. 19 KYODO -- JAPAN, BOWING TO GROWING U.S. PRESSURE, MAY PARTICIPATE IN THE PROPOSED SUPERCONDUCTING SUPER COLLIDER (SCC) PROJECT, ONE OF THE MOST EXPENSIVE SCIENTIFIC PROJECTS IN U.S. HISTORY, GOVERNMENT SOURCES SAID SATURDAY.

THE SOURCES SAID JAPAN IS LIKELY TO MAKE KNOWN ITS DECISION AT A SUMMIT BETWEEN U.S. PRESIDENT GEORGE BUSH AND THE NEW JAPANESE PRIME MINISTER IN TOKYO IN LATE NOVEMBER.

WASHINGTON IS ASKING JAPAN TO PROVIDE ABOUT 1.6 BILLION DOLLARS FOR THE 8.25 BILLION DOLLAR PROJECT BEING BUILT IN THE SUBURBS OF DALLAS, TEXAS.

BUSH IS LIKELY TO BRING THE PROJECT UP FOR DISCUSSIONS WITH THE NEW JAPANESE PRIME MINISTER WHEN HE VISITS TOKYO IN LATE NOVEMBER, THE SOURCES SAID.

KIICHI MIYAZAWA, FORMER FINANCE MINISTER, IS THE LIKELIEST CHOICE AS A NEW JAPANESE PRIME MINISTER, SUCCEEDING TOSHIKI KAIFU WHO WILL STEP DOWN AT THE END OF OCTOBER.

MIYAZAWA, 72-YEAR-OLD BUREAUCRAT-TURNED POLITICIAN, IS ONE OF THREE CANDIDATES RUNNING FOR THE OCTOBER 27 PRESIDENTIAL ELECTION IN THE RULING LIBERAL DEMOCRATIC PARTY ((LDP)).

THE HEAD OF THE LDP, WHICH HOLDS THE MAJORITY IN THE POWERFUL HOUSE OF REPRESENTATIVES, BECOMES PRIME MINISTER.

JAPAN HAS SO FAR BEEN RELUCTANT TO PARTICIPATE IN THE PROJECT, CLAIMING IT WANTS TO PUT PRIORITY ON BASIC RESEARCH WORK AT HOME.

SOME AMERICANS ARE ALSO OPPOSED TO A JAPANESE ROLE IN THE PROJECT BECAUSE THEY SAY IT IS A TECHNOLOGICAL GIVEAWAY TO THE JAPANESE.

AKIKO SANTO, DIRECTOR GENERAL OF THE SCIENCE AND TECHNOLOGY AGENCY, TOLD REPORTERS FRIDAY THE JAPANESE GOVERNMENT MADE IT CLEAR IN TWO DAYS OF TALKS WITH U.S. OFFICIALS THAT FINANCIAL HELP FROM JAPAN IS DIFFICULT BECAUSE OF BUDGETARY CONSTRAINTS.

WHETHER JAPAN WOULD CHANGE ITS STANCE DEPENDS LARGELY ON IF THE NEW PRIME MINISTER HAS THE LEADERSHIP ABILITY TO PERSUADE THE FINANCE MINISTRY TO SET ASIDE APPROPRIATIONS FOR THE PROJECT, SAID A SENIOR OFFICIAL OF THE SCIENCE AND TECHNOLOGY AGENCY, WHO DECLINED TO BE NAMED.

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THE WHITE HOUSE

WASHINGTON

October 7, 1991

MEMORANDUM FOR JOHN SUNUNU

FROM: D. ALLAN BROMLEY *Alan*
SUBJECT: Computer Deal Involving Mecca

A Japanese computer company, Fujitsu, is exploring the possibility of donating a supercomputer to the Model Evaluation Consortium for Climate Assessment (MECCA).

MECCA is a consortium of research entities¹ whose goals, according to a brochure, are to study climate change forecasts, quantify the uncertainty in current models used to predict climate change due to greenhouse gases, and bring more precision into future predictions. Their activities will involve modeling experiments and analyses oriented to the needs of policy-makers and the private sector.

MECCA has already contracted with the National Center for Atmospheric Research (NCAR) in Boulder, Colorado for access to a CRAY supercomputer dedicated solely to MECCA. It has been reported that they are paying around \$150,000 a month for this service.

You may recall that a similar proposal, by the Japanese company NEC, to provide a supercomputer to MIT was rejected by MIT after some not-so-friendly persuasion on the part of the Federal government. This was done in part because of the potential adverse effects on the domestic supercomputer industry. Such adverse effects include, but are not limited to, access by foreign competitors to U.S. software developments. Software is, I think, a major factor in the Fujitsu offer; they want to get their hands on some of the new software developed at NCAR.

If you would like, I would be happy to discuss this matter further with you.

Love
AH

¹. PARTICIPANTS: U.S.: University Corporation for Atmospheric Research (UCAR, funded by the National Science Foundation), Electric Power Research Institute (EPRI); Japanese: Central Research Institute of Electric Power Industry; French: Electricite de France; Italy: Commission for Nuclear Energy and Alternative Energy Sources.

Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
07. Memo	From D. Allan Bromley to John Sununu Re: Japanese Visit (3 pp.)	10/21/91	(b)(1)	

Collection:

Record Group: Bush Presidential Records
Office: Chief of Staff to the President, Office of the
Series: Sununu, John, Files
Subseries: White House Offices File
WHORM Cat.:
File Location: Science & Technology
 (Bromley) (1991) [1]

Date Closed:	12/29/2004	OA/ID Number:	29184-001
FOIA/SYS Case #:	1998-0004-F[2]	Appeal Case #:	
Re-review Case #:	2005-0426-S	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.

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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

ITINERARY

DR. D. ALLAN BROMLEY
ASSISTANT TO THE PRESIDENT
FOR
SCIENCE AND TECHNOLOGY

OCTOBER 13-19, 1991
JOINT HIGH-LEVEL COMMITTEE MEETING
TOKYO, JAPAN

Sunday, October 13

Depart 10:10 a.m. Washington, Dulles, United flight 881
(confirmed first class)

(Dr. Ratchford and Whyman will be on the same flight)

Monday, October 14, 1991

Arrive 3:30 p.m. Tokyo, Narita.

Met by Science Counselor Ed Malloy. Embassy car will take
you to the Okura hotel, arriving at roughly 6:00 p.m.

Evening: free time

Tuesday, October 15, 1991

9:45- Depart Hotel Okura in car for Embassy

10:00- Courtesy call on Ambassador Armacost, Science
10:15 Counselor Malloy will accompany

10:15- Embassy roundtable briefing for JHLC delegates and
11:00 staff (Massey attending).

TBD Meeting with Prime Minister Toshiki Kaifu
(accompanied by Ambassador Armacost)

1:00- Meeting with Noboru Takeshita
1:30 (accompanied by Ambassador Armacost)

Speech preparation, rest time.

2:45 Depart Hotel Okura in Embassy Car.

3:00- Speech at Science Council of Japan and meet with Dr.
4:15 Jiro Kondo. (Massey meets Kondo shortly after)

~~5:45- Press conference following Science Council Speech
(tentative). (Bromley only).~~

*leave in
OK*

7:00 Informal drinks at Science Counselor Malloy's residence
Embassy "Mitsui" Housing Compound, 4115, Harris Tower.

Wednesday, October 16

7:20- Depart Okura in Embassy car for Ambassador's residence.

7:30 Breakfast Meeting with University Professors, hosted
9:00 by Ambassador Armacost at his residence.

Moore, Malloy, Arima, Dr. Yasuhara Suematsu
(Tokyo Institute of Technology, Dr. Saburo Nagakura
(Graduate University for Advanced Studies), Dr.
Tetsuji Nishikawa (Science University of Tokyo), Dr.
Sogo Okamura (Tokyo Denki University), Dr. Ikagami
(Osaka Nuclear Physics Research Center), and
tentatively Dr. Chumaru Koyama (Waseda University) in
attendance.

9:00- Follow on Meeting with Dr. Akito Arima, President of
9:15 Tokyo University.

9:30- Meet with Dr. Wataru Mori, at the Science and
10:00 Technology Agency (STA).

10:10- Meet with Minister Akiko Santo, STA
10:40 (accompanied by Armacost, Moore)

unscheduled time

11:20- Depart Embassy for Monbusho

11:30- Meet with Minister Yutaka Inoue, Ministry of Education,
12:00 Science and Culture. (Monbusho)
(Accompanied by Armacost, Massey, Moore)

Lunch Okura Hotel, Restaurant Furusawa (tel: 3582-0111)

1:50- Depart Okura for LDP headquarters

2:00- Meet with Mr. Keizo Obuchi, Secretary General, Liberal
2:30 Democratic Party.
(Accompanied by Armacost, Massey, Moore)

2:50- Meet with MITI Minister Nakao
3:20 (Accompanied by Armacost)

unscheduled time

4:50 Depart Okura for Environment Agency

5:00- Meet with Minister Kazuo Aichi, Environment Agency
5:30 (Accompanied by Aramacost)

5:45- Press Conference at Embassy/USIS Auditorium
6:45 (With Moore)

7:00- Reception at the New Otani Hotel, hosted by STA
8:00 Minister Santo

Thursday, October 17

JOINT HIGH LEVEL COMMITTEE MEETING

7:45 Depart Okura for Embassy

8:00- Pre-meeting of the U.S. Delegation, U.S. Embassy,
9:30 Jefferson Room

9:30- Depart Embassy for Ministry of Foreign Affairs (MOFA).

9:40- Chairman's Meeting at Ministry of Foreign Affairs
10:00 (with Sullivan and Santo) tentative.

10:00- JHLC Meeting, Ministry of Foreign Affairs
12:10 (Armacost and Sullivan attending first hour).
Opening statements, Introductions
Overview of U.S. and Japanese S&T policies

12:30- Lunch hosted by Ministry of Foreign Affairs at Iikura
2:00 Guest House, Vice-Minister Owada hosting.

2:20- JHLC Meeting, Ministry of Foreign Affairs
5:30
Discussion of the JWLC report
Joint High Level Advisory Panel
Big Science Cooperation

6:30- Reception hosted by Ambassador Armacost (across the
8:00 street from Hotel Okura).

Friday, October 18

10:45 Depart Okura for MOFA

11:00- JHLC Meeting, Ministry of Foreign Affairs
12:45 (starting late due to Japanese request)
U.S.-Japan Environment and Other Summit Issues
Steps and New Initiatives, including renewal
Closing Remarks

2:15 Car will pick you up from Okura hotel and take you to
Narita Airport.

5:25pm Depart Narita, United flight 882
(confirmed first class)

8:18pm Arrive Washington, Dulles (same day).

Wednesday, October 16, 1991

U.S. Presses Japan Again on Supercollider

By JACOB M. SCHLESINGER
Staff Reporter

TOKYO — The Bush administration intensified its pleas for Japan to give \$1.5 billion to an ambitious high-energy physics project, offering Japan a more concrete role in managing the venture and U.S. support for Japanese-led science projects.

D. Allan Bromley, director of the White House Office of Science and Technology Policy, is making the renewed pitch for help with the \$8 billion-plus Superconducting Supercollider this week to top political, bureaucratic, and academic leaders here. He said in a speech on Tuesday that the issue will be a top priority when President George Bush visits Japan late next month.

That visit will mark the third time Mr. Bush has taken the case personally to Japanese leaders over the past year and a half, and officials from both governments said they finally expect some sort of Japanese response by then. Japan hasn't officially accepted or rejected the request, saying it supports the project in principle but has difficulties finding the money. While Japanese industry is rich, they say, the Japanese government has little money for scientific research.

The situation is reminiscent of the Bush administration's ultimately successful push a year ago to get Japan to help fund the Persian Gulf war. Then as now, America argues that isn't able to pay the entire bill for its ambitions, and a richer Japan agrees it must play a bigger role but can't quite figure out how.

The issue is likely to come up again and again, particularly with "big science" projects. Mr. Bromley said he also plans to seek Japanese cooperation this week in research on the environment and mapping human genes.

The superconductor supercollider, located in Texas and slated for completion in 1998, involves construction of an 87-kilometer ring through which protons will whirl in opposite directions, eventually smashing together to recreate the forces present at the origins of the universe. That, Mr. Bromley said, would help human "understanding of matter and energy," as well as shed light on "the structure of our universe and its history."

"Let me be very explicit: We need Japanese participation," Mr. Bromley said in his speech to the Science Council of Japan, a scientific advisory group to the prime minister. The U.S. Congress has required that a third of the funding come from non-federal sources. Other than \$1 billion from the state of Texas, the U.S. expects the rest to come from foreign governments. With Europe pursuing a similar project, Japan is considered the most likely source.

Mr. Bromley's latest appeal appears designed to soothe feelings that may have been hurt during earlier U.S. requests for Japanese scientific funding. In the past, the Japanese felt the U.S. has simply demanded more money, asserting that Japan does little basic research of its own and should thus pay back for Japanese industry's "freeloading" on Western basic research.

Mr. Bromley stressed that the Japanese wouldn't just be investors, but equity owners involved in "construction, planning, management and use of the facility." The U.S. has made such an offer before, but further strengthened the promise of a specific management role for Japan.

Mr. Bromley also offered for the first time U.S. financial support, likely a few million dollars, for the Human Frontier Science Program to study human biology. Japan unveiled the project five years ago to show it would try and contribute more to basic research, but instead was accused of further trying to steal Western ideas. The project has since gotten little foreign funding.

In addition, he indicated new enthusiasm for other Japanese-led research programs that have drawn similar reactions,

including one designed to develop world-wide "intelligent manufacturing" systems and another to develop advanced computers.

The Japanese have complained that the U.S. devised the supercollider project by itself, then sought money from the Japanese. Mr. Bromley acknowledged that view, saying, "I must admit to you I would have much preferred the supercollider would have been a truly international project at a much earlier stage in its history."

Many Japanese scientists also are afraid that heavy Japanese contributions to the supercollider will undercut long-promised, long-overdue pledges by the government to increase money for decrepit university labs and for other basic research. Mr. Bromley tried to woo them by suggesting that Japan devise a comprehensive package where it pay for both — though he didn't say exactly from where the money should come.

"The attitude from the U.S. side has been very much changed," Jiro Kondo, chairman of the Science Council, said after hearing Mr. Bromley's pitch. "I am now more in favor." But he added that "still there is uncertainty whether the government can decide or not."

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

**SCIENCE AND TECHNOLOGY:
THE ERA OF INTERNATIONALIZATION**

**D. ALLAN BROMLEY
Assistant to the President for Science and Technology
Executive Office of the President**

**Science Council of Japan
October 15, 1991
Tokyo**

It is an honor and a particular pleasure for me to be back in Tokyo, a world center of activity in research and technology. Over the years, I have had the opportunity to participate in many research collaborations with Japanese scientists, engineers, and students, and I have always taken from those exchanges a great admiration for the ingenuity, dedication, and perception of my Japanese colleagues. More recently I have had the opportunity to participate in U.S.-Japan collaborations on a policy level rather than a scientific level, and the results of those collaborations have been every bit as agreeable, and as mutually beneficial, as were those in research.

One cannot help but observe, in traveling through today's Tokyo, the extent to which Japan has become a world leader. Indeed, Japan today shares the international aspects of major countries around the world. You have built a modern, prosperous nation on the pillars of trade, international peace, education, and your own hard work and vision. In many ways, you have become a model for other countries that aspire to your economic and technological successes. Kokusai-ka has been a resounding success in Japan, and it is an attribute that every country in the world would do well to emulate.

In that respect, as a scientist, I feel very comfortable in Japan, because science is among the most truly international of human activities. As Anton Chekhov once wrote, "There is no national science just as there is no national multiplication table; what is national is no longer science." Information in science and technology travels freely among countries and individuals, and there is very little that governments can, or indeed should, do to stem that flow. Scientists and technologists are often on more intimate terms with colleagues on the other side of the globe than they are with those on the other side of the hall.

It was for this reason that I was delighted to find in the 1990 Japanese White Paper on Science and Technology the statement, "It is critical to conduct exchanges of researchers between nations in order to promote science and technology on a worldwide scale." I could not agree more!

This free flow of information has contributed, in Japan, to one of the strongest science and technology enterprises anywhere in the world. Particularly in technology, Japan has become an undisputed world leader. We in the United States admire and respect your accomplishments, even as we seek to emulate the practices and principles that you have pioneered.

We also recognize that Japan is destined to play an even greater role in science, technology, and overall scientific culture than it does today. Your interest in basic scientific research and in improving your citizens' quality of life points toward a day when Japan will be a world leader in many other areas in addition to technology.

It is my strong belief, however -- and I base this belief on my experience in the United States -- that leadership in areas other than technology requires a balanced effort. Furthermore, this balance must apply along several different axes. This afternoon I wish to focus on two of these axes: the one defined by the spectrum of work between basic research and technology development, and the one stretching between domestic efforts in science and technology and more explicitly international efforts.

Science and Technology Policy in the United States

The question of balance along these axes is one that all the countries of the world must address, and each will answer it in its own way. Because these questions arise every day in my work as the Assistant to President Bush for Science and Technology, let me describe our approach to answering them in the United States.

Today, science and technology are integral elements of both domestic and international policy in the United States, reflecting the President's strong interest in these areas. One of the places where the importance of science and technology can most clearly be seen is in the proposed budgets that President Bush sends to the U.S. Congress each February. In all three of the budgets that the President has submitted to Congress, science and technology have been prominently featured.

To take a specific example, in the most recent budget the President proposed a

record \$75.6 billion -- nearly 10 trillion yen -- for research and development, a 13 percent increase over the amount Congress appropriated for FY 1991. Furthermore, this substantial increase came in a year when the overall growth of the budget was severely constrained by the Omnibus Budget Reconciliation Act of 1990, which is designed to reduce the U.S. budget deficit to zero over the next five years. In fact, science and technology received a larger increase than did any other major component of the federal budget.

The only way to increase science and technology under the terms of the budget agreement was to find other programs in the budget -- many of which have very strong constituencies in the United States -- and reduce or eliminate them. In other words, President Bush has decided that science and technology -- as vital investments in the future of not only our nation but also the entire world -- require a higher priority than do federal programs focused more toward immediate consumption.

A particular area of emphasis in the Bush Administration's budgets has been basic research. Our Administration is in the process of doubling, over a six-year period, the budget of the National Science Foundation -- which supports much of the physical sciences, mathematics, and engineering conducted in our nation's universities -- by 1994. The other agencies that support considerable amounts of basic research in our universities -- and there are more than a dozen of these, including the National Institutes of Health and the Department of Energy -- are also receiving substantial increases. Overall, in the most recent budget, basic research was slated for \$1 billion increase -- or about 130 billion yen -- to a total of \$13 billion -- about 1.7 trillion yen. Of this amount, about three quarters goes to universities -- nearly \$10 billion, or 1.3 trillion yen.

In the "general guidelines for science and technology" approved by the Japanese government cabinet in March 1986, I was delighted to find that the two highest priority "actions" were listed as: (1) enhancement of basic research, and (2) promotion of international cooperation and exchange programs. Because of definitional problems -- such as whether a fraction of faculty salaries are included or not -- it is difficult to make any clear comparison with the Japanese situation. But it is our general impression that Japan supports basic research at roughly half the

relative level of the United States -- with, again, a substantial amount of that going to universities.

The U.S. government supports basic research for several reasons. At the most abstract and idealistic level, it supports basic research because the quest for scientific knowledge is one of the most profound adventures to which human beings have ever had access. I consider myself exceedingly fortunate -- as I'm sure all of us in this room do -- to have been able to be participants in this adventure. It is the human activity that has defined the modern age, and because of our activities the human species will never again be the same.

Governments also have a more practical reason for sponsoring basic research -- namely, that it produces rich economic and social returns. These returns are not easy to quantify, but a distinguished economist in the United States, Edwin Mansfield of the University of Pennsylvania, has made an initial attempt. Looking specifically at research conducted at colleges and universities with federal support in close to 100 corporations in seven major industrial sectors, he found an average social rate of return to past investments in academic research of between 28 and 40 percent. In comparison, companies normally expect to receive returns on the order of 15 percent from investments in other areas such as plant and equipment.

International Cooperation in Basic Research

These arguments provide a compelling rationale for increasing support of basic research, and I know that Japan has invoked them in increasing its own support of basic research. Yet it is a feature of science in the modern age, and a measure of our success in science, that current research opportunities continue to far outstrip available resources. This has been a source of some frustration among university researchers in the United States, who see the tremendous benefits that could flow to our society from the work of people ready and able to pursue these opportunities if only more funding were available. It does little good to point out that the U.S. government now supports more researchers than have ever been supported in our

history. Nor does it help to contrast the relatively generous funding for basic research in the United States with similar funding in other countries. The prospects for advances are too exciting, the questions to be answered too compelling, and the potential rewards to our society -- and to the world -- too enormous.

Furthermore, the frontiers of scientific inquiry have been changing in a way that exacerbates the tension between available resources and current research opportunities. In many areas of science and technology, facilities required to give researchers access to the frontiers of their fields have become so large and complex that they are too expensive for any one country to afford on its own. Yet these facilities define key scientific frontiers; without movement on those frontiers, scientific progress in these areas will stagnate. As a result, we always strive toward a balance in our budgets -- between supporting our scientists and engineers in doing what they want to do today and broadening the foundation that will take these same individuals to the new frontiers of their fields years from now.

Among the areas I might cite as examples are high-energy physics and human genetics, space exploration and fusion research, research on global change and on natural hazard reduction. Let me take global change research as an example. If an enhanced greenhouse effect does occur, it will clearly be no respecter of national boundaries. A ton of carbon dioxide or chlorofluorocarbons released in the United States has the same potential effect as a ton released anywhere in the world. Similarly, the consequences of any future greenhouse warming will not be limited to any one region of the globe. All countries share an interest in understanding and anticipating the possible effects of climate change. I noted in the 1990 Japanese White Paper on Science and Technology, "It is important to protect the Earth's environment and at the same time to promote stable growth of the world economy." Again we are in total agreement.

It will be a monumental task to understand a system as large and as complex as the global environment, and no one country can accomplish this task alone. This international dimension to the problem was the rationale behind the U.S. proposal at a White House Conference in April 1990 that three regional international institutes be set up in different parts of the world to study the regional as well as the global

dimensions of global change. One institute would represent and be located in the Americas, a second would represent Europe and Africa, and a third would represent Asia and the western rim of the Pacific.

Last July I attended a workshop in Puerto Rico to discuss the scientific agenda and administrative structure of the institute to be located in the Americas. The United States is now exploring with Japan and with a number of countries in Asia the prospects for a similar workshop being held to begin planning for the Asian institute. Once all three of these planned institutes are in place, it will be essential to develop strong latitudinal linkages so that together -- and with their satellite institutions -- they form a truly global network to address this global problem.

It is my understanding that Japan has offered to host an organizational meeting for the western Pacific institute rather similar to the one we hosted in Puerto Rico in July of this year. I am pleased to be able to tell you that we, in the United States, are prepared to cooperate with you in such ways as supporting travel of some of the country delegates who might otherwise not be able to attend your meeting or in other ways that you might wish to suggest. We believe that the proposed network of institutes can play a very important global role.

The Domestic Complement to International Research

This kind of international cooperation in science and technology returns benefits to all the countries involved. It is impossible to specify exactly where, when, and to whom the benefits of basic science will flow; that is the nature of fundamental science. But science and technology are positive sum games. To paraphrase an old adage, "Science is the rising tide that raises all ships."

It bears emphasis, however, that to take full advantage of international activities in science and technology, a country must have a strong domestic science and technology base. In the United States, much of the strength of our science and technology base comes from our universities. We call upon our universities to provide new knowledge as well as the young minds trained to use this knowledge in innovative

ways. Our universities have responded in exemplary fashion. Their excellence has been a cornerstone of our economic well-being, our national security, and the health and quality of life of our citizens.

I was recently discussing the educational systems of the United States and Japan with a leading science administrator in your country, and he made an interesting observation. He pointed out that in Japan precollege education is, in his words, "quite good," but that university education in Japan has some significant weaknesses.

I pointed out to him that in the United States, the situation is quite different. Our best research universities are among the best in the world, and scientists from around the world do not feel that their education is complete until they have spent some time in a U.S. university. But our precollege education system is greatly in need of reform.

The President, in cooperation with the Governors of all of our States, has initiated a major effort to reform precollege education in the United States. We are now in the process of defining standards of what students should know in various core areas -- including mathematics and science -- at various grade levels, and we are devising assessment techniques to measure student performance against those standards. In this, as in many other areas, Japan's level of achievement provides a model for the United States.

International Collaboration on the Superconducting Super Collider

The remarks that I have made thus far provide a context for an important issue that I wish to discuss with you this afternoon -- and that I shall be discussing with various of your officials this week -- and that is Japanese participation in large international science projects, or megaprojects, of great importance to the world scientific community. The largest of these megaprojects is the Superconducting Super Collider (SSC); when built, it will be the largest basic research facility anywhere in the world. It will reach energies of 40 trillion electron-volts (TeV), compared with 16

TeV for the proposed Large Hadron Collider at the European Center for Nuclear Research (CERN) and 2 TeV at Fermi National Accelerator Laboratory in Illinois.

The SSC is the essential tool required for the next major step in unlocking the secrets of matter and energy as well as the structure and history of our universe. Fundamental questions continue to surround the so-called Standard Model. Other questions have emerged from world activity in recent decades, including the nature of the vacuum and the origin of mass itself. The Standard Model is currently one of the intellectual triumphs of our human species, encompassing a large fraction of all that we have learned about the universe in which we find ourselves. But we already know that it has a fatal flaw and cannot represent a final understanding of nature. If we ask, for example, for the probability that two intermediate bosons carrying the weak nuclear interaction will interact at energies above 1 TeV ~~in~~ the Standard Model, answers with a probability in excess of 100 percent result. This is clearly nonphysical. To find out what is really happening in this region above 1 TeV, we need much higher energies such as those provided by the SSC if we are to obtain adequately high reaction rates.

In the Standard Model, it is assumed that the various particles of nature interact with an electrically neutral field -- the Higgs field -- which, if it exists, permeates the universe and assumes a nonzero background value even in a perfect vacuum. This symmetry-breaking interaction gives the particles an energy -- and thus a mass -- with respect to the vacuum.

In the simplest form of the theory, the Higgs field would be represented by a single Higgs particle. In other versions, mass is imparted through interactions with a family of such particles. To date, however, no such particles have been observed using any existing particle accelerator.

The theory provides little precise guidance concerning the mass of the Higgs particle or particles, and thus it is essential to be able to search up to quite heavy masses, which requires correspondingly high-energy beams. In fact, it is essential to be able to search at masses up to 800 GeV/c². Beyond this point the particle would decay so rapidly, and its corresponding resonance be so great, that it would be undetectable. The SSC design energy and luminosity will provide unique experimental

access up to this region.

The discovery of the Higgs would be an historic event, while failure in this energy region would imply new physics beyond the Standard Model -- a most exciting result -- which could then be probed in detail with the facility. In either eventuality, the SSC should provide definite clues to the fundamental mystery of symmetry breaking in the electroweak sector and to the related question of the origin of the masses of the known particles.

This is just one example of the research that will be done with the SSC. But some of the most exciting physics to be done with the facility is virtually impossible to foresee today. Construction of the SSC is a step into scientifically uncharted areas, and such a major venture into the unknown can be guaranteed to produce rich and provocative results.

I have come to Japan prepared to offer your government what amounts to an equity position in the construction and operation of the SSC. This would mean that the Japanese would, effectively, be true partners in this facility. Japan would be closely involved in the planning, the construction, and the management of the SSC. This proposal marks a new approach to the construction and operation of a major international science project, but it is one that I believe will become increasingly common as science and technology become ever more international.

However, the point I made earlier about corresponding domestic capabilities applies with particular force here. Japan will benefit fully from its participation in the SSC project to the extent that it has a strong university research system. I would therefore take the liberty to propose that Japan undertake investment in the SSC in parallel with a major domestic initiative. A major strengthening of your university-oriented system would make your partnership with the United States in the SSC most effective. Such a combined thrust would bring great benefits to Japan's scientific community, and to Japan as a nation. It would mark your full acceptance of the leadership role in international science in parallel to that you now enjoy in technology. It will make Japan a leader in the international exchange of scientific information and in the development of new ideas. This would be entirely consistent with one of the primary objectives of the "Technology and Economy Program" adopted

here in Japan in 1988, which calls upon Japan to "enhance basic research by improving the research environment in Japan to attract or hold capable researchers."

The United States is now ready to move forward with the SSC. Congress, in this fiscal year, by strong majority votes in both houses, appropriated nearly \$500 million -- almost 65 billion yen -- for the SSC, bringing the total U.S. expenditures to date to over \$1 billion. Thus far, the project is coming in ahead of schedule and below budget, and funds for other research areas are increasing at the same time that the SSC's funding is increasing. We are now looking to the other nations of the world -- and particularly to Japan -- for the partnerships that will make the SSC a reality as a shared, international project. Japan's contribution could be a combination of cash and substantial in-kind contributions of Japanese-built components. We need your country as a partner if this -- the next major step in the advance of human knowledge -- is to occur.

Other International Megaprojects in Science and Technology

During the course of our discussions this week, I will also be covering several other international projects in science and technology. One is the Human Frontiers Science Program proposed by Japan at the Venice Summit in 1987. In the past the United States has participated in this program largely through in-kind contributions. As we speak, there are 357 Japanese scientists in residence at the National Institutes of Health in the United States, at a cost to us of \$8.5 million. These young researchers are doing work and receiving training at the frontiers of medical science. Those who return to Japan are among our very best ambassadors; those who remain add enormous strength to our medical and biomedical research activities.

Now that the Human Frontiers Science Program has proven itself capable of delivering quality scientific results, the United States is planning to contribute financially to the program in addition to this in-kind support.

The Human Frontiers Science Program and the SSC are both basic science projects, but much of what I have been saying this afternoon applies as well to areas

of technology development. A good example is the Intelligent Manufacturing Systems initiative proposed by the Government of Japan. A feasibility study is just getting under way in which representatives from six different regions will examine appropriate and equitable modes of cooperation, methods of funding, intellectual property rights issues, and areas of study. This feasibility study will provide a forum for all participants to begin contributing to the structure of the initiative so that, if it is undertaken, it will provide benefits commensurate with a region's contributions.

The New Information Processing Technologies initiative is another international effort of great interest to the United States. We are in the process of developing a proposal for the international component of the program that, we hope, will result in a successful bilateral relationship.

These programs and many others are moving forward under the umbrella of the U.S.-Japan Science and Technology Agreement. That agreement has played a valuable role in bringing our two countries closer together, and we have a common challenge to improve it in the years ahead. Later this week I will be cochairing the third meeting of the Joint High Level Committee under the agreement with Minister Santo, and we will be discussing many of the issues I have raised today. We will also be discussing some of the issues that we expect will arise when President Bush travels to Japan at the end of November to meet with your Prime Minister. It promises to be an extremely productive and interesting meeting.

Conclusion

This meeting of the Joint High Level Commission is being held at a propitious time. With the end of the Cold War, the nations of the world -- including the countries of the Eastern Bloc -- will soon have a great many more opportunities for international cooperation in science and technology than they have ever had before. We now have a unique opportunity to replace the tensions of the past with peaceful cooperation on the common challenges we face.

There is no better base for this cooperation than science and technology. The

longer I have worked in these fields, the more obvious it has become that science -- and the technologies derived from science -- have an essential unity, an underlying order and intrinsic beauty that flashes out when and where we least expect it. Ideas, approaches, and concepts developed in one area of science illuminate totally different ones -- and in the process our understanding of nature becomes ever deeper.

As I said at the beginning of my talk, science and technology are inherently international activities. They pull us together as a species and transcend the differences between nations and between peoples. We are approaching a new era in science and technology, an era of internationalization that will bring all countries closer together. None of us can afford to miss the unique opportunity that we have been given.

THE WHITE HOUSE
WASHINGTON

THE CHIEF of STAFF
has seen

October 8, 1991

MEMORANDUM FOR JOHN SUNUNU

FROM: D. ALLAN BROMLEY 
SUBJECT: TECHNOLOGY AND A PRODUCTIVE AMERICA

We recently discussed the possibility of recapturing for the President the political initiative in the area of technology and its impact on American productivity.

As a first step in a program to this end, building on one of your specific suggestions, I enclose herein three short documents.

1. An overall statement of the Bush Administration's policies in this area.
2. A brief listing of activities and accomplishments of the Bush Administration.
3. An outline proposal for a Presidential level conference that could be announced before the end of the year and held in March or April of 1992.

These are attached as appendices 1, 2, and 3, respectively.

I would very much appreciate your suggestions and reactions. If you agree with the general thrust, after making whatever changes you may wish to suggest I would want to get the input and support of Dick Darman, Mike Boskin, and Roger Porter in developing a document that we could present to the President for his possible approval. I am confident that we can count on enthusiastic participation from most of the Cabinet Members, based on general conversations that I have had with many of them over the past two months. I am confident that industrial leaders would respond equally well.

I would look forward to discussing this with you once you have had an opportunity to glance through the enclosed material and will welcome your comments and suggestions.

I remain convinced that there is a very exciting opportunity here, if properly addressed, to highlight the President's leadership in an area of critical importance to our Nation.

Attachments

Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
08b. Paper	From D. Allan Bromley to John Sununu Appendix 1: The Role of Technology in Bush Administration Policies (4 pp.)	n.d.	P-5	

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APPENDIX 1:

**THE ROLE OF TECHNOLOGY
IN BUSH ADMINISTRATION POLICIES**

CONCEPT

That the President should adopt technological excellence as a theme of the 1992 campaign and as an important component of the Administration's focus on investing in the future. As part of this effort, the President should convene and host in early 1992 a national conference on "Technology for a Productive America," which would bring together key government officials and business leaders to establish a shared vision of how America can more effectively develop and deploy technology.

BACKGROUND

Throughout its history, the United States has served as a magnet for people who wished to live and work in a country that permits the fullest expression of their innate abilities. Our traditions of freedom, individual mobility, access to quality education, and minimal government interference have led to America's becoming a world leader in such diverse areas as the arts, higher education, business, scientific research, defense capability, economic growth, manufacturing productivity, and concern for the environment.

In our ability to work and express ourselves in unfettered fashion, the United States has also served as a model to which other nations have aspired. Today the results of those aspirations are abundantly evident. The dramatic tide of political and economic reform in the Eastern European countries and Soviet Union is only the most recent example, with other examples sure to follow.

The development and application of technology have been integral parts of America's history and of our ideas about ourselves. This country was born during the Industrial Revolution, pioneered many of the inventions that shaped life in the 19th and 20th centuries, and is today leading the world through the Information Age into an era of unimagined possibilities. We are known worldwide for our "can do" spirit and for the work ethic of our people. In science fairs and engineering competitions, our best students stand head and shoulders above students from any other country.

Our workforce, schooled in the American tradition of freedom and self-reliance, is among the most adaptable and flexible in the world.

The effective application of technology has become a key element in the success of virtually every company in America -- and therefore a major source of economic growth. To achieve its greatest returns, leading-edge technology must be fully integrated with astute management practices, skilled workers, and high levels of investment. But world leadership in commerce is no longer possible without world-class technology.

Similarly, technology is playing an ever more pervasive and influential part in our daily lives. Today most Americans take for granted a standard of warmth, cleanliness, food, medical care, music, and entertainment that was undreamt of 150 -- or even 50 -- years ago. This great surge forward in our standard of living can and will continue, and one of our greatest challenges is to ensure that an ever greater fraction of our citizenry enjoys this heightened quality of life.

Our resourcefulness, optimism, and entrepreneurial genius, coupled with our abundant natural resources and favorable political climate, have fueled our long history of unparalleled agricultural and industrial growth. This growth, in turn, has created opportunities for vast improvements in health care, education, and science, which has led to still further advances in productivity. This powerful reinforcing cycle has made America one of the most creative and productive societies in history.

This country has many other strengths. In most respects, the United States continues to have the strongest science and technology enterprise the world has ever known. Quality in all sectors of the economy is becoming a national focus. The success of Operation Desert Storm restored pride and confidence in the American ability to innovate, organize, meet the challenge of an external threat, and work together in achieving a shared objective. That same spirit can spur greater productivity, quality improvement, and economic growth.

But past successes must not lead to complacency. One of the most important lessons of history is that a nation must continuously renew itself and strive for improvement if it is to continue to prosper. Several emerging trends are grounds for concern and renewed American commitment. Low savings rates, compounded by the size of the U.S. budget deficit, have reduced investment in new productive capacity. For example, Japan, with an economy half the size of America's, now invests more each year than we do in new plant and equipment. As a result, new technologies are incorporated into productive capacity in Japan much more rapidly than they are here.

In addition, a number of countries have become more adept than have U.S. innovators at incorporating new ideas and devices into new products and processes. Successful industrial production is today characterized by continuous innovation and unprecedented levels of production flexibility.

The United States has been and will remain vigilant and prepared in all matters concerning national security. We must be equally conscious of the need to ensure that our institutions and individuals have the opportunity to achieve everything they set out to achieve.

The Development and Deployment of Technology

The public and private sectors both support extensive technology development. The private sector spent \$46 billion on the development of products and processes in 1989; the federal government spent \$31 billion. Private industry supports the development of technology to achieve greater success in the marketplace. The federal government supports technology development to meet broad national needs in such areas as defense, health, energy, space exploration, and agriculture.

But continued improvement in national productivity -- and therefore in the American standard of living -- depends not only on the development of technology but on its effective deployment. In 1990 U.S. business invested over \$500 billion in new plant and equipment; a substantial fraction of this investment incorporated advanced technology. Firms also continually make decisions about what kinds of goods and services to offer, how best to produce those goods or provide those services, what kinds of employees to hire, how best to train those employees -- and all of these decisions increasingly involve technology.

Government cannot and should not make those decisions for private industry. But government can help create an environment in which institutions have the opportunity to achieve their fullest technological potential. Through its fiscal, regulatory, and trade policies, the federal government can reduce the risk for companies that are developing and deploying advanced technologies. It can work with the private sector to foster technologies that have broad application in both government and industry. It can catalyze educational reform to help ensure adequate levels of training in the workforce. And the President, as the leader of the nation, can provide a national vision and the leadership needed for all Americans and their institutions to realize that vision.

Political Considerations and Future Prospects

Early statements by the Democratic Presidential candidates indicate that technology will be a major focus of the 1992 Presidential election. The Democrats are positioning themselves to seize the initiative on this issue, despite the Administration's solid record of accomplishments in technology. The upcoming campaign will therefore require that the President reiterate Bush Administration policies and focus on the tremendous benefits to be gained by the more effective development and deployment of technology.

The stakes surrounding technology development are large. Over the next few decades, scientific research and technological advances are going to present us with unprecedented opportunities. The transformation of the workplace through its integration into global networks of information, new forms of energy and transportation, the conquest of illness -- including mental illness -- all of these developments and many more are now within our reach. Furthermore, the greatest opportunities are likely to be those that we cannot today foresee.

The United States will have a tremendous opportunity to strengthen its economy and boost its citizens' quality of life if it can develop and apply the technologies that emerge from these advances. We must take steps now to prepare ourselves for these difficult-to-predict but inevitable developments. We must challenge all Americans to realize their fullest potential, strive for continuous improvement, and rededicate themselves to excellence.

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08c. Paper	From D. Allan Bromley to John Sununu Appendix 2: Current Bush Administration Policies that Affect Technology (3 pp.)	n.d.	P5	

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APPENDIX 2:
CURRENT BUSH ADMINISTRATION POLICIES
THAT AFFECT TECHNOLOGY

The Bush Administration has an outstanding record of supporting and fostering the creation of innovative technology. These efforts must continue if the United States is to remain at the forefront of the technological frontier.

Many Administration policies are not generally framed in terms of their direct or indirect effect on technology. Viewing these policies in the context of technology casts them in a new light, suggesting new means of implementing and promoting Administration positions.

What follows is a very selective view of Administration policies as they affect technology -- a "technology policy" in the broadest sense of the phrase.

Fiscal and Monetary Policy

- The Omnibus Budget Reconciliation Act of 1990 will reduce federal deficits by nearly \$500 billion over the next five years, increasing the pool of capital available to fuel technological advances and economic growth. Better control of the deficit also enhances the opportunity for the Federal Reserve to pursue a noninflationary monetary policy.
- The proposed reduction in the tax rate on capital gains, greater flexibility for IRA withdrawals, and family savings accounts would all encourage long-term investments in resources and activities that enhance productivity. It would also encourage the entrepreneurship that is essential to the creation of new jobs and the commercialization of new ideas.
- Making the research and experimentation (R&E) tax credit permanent, as proposed by the Administration, would boost private sector R&D and provide more certainty for firms as they make investment plans.

Legal and Regulatory Policy

- The Administration is promoting a legal and regulatory environment that provides stability for innovation without unnecessary barriers to private investments in R&D and domestic production.

- The proposed expansion of the National Cooperative Research Act of 1984, which allowed companies to form consortia for precompetitive research and technology development, would extend the same provisions to joint production ventures, promoting the commercialization of new technologies.
- Support for a single uniform liability law, as proposed by the Administration, would restore balance to the tort system and reduce the uncertainty surrounding the introduction of new products.

International Policies

- The Administration is continuing to encourage international cooperation in science and technology for the benefit of all nations.
- The Federal Government has participated aggressively in international standardization efforts to achieve greater harmonization of regulations and standards for products and processes.
- The Administration has been working for better international protection of intellectual property to allow more benefits to be recovered from R&D investments.

Support for Research and Development

- The Bush Administration has proposed substantial increases in research and development in each of its budgets. In the FY 1992 budget, for example, the Administration proposed a record \$76 billion in research and development, an increase of 13 percent over FY 1991 enacted levels, despite the constraints of the budget agreement. Activities targeted for increases include:
 - Basic research at the National Institutes of Health
 - Basic research at the National Science Foundation
 - R&D at the National Institute of Standards and Technology
 - Defense R&D
 - Space activities
 - Global change research
 - Biotechnology R&D
 - Competitive grants at the Department of Agriculture
 - Superconducting Super Collider
 - High performance computing and communications
 - Energy R&D
 - Aeronautics R&D
- The President has announced several major budget-related initiatives that heavily

involve technology, including Presidential initiatives in high performance computing and communications and mathematics and science education.

- The Administration has been participating with the private sector in precompetitive research on generic, enabling technologies that have the potential to contribute to a broad range of government and commercial applications.
- The Administration is maintaining a strong defense technology base to provide options for future weapons systems and countermeasures development and to help avoid technological surprises by potential adversaries. Emphasis must be placed on shortening the time requirements for transferring R&D results to production and on using commercial products to the maximum extent possible.

Federal-Private Partnerships and Technology Transfer

- The Administration is increasing collaborations among industry, Federal laboratories, and universities, including personnel exchanges, to help convert Federally supported R&D into new technologies that the private sector can then turn into commercial products and processes. More than 500 cooperative R&D agreements between private sector entities and Federal laboratories are in effect, as provided for by the Technology Transfer Act of 1986.
- The Federal Government has improved opportunities for the private sector to commercialize technologies and computer software developed during the performance of government contracts by allowing contractors to retain rights in technical data and by protecting their trade secrets.

Education and Training

- The Administration has organized all federal activities in mathematics and science education into an integrated interagency program and has recommended, in the FY 1992 budget, a 13 percent increase for that effort.
- The AMERICA 2000 strategy has furthered the national goal of establishing standards for what students should know in mathematics and science as they progress through elementary and secondary school, fostering new methods of assessment that can spur educational reform and achievement.

Withdrawal/Redaction Sheet

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APPENDIX 3:

**PROPOSAL FOR A CONFERENCE
ON "TECHNOLOGY FOR A PRODUCTIVE AMERICA"**

The shared interest of the federal government and the private sector in fostering technological excellence calls for a close working relationship between government and industry. The proposed conference "Technology for a Productive America" is to be a clarion call for forging such a long-term relationship.

The conference would be held in early 1992. Attendees would include the President, key Administration officials, up to 200 industrial leaders (including Chief Executive Officers, Chief Financial Officers, Presidents, Chief Operating Officers, and top technical and research officials), and labor leaders.

At an opening plenary session, the President could summarize the current state of American technological achievement and present a vision of where we hope to be as we enter the 21st century. The vision could focus on American strengths in science and technology and on ways of using those strengths to enhance economic growth. It would emphasize the factors that allow us to make the best use of our technology: the creative genius and entrepreneurial spirit of our citizens, the political and economic systems that allow these attributes to flourish.

After the opening plenary session, conference attendees would divide into working groups in which each level of federal official would meet with the corresponding level of private sector official: the President with CEOs; appropriate Cabinet officers with Presidents, Chief Operating Officers, and labor leaders; and R&D executives with federal science and technology officials. Summaries of the working group deliberations and conclusions would be available in a final plenary session and could be woven into a closing address by the President.

Among the desired outcomes of the conference are:

- A consensus on the basic principles that inform both public sector and private sector actions affecting technology.
- Enhanced visibility for Administration initiatives and a commitment for further action.
- The development of mechanisms to follow up on actions emerging from the conference.

- A final Presidential statement summarizing the results of the conference and the steps needed to realize the vision developed at the conference.

As the first step in the planning of such a conference, a steering group of Administration officials should be formed -- augmented by private sector leaders at a somewhat later date -- to plan its format and agenda and to discuss its relationship to other Administration activities.

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08a. Memo	From D. Allan Bromley to John Sununu Re: Technology and a Productive America (1 pp.)	10/8/91	P-5	

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Record Group: Bush Presidential Records
Office: Chief of Staff to the President, Office of the
Series: Sununu, John, Files
Subseries: White House Offices File
WHORM Cat.:
File Location: Science & Technology
 (Bromley) (1991) [1]

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 By JP (NLGB) on 10/28/05

Date Closed:	12/29/2004	OA/ID Number:	29184-001
FOIA/SYS Case #:	1998-0004-F[2]	Appeal Case #:	
Re-review Case #:	2005-0426-S	Appeal Disposition:	
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RESTRICTION CODES

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Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
09a. Memo	From D. Allan Bromley to POTUS Re: Progress Report of the PCAST Panel on Science, Technology, and National Security (2 pp.)	10/8/91	(b)(1)	

Collection:

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Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
09b. Memo	From The Panel on Science, Technology, and National Security to D. Allan Bromley Re: Progress Report of the Panel on Science, Technology, and National Security of the President's Council of Advisors on Science and Technology (PCAST) (4 pp.)	10/7/91	(b)(1)	

Collection:

Record Group: Bush Presidential Records
Office: Chief of Staff to the President, Office of the
Series: Sununu, John, Files
Subseries: White House Offices File
WHORM Cat.:
File Location: Science & Technology
(Bromley) (1991) [1]

Date Closed:	12/29/2004	OA/ID Number:	29184-001
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AR Disposition:		MR Disposition:	
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Withdrawal/Redaction Sheet

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Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
10. Memo	From D. Allan Bromley to John Sununu Re: EOS Engineering Review (4 pp.)	8/12/91	P-5	

Collection:

Record Group: Bush Presidential Records
Office: Chief of Staff to the President, Office of the
Series: Sununu, John, Files
Subseries: White House Offices File
WHORM Cat.:
File Location: Science & Technology
 (Bromley) (1991) [1]

**Open on Expiration of PRA
 (Document Follows)**
 By JP (NLGB) on 10/28/01

Date Closed:	12/29/2004	OA/ID Number:	29184-001
FOIA/SYS Case #:	1998-0004-F[2]	Appeal Case #:	
Re-review Case #:	2005-0426-S	Appeal Disposition:	
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THE WHITE HOUSE
WASHINGTON

August 12, 1991

MEMORANDUM FOR JOHN H. SUNUNU

FROM: D. ALLAN BROMLEY *Am*
SUBJECT: EOS Engineering Review

Background

As part of the FY 1992 budget process, OMB instructed that an external review of the NASA Mission to Planet Earth, Earth Observing Satellite (EOS) platform configuration and launch sequence should be undertaken by a group of government, industry, and academic experts.

The purpose of the review was to assess alternatives for the implementation of EOS, including size of platforms, instrument configuration, and launch requirements and sequencing.

The objectives of the review were to ensure that the recommended program: (1) meets established scientific objectives; (2) places highest priority on achieving data collection needs specifically focused on climate change and global warming issues; (3) minimizes annual funding requirement; (4) minimizes technical risk; and (5) has sufficient resiliency to be adaptable to changing requirements.

The Panel

The Panel established (March 21) to carry out the review consists of the following members:

Chairman

- . Dr. Edward Frieman, Scripps Institution of Oceanography

Members

- . Dr. D. James Baker, Joint Oceanographic Institutes
- . Dr. Peter Banks, University of Michigan
- . Dr. Greg Canavan, Los Alamos National Laboratories
- . Dr. Richard Goody, Harvard University
- . Dr. V. Ramanathan, Scripps Institution of Oceanography
- . Dr. Warren Washington, National Center for Atmospheric Research
- . Dr. Albert Wheelon, (retired Hughes)

Summary of July 18-26 Meeting

The Panel has met twice: May 30-31 and July 18-26, 1991. These meetings were open to the public and the discussions were very candid. Press accounts reflected discussions which took place early in the review and provide, at best, a distorted picture of the true nature of the review. The open meetings were concluded on July 24 and the Panel adjourned to prepare a preliminary draft of a report.

There was some very significant, new information introduced during the review which dramatically changed the nature as well as the conditions of the review. Before listing the Panel's statements/recommendations, it is important that these new conditions of the review are clear. They are as follows:

1. Three new engineering/flight options were introduced during the review which created new and different opportunities for the EOS platforms which had not previously been available to NASA (i.e., when designing the EOS-A platform):

a. Simultaneity requirements for those core instruments which need to be flown together (due to new engineering and launch options) can now be met with smaller platforms such as Atlas launched ones.

b. Pointing accuracy (improved) and formation flying make it possible to provide similar conditions to one large platform.

c. New launch options are now available (construction of a Western Test Range will open up the opportunity for utilization of the Atlas IIA platform)

Items a) and b) had been declassified by DOD and DOE and became available to the civilian section for the first time during this study. They will have important consequences in making it possible to replace very large orbital platforms with smaller units independently launched but flying in stable formation.

The new launch system made available by the Air Force gives NASA access for the first time to Atlas IIA launches from the Western Test Range - as required for the desired orbits.

2. Two new developments (just prior to the Review) also significantly influenced the nature of the EOS review:

a. Budgetary guidance from OMB and the Hill (e.g., mark by Senate) indicated that, simply put, there are not enough funds to carry out EOS the way it was currently planned. NASA and the Panel had been asked by OMB to provide a more "resilient" program, given the present and anticipated budgetary limitations.

b. There has been increased pressure for more immediate scientific results for policy-makers (i.e., global warming detection studies), from earlier missions than previously planned.

3. New EOS Options

After the new launch and engineering options had been presented in the review, NASA was asked by the Panel to present some new options which included the use of Atlas-IIASs and addressed the changing budgetary limitations. NASA developed a strategy using the Atlas for EOS-A and B, the essence of which was that the payload for both A and B would be grouped by scientific question, as defined by the IPCC and the USGCRP, and by requirements for simultaneity, and then distributed on Atlas-sized spacecraft (and Deltas as necessary).

Major Recommendations

In addition to a list of specific statements and recommendations which may be made by the committee, it appears that the Panel will recommend several options with budgetary implications which will include the following:

1. EOS could be reconfigured into a subset of the EOS A and B instruments, grouped by scientific questions, as defined by IPCC, and by requirements for simultaneity, and then flown on smaller platforms that can be launched on smaller satellites (Atlas and Delta). Two options were prepared for the Panel by NASA on the last day of the review.

2. Near-term funding (perhaps, from DOE) may be recommended to help in expediting earlier launches of generic CLIMSATs, using technology such as Remotely Piloted Vehicles (RPVs), for global warming detection.

3. There may be a recommendation for long-term funding for non-NASA agencies (e.g., DOE and DARPA) to develop new technologies for small spacecraft and instruments.

Issues

The results of the EOS review will be controversial because the Panel will be recommending a significant reconfiguration of the Earth Observing System which will have a major impact on a number of the EOS science programs, our international partners, and national and international scientists, many of whom have been preparing for this mission for years.

It, therefore, will be important for the Administration to continue to be strongly supportive of both EOS and the US Global Change Research Program, of which EOS is an essential component. EOS and the USGCRP, both Presidential initiatives, represent most of the substantive, scientific underpinning of the Administration's position on climate change. Recent budget constraints will make it impossible to fund EOS as it was originally designed so, in fact, the reconfiguration of EOS, if achievable from an engineering point of view (made possible by the new technologies and launch opportunities), provides NASA, the

scientific community, and the US with badly-needed budgetary resilience during some very difficult years. Furthermore, it appears that this can be done while still preserving the established scientific objectives of the program, including, perhaps, earlier collection of data on climate change and global warming detection.

The Panel intends to submit its report to OMB and NASA this week and it is important that the Administration has a carefully-designed strategy for announcement of the release of the report. It is a good opportunity to show that the Administration is being responsive to the country's wishes as well as those of Congress. It will also be important to generate strong backing from EOS scientists to insure success of the project and positive support by the scientific community.

Withdrawal/Redaction Sheet

(George Bush Library)

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11. Memo	From D. Allan Bromley to POTUS Re: Global Change Research Institutes (3 pp.)	8/12/91	P-5	

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THE WHITE HOUSE
WASHINGTON

August 12, 1991

MEMORANDUM FOR THE PRESIDENT

FROM: D. ALLAN BROMLEY *Alan*
SUBJECT: Global Change Research Institutes

The purpose of this memo is to provide you with some information on a very successful, recent development from your April 1990 White House Conference on Science and Economics Research Related to Global Change.

Background

At the White House Conference on Science and Economics Research Related to Global Change in April 1990, you proposed the establishment of several global change research institutes to bring together the critical mass of research and capabilities to undertake global change research in three important regions of the world: the Americas, Europe/Africa, and the far East/SW Pacific.

It was decided that the first institute to be set up should be an Institute in the Western Hemisphere (the Americas) and, to carry out the detailed planning for setting up such an institute, the U.S. hosted an international workshop this past July in Puerto Rico. The workshop was sponsored by the FCCSET Committee on Earth and Environmental Sciences (CEES) Global Change Working Group.

The Workshop

Representatives of 22 countries from the region plus a number of "observer" countries and international organizations attended the workshop in San Juan, Puerto Rico, from July 15-19, 1991. All of the countries you visited during your trip to Latin America were enthusiastically represented and provided very constructive support for the institute concept.

During the workshop, the attendees prepared options/recommendations on three specific issues: (1) The science agenda, (2) Organization and management, and (3) Criteria for selection of a site or sites. A draft workshop report was produced, consisting of the three working group reports and statements delivered by participating

countries and organizations. An interim Working Group of representatives from participating countries was formed to further develop the specific options for consideration by a high-level group in April 1992.

Future Actions:

A second workshop has been planned for March 1992 with the same composition as the Puerto Rico workshop to finish the work of the Interim Group and plan for the high level meeting in April 1992 where commitments will be made on the science agenda, organization/management details, and selection of the site(s) for the institute. It is hoped that detailed proposals for establishing this first InterAmerican Institute for Global Change Research will be ready for high-level approval by April/May 1992, in time for announcement at the June 1992 UN Conference on Environment and Development (UNCED).

Comment

In my estimation, the workshop was a genuine success - scientifically, politically, and substantively. The original premise of this workshop was to have the concept development and the detailed planning accomplished by the countries in the region in order to promote a sense of ownership by those countries. This objective was, indeed, accomplished and there was a remarkable degree of cooperation among the participants.

It is significant that this first institute - as a prototype for the others proposed by the US to follow - will be a concrete and very positive indication that the US means business in our pledge to work with developing countries as well as other developed countries to address the important science questions on global change - on both a global and regional basis. In addition, it also makes clear that we are serious in our statements that we do want to help developing countries strengthen their own infrastructure, expertise, and capabilities to study and deal with global climate change and its impacts.

The successful implementation of the institute concept will strengthen our position in the continuing climate change discussions by demonstrating that your administration is, indeed, continuing to take action.

The institute concept is also a positive, new tangible contribution/proposal that the US may wish to bring to the table at UNCED.

I shall be happy to provide any additional details that might be of interest concerning this Western Hemisphere Institute.

In parallel with this we are concentrating our efforts - thus far successfully - to redirect the activities of the International Institute for Applied Systems Analysis (IIASA), that we rejoined recently, toward environmental matters so that it can provide the Europe -Africa focus for a second institute. We are also in contact with the Indonesians,

Japanese, Koreans, Australians, and New Zealanders concerning a Western Pacific rim institute. The Indonesians are particularly enthusiastic about hosting such an institute but are waiting to see how the Western Hemisphere one develops as a possible model for their efforts. Once all three of the institutes that you suggested last April are in place we can work to build strong latitudinal ties and thus have a global network to address what is truly a global issue.

The response in general has been enthusiastic and I shall keep you informed.

bcc: The Honorable John H. Sununu