

Originally Processed With FOIA(s):
2005-0336-F

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2005-0336-F

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Record Group/Collection: George H.W. Bush Presidential Records
Collection/Office of Origin: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Presidential Priorities Files

OA/ID Number: 62087
Folder ID Number: 62087-001

Folder Title:
Executive Office of the President: Presidential Priorities [1 of 4] [1991]

Stack:

Row:

Section:

Shelf:

Position:

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Logged

"Document Control"

TYPE: PRESIDENTIAL PRIORITY DOCUMENT NUMBER: 9125059
ORIGINATOR: 02 STATUS I DIRECTORATE STATUS

FROM: SARGENT, Earl

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 12/04/91

SUBJECT: THIS LETTER WAS FORWARDED FROM SENATOR BOREN'S
OFFICE. DR. SARGENT REQUESTS TO ACCOMPANY PRESIDENT
BUSH ON A VISIT TO THE INTERNATIONAL SCIENCE AND
ENGINEERING FAIR.

DIRECTORATE STAFF
ASSIGNED: INTERNATIONAL/POLICY ASSIGNED: *STB Art Sheehy*

ACTION
REQUIRED: FOR DAB'S SIGNATURE STAFF
ACTION: *→*

SENDER'S DUE DATE:
OSTP DUE DATE: 12/13/91 STAFF DUE DATE 12/12/91
DATE COMPLETED: DATE COMPLETED/DEPT:

COPIES TO: Damar Hawkins
D. Allan Bromley

WHITE HOUSE TRACKING #: CONTACT PERSON:
REMARKS: PHONE: EXT:

CLOSED

OSTP RECEIVED: 12/10/91 DEPT RECEIVED:
FILE: P-EOP-PRESIDENTIAL PRIORITY
CENTRAL FILES:

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



December 13, 1991

Dear Dr. Sargent:

This is in response to your letter to the President concerning a proposal to develop a program to expand participation in the International Science and Education Fair. A copy of this letter was also forwarded to the Executive Office of the President by Senator David L. Boren, who is, as you are no doubt aware, very interested in promoting international scholarship activities.

Over the past few months, the Office of Science and Technology Policy has received several proposals to promote national and international science fairs and competitions, and to provide a variety of new challenges for this nation's best students. Your encouragement of "Olympics for Science Students" complements the USA Mathematics Olympiad which is sponsored by The Mathematics Association of America. This annual mathematical competition begins with an examination given to over 400,000 high school students.

Along with officials in the U.S. Department of Education, National Science Foundation, and other Federal agencies, I applaud efforts of the major national education and academic associations to initiate and support these efforts. Your specific interests in becoming involved should be directly directed to the appropriate agency.

Thank you for your continued interest and support.

Sincerely,


D. Allan Bromley
Director

cc: The Honorable David Boren

Dr. Earl A. Sargent
5829 S. Delaware Place
Tulsa, OK 74105

5059
THE WHITE HOUSE
WASHINGTON

RECEIVED

91 DEC 10 AM 1:37

OSTP
MAIL ROOM

December 4, 1991

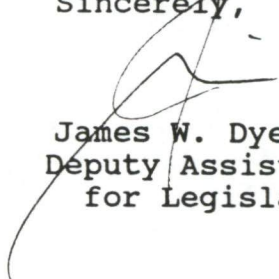
Dear Senator Boren:

This is to acknowledge and thank you for your letter of November 25, 1991, suggesting that Dr. Earl Sargent accompany the President to the International Science Engineering Fair.

In order to ensure expeditious review of your request, I have forwarded the letter to the appropriate member of the President's staff. You may be sure that it will be given prompt and careful attention.

With kindest regards,

Sincerely,



James W. Dyer
Deputy Assistant to the President
for Legislative Affairs (Senate)

Honorable David Boren
409 S. Boston
Suite 1820
Tulsa, Oklahoma 74103

Shipping 12-4

Action: OSTP

DAVID BOREN

OKLAHOMA

RUSSELL BUILDING
WASHINGTON, DC 20510

621 NORTH ROBINSON
OKLAHOMA CITY, OK 73102

440 SOUTH HOUSTON
TULSA, OK 74127

MUNICIPAL BUILDING
SEMINOLE, OK 74868

United States Senate

WASHINGTON, DC 20510-3601

CHAIRMAN,
SELECT COMMITTEE ON INTELLIGENCE

MEMBER, COMMITTEE ON FINANCE

CHAIRMAN, SUBCOMMITTEE ON
ENERGY AND AGRICULTURAL TAXATION

MEMBER, COMMITTEE ON AGRICULTURE,
NUTRITION, AND FORESTRY

CHAIRMAN, SUBCOMMITTEE ON
AGRICULTURAL CREDIT

MEMBER, COMMITTEE ON SMALL BUSINESS

November 25, 1991

Mr. Boyd Hollingsworth, Jr.
Senate Legislative Affairs
Executive Office of the President
1600 Pennsylvania Ave., N.W.
Washington, D.C. 20500

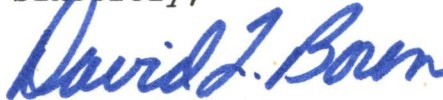
Dear Mr. Hollingsworth:

Enclosed you will find a copy of correspondence that has been forwarded to my office from Earl A. Sargent.

I will appreciate any assistance your office may provide regarding this request. Please direct any response you may have to my Tulsa office at 409 S. Boston, Suite 1820, Tulsa, Oklahoma 74103. , or if you have any questions call Mrs. Shreese Wilson at (918) 581-7785.

With best regards,

Sincerely,



David L. Boren
United States Senator

DLB:sw
enclosure

Assistant to the Pres for Science & Tech
and Director

D. Allan Bromley 388 0003

Honorable David Boren
U.S. Senate
Washington, D.C. 20510

Dear Senator Boren:

I wrote you a few months
ago and you suggested
I write Secretary of State
Baker concerning International
Science and Engineering
Workshops Overseas.

Enclosed is another
letter I sent to the
President and Secretary
of State.

Thank you for your
continued interest in
this project.

Yours Truly,
Earl Sargent

EARL A. SARGENT
5829 S. DELAWARE PL.
TULSA, OK 74105

5829 S. Delaware Pl.
Tulsa, OK 74105
November 2, 1991

President George Bush
The White House
Washington, D.C.

Dear Mr. President:

Thank you for doing a masterful job in coping with the failed Russian Coup and securing the Mid-East Conference.

Now that we are expanding our normalized trade relations with countries which move toward the democratic way, I would like to do my part.

One of the finest organizations to promote goodwill among young people and their countries is the International Science and Engineering Fair (ISEF). I have been associated with that organization for 32 years, having served as a teacher, Chairman of the Board of Directors of the Tulsa Regional ISEF, and mentor for students in our fair. I currently serve voluntarily on the local ISEF Board of Directors and judge some 15 science fairs each year in this region.

I propose that I attend with you or any member of your cabinet or staff, any of these countries, aspiring for our 'democratic way.' I propose that I spend up to five days with science educators in each country to train them to follow the very strict rules participants must follow. Two or more winning students from each regional fair qualify to attend the ISEF each year. I was instrumental in winning Tulsa's hosting of the ISEF in 1989.

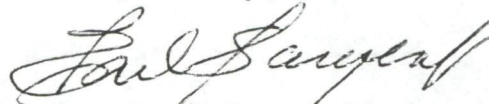
Since my retirement as Chairman of the Division of Professional Teacher Education at The University of Tulsa, I have been more active in ISEF affairs.

The USA only attracts ISEF students from some 15 foreign countries at this time. It seems to me that this prestigious organization should attract the best students from many more countries. This is the "Olympics of Science Students."

I would be happy to come to Washington any time to develop a program. Salary considerations should be very modest.

Thank you.

Yours truly,

A handwritten signature in cursive script, appearing to read "Earl Sargent".

Dr. Earl Sargent

P.O. One of the winning ISEF awards is for one student to attend the awarding of the Nobel Prizes in Sweden.

ES/jc

cc: Secretary of State, James Baker
Senator Don Nickles
Representative Jim Inhofe
Representative Mike Synar
Senator David Boren

"Document Control"

TYPE: PRESIDENTIAL PRIORITY DOCUMENT NUMBER: 9124970
ORIGINATOR: 02 STATUS C DIRECTORATE STATUS

FROM: ANTONOVICH, Michael D.: LOS ANGELES COUNTY BOARD OF SUPERVISORS

TO: PRESIDENT BUSH

DATE OF
CORRESPONDENCE: 12/03/91

SUBJECT: URGES THE PRESIDENT TO SUPPORT THE JOINT EFFORT
REGARDING THE NATIONAL ASSOCIATION OF COUNTIES
TECHNOLOGY TRANSFER PROJECT.

DIRECTORATE STAFF
ASSIGNED: ASSIGNED:

ACTION STAFF
REQUIRED: ACTION:

SENDER'S DUE DATE:
OSTP DUE DATE: STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT:

COPIES TO: D. Allan Bromley
INDUSTRIAL
Damar Hawkins

WHITE HOUSE TRACKING #: CONTACT PERSON:
REMARKS: PHONE: EXT:

CLOSED

OSTP RECEIVED: 12/03/91 DEPT RECEIVED:
FILE: EOP-PRESIDENTIAL PRIORITY

CENTRAL FILES:

4970

T H E W H I T E H O U S E O F F I C E

REFERRAL

DECEMBER 3, 1991

TO: OFFICE OF SCIENCE AND TECHNOLOGY POLICY
ATTN: BROMLEY

ACTION REQUESTED:
INFORMATION COPY - NO ACTION NECESSARY

REMARKS: ALSO REFERRED TO INTERIOR AND DEFENSE

DESCRIPTION OF INCOMING:

ID: 285713

MEDIA: LETTER, DATED OCTOBER 30, 1991

TO: PRESIDENT BUSH

FROM: THE HONORABLE MICHAEL D. ANTONOVICH
CHAIRMAN OF THE BOARD
SUPERVISOR
BOARD OF SUPERVISORS
COUNTY OF LOS ANGELES
ROOM 869, HALL OF ADMINISTRATION
500 WEST TEMPLE STREET
LOS ANGELES CA 90012

SUBJECT: URGES THE PRESIDENT TO SUPPORT THE JOINT
EFFORT REGARDING THE NATIONAL ASSOCIATION
OF COUNTIES TECHNOLOGY TRANSFER PROJECT

PROMPT ACTION IS ESSENTIAL -- IF REQUIRED ACTION HAS NOT BEEN
TAKEN WITHIN 9 WORKING DAYS OF RECEIPT, PLEASE TELEPHONE THE
UNDERSIGNED AT 456-7486.

RETURN CORRESPONDENCE, WORKSHEET AND COPY OF RESPONSE
(OR DRAFT) TO:
AGENCY LIAISON, ROOM 91, THE WHITE HOUSE, 20500

SALLY KELLEY
DIRECTOR OF AGENCY LIAISON
PRESIDENTIAL CORRESPONDENCE

RECEIVED
91 DEC 3 4:22
OSTP
MAIL ROOM

ID# 285713

THE WHITE HOUSE
CORRESPONDENCE TRACKING WORKSHEET

INCOMING

DATE RECEIVED: NOVEMBER 12, 1991

NAME OF CORRESPONDENT: THE HONORABLE MICHAEL D. ANTONOVICH

SUBJECT: URGES THE PRESIDENT TO SUPPORT THE JOINT
EFFORT REGARDING THE NATIONAL ASSOCIATION
OF COUNTIES TECHNOLOGY TRANSFER PROJECT

ROUTE TO: OFFICE/AGENCY	(STAFF NAME)	ACTION		DISPOSITION	
		ACT CODE	DATE YY/MM/DD	TYPE RESP	C COMPLETED D YY/MM/DD
JIM SNYDER		ORG	91/11/12	JS	91/11/22 TC
99 <i>Interior</i>	REFERRAL NOTE: _____		12 03		
99 <i>Delaware</i>	REFERRAL NOTE: _____	F	91/12/03		C 91/12/03 TC
99 <i>ASTP</i>	REFERRAL NOTE: _____	F	91/12/03		C 91/12/03 TC
99 <i>Brooklyn</i>	REFERRAL NOTE: _____	F	91/12/03		C 91/12/03 TC
	REFERRAL NOTE: _____				
	REFERRAL NOTE: _____				

COMMENTS: Please see ID # 279929 as well TC

ADDITIONAL CORRESPONDENTS: MEDIA:L INDIVIDUAL CODES: 2300 _____

IG MAIL USER CODES: (A) _____ (B) _____ (C) _____

*ACTION CODES:	*DISPOSITION	*OUTGOING	*
*	*	*CORRESPONDENCE:	*
*A-APPROPRIATE ACTION	*A-ANSWERED	*TYPE RESP=INITIALS	*
*C-COMMENT/RECOM	*B-NON-SPEC-REFERRAL	*OF SIGNER	*
*D-DRAFT RESPONSE	*C-COMPLETED	*CODE = A	*
*F-FURNISH FACT SHEET	*S-SUSPENDED	*COMPLETED = DATE OF	*
I-INFO COPY/NO ACT NEC		*OUTGOING	*
*R-DIRECT REPLY W/COPY			*
*S-FOR-SIGNATURE			*
*X-INTERIM REPLY			*

REFER QUESTIONS AND ROUTING UPDATES TO CENTRAL REFERENCE
(ROOM 75, OEOB) EXT-2590
KEEP THIS WORKSHEET ATTACHED TO THE ORIGINAL INCOMING
LETTER AT ALL TIMES AND SEND COMPLETED RECORD TO RECORDS
MANAGEMENT.

THE WHITE HOUSE

WASHINGTON

November 22, 1991

Mike

Dear Supervisor Antonovich:

On behalf of the President, thank you for your correspondence regarding H.R. 2929, the California Desert Protection Act, and the ongoing efforts to transfer technology used so successfully in the Gulf War to domestic applications. I appreciate your taking the time to write to the White House with your concerns on this matter.

As you may well know, the Administration strongly opposes H.R. 2929 and instead, urges Congress to act favorably on H.R. 3066. You should know that if H.R. 2929 is presented to the President in its current form, the Secretaries of Defense and of the Interior will recommend a veto.

I have taken the liberty of passing on a copy of your letter about H.R. 2929 to the appropriate officials at the Departments of Defense and the Interior so that they will be fully aware of your concerns as the 102nd Congress comes to a close.

Additionally, your concerns and enthusiasm for the technology transfer project are well noted and you can be sure that the Administration will continue its efforts.

With best wishes,

Sincerely,

James J. Snyder

James J. Snyder
Special Assistant to the President
for Intergovernmental Affairs

The Honorable Michael D. Antonovich
Chairman, Board of Supervisors
County of Los Angeles
500 West Temple Street
Los Angeles, California 90012

8
J. Snyder

285713

Board of Supervisors County of Los Angeles

MICHAEL D. ANTONOVICH
CHAIRMAN OF THE BOARD
SUPERVISOR FIFTH DISTRICT

October 30, 1991

The President
The White House
Washington, D.C. 20500

Dear Mr. President:

**NATIONAL ASSOCIATION OF COUNTIES (NACo)
TECHNOLOGY TRANSFER PROJECT**

The County of Los Angeles was delighted and honored to participate with NACo in developing three technology transfer proposals which were presented to your White House science advisory staff on September 10, 1991. If implemented, these proposals would bring significant benefits to counties nationwide, and we urge your support for this joint effort.

The successful application of technology during Operation Desert Storm prompted counties to look to the Federal Government for possible sharing of technology in critical areas of concern to local governments. Two of the three proposals selected by NACo for presentation to your Office of Science and Technology Policy were developed by Los Angeles County. These were for positive identification and multilingual translation systems technology, both of which would be of immense benefit to the effectiveness of County operations and service to the public.

Your support for a partnership effort is essential to the success of these proposals. We look forward to a successful joint venture.

Sincerely,


MICHAEL D. ANTONOVICH
Chairman of the Board
Supervisor, Fifth District

- c: Debra R. Anderson, Office of Intergovernmental Affairs
D. Allan Bromley, Office of Science and Technology Policy
Each Supervisor

nacotec2.lbs

"Document Control"

TYPE: PRESIDENTIAL PRIORITY DOCUMENT NUMBER: 9124648
ORIGINATOR: 02 STATUS I DIRECTORATE STATUS

FROM: IVERSON, J. Richard: AMERICAN ELECTRONICS ASSOCIATION

TO: JOHN SUNUNU

DATE OF
CORRESPONDENCE: 11/01/91

SUBJECT: URGES THE ADMINISTRATION TO MAKE LEADERSHIP IN
TECHNOLOGY AND PRODUCTIVITY THE CORNERSTONE OF ITS
ECONOMIC GROWTH INITIATIVE.

DIRECTORATE STAFF
ASSIGNED: ASSIGNED:

ACTION STAFF
REQUIRED: ACTION:

SENDER'S DUE DATE:
OSTP DUE DATE: STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT:

COPIES TO: D. Allan Bromley
INDUSTRIAL

WHITE HOUSE TRACKING #: CONTACT PERSON:
REMARKS: PHONE: EXT:

CLOSED

OSTP RECEIVED: 11/04/91 DEPT RECEIVED:
FILE: P-EOP-PRESIDENTIAL PRIORITY
CENTRAL FILES:

THE WHITE HOUSE OFFICE

REFERRAL

RECEIVED

NOVEMBER 11, 1991 1:14

TO: OFFICE OF SCIENCE AND TECHNOLOGY POLICY

OFFICE OF THE
DIRECTOR

ACTION REQUESTED:

INFORMATION COPY - NO ACTION NECESSARY

DESCRIPTION OF INCOMING:

ID: 281871

MEDIA: LETTER, DATED OCTOBER 25, 1991

TO: JOHN SUNUNU

FROM: MR. J. RICHARD IVERSON
PRESIDENT AND CEO
AMERICAN ELECTRONICS ASSOCIATION
SUITE 950
1225 EYE STREET, N.W.
WASHINGTON DC 20005

SUBJECT: URGES THE ADMINISTRATION TO MAKE LEADERSHIP
IN TECHNOLOGY AND PRODUCTIVITY THE
CORNERSTONE OF ITS ECONOMIC GROWTH INITIATIVE

PROMPT ACTION IS ESSENTIAL -- IF REQUIRED ACTION HAS NOT BEEN
TAKEN WITHIN 9 WORKING DAYS OF RECEIPT, PLEASE TELEPHONE THE
UNDERSIGNED AT 456-7486.

RETURN CORRESPONDENCE, WORKSHEET AND COPY OF RESPONSE
(OR DRAFT) TO:
AGENCY LIAISON, ROOM 91, THE WHITE HOUSE, 20500

SALLY KELLEY
DIRECTOR OF AGENCY LIAISON
PRESIDENTIAL CORRESPONDENCE

THE WHITE HOUSE
CORRESPONDENCE TRACKING WORKSHEET

INCOMING

BE004

DATE RECEIVED: OCTOBER 28, 1991

NAME OF CORRESPONDENT: MR. J. RICHARD IVERSON

SUBJECT: URGES THE ADMINISTRATION TO MAKE LEADERSHIP
IN TECHNOLOGY AND PRODUCTIVITY THE
CORNERSTONE OF ITS ECONOMIC GROWTH INITIATIVE

ROUTE TO:		ACTION		DISPOSITION	
OFFICE/AGENCY	(STAFF NAME)	ACT CODE	DATE YY/MM/DD	TYPE RESP	C D
JOHN SUNUNU		ORG	91/10/28	NAN	C 91/10/29
REFERRAL NOTE:					
REFERRAL NOTE:					
REFERRAL NOTE:					
REFERRAL NOTE:					
REFERRAL NOTE:					

COMMENTS:

ADDITIONAL CORRESPONDENTS: MEDIA:L INDIVIDUAL CODES: _____

CS MAIL USER CODES: (A) _____ (B) _____ (C) _____

*ACTION CODES:	*DISPOSITION	*OUTGOING	*
*	*	*CORRESPONDENCE:	*
*A-APPROPRIATE ACTION	*A-ANSWERED	*TYPE RESP=INITIALS	*
*C-COMMENT/RECOM	*B-NON-SPEC-REFERRAL	* OF SIGNER	*
*D-DRAFT RESPONSE	*C-COMPLETED	* CODE = A	*
*F-FURNISH FACT SHEET	*S-SUSPENDED	*COMPLETED = DATE OF	*
I-INFO COPY/NO ACT NEC		* OUTGOING	*
*R-DIRECT REPLY W/COPY *			*
*S-FOR-SIGNATURE *			*
*X-INTERIM REPLY *			*

REFER QUESTIONS AND ROUTING UPDATES TO CENTRAL REFERENCE
(ROOM 75, OEGB) EXT-2590
KEEP THIS WORKSHEET ATTACHED TO THE ORIGINAL INCOMING
LETTER AT ALL TIMES AND SEND COMPLETED RECORD TO RECORDS
MANAGEMENT.

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

October 25, 1991

AC/TM

THE CHIEF of STAFF
has seen

The Honorable John H. Sununu
Chief of Staff
The White House
1600 Pennsylvania Avenue, NW
Washington, DC 20500

Dear Governor Sununu:

Thanks for meeting with the Advanced Technology Coalition on October 23, 1991. This coalition of companies, trade associations, professional societies, and labor unions has supported the Administration's technology initiatives.

You recommended that we get to the root of the economic problems of the country and our industries, and we would really like to contribute to that effort, but the leadership must come from the Administration. Meanwhile, we will continue to work on the issues where we can make progress.

We recommend that the cornerstone of your economic growth initiative should be leadership in technology and productivity growth and will provide you with additional suggestions.

Look forward to seeing you again.

Sincerely,



J. Richard Iverson
President and CEO

JRI:efs

Logged

"Document Control"

TYPE: PRESIDENTIAL PRIORITY DOCUMENT NUMBER: 9124808
ORIGINATOR: 02 STATUS 01 DIRECTORATE STATUS



FROM: JEFFERS, Fred

TO: PRESIDENT BUSH

DATE OF CORRESPONDENCE: 10/31/91

SUBJECT: RE: WHAT IS HAPPENING WITH OUR TECHNOLOGY IN GENERAL AND WITH THE JAPANESE SITUATION IN PARTICULAR.

Coordinate w/ Ant SheeKey

DIRECTORATE ASSIGNED: INTERNATIONAL/POLICY STAFF ASSIGNED: 5B
15

ACTION REQUIRED: For DAB's signature DIRECT REPLY AS/IF NECESS ACTION: DAB's signature JTB's signature

SENDER'S DUE DATE: 12/02/91 STAFF DUE DATE 12/1/91
OSTP DUE DATE: DATE COMPLETED: DATE COMPLETED/DEPT:

COPIES TO: INDUSTRIAL
Steve Olson
D. Allan Bromley

WHITE HOUSE TRACKING #: CONTACT PERSON: EXT:
PHONE:
REMARKS: THIS IS PRESIDENTIAL "BATCH" MAIL.

CLOSED

OSTP RECEIVED: 11/15/91 P-EOP- DEPT RECEIVED:
FILE: INTERNATIONAL-JAPAN Presidential Priority
CENTRAL FILES:

THE WHITE HOUSE
WASHINGTON

December 4, 1991

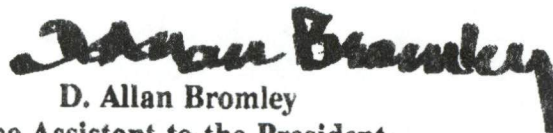
Dear Mr. Jeffers:

This is in response to your letter dated October 31, 1991 to the President concerning the number of qualified U.S.-trained scientists and engineers. Encouraging more U.S. students to enter in scientific and technical careers, as you correctly point out, is a national challenge. There is considerable support for your explanation that much of the current lack of interest in technical careers can be explained by the relative financial rewards associated with these careers.

Our understanding is that the number of U.S. citizens receiving doctorates in science and engineering has leveled out at over 13,000. The number of non-U.S. citizens, now over 35 percent of the graduates in these fields, have more than doubled during the past decade.

The issue you have raised is recognized as very important to the nation's interests. Thank you for bringing it to the attention of the White House.

Sincerely,



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

Mr. Fred Jeffers
2247 Orange Avenue
Escondido, California 92029

THE WHITE HOUSE

WASHINGTON

December 4, 1991

Dear Mr. Jeffers:

This is in response to your letter dated October 31, 1991 to the President concerning the number of qualified U.S.-trained scientists and engineers. Encouraging more U.S. students to enter in scientific and technical careers, as you correctly point out, is a national challenge. There is considerable support for your explanation that much of the current lack of interest in technical careers can be explained by the relative financial rewards associated with these careers.

Our understanding is that the number of U.S. citizens receiving doctorates in ~~the total field~~ of science and engineering has leveled out at over 13,000. The number of non-U.S. citizens, now over 35 percent of the graduates in these fields, have more than doubled during the past decade.

The issue you have raised is recognized ^{as very} important to the nation's interests. Thank you for bringing it to the attention of the White House.

Sincerely,

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

Mr. Fred Jeffers
2247 Orange Avenue
Escondido, California 92029

2
off Science & Tech.

October 31, 1991

4808
RECEIVED

31 NOV 15 A10:39

OSTP
MAIL ROOM

The President of the United States
The White House
1600 Pennsylvania Avenue
Washington, D.C.

Dear Mr. President:

I am a research physicist with 24 years experience in industrial research. I have written 19 papers in several fields and hold 30 U.S. patents. I am a world-recognized authority in the field of magnetic recording. I recently read the enclosed article from the Scientific American and I was moved to write to let you know how (at least one member of) the grass roots of the American industrial research community feels about what is happening with our technology in general and with the Japanese situation in particular.

I agree with all of the six points discussed so simply and elegantly in Dr. Reich's article and want to make a couple of additional comments from my perspective in the multi-billion dollar magnetic recording industry.

I am continually amazed by the amount of money being made by U.S. magnetic recording companies, in spite of the very few people in those companies who understand magnetic recording technology. I'm told that consultants spend most of their time explaining the ABC's. The excuse most often given is that the urgency to survive by producing immediate profits doesn't leave time to gain a fundamental understanding of "the problem."

Nearly all managers feel driven to preserve their jobs by increasing the next quarter's profits. Yet, "Even though there isn't time to do the job right, there is nearly always seems to be time to do it over, sometimes more than once." If we are going to compete successfully with Japan and the rest of the world we must somehow change the U.S. financial system to allow and even encourage a longer term outlook in our industrial labs. If this were done, perhaps we could bring our superior inventions to market instead of the Japanese.

I've hear it said that "The Cold War is over and Japan won!" In the Gulf War, our high tech weapons were truly awe inspiring, but look who made the equally remarkable equipment that was used to document the war news. It was Sony, Hitachi, Toshiba, etc., not the U.S. Now that the Soviet Union is no longer a threat, we must somehow convert our defense labs over to development of peacetime products. This needs to be done with the same sense of urgency we felt at the height of the Cold War if we are not to become a third rate economic power.

This letter is already too long, so I'll touch on one final point. There are fewer U.S.-born engineers and scientists graduated here every year. A lot of complicated reasons are given, but the real explanation is simple. The economic rewards that accrue with a technical career are no longer worth the effort. It is the simple free market at work. If there were a real shortage of scientists and engineers, then existing scientists and engineers would be pulling down very high salaries. They aren't. Hence, the "shortage" is not real! It is a "made up" crisis invented by academics who want more students in order to keep their jobs and company managers who want to keep engineering and scientific staff salaries low.

The President of the United States--2
October 31, 1991

It's simple. If you want more scientists, then you must pay existing scientists more money. The word will quickly get around. If I had gone into law, medicine, or business, as a world recognized authority with 24 years experience, I would be making at least twice what I now make. I have had one 2.5% raise in the last two years and I work for a large, fairly successful U. S. company!

As a registered Republican, I voted for you. You are in charge and you will probably be reelected in '92, so you are the man who will have to get the job done if anyone does it. We have to shift over from a Cold War with the Russians to an economic war with Japan and the other Pacific rim countries. We have to put into effect something like MITI and modify our anti-trust laws to make it possible. We have to make science and engineering a more financially rewarding career if we are to train the people we need to bring us back to being the number one world economic power we once were.

Sincerely yours,



Fred Jeffers

FJ/jv
Enc.

2247 Orange Ave
Escondido Ca. 92029

The Quiet Path to Technological Preeminence

The U.S. government is relying on ambitious research projects to spur commercial competitiveness. Instead it should speed the commercialization of new technologies wherever they may be developed

by Robert B. Reich

Alarmed by the continuing erosion of America's position in world markets, the U.S. government has embarked on ambitious research and development projects thought to have important commercial applications. Although neither the Reagan nor the Bush administration has announced it as such, the initiatives of the past three years amount to a major change in direction: policymakers otherwise devoted to the free market are pursuing what is in effect a targeted industrial policy for high technologies. Some of the projects may be motivated more by political considerations or the interests of pure science than by commercial requirements. Nevertheless, each has been justified to the public in terms of the nation's competitive needs.

In January, 1987, for example, the Reagan administration approved a \$4.4-billion plan for a superconducting particle accelerator; a White House official deemed the project "critical" to the nation's future competitiveness and predicted that American companies would benefit from its spin-offs. Later in the year the president announced a "superconductivity initiative" aimed at developing practical applications for superconducting materials and called the technology "absolutely essential to our future competitiveness."

Early in 1988, warning that Japanese supercomputers were already on

the market "with better performance than expected," the White House unveiled a five-year, billion-dollar "high-performance computing strategy." The administration also announced that the Defense Advanced Research Projects Agency (DARPA) would contribute \$100 million a year to SEMATECH, a joint research venture by leading U.S. semiconductor makers.

Soon thereafter, initial construction contracts were awarded for the space station, buttressed by claims that the orbiting laboratory would be "vital to enhancing the nation's international competitiveness in the decades ahead." This year has been marked by a sudden focus on high-definition television: DARPA has proposed a two-year, \$30-million research program to develop the technology, and the Bush administration is considering plans to grant antitrust immunities and tax breaks to American firms that produce HDTV equipment.

This high-visibility strategy for restoring U.S. technological prominence appears to require not only ever-greater government expenditures on the research and development of new technologies but also special incentives to boost private-sector research and development spending in areas not covered by such projects. Some policymakers are urging increased tax credits for research and development to spur commercial R&D spending. They point out that the portion of the

gross national product devoted to research and development is lower today than it was 20 years ago and that commercial R&D makes up a smaller part of America's GNP than it does in either West Germany or Japan.

The alarm expressed by U.S. policymakers over the nation's loss of competitiveness in global high-technology markets is not misplaced. The U.S. share of the world semiconductor market, for example, dropped from 50 percent in 1984 to 37 percent in 1988 while Japan's share rose to more than 45 percent. American companies have virtually stopped selling dynamic random-access memory chips on the open market, and American makers of semiconductor-

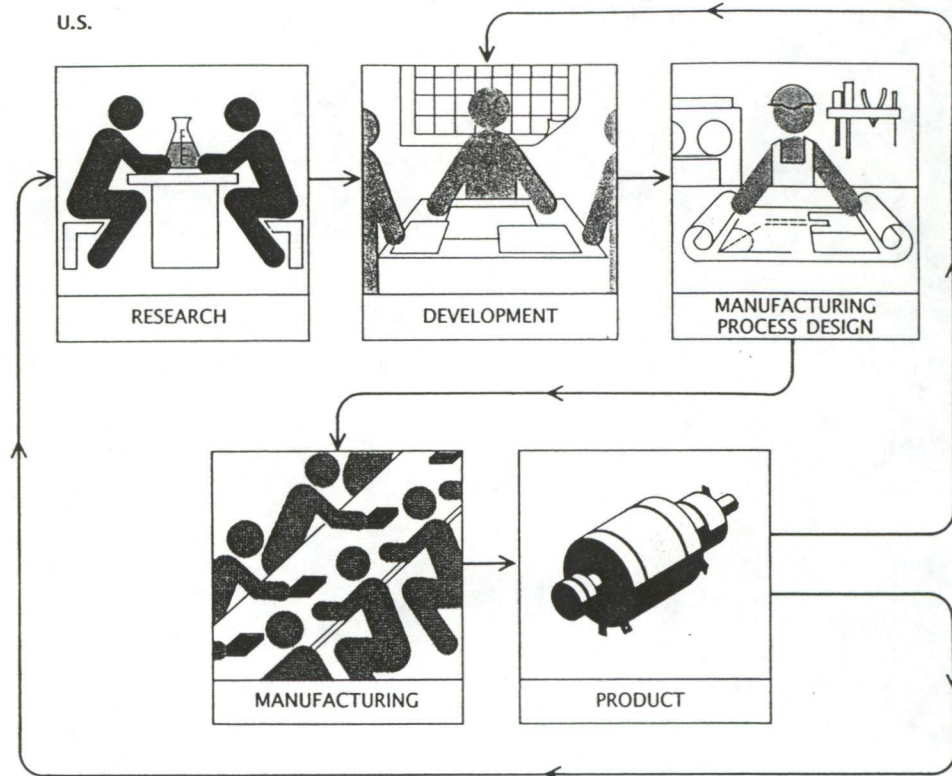
ROBERT B. REICH has taught political economy and management at Harvard University's John F. Kennedy School of Government since 1981. He was director of policy planning at the Federal Trade Commission under President Carter and served as assistant to the solicitor general during the Ford administration. Reich received a bachelor's degree from Dartmouth College, a master's degree from the University of Oxford and a law degree from Yale University. He is the author of several books on public policy and competitiveness, and he currently chairs the biotechnology review committee of Congress' Office of Technology Assessment.

manufacturing equipment are closing shop. Japan is taking over these fields. America's share of the world market for the consumer electronics products that incorporate a large fraction of semiconductors—products such as videocassette recorders, motor-driven 35-mm autofocus cameras and compact disk players—has dropped to about 5 percent since 1975; Japan's share has risen from about 10 percent to more than 25 percent. No U.S. company manufactures fax machines, for which the world market grew to \$3 billion in 1988; again Japanese companies are in the forefront. Japan now dominates the numerically controlled machine-tool industry. Japanese companies are far ahead of American ones in the commercialization of high-definition television. Recent government studies warn that Japan is also ahead of the U.S. in applying superconducting materials.

In 1986 America's trade balance in high-technology goods such as semiconductors and communications equipment turned negative for the first time since data have been collected on high-technology trade. In 1987 and 1988, despite a sharp drop in the value of the dollar with respect to foreign currencies, the U.S. posted only a modest surplus in high-technology trade. This poor performance has been caused partly by Americans' desire for imported goods of all kinds but mainly by a loss of competitiveness in world markets.

Will the new path of ambitious research and development projects restore America's technological lead? It seems doubtful. The U.S. already leads the world in the quantity and quality of its research and development, but this lead has not yielded commercially competitive products. America's research universities, taken as a whole, are the best in the world. The research laboratories of America's largest corporations are unrivaled. American researchers write more than a third of all scientific and technical articles published around the globe, and they receive more U.S. patents than the rest of the world combined. Total spending on research and development in the U.S. is significantly higher than that in any other country and still three times the R&D spending in Japan.

There is no reason to suppose that more spending on research and development—even spending targeted to specific technologies—will result in commercial success. The problem lies in the inability of American companies (or, more accurately, the U.S.-based portions of what are fast



LINKS BETWEEN RESEARCH AND PRODUCTION in most U.S. companies are sequential (left); in Japan (right), research, product development and the design of manufacturing processes are carried out concurrently so that knowledge from one

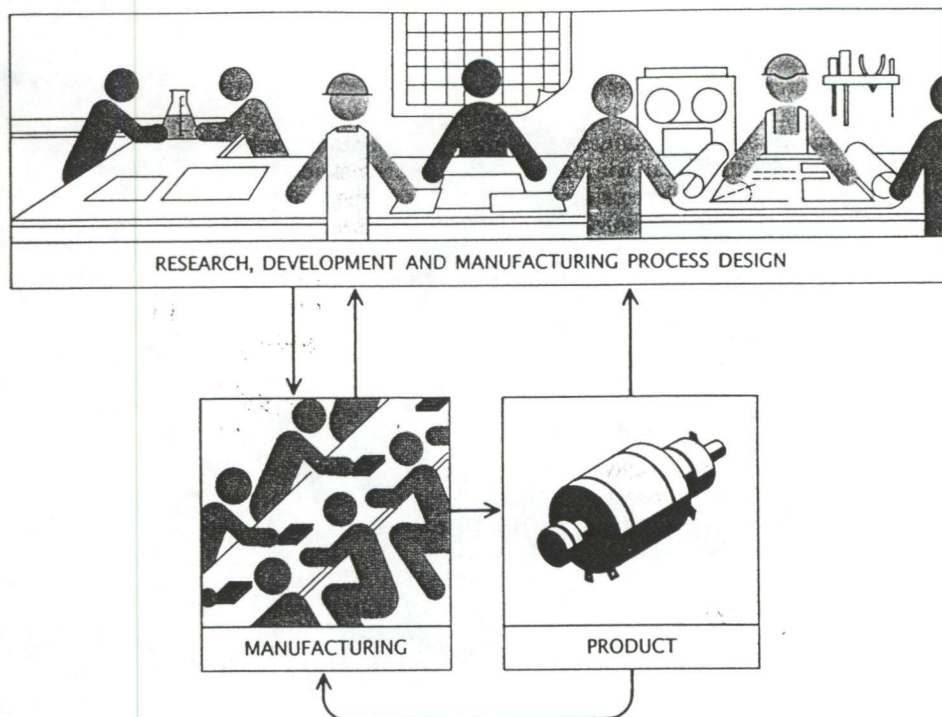
becoming global technology firms) to transform discoveries quickly into high-quality products and into processes for designing, manufacturing, marketing and distributing such products. The fruits of research and development—new data, insights, inventions, prototypes—are easily disseminated across national borders. Increasingly the winners in the competitive race are the companies and nations that make use of those fruits most rapidly and comprehensively.

The Japanese have become adept at taking the essential insight of a major discovery—often made elsewhere—as the starting point in a process of application and refinement. American scientists invented the transistor. In 1953 Western Electric licensed the technology to the Sony Corporation; Sony rapidly made improvements on the transistor and launched a host of high-quality consumer electronics products. In 1968 Unimation, an American company, licensed Kawasaki Heavy Industries to make industrial robots; by the early 1970's industrial robots were on the job in Japan; by the end of the decade Japanese robots had come to the U.S. Meanwhile the nascent U.S. robotics industry never quite got on its feet.

The video recorder was pioneered by California's Ampex Corporation and perfected by the Japanese. Canon, Inc., improved the basic concept behind Xerox Corporation's plain paper copier and then reworked the inexpensive copying technology it had developed to make inexpensive laser printers as well (another invention never fully exploited by Xerox).

The same pattern has held for composite materials and ceramics, color televisions, computer disk drives, basic oxygen furnaces, microwave ovens, computerized machine tools and other inventions. In the year ending March 31, 1987 (the last date for which such data are available), Japan purchased more than \$1 billion of technological information from North America; less than half of that amount was purchased by Americans from Japan.

Japanese firms have been in an ideal bargaining position to buy much of this innovation cheaply. American companies often compete to sell technology to Japan, fearing that otherwise another firm will develop similar know-how and sell it first. (This logic may have motivated the Boeing Company, for example, to share its advanced airframe technology with Japan rather than see Airbus Industrie profit from a similar sale.) Further-



area can readily influence decisions made in other areas. A new concept moves back and forth among the different groups until it is perfected. The Japanese method speeds the transformation of new discoveries into commercial products.

more, small American producers of advanced technologies often lack the capacity to manufacture and market products on a global scale or to defend their patents worldwide, and so they fear that if they refuse to sell their most advanced designs they will eventually fall prey to reverse-engineered versions made at lower cost.

Japan has also coordinated its purchases so that its companies do not have to bid against one another. On several occasions its Ministry of International Trade and Industry (MITI) has acted as a clearinghouse, forcing foreign firms to license their patents and negotiating deals for all Japanese industry. Between 1956 and 1978, largely because of MITI's prohibition of auctions for licenses, Japanese firms paid only \$9 billion for access to American technologies that cost between \$500 billion and \$1 trillion to develop.

It may be tempting to erect barriers to the international flow of technology: increasing patent and copyright protection for American firms, preventing foreign firms from purchasing U.S. technology or high-tech companies, barring foreign firms from gaining access to U.S. government-subsidized research, pressuring MITI to stop coordinating patent pur-

chases. The core problem, however, has little to do with Japanese firms' easy access to U.S. technology. The real Japanese advantage lies in the ability to transform new inventions into high-quality products.

If the U.S. is to regain its technological prominence, it must improve the capacity of Americans to use technology. This quiet path back to competitiveness depends less on ambitious government R&D projects aimed at specific technology areas such as supercomputers or high-temperature superconductors than on improving the process by which technological insights—wherever they may be discovered around the globe—are transformed by American workers into high-quality products.

Close examination of Japan's success in this endeavor and America's comparative weakness suggests six steps along the path to competitiveness: scanning the globe for new technologies, linking government R&D funding to commercial products, integrating corporate research and development with production, managing the establishment of technological standards, investing in the technological learning of workers and providing a good basic education to all citizens. Taking these steps will be necessary,

but not sufficient, for the U.S. to regain its competitive edge in the world marketplace.

The first step in rapidly assimilating new technologies is to discover what they are. American firms are often slow to learn of a new technological insight achieved elsewhere—whether it is a breakthrough invention, a more efficient method of fabricating and assembling products or a new way of organizing production and distribution. Some American researchers and engineers, whose formal education and early job experiences occurred when the U.S. was far ahead of other nations in developing and using technology, are simply skeptical of foreigners' abilities; anything "not invented here" is considered of little value.

Most U.S. firms are not organized for global scanning: they do not send their researchers, engineers and technicians to international conferences and trade shows or to visit their global competitors; they do not systematically gather data on the results of government-funded research in other nations (or even, for that matter, in the U.S.); nor do they systematically review technical and scientific journals and newspapers published in other countries. The U.S. government does little to aid them in such efforts.

Japanese firms regard global scanning for technological insights as an integral part of their business strategies. They use insights achieved elsewhere as a means of supplementing their own technological experience. Japanese companies organize study teams to visit American and European companies and university research laboratories, attend all relevant conferences and trade shows and carefully scrutinize foreign publications, including government reports. They even help to finance research and development in American universities and corporate laboratories—and then ensure that Japanese scientists, engineers and technicians monitor the results. (Last year about 5,000 Japanese scientists worked in U.S. laboratories; by most estimates fewer than 150 U.S. scientists worked in Japanese laboratories, most for only a few months.) Japanese government agencies also gather technological information from around the world and make it available to industry (MITI's Agency for Industrial Science and Technology, for example, funds an elaborate system of data gathering).

Japanese firms also enter into joint ventures with American firms for the

express purpose of learning how to design and manufacture new products. Japan's long-term goal to produce jet aircraft, for example, is being furthered by the current joint venture with Boeing for the development of a new generation of airframes for mid-sized jetliners and by the recently approved agreement with General Dynamics Corporation to co-produce a successor to the F-16 jet fighter.

A second, closely related step in improving the assimilation of new technology is to link publicly funded research and development to commercial production. New R&D insights must be continuously available to be used in the production process, and new production insights must be continuously fed back into research and development.

One reason that Japan's publicly funded R&D efforts tend to be better integrated into commercial production than those of the U.S. is the dominance of defense-related R&D in this country. Defense accounts for only 3 percent of government-funded research and development in Japan, compared with 70 percent in the U.S. (a figure that makes up more than one third of U.S. R&D spending).

Many defense technologies have civilian uses, and there is a long history of civilian spin-offs from defense

inventions, including computers, integrated circuits and high-strength materials. Nonetheless, several factors impede technology transfer from military to commercial applications. Much defense research is not accessible because it is classified. In many cases military specifications call for higher performance—and higher prices—than civilian consumers need or want. In others, commercial technology has outpaced the military state of the art so that defense research and development offers little knowledge of commercial value. The Department of Defense lags well behind the commercial sector in the use of digital electronics of all kinds, for example. Finally, those who develop military technology, be they defense contractors or employees of government laboratories, are often oriented toward the specific missions of their funding agencies rather than toward commercial development of their ideas.

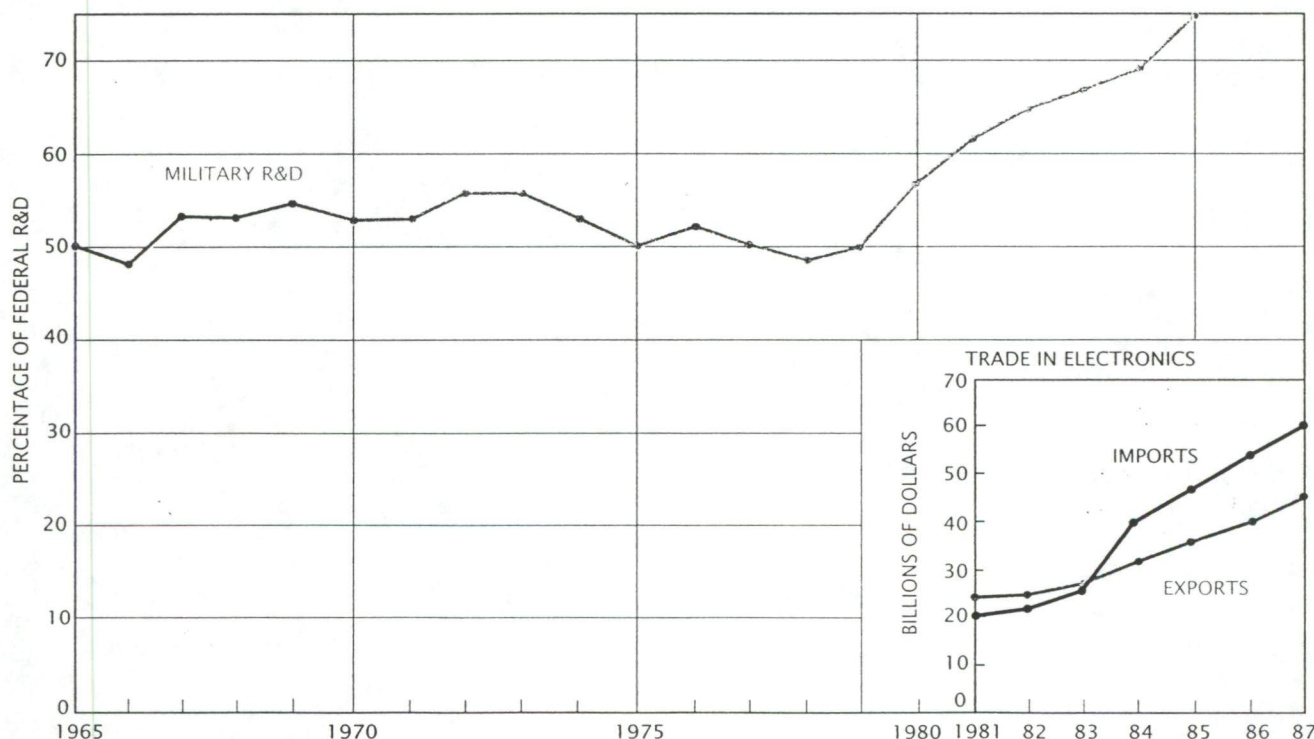
Even though military R&D has become an inefficient means of generating commercial spin-offs, almost half of the federal funds allocated to research on superconductivity, for example, are directed at military applications such as infrared sensors, submarine detectors and electromagnetic rail guns. The Japanese government, on the other hand, has organized and funded a wide variety of projects fo-

cused expressly on potential commercial uses for superconductors.

Even nondefense research funding agencies in the U.S.—such as the National Institutes of Health, the Department of Energy and the National Science Foundation—tend to have concerns far removed from commercial applications. Primarily they support basic research.

Here again the contrast with Japan is stark. Although that government is spending more on basic research than in previous years, most of its R&D efforts are aimed at rapid commercialization. One of its explicit goals is to help small and medium-sized businesses adapt new technologies. The government operates a network of 195 regional laboratories specifically charged with providing technical assistance to small and medium-sized firms. The central government absorbs half of the cost; regional authorities and firms pay the rest.

In addition, Japan organizes groups of companies to undertake joint research on emerging technological problems. MITI's Agency for Industrial Science and Technology negotiates the terms of such consortiums and provides them with modest funding. MITI has recently established 28 regional technology centers designed to enable large firms to pool their research efforts.



DEFENSE-DOMINATED FUNDING skews U.S. research priorities and reduces the commercial benefits of research. More than half of U.S. government funding for research and development

comes from the military, compared with less than 5 percent in Japan. Meanwhile (*inset*) the U.S. has become a net importer of electronic equipment and other high-technology goods.

Japan's strategy for HDTV illustrates the process. NHK, the national broadcasting company, began research on HDTV in 1970 and shared its results with the nation's 11 television manufacturers. Two government ministries took the lead in coordinating the research, parceling it out among firms so that they did not duplicate one another's work and ensuring that they shared their results. The Japan Development Bank matched corporate funding with public money. Even the Japanese post office began promoting HDTV by establishing savings plans for customers so that they will be able to provide a ready market for HDTV once it is commercially available.

Third, U.S. companies must link their own R&D efforts more closely to commercial production. Compared with Japanese firms, most American firms draw a sharper distinction between R&D on the one side and production and marketing on the other. Most U.S. corporate researchers and design engineers work in laboratories that are separated geographically as well as culturally from the factories, warehouses and distribution facilities where their ideas might eventually be implemented. Research facilities typically occupy modern, campuslike buildings in bucolic surroundings. Researchers and design engineers are often considered to be doing more important or more prestigious work than their compatriots on the factory floor are.

R&D often has relatively little connection to the rest of a company's undertakings. The proposals that emerge from the laboratories are scrutinized by market and financial analysts on a project-by-project basis and only then, if approved, turned over to manufacturing engineers, technicians and production workers who design and execute processes for making and distributing the products.

The implicit assumption behind this series of events is that product designs emerge essentially fully formed from research, after which they are put into production. It is not unusual for American companies to put off any consideration of manufacturing until researchers have come up with a generic solution to a broad problem and design engineers have transformed the broad solution into a specific design. This division prolongs product-development times and causes marketing opportunities to be lost.

In Japan research and development proceed simultaneously with manufacturing engineering and the design

of production processes. There is no gap, either geographic or cultural. The process involves continuous trial and error as an innovation shuttles between development and production. Theory does not necessarily precede application, nor does product design necessarily precede process design; all phases occur together.

Only rarely is an entirely new product design formally introduced, reviewed and set into motion. Instead existing products and processes undergo continuous, incremental review as researchers, engineers and technicians gain insights and experience that may reveal possible improvements. One example of such incremental development is the use of ceramics in internal-combustion engines. Rather than developing fundamentally new engines incorporating ceramics, such as the ceramic turbine engines some U.S. companies are attempting to develop with federal help, Japanese firms are developing ceramic piston engines; they will be able to introduce ceramic parts incrementally into an otherwise conventional design.

Fourth, the U.S. must manage the early adoption of industrywide standards that render emerging technologies compatible with each other and speed commercial acceptance. Such standards make it easier for purchasers to experiment with equipment embodying new technology and reduce the risk of committing to a technology that quickly becomes obsolete. Standards adopted too early, however, may freeze the development of as yet immature technologies. Proper timing and widespread acceptance of standards is an important determinant of technological success.

In the U.S., technological standards are set with little regard to such issues. Large companies or government agencies set de facto standards; other governmental bodies or nonprofit organizations set official standards. Unfortunately, none of these sources of standards has explicit responsibility for managing the standards process to best promote a new technology. Nor do they have the staff to undertake such a job effectively.

The Federal Communications Commission recently rejected Japan's proposed HDTV standard on the grounds that it was incompatible with existing television sets. This decision had the effect of giving Zenith Electronics Corporation, the one remaining U.S.-owned television manufacturer (and any other U.S. firms that sense a profitable opportunity in HDTV) addition-

al time to develop technology for the American market. That consequence, however, was inadvertent: the FCC has no mandate to spur American competitiveness and possesses no special insight into how to do so. Now that the FCC has rejected initial Japanese proposals for HDTV, the Japanese government is coordinating the development of a new standard that will be compatible with television sets now used in the U.S.

The Japanese take a more strategic approach to setting standards. Whereas they may allow competitors to vie with one another to establish the standard for a new consumer product, as occurred with the VHS and Beta standards for videocassettes, a department within MITI is specifically responsible for coordinating industrial standards to assure the efficient adoption of new technologies.

The fifth requirement for effective utilization of technology is a sophisticated work force, adept at discovering ways of incorporating new insights into products and production processes. Japanese companies typically spend many years developing and perfecting a technological insight once they have uncovered it or purchased it from anywhere around the globe. Sony's acquisition of video-recording technology from a U.S. company marked the start of a 19-year process of product development; the Betamax, introduced in 1975, was the company's fourth generation of video-recording technology. (Thanks to the automated production processes Sony developed, the Betamax cost only one hundredth as much to manufacture as the first generation of video recorders.) The same sequence holds for high-definition television: research got under way in 1970, and commercial production will not begin until 1991.

Contrary to popular belief in the U.S., however, such doggedness is not due solely to the longer-term view that the Japanese take of the potential gain from a given stream of technology. Japanese firms have shown themselves willing to invest in some technology streams that have no foreseeable results—indeed, even after problems to which the technology might be addressed are solved by a competing system. The investment in such cases is not so much in the technology itself as in the technological education gleaned by workers who grapple with it. Once educated, such technically sophisticated workers can recognize the potential value of a

broad range of new technologies and adapt them continuously to new products and processes.

Long-term experience in trying to solve technical problems associated with recording on videotape and in manufacturing videotape recorders gave Sony's workers insights into many other consumer electronics problems—a valuable asset even though Betamax was a market failure. The company was successful in promoting a single standard for the new generation of 8-mm videotape recorders, and it was also able to incorporate some of its Beta technology into the VHS units it now manufactures.

Today many Japanese firms are searching for ways to use high-temperature superconductors. Their success will not be measured solely by whether the particular products or processes they aim for (such as Nippon Steel Corporation's attempt to develop continuous-strand casting techniques using superconducting magnets to levitate and confine molten steel) are ever achieved; it will also be a function of how broadly and deeply their work forces understand the commercial possibilities of this new stream of technology and can adapt it to other purposes in the future. Similarly, the 11 Japanese television makers now investing in HDTV understand that only a few of them will emerge as industry leaders, but they also know that their workers must gain experience in this new technology if they are to develop other applications of it in the future.

American firms are less willing than their Japanese counterparts to

invest in the long-term technological learning of their workers, partly because the U.S. financial community demands short-term profits. This past April, for example, the president of Control Data Corporation announced that the company was abandoning its supercomputing business; he noted that CDC could no longer afford to lose \$100 million a year trying to develop the technology. The company had been under intense pressure from its investors to increase the price of its shares. In contrast, an executive of Hitachi told the *New York Times* that his firm would continue to spend \$100 million yearly on supercomputer R&D. "Financially speaking it is not such a good business," he said. "But supercomputers are the flagship of all computing technology."

American firms also have another, perhaps sounder reason for taking a short-term view of investments in their work force: American engineers change jobs frequently, and so the benefits of training acquired at one firm may well be reaped by another. (Japanese engineers and production workers, by contrast, tend to stay put for life, and so investments in their technological learning are more certain to return to the companies that trained them.) The restlessness of U.S. workers creates centers of technology like Route 128 around Boston and Silicon Valley in California, but it tends to discourage investment in human capital by any single firm.

As a result many American firms opt to purchase components or manufacturing processes that have already been proved cost-effective elsewhere.

In U.S. managers' eyes the higher costs and greater risks of in-house development are not outweighed by the opportunity for engineers and production workers to learn a new technology from the inside and to improve on it in the future.

Sixth, the U.S. must improve the basic education of all citizens. Even if companies are willing to invest in the technological sophistication of their workers, the success of those investments depends fundamentally on workers' ability to learn, which depends in turn on the quality of their basic education. Here again the U.S. falls short. Whereas it is as successful as Japan in preparing the most talented and fortunate 20 percent of its population for managerial and professional jobs, the U.S. is far less successful in educating the remaining 80 percent. American 13-year-olds came in last in mathematics and almost last in science among 11 nations on one recent test administered here by the Department of Education and the National Science Foundation. Workers who are ignorant of science and mathematics will be unable to absorb new technological insights on the job and assimilate them into existing products and processes.

In short, the U.S. currently trails nations such as Japan in many areas crucial to commercial success because Americans are not prepared to apply new technologies effectively. The nation has begun to improve its ability to use new technology, but progress has been uneven and is not nearly fast enough to regain world markets.



PASTORAL SETTING of many U.S. research centers (such as this AT&T Bell Laboratories facility in Holmdel, N.J.) fosters creativity, but the separation of research laboratories from the

factory floor can make U.S. companies less efficient than their Japanese counterparts at translating new discoveries into profitable products and the processes for producing them.

A few prominent firms such as IBM, Hewlett-Packard Company and 3M have stepped up their efforts to scan the world for technological insights and are seeking new ways to integrate their R&D with commercial production. Meanwhile some government agencies have begun to emphasize the utilization of new technology: Michigan's Modernization Service, for example, offers technical assistance in applying computer-aided design and manufacturing technologies to more than 6,000 small tool-and-die plants, machine shops and metal fabricators in that state. Recent federal legislation has authorized the National Institute for Standards and Technology (formerly the National Bureau of Standards) to help small businesses improve their productivity through the application of new manufacturing tools and methods. The National Science Foundation has funded a number of Engineering Research Centers around the country, each focusing on a different set of manufacturing process problems. Several federal laboratories are establishing offices of research and technological applications to help disseminate their discoveries; they have been authorized to grant exclusive licenses to commercial developers and thereby increase the financial incentives for product development.

Meanwhile primary and secondary school education is being overhauled in Arkansas, Minnesota and a few other states. Many states have tightened science and math requirements for high school graduation, and some states have raised teachers' salaries. (Although standardized tests are not the best of guides, average SAT scores in South Carolina, for example, have gone up by 36 points since the enactment of educational reform there in 1984. In California the proportion of high school graduates with more than three years of math or science has risen by roughly a sixth in the same period.) Many firms and local governments have exhibited new interest in on-the-job training to help workers handle a host of new technologies.

Much more than this will be needed. On the public side the quiet path back to technological leadership does not require significantly larger expenditures on research and development; instead it suggests a different allocation of money. Large-scale military-funded R&D projects should give way to joint development and production projects among U.S. firms, funded in part by a nondefense agency expressly charged with spurring

the commercialization of new technologies. The emphasis in such projects should be on giving production engineers, design engineers and technicians experience in applying those new technologies. SEMATECH, the semiconductor joint venture, is a good start in this direction, but its funding agency, the Department of Defense, has no particular expertise in developing commercial technologies, and the project appears to be focused mainly on the development of semiconductor-fabrication equipment rather than on the diffusion of learning throughout the participating firms.

The U.S. must also invest much more than it does now in basic education and the training of its workers. Much has been written about this subject, and it is clear that simply providing more public money is no solution. In addition to conveying basic skills, primary and secondary school curriculums must emphasize critical thinking—a capacity to identify problems, raise questions and find structure in apparent disorder—rather than the mere regurgitation of facts. Teachers need to be given, and to accept, more responsibility for what is taught in the classroom and how it is taught. Parents and other members of the community must contribute more effectively to the educational mission.

On the private side the quiet path to technological preeminence necessitates a more collaborative relationship between researchers, design and production engineers and marketers within each firm and far greater efforts to retain skilled engineers.

Laws and regulations governing financial markets may have to be altered to allow companies greater latitude in funding long-term product development. For example, the federal government in effect subsidizes leveraged buy outs and takeovers; firms that borrow huge sums for such purposes can deduct interest payments from their taxable income. Tax subsidies could more effectively be targeted at activities that promote long-term growth. One step in the right direction would be to remove tax incentives for takeovers and buy outs, increase capital-gains taxes on the sale of assets held for less than six months and reduce such taxes on the sale of assets held for more than six years.

Perhaps the most difficult obstacle to overcome along the quiet path is the relative lack of visibility and drama. Large-scale research projects make headlines and provide tangible evidence that something is being done to improve U.S. competitiveness. Clos-

SIX STEPS BACK TO TECHNOLOGICAL PREEMINENCE

- Scan the globe for new insights
- Integrate government-funded research and development with commercial production
- Integrate corporate research and development with commercial production
- Establish technological standards
- Invest in technological learning
- Provide a good basic education to all citizens

RETURN TO PREEMINENCE in technology requires investment in workers' skills at all levels as well as in innovations tied to specific commercial goals. The U.S. has thus far lagged in both of these areas.

er and more effective working relationships among government, business and educational institutions at all levels are difficult to measure and quantify. As a result, politicians, educators and business executives who follow the quiet path may have difficulty in claiming credit for progress along the way. Among all impediments this factor alone may prove to be the major stumbling block.

FURTHER READING

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ADVISORY COMMITTEES

ROUTE TO: OFFICE/AGENCY (STAFF NAME)		ACTION ACT CODE	DATE YY/MM/DD	TYPE RESP	C D	COMPLETED YY/MM/DD
JOHN SUNUNU		ORG	91/10/21		C	91/10/21
REFERRAL NOTE: <i>Callan Bromley</i>			91/10/29			
REFERRAL NOTE: <i>Katja Bullock</i>			91/10/23		C	
REFERRAL NOTE:						
REFERRAL NOTE:						
REFERRAL NOTE:						

COMMENTS:

ADDITIONAL CORRESPONDENTS: MEDIA: L INDIVIDUAL CODES: _____

CS MAIL USER CODES: (A) _____ (B) _____ (C) _____

*ACTION CODES:	*DISPOSITION	*OUTGOING	*
*	*	*CORRESPONDENCE:	*
*A-APPROPRIATE ACTION	*A-ANSWERED	*TYPE RESP=INITIALS	*
*C-COMMENT/RECOM	*B-NON-SPEC-REFERRAL	OF SIGNER	*
*D-DRAFT RESPONSE	*C-COMPLETED	CODE = A	*
*F-FURNISH FACT SHEET	*S-SUSPENDED	*COMPLETED = DATE OF	*
I-INFO COPY/NO ACT NEC		OUTGOING	*
*R-DIRECT REPLY W/COPY *			*
*S-FOR-SIGNATURE *			*
*X-INTERIM REPLY *			*

REFER QUESTIONS AND ROUTING UPDATES TO CENTRAL REFERENCE
(ROOM 75, OEOb) EXT-2590
KEEP THIS WORKSHEET ATTACHED TO THE ORIGINAL INCOMING
LETTER AT ALL TIMES AND SEND COMPLETED RECORD TO RECORDS
MANAGEMENT.

THE NEW YORK HOSPITAL - CORNELL MEDICAL CENTER

DAVID P. HAJJAR, Ph.D.
Professor of Biochemistry and Pathology
Head, Laboratory of Vascular Biology

Department of Pathology, A-626
(212) 746-6470

October 14, 1991

Dr. John H. Sununu
Chief-of-Staff
The White House
1600 Pennsylvania Avenue
Washington, D.C. 20500

Dear Dr. Sununu:

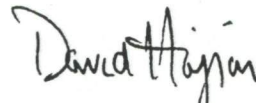
I write to you at this time to inquire about any potential opportunities for me to serve the President as a consultant on federal scientific advisory committees.

I believe that I have developed a respectable career as a biomedical research scientist (I am a well-funded, tenured Professor at Cornell Medical School) as evidenced by my attached C.V. Presently, I am on NIH and American Heart Association study sections to review research grant applications; but my extramural activities on the FASEB (Federation of American Societies of Experimental Biology) Public Affairs Committee gives a satisfaction that I can contribute in a meaningful way to basic science policy which can have a significant impact on problems affecting teaching and research in the field of science and mathematics in the United States. However, the opportunities on the FASEB Public Affairs committee are limited.

I thought that I would contact you first to get your opinion before I wrote to those appropriate in the Departments of Health and Human Services, Education or even Dr. Bromley's office.

I further wish to offer my services to you and the President at this time to assist in those efforts to get the President's message across to scientists during the up-coming re-election campaign. Many of us here strongly support his policies and want to help.

Sincerely yours,



David P. Hajjar
Professor

DPH:gy



Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
01. Resume	Resume of David P. Hajjar [personal information redacted] (21 pp.)	10/9/91	(b)(6)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Presidential Priorities Files
WHORM Cat.:
File Location: Executive Office of the President: Presidential Priorities [1 of 4] [1991]

Date Closed: 5/7/2010	OA/ID Number: 62087-001
FOIA/SYS Case #: 2005-0336-F	Appeal Case #:
Re-review Case #:	Appeal Disposition:
P-2/P-5 Review Case #:	Disposition Date:
AR Case #:	MR Case #:
AR Disposition:	MR Disposition:
AR Disposition Date:	MR Disposition Date:

RESTRICTION CODES

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

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

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

PRM. Removed as a personal record misfile.

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

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

"Document Control for Division of Life Sciences"

TYPE: PRESIDENTIAL PRIORITY DOCUMENT NUMBER: 9124564
ORIGINATOR: 02 STATUS I DIRECTORATE STATUS C

FROM: HAJJAR, David P.: THE NEW YORK HOSPITAL-CORNELL MEDICAL CENTER

TO: JOHN SUNUNU

DATE OF
CORRESPONDENCE: 10/29/91

SUBJECT: REQUEST OPPORTUNITY TO SERVE THE PRESIDENT AS A
CONSULTANT ON FEDERAL SCIENTIFIC ADVISORY
COMMITTEES.

DIRECTORATE STAFF
ASSIGNED: LIFE SCIENCES ASSIGNED: D.A. Henderson

ACTION STAFF
REQUIRED: FOR DAB'S SIGNATURE ACTION: Bromley Signature

SENDER'S DUE DATE: 11/07/91
OSTP DUE DATE: 11/01/91 STAFF DUE DATE 11/01/91
DATE COMPLETED: DATE COMPLETED/DEPT: 11/01/91

COPIES TO: D. Allan Bromley
PCAST
ADMINISTRATION

WHITE HOUSE TRACKING #: CONTACT PERSON:
PHONE: EXT:
REMARKS: Reassigned to Life Sciences 11/01/91.

OSTP RECEIVED: 10/29/91 DEPT RECEIVED: 11/01/91
FILE: P-EOP-PRESIDENTIAL PRIORITY

CENTRAL FILES:

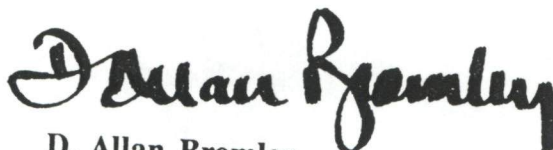
EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20506

November 1, 1991

Dear Dr. Hajjar:

Dr. Sununu has forwarded to me for reply your letter of October 14. I do appreciate your kind offer of assistance in service to the Government. Certainly, your background of research and experience equips you well to contribute to a variety of different Federal advisory bodies. However, the work of the Office of Science and Technology Policy is primarily conducted through the Federal Coordinating Council on Science, Engineering and Technology, which by legislation includes a broad Federal membership but none from the private sector. I should point out that individual scientists are regularly consulted by my Office on an ad hoc basis with reference to many important issues and note has been made of your expertise and interest. I believe your potential contributions could best be accommodated within committees of the Department of Health and Human Services and I would encourage you to make your interests known to Secretary Sullivan.

Sincerely yours,



D. Allan Bromley
Director

Dr. David P. Hajjar
Professor of Biochemistry and Pathology
Head, Laboratory of Vascular Biology
Department of Pathology, A-626
The New York Hospital-Cornell Medical Center
525 East 68th Street
New York, New York 10021

files

OFFICE OF PRESIDENTIAL MESSAGES
REQUEST FOR CLEARANCE - COMMENTS

TO:
Allen Bromley, OSTP

Date Due:
Oct 25 2:30

Date of Event:
Oct 25

Subject:
Presidential message for the Joint Conference of the
Association of Muslim Social Scientists

Requested by:
Dr. Abdulmunim Shakir
Center for Muslim World Studies

Background:

Presidential message attached for your approval
Copy of incoming request, FYI
Telephone clearance would be appreciated ASAP
Thank you

Called @ 2:50
(5 min. after I received it)

- ① Have no personal knowledge of the organization but
- ② It is listed in the Encyclopedia of Associations and appears legitimate
- ③ We have no way of gauging its political

Signature:
Tammy Martin

Date:
Oct 25

Presidential Messages
Old Executive Office Building
Room 18
(202) 456-2941

Your Recommendation/Comments:

orientation (if any)

- ④ Typo (see attached)
- ⑤ Presume there was no "fallout" from having done this last year
- ⑥ with above caveats, it's cleared
- ⑦ From here on out, OSTP will

SIGNATURE:

P. Pervolle OSTP 10/25/91

DATE: aim to be "scientific" in all its activities.

huda De Hart

بسم الله الرحمن الرحيم

260374

مركز دراسات العالم الإسلامي

CENTER FOR MUSLIM WORLD STUDIES

Dr. Abdulmunim Shakir
DIRECTOR

August 5, 1991

MAILING ADDRESS

6850 Oakman Blvd.

DEARBORN, MICHIGAN 48126

President George Bush
The White House
1600 Pennsylvania Avenue
Washington, DC 20050

OST 25-27 JO 1924
Assign to: TOF
OSTP draft attached

Dear Mr. President:

It is time to reiterate our thanks for your message of support which you had sent last year to our joint Conference of the Association of Muslim Social Scientists and the Association of Muslim Scientists and Engineers. The success of that conference was such that this year it has been decided to hold it again in Metropolitan Detroit, October 25-27, 1991.

The two concurrent themes of this year's conference shall be: "Social Scientists and the Islamic Agenda for 1990s and Beyond" and "Technology Transfer: Opportunities and Challenges". Throughout the conference, the scholarly papers and the panel discussions shall deal with contemporary issues relevant to the ongoing social, scientific and technological developments in the twentieth century. For, one of the main objectives shared by the two Associations is a solid commitment to improve the quality of life, not only for Muslims, but also for all people throughout the world. Other goals and objectives are depicted in the attached brochure.

It is worth noting that the conference itself represents a steadfast growth of thriving Muslim communities throughout North America. The constituencies of these communities include many noted scholars and successful professionals in such fields as education, engineering, science, medicine, publication, management, accounting, law and different business enterprises. As has been the case in previous years, the conferees shall be engaged in a variety of intellectual discourses, not only with their Muslim colleagues, but also with other non-Muslim scholars in order to build bridges of understanding and cooperation between them all. This year we expect to have nearly one thousand conferees.

We look forward, indeed, to the pleasure of opening our twin conference with a warm message of support from our "Education President".

Thank you.

Sincerely,

A. Shakir

Dr. Abdulmunim Shakir, Chairman
Publicity Committee

Clear final with OSTP

THE WHITE HOUSE

WASHINGTON

October 25, 1991

I am pleased to send greetings to all those who are gathered in Detroit for the Joint Conference of the Association of Muslim Social Scientists and the Association of Muslim Scientists and Engineers. My special welcome to our visitors from abroad.

As virtually universal activities, scientific research and technology development can bring together people of all languages and cultures in the common search for knowledge and for answers to human problems. International cooperation among scientists can help us meet the challenges presented by disease, by the environmental degradation, by rapid demographic change, and by other forces. Social scientists can learn more about their own areas of study by comparing notes with their colleagues in other lands.

Scientific?

By promoting the use of science to improve the quality of life for all of the world's peoples, your organizations show an admirable concern for the future and a willingness to take responsibility for making it better. I commend you for your dedication, and send you best wishes for a successful conference.

"Document Control"

TYPE: PRESIDENTIAL PRIORITY DOCUMENT NUMBER: 9124429
ORIGINATOR: 02 STATUS C DIRECTORATE STATUS

FROM: BECHTEL, Steven D.: BECHTEL GROUP, INCORPORATED

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 10/11/91

SUBJECT: FORWARDS A POSITION PAPER ON THE SELECTION OF A
TECHNOLOGY FOR THE NEW PRODUCTION REACTOR.

DIRECTORATE STAFF
ASSIGNED: ASSIGNED:

ACTION STAFF
REQUIRED: INFORMATION COPY- ACTION:
NO ACTION NECESSARY

SENDER'S DUE DATE:
OSTP DUE DATE: STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT:

COPIES TO: D. Allan Bromley
INDUSTRIAL
PHYSICAL SCIENCES

WHITE HOUSE TRACKING #: 276263 CONTACT PERSON: SALLY KELLEY
PHONE: 456-7486 EXT:
REMARKS:

OSTP RECEIVED: 10/15/91 DEPT RECEIVED:
FILE: P-EAC-PRESIDENTIAL PRIORITY

EOP

4429

THE WHITE HOUSE OFFICE

RECEIVED

REFERRAL

91 OCT 15 AM : 31

OCTOBER 11, 1991

TO: OFFICE OF SCIENCE AND TECHNOLOGY POLICY
ATTN: ALLAN BROMLEY
DIRECTOR

ACTION REQUESTED:

INFORMATION COPY - NO ACTION NECESSARY

DESCRIPTION OF INCOMING:

ID: 276263

MEDIA: LETTER, DATED SEPTEMBER 30, 1991

TO: JOHN SUNUNU

FROM: MR. STEVE D. BECHTEL JR.
CHAIRMAN EMERITUS
BECHTEL GROUP, INCORPORATED
FIFTY BEALE STREET
SAN FRANCISCO CA 94105

SUBJECT: FORWARDS A POSITION PAPER ON THE SELECTION OF
A TECHNOLOGY FOR THE NEW PRODUCTION REACTOR

PROMPT ACTION IS ESSENTIAL -- IF REQUIRED ACTION HAS NOT BEEN
TAKEN WITHIN 9 WORKING DAYS OF RECEIPT, PLEASE TELEPHONE THE
UNDERSIGNED AT 456-7486.

RETURN CORRESPONDENCE, WORKSHEET AND COPY OF RESPONSE
(OR DRAFT) TO:
AGENCY LIAISON, ROOM 91, THE WHITE HOUSE, 20500

SALLY KELLEY
DIRECTOR OF AGENCY LIAISON
PRESIDENTIAL CORRESPONDENCE

THE WHITE HOUSE
CORRESPONDENCE TRACKING WORKSHEET

INCOMING

DATE RECEIVED: OCTOBER 07, 1991

NAME OF CORRESPONDENT: MR. STEVE D. BECHTEL JR.

SUBJECT: FORWARDS A POSITION PAPER ON THE SELECTION OF
A TECHNOLOGY FOR THE NEW PRODUCTION REACTOR

		ACTION		DISPOSITION	
ROUTE TO: OFFICE/AGENCY	(STAFF NAME)	ACT CODE	DATE YY/MM/DD	TYPE RESP	C COMPLETED D YY/MM/DD
JOHN SUNUNU		ORG	91/10/07	JS	A 91/10/08 TC
<i>99 OSTEP</i>	REFERRAL NOTE: <i>Alan Bromley</i>	<i>I</i>	<i>91/10/11</i>		<i>C 91/10/11 TC</i>
	REFERRAL NOTE:				
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COMMENTS:

ADDITIONAL CORRESPONDENTS: MEDIA: L INDIVIDUAL CODES: _____

CS MAIL USER CODES: (A) _____ (B) _____ (C) _____

*ACTION CODES:	*DISPOSITION	*OUTGOING	*
*	*	*CORRESPONDENCE:	*
*A-APPROPRIATE ACTION	*A-ANSWERED	*TYPE RESP=INITIALS	*
*C-COMMENT/RECOM	*B-NON-SPEC-REFERRAL	* OF SIGNER	*
*D-DRAFT RESPONSE	*C-COMPLETED	* CODE = A	*
*F-FURNISH FACT SHEET	*S-SUSPENDED	*COMPLETED = DATE OF	*
I-INFO COPY/NO ACT NEC		* OUTGOING	*
*R-DIRECT REPLY W/COPY *			*
*S-FOR-SIGNATURE *			*
*X-INTERIM REPLY *			*

REFER QUESTIONS AND ROUTING UPDATES TO CENTRAL REFERENCE
(ROOM 75, OEOb) EXT-2590
KEEP THIS WORKSHEET ATTACHED TO THE ORIGINAL INCOMING
LETTER AT ALL TIMES AND SEND COMPLETED RECORD TO RECORDS
MANAGEMENT.

THE WHITE HOUSE

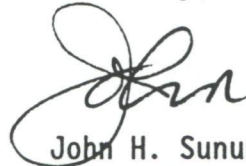
WASHINGTON

October 8, 1991

Dear Steve,

Thanks for sharing with me Bechtel's white paper on NPR technology. I appreciate your bringing this to my attention.

Sincerely,

A handwritten signature in black ink, appearing to read "John H. Sununu". The signature is stylized with a large, looping initial "J" and a cursive "H".

John H. Sununu
Chief of Staff

Mr. Steve D. Bechtel, Jr.
Chairman Emeritus
Bechtel Group, Inc.
50 Beale Street
San Francisco, California 94105-1895

27626

Bechtel

Fifty Beale Street
San Francisco, CA 94105-1895

S. D. Bechtel, Jr.
Chairman Emeritus
Bechtel Group, Inc.

September 30, 1991

ty

The Honorable John Sununu
Chief of Staff to the
President of the United States
The White House
1600 Pennsylvania Avenue
Washington, D.C. 20500

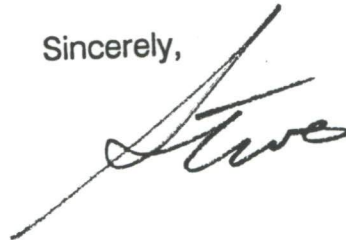
Dear John:

The purpose of this letter is to convey directly to you Bechtel's position on a pending decision of national importance and far reaching consequences, the selection of a technology for the New Production Reactor. This decision will have an important impact on the restoration of public confidence in nuclear energy.

The attached paper presents our position on NPR technology.

Best regards,

Sincerely,



Attachment

HWR TECHNOLOGY - THE ONLY VIABLE CHOICE FOR THE NEW PRODUCTION REACTOR

A reliable supply of tritium is critical to maintaining the nation's nuclear deterrent capability and ensuring the domestic security of its citizens. The remaining useful life of the existing tritium production reactors is highly uncertain, and the U.S. is approaching a critical decision with regard to selection of the appropriate technology for the proposed replacement capacity -- the New Production Reactor (NPR). The NPR is likely to be the only source of tritium production after the year 2000. With the Administration's commitment to pursue a single reactor strategy, it is imperative to choose a reactor technology which will provide a high level of confidence of achieving the NPR mission.

The merits of alternative NPR reactor technologies have been studied extensively over the past decade. Every independent evaluation conducted, to date, has reached the same conclusion... for a single reactor strategy, Heavy Water Reactor (HWR) technology is the only proven alternative with the technical maturity required to meet mission requirements in a safe, environmentally benign, cost effective and timely manner.

It is important to recognize that the current DOE reactor technology selection process is evaluating two very different reactor technologies that are at opposite ends of the Nuclear Reactor Engineering spectrum. In the case of the HWR, one is dealing with low temperature, (less than 250 °F), low pressure (less than 300 psi) water systems and components. From an engineering point of view, there is little difference between the cooling characteristics of heavy water and light water. In the case of the Modular High Temperature Gas Reactor (MHTGR), one is dealing with very high temperatures (greater than 1200 °F) and high pressure (900 psi) helium unique systems and components. The body of science and engineering understanding is clearly much better established for low temperature water than for high temperature helium application. It is this fundamental difference which makes the HWR by far the least risk approach.

Performance of the technically mature HWR has been fully demonstrated in over 130 reactor-years of successful operation at Savannah River and is supported by existing, proven Heavy Water fuel cycle and target facilities, and a skilled and experienced operating staff.

- The HWR design is based on fully demonstrated fuel and target manufacturing and post-irradiation processing, as well as treatment of high level waste. In July, 1988 DOE's prestigious Energy Research and Advisory Board (ERAB) stated - "The SRP target system (for the HWR) is... the only fully proven technology for tritium production in the United States. If the HWR-NPR is sited at Savannah River, the complete fuel cycle and target facilities would be available." This is still so today.
- The HWR draws on an extensive water reactor technology base, including passive cooling systems, redundant reactivity control systems, advanced digital reactor instrumentation and control, and is designed to Electric Power Research Institute requirements developed for second generation nuclear plants.

- Heavy Water Reactor technology is unique in its proven capability to produce tritium, plutonium, and transuranic isotopes including Pu-238 for space power sources.
- The HWR creates no problems for the U.S. in complying with all treaties, agreements and policies regarding international and intranational proliferation, and does not introduce new proliferation issues in fulfilling its mission of materials production for defense purposes.

In contrast, the largely developmental MHTGR has very limited operating experience, (and that experience was very poor). No U.S. industry infrastructure exists, and the major components in the current reference design have neither been designed, fabricated, nor proof tested at operating scale. It is materially behind the HWR in its development phase.

- The MHTGR clearly requires the construction and operation of a prototype to demonstrate the technology and qualify its first-of-a-kind hardware and hardware systems. This prototype must operate for several years to enable the "lessons learned" to be effectively incorporated into the design, procurement, and construction of subsequent production reactor modules.
- The fuel and target cycles needed to support MHTGR tritium production and recovery are not yet developed. Therefore, substantial technical, cost, and schedule risk remains.
- U.S. nuclear non-proliferation policy has traditionally required the separation of nuclear defense materials production from commercial electric power generation. Using the MHTGR to generate both electricity and tritium introduces a dangerous departure from established U.S. policy and practice, and is likely to be used by antinuclear, antiweapons groups to block the future exploitation of commercial MHTGRs if the technology is successfully developed.
- The MHTGR is a high capital and operating cost option. Therefore, steam revenues from power production are key to its economic feasibility. However, steam revenues from the MHTGR are extremely speculative since there are no binding, upfront contracts for steam sale, nor even a memorandum of understanding among DOE, local utilities and a postulated third party. Issues such as power sales revenue, capacity factor, indemnification, licensing, and financing must be resolved before calculations with numerous assumptions are taken at face value and included in MHTGR life cycle costs. In addition, in 1988 ERAB concluded - "Production of energy for sale introduces complex tradeoffs between potentially lower product costs, higher initial costs, and the possible reduction in operational reliability of a more complicated reactor plant."

In summary, the primary issue regarding selection of an NPR Technology is RISK -- technical risk and the fallout from technical risk -- cost and schedule uncertainty, highly questionable production assuredness, and political repercussions. We strongly believe the mature and proven Heavy Water technology is low risk and ready for production deployment NOW. Conversely, many engineering and development questions remain to be answered for the MHTGR technology option. We believe a comprehensive disciplined Research, Development and Demonstration program is required before the immature MHTGR technology can be deployed with full confidence that it can become a reliable supply of tritium and other nuclear materials. The only credible choice is the low risk, low cost Heavy Water Reactor technology.

"Document Control"

TYPE: PRESIDENTIAL PRIORITY DOCUMENT NUMBER: 9124850
ORIGINATOR: 02 STATUS C DIRECTORATE STATUS

FROM: HERNDON, J. Marvin

TO: PRESIDENT BUSH

DATE OF
CORRESPONDENCE: 10/04/91

SUBJECT: RE: HIS PROTEST OF NASA'S REJECTION OF HIS PROPOSAL
CONCERNING NUCLEAR FISSION REACTORS AS ENERGY
SOURCES FOR THE GIANT PLANETS.

DIRECTORATE STAFF
ASSIGNED: ASSIGNED:

ACTION STAFF
REQUIRED: ACTION:

SENDER'S DUE DATE:
OSTP DUE DATE: STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT:

COPIES TO: D. Allan Bromley
Damar Hawkins
PHYSICAL SCIENCES

WHITE HOUSE TRACKING #: CONTACT PERSON:
REMARKS: PHONE: EXT:

CLOSED

OSTP RECEIVED: 11/19/91 DEPT RECEIVED:
FILE: P-EOP-PRESIDENTIAL PRIORITY

CENTRAL FILES:

4850

RECEIVED

November 18, 1991

OSTP
MAIL ROOM

Dear Dr. Herndon:

Thank you for your letter and the materials that you sent to President Bush through Secretary Jack Kemp.

While I acknowledge your dissatisfaction with NASA's decision about your proposal, as a matter of long-standing policy, the White House does not intervene in such matters. I appreciate your comments about the bid review process, and I have forwarded your materials to the appropriate officials so that they will be aware of your concerns.

With the President's best wishes,

Sincerely,

Shirley M. Green
Special Assistant to the President
for Presidential Messages
and Correspondence

Dr. J. Marvin Herndon
11044 Red Rock Drive
San Diego, California 92131

SMG/BW/pw
CLEAR WITH COUNSEL
cc with copy of incoming to OSTP

Corres.#: 554773

THE WHITE HOUSE

WASHINGTON

October 7, 1991

MEMORANDUM FOR BEVERLY WARD

FROM: DANIEL CASSE *Dac*
DEPUTY DIRECTOR OF CABINET LIAISON

SUBJECT: Presidential Response To Formal Protest Submitted By
Herndon Science & Software Against NASA.

Enclosed is information that Mr. Herndon handed to Secretary Kemp at a dinner. He requested that the Secretary forward it to the President. Please treat this as you would regular correspondence.

Thank you, and please call me if you have any questions.

J. Marvin Herndon, Ph.D.
11044 Red Rock Drive
San Diego CA 92131
619-271-4030

September 4, 1991

President George Bush
The White House
1600 Pennsylvania Avenue
Washington, DC 20500

Mr. President:

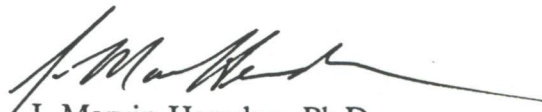
In my letter to you dated April 8, 1991, I described what I believe to be one of the truly major problems of modern science: Misrepresentation and misinterpretation of proposals by "peer reviewers" whose identities are cloaked by anonymity. I presented to you copies of two original and important scientific papers: "Nuclear Fission Reactors as Energy Sources for the Giant Outer Planets" and "The Elements of the Earth". One of the several purposes for presenting these works to you was so that you would have a means to verify my scientific creativity and have cause to believe that there may be some truth in what I described.

About two weeks before writing that letter, Herndon Science & Software, Inc. submitted an unsolicited basic research proposal, entitled Nuclear Fission Reactors as Energy Sources for the Giant Planets, to the National Aeronautics and Space Administration.

Today, Herndon Science & Software, Inc. submitted a formal Protest of NASA's rejection of its proposal to the General Accounting Office. This Protest alleges that NASA acted in bad faith and in violation of several Federal statutes, including 18 U.S.C. § 1001. The main Protest document, a copy of which is included, concisely sets forth the specific allegations. The Protest action may prove the truth of what I described in my letter to you dated April 8, 1991 and may, in fact, reveal even more serious failings within the system.

The major problems that beset American science have their origins in a system that has been in place for at least two decades. The system lacks adequate "checks and balances" and, by its structure and application, encourages mediocrity and deceitfulness. The problems are very real and, I believe, are stifling American science.

Sincerely yours.



J. Marvin Herndon, Ph.D.

U.S. Department of Housing
and Urban Development
Office of the Secretary



Special Assistant to
the Secretary

October 3, 1991

Dan Casse:

Scott asked that I forward this over to your office for appropriate action. Mr. Herndon handed this to this Secretary at a dinner and asked that he forward it to the President.

No big deal here.

Thank you.

J.T.

BID PROTEST

Filed in accordance with Part 21 of Title 4 of the Code of Federal Regulations

Submitted to: General Counsel
General Accounting Office
441 G Street, NW.
Washington, DC 20548
Attention: Procurement Law Control Group

Name of Protester: Herndon Science & Software, Inc.
11044 Red Rock Drive
San Diego, CA 92131
Telephone: 619-271-4030

**Authorized Institution
Official:**


Dr. J. Marvin Herndon, Vice President

Contracting Activity: National Aeronautics and Space Administration

Solicitation Number: NRA 91-OSSA-1

Copy of Protest filed with: Contracting Officer
(filed simultaneously National Aeronautics and Space Administration
with Protest filing) Washington, DC 20546

Attachments: Copies of Relevant Documents:

Exhibit A is a copy of the PROPOSAL.

Exhibit B is a copy of NASA's Lunar and Planetary Geosciences
Review Panel Summary Statement and NASA's cover letter.

Exhibit C is a copy of the SOLICITATION.

Exhibit D is a copy of NASA's notice of rejection of the PROPOSAL.

Proprietary Information Notice: Exhibit A contains information that constitutes a trade secret and/or information that is commercial or financial and confidential or privileged and should be withheld.

1.0 DEFINITIONS:

In this document-

- (1) "HSSI" means Herndon Science & Software, Inc., A California Corporation.
- (2) "NASA" means National Aeronautics and Space Administration.
- (3) "SOLICITATION" means NASA's published Research Announcement, designated NRA 91 - OSSA - 1.
- (4) "PROPOSAL" means HSSI's unsolicited proposal for basic research entitled Nuclear Fission Reactors as Energy Sources for the Giant Planets, submitted to NASA in response to said SOLICITATION.
- (5) "USC" means United States Code.
- (6) "CFR" means Code of Federal Regulations.

2.0 TIMELINESS OF THE PROTEST:

Exhibit D is a copy of the notice of NASA's rejection of HSSI's PROPOSAL. This Bid Protest is timely in that it is delivered to the Office of General Council, General Accounting Office, within the statutory 10 day period. The notice of NASA's rejection of HSSI's PROPOSAL represents the completion of NASA's review and evaluation of HSSI's PROPOSAL which is the principal focus of the present Bid Protest. Exhibit D is dated August 20, 1991 and was postmarked August 22, 1991.

3.0 AGENCY NOTIFICATION:

A copy of this Bid Protest is being simultaneously filed with the Contracting Officer, National Aeronautics and Space Administration, Washington, DC, 20546. No specific individual was specified in the SOLICITATION for receipt of Protest actions.

4.0 STATEMENT OF THE LEGAL AND FACTUAL GROUNDS FOR THE PROTEST:

HSSI protests the rejection of its PROPOSAL by NASA and alleges that NASA knowingly and willingly implemented the NASA Investigation Acquisition System, prescribed by Appendix I to 18-70.103 NASA Federal Acquisition Regulation Supplement, in bad faith and in violation of Federal statutes, as described in the following subsections:

- 4.1 Violation of 18 USC 1001
- 4.2 Violation of 48 CFR 15.506-2(a)
- 4.3 Violation of 48 CFR 35.008(a)
- 4.4 Violation of 41 USC 253(B)
- 4.5 Violation of 42 USC 2451 *et seq.*
- 4.6 Violation of 15 USC 9(a) and 15 USC 9(b)(1)
- 4.7 Violation of Executive Order 12138 and 48 CFR 19.901
- 4.8 Violation of 48 CFR 15.508(b)
- 4.9 Violation of 48 CFR Subpart 9.5, including 48 CFR 9.504
- 4.10 Violation of 41 USC 253(A)(1)

4.1 Violation of 18 USC 1001

HSSI alleges that employees of NASA, reviewers of the PROPOSAL, and members of NASA's Lunar and Planetary Geosciences Review Panel, within the jurisdiction of NASA, knowingly and willfully falsified, concealed or covered up by trick, scheme, or devise one or more material facts and made one or more false, fictitious or fraudulent statements or representations, or made a document knowing the same to contain false, fictitious, or fraudulent statements in violation of 18 USC 1001.

Exhibit B is a copy of a document that HSSI alleges was made by NASA in bad faith and was made in violation of 18 USC 1001.

4.1.1 Misrepresentation of research objectives

Exhibit B contains a section entitled "Summary of Research Objectives". NASA's stated summary of research objectives differs significantly from HSSI's statement of research objectives, set forth in HSSI's PROPOSAL. The differences in the two versions as can be readily seen in the side-by-side comparison below.

NASA's stated summary of research objectives.

"Herndon and co-workers propose to examine the hypothesis that ^{235}U -H breeder reactors can operate within the interiors of the major planets and produce the excess thermal emission (over that reflected from the sun) exhibited by the major planets. The OKLA locality (in Africa) where the $^{235}\text{U}/^{238}\text{U}$ ratio was, earlier in the history of earth, sufficiently high, to induce this type of reaction probably with a water neutron moderator is proffered as a natural terrestrial example of this type reactor." [Exhibit B]

HSSI's research objectives as set forth in the PROPOSAL.

"Objectives: To investigate in detail:

- (1) The dynamics of planetary nuclear fission reactors;*
- (2) Planetary accumulation processes relevant to actinide elements and relevant to the subject of planetary nuclear reactors;*
- (3) The feasibility of detecting planetary nuclear reactors; and,*
- (4) Related geophysical and astrophysical implications." [PROPOSAL, page iii]*

NASA's "Summary of Research Objectives" misrepresents, in an unfair manner, the PROPOSAL's stated research objectives.

Exhibit B contains the following section entitled "Summary of Evaluations" which, HSSI alleges, was made knowingly and willfully containing misrepresentations of fact, unsupported pejorative assertions, omissions of substance, and which was knowingly and willfully made to cover up or to conceal relevant material facts in violation of 18 USC 1001:

"Several of the reviewers pointed out some problems with the energetics of ^{235}U breeder mechanism: (1) The natural abundance of ^{235}U , when well mixed, with cosmic elemental abundance is too low to produce the excess radiation observed. (2) If somehow the ^{235}U and H was concentrated, reaction times would be too short-lived to still provide excess giant planet heating today, some 4.6 Ga after the reactor was assembled. Others believed that Herndon's simple attempt to calculate the U- UO_2 and UH_3 phase diagram based on Thomas-Fermi theory was much too crude and did not take into account the recent experimental work on metal hydrides, U, and UO_2 phase diagrams and related thermodynamic data." [Exhibit B]

4.1.2 Misrepresentations of "energetics"

The proposed research is not in any way limited to the specificity of *"the energetics of ^{235}U breeder mechanism"*, as described in NASA's "Summary of Evaluations", but instead explicitly embodies a more general breeder reactor mechanism observed in nature, which includes nuclear reactions involving other isotopes of U, Th, Pa, Np, and Pu [PROPOSAL, Appendix I, pages 3 and 8].

With respect to (1) above, neither the PROPOSAL nor its Appendix I stated or implied that the natural abundance of ^{235}U , when well mixed, with cosmic elemental abundance would produce the excess radiation observed.

With respect to (2) above, neither evidence nor arguments were presented in the PROPOSAL that would suggest continuous and constant reactor operation for *"some 4.6 Ga"* at present day power levels. To the contrary, the PROPOSAL clearly states,

"It is important to emphasize that the output energy of a naturally occurring nuclear reactor need not be constant" [PROPOSAL Appendix I page 9]

and, moreover,

"The durations of time would obviously be extended were other energy sources involved, for example, involving gravitational potential energy release" [PROPOSAL Appendix I page 8]

Furthermore, neither evidence nor arguments were presented in the PROPOSAL that assert, suggest, or imply, as NASA's "Summary of Evaluations" states, that *"the reactor was assembled...some 4.6 Ga"* ago: At the present time, there is no scientific basis for asserting that natural reactor formation was contemporaneous with planetary formation.

4.1.3 Misrepresentations of "phase diagram"

The *"U-UO₂ and UH₃ phase diagram"*, [which appears as Figure 1 of Appendix I of the PROPOSAL, page 5], was not "based on Thomas-Fermi theory", as asserted in NASA's "Summary of Evaluations".

Currently, there does not exist in the scientific literature any "U and UO₂ phase diagrams" for the temperatures and pressures that are thought to prevail within the deep interior regions of the giant planets.

NASA's "Summary of Evaluations" portrays the calculations as being *"simple"* and *"crude"*. In making this pejorative characterization, that document failed to report that there does not exist in the scientific literature any previously published work concerning the chemical state of uranium under the conditions thought to prevail within the deep interior regions of the giant planets. NASA's "Summary of Evaluations" failed to report that the calculations are unique in the scientific literature of the giant planets and that the knowledge obtained therefrom is, in fact, state-of-the-art.

In preparing the PROPOSAL, HSSI conducted a thorough review of the scientific literature. If a reviewer was knowledgeable of data that would negate or that would materially alter any specific conclusions in the PROPOSAL, then the reviewer should cite the particular reference to the scientific literature and should show the manner by which the inclusion of that data would materially alter specific conclusions of the PROPOSAL. The reviewer's statement that HSSI

"did not take into account recent experimental work on metal hydrides, U, and UO₂ phase diagrams and related thermodynamic data" [Exhibit B]

is not supported by even a single specific reference to the scientific literature. Instead, the reviewer makes vague, pejorative assertions that are without valid, expressed, substantive scientific basis. HSSI alleges that the reviewer making that statement did so in violation of 18 USC 1001. HSSI alleges that NASA acted in bad faith by permitting a fraudulent review to be made and further acted in bad faith by utilizing a fraudulent review in its proposal evaluation process.

4.1.4 Concealment of material facts

HSSI alleges that employees of NASA and individuals within the jurisdiction of NASA knowingly and willfully concealed or covered up material facts in the making of the document portion of Exhibit B entitled "Summary of Evaluations".

Specifically, HSSI alleges that employees of NASA and individuals within the jurisdiction of NASA concealed the unique and innovative concepts and ideas which were clearly set forth by HSSI in the PROPOSAL.

Specifically, HSSI alleges that employees of NASA and individuals within the jurisdiction of NASA concealed the potential contribution of the effort to NASA's specific mission which was clearly set forth in the PROPOSAL.

The documentation supporting the HSSI's allegation of concealment is provided in Subsections 4.2.1 and 4.2.2 that follow.

4.2 Violation of 48 CFR 15.506-2(a)

4.2.1 Failure to consider unique and innovative concepts

The "Summary of Evaluations", contained in Exhibit B, made by NASA as part of its proposal evaluation process, not only contains false representations, as described above, but also conceals material facts by completely omitting any mention of or reference to the unique and innovative concepts of the PROPOSAL. The omission of relevant information on unique and innovative concepts, HSSI alleges, violates the intent, spirit, and letter of 48 CFR 15.506-2(a) which in part states that

"When performing a comprehensive evaluation of an unsolicited proposal, evaluators shall consider...(1) Unique and innovative methods, approaches, or concepts demonstrated by the proposal". [48 CFR 15.506-2(a)]

HSSI alleges that NASA's omission of any mention of unique and innovative concepts was an act committed in bad faith and in violation of 48 CFR 15.506-2(a). The unique and innovative concepts and ideas, as well as the importance of the proposed research are clearly and concisely set forth in the PROPOSAL, as shown in the following:

"For twenty years, the scientific community has observed that Jupiter and Saturn radiate into space almost twice as much energy as they absorb from the Sun. The giant planets, with the possible exception of Uranus, contain a powerful energy source.... HSSI recognizes the importance of understanding the nature of the very powerful planetary heat source(s) that are responsible for the observed internal power production. Investigators knowledgeable in the area of planetary geophysics will appreciate that virtually all planetary physical phenomena are affected to a greater or lesser degree by that heat production. HSSI, recognizing limits in current state of knowledge, has committed resources to advance that area of planetary science. Already HSSI's efforts have resulted in the discovery of an alternative explanation for the internal heat source(s). HSSI realizes the implications that stem from its own internally funded investigation and believes that its investigations will directly impact NASA's planning for future missions to the giant planets. HSSI has reviewed of the literature as related to scientific thinking on the subject of planetary internal energy sources. HSSI believes that David J. Stevenson (1978), discussing Jupiter, succinctly stated the rationale and scientific basis for current view:

The implied energy source...is apparently gravitational in origin, since all other proposed sources (e.g. radioactivity, accretion, thermonuclear fusion) fall short by at least two orders of magnitude ...

and that, to date, there is no proof or direct evidence that the energy source is gravitational in origin. Rather, the gravitational energy source appears to be assumed as a default option. For almost fifteen years, NASA supported investigators have sought a non-gravitational heat source of significant magnitude to power the giant outer planets. A preliminary result of HSSI's research activities suggest planetary nuclear fission "breeder" reactors as energy sources for the giant planets...." [PROPOSAL, page 2].

The unique and innovative concept of the proposed research is clearly and concisely set forth in the PROPOSAL, as shown in the following:

"To the best of our knowledge, this is an entirely new concept that is distinct and stands apart from all previous and current NASA supported investigations of the giant planets." [PROPOSAL, page 3]

Unlike the inner planets of the Solar System which only reflect or re-radiate sunlight, Jupiter, Saturn, and Neptune glow from within. For twenty years, scientists worldwide have sought an energy source of sufficient magnitude to power these three planets. Lacking a viable explanation, many scientists have assumed that the heat is a relic, left over from the gravitational potential energy during planetary formation. Quite recently, the prevailing understanding was also described recently by W. B. Hubbard:

"Thermonuclear fusion of hydrogen or deuterium, as in the Sun, is in principle possible, but calculations show that they are nowhere near the required 10,000,000°K for this to occur. Therefore, by elimination, only one process could be responsible for the luminosities of Jupiter, Saturn, and Neptune. Energy is liberated when mass in a gravitationally bound object sinks closer to the center of attraction... potential energy becomes kinetic energy..." [Hubbard, W.B.: See page 135 in The New Solar System (Eds. J. K. Beatty and A. Chaikin), New York, Cambridge University Press, 3rd edition (1990)]

The important point to be made is that gravitational potential energy release was *assumed* by default.

HSSI had not yet revealed its entirely new concept of planetary nuclear fission reactors.

Moreover, those persons *"knowledgeable in the area of planetary geophysics will appreciate that virtually all planetary physical phenomena are affected to a greater or lesser degree by that heat production"*. [PROPOSAL, page 2]

4.2.2 Failure to consider potential contribution to NASA's mission

NASA's "Summary of Evaluations", contained in Exhibit B, made by NASA as part of its proposal evaluation process, conceals material facts by completely omitting any mention of, or reference to, the potential contribution of the effort to NASA's specific mission. The omission of relevant information on the potential contribution of the effort to NASA's specific mission, HSSI alleges, violates the intent, spirit, and letter of 48 CFR 15.506-2(a) which in part states that

"When performing a comprehensive evaluation of an unsolicited proposal, evaluators shall consider...(3) Potential contribution of the effort to the agency's specific mission".[48 CFR 15.506-2(a)]

HSSI alleges that NASA's omission of any mention of, or reference to, the potential contribution of the effort to NASA's specific mission was an act committed in bad faith and in violation of Federal statute. The potential contributions of the effort to NASA's specific mission are clearly and concisely set forth in the PROPOSAL, as shown in the following:

"HSSI realizes the implications that stem from its own internally funded investigation and believes that its investigations will directly impact NASA's planning for future missions to the giant planets." [PROPOSAL, page 2]

"HSSI believes that this is a particularly important investigation, especially from the standpoint of planning future missions to the giant planets." [PROPOSAL, page 3]

"HSSI believes that the results from the proposed investigation may contribute significantly to other NASA supported investigations in such diverse areas as modeling planetary evolutions, structures, and thermal transport, magnetic field generation, electromagnetic radiation, and outer envelop investigations." [PROPOSAL, page 3]

"HSSI appreciates the importance of its concept of planetary nuclear fission reactors and believes that it would be advantageous from the standpoint of NASA's mission planning, particularly planning for deep probe missions to the giant planets, to include in the present proposal initial feasibility studies of the potential for detecting planetary nuclear fission reactors." [PROPOSAL, page 7]

4.3 Violation of 48 CFR 35.008(a)

HSSI alleges that NASA violated 48 CFR 35.008(a) which states that

"Generally, an R&D contract should be awarded to that organization...that proposes the best ideas or concepts and has the highest competence in the scientific field or technology involved." [48 CFR 35.008(a)]

The unique and innovative ideas and concepts proposed and the importance of these ideas, as set forth in the PROPOSAL, are revealed in Subsection 4.2 of the present Bid Protest.

The competence level of HSSI is described on page 1 of the PROPOSAL; The competence levels of the Principal Investigator and of the Co-Investigator are described in their individual resumes [PROPOSAL, Appendix 2 and 3, respectively] and on page 8 of the PROPOSAL.

4.4 Violation of 41 USC 253(B)

HSSI alleges that NASA acted in bad faith and in violation of 41 USC 253(B) by evaluating the PROPOSAL on the basis of misrepresentations of fact, omissions of substance (particularly as relates to the potential contribution of the effort to NASA's mission and to new and innovative concepts and ideas), and unsupported, pejorative assertions, rather than evaluating the PROPOSAL based solely on the factors specified in the specification as required by 41 USC 253(B).

The SOLICITATION specifies the factors considered in evaluating proposals submitted in response, as follows:

a. ... the principal elements (of approximately equal weight) considered in evaluating a proposal are its relevance to NASA's objectives, intrinsic merit, and cost.

b. Evaluation of a proposal's relevance to NASA's objectives includes the consideration of the potential contribution of the effort to NASA's mission.

c. Evaluation of its intrinsic merit includes the consideration of the following factors, none of which is more important than any other:

(1) Overall scientific or technical merit of the proposal or unique and innovative methods, approaches, or concepts demonstrated by the proposal.

(2) The offeror's capabilities, related experience, facilities, techniques, or unique combinations of these which are integral factors for achieving the proposal objectives.

(3) The qualifications, capabilities, and experience of the proposed principal investigator, team leader, or key personnel who are critical in achieving the proposal objectives.

(4) Overall standing among similar proposals available for evaluation and/or evaluation against the known state-of-the-art.

d. Evaluation of the cost of a proposed effort includes consideration of the realism and reasonableness of the proposed cost and the relationship of the proposed cost to available funds. [SOLICITATION, Appendix B, page 6]

The SOLICITATION does not include as evaluation factors misrepresentations of fact or unsupported, pejorative assertions which, as described above, are contained in Exhibit B and described as "Summary of Evaluations".

HSSI alleges that NASA acted in bad faith and in violation of 41 USC 253(B) by evaluating the PROPOSAL on the basis of misrepresentations of fact, omissions of substance, and unsupported, pejorative assertions, as set forth in Exhibit B, rather than by evaluating the PROPOSAL based solely on the factors specified in the SOLICITATION required by 41 USC 253(B).

NASA's use, in the proposal evaluation process, of misrepresentations of fact, omissions of substance, and unsupported, pejorative assertions discredits and unfairly and adversely biases the evaluation by ignoring the potential contribution of the scope of the proposed effort to NASA's mission and discredits, and unfairly and adversely biases, the evaluation of the intrinsic merit of the PROPOSAL in the following ways:

(1) by misrepresenting the overall scientific or technical merit of the PROPOSAL or by ignoring unique and innovative methods, approaches, or concepts demonstrated by the PROPOSAL;

(2) by misrepresenting HSSI's capabilities, related experience, facilities, techniques, or unique combinations of these which are integral factors for achieving the PROPOSAL's objectives;

(3) by misrepresenting the qualifications, capabilities, and experience of the proposed principal investigator, team leader, or key personnel who are critical in achieving the PROPOSAL objectives; and,

(4) by such misrepresentations falsely and unfairly diminish the overall standing of the PROPOSAL among similar proposals available for evaluation and/or against the known state-of-the-art.

4.5 Violation of 42 USC 2451 *et seq.*

HSSI alleges that NASA, by acting in bad faith and in violation of Federal statutes in the matter of the review and evaluation of the PROPOSAL, as described above, did also act contrary to the spirit, intent, and letter of the National Aeronautics and Space Act, 42 USC 2451 *et seq.*, especially, § 2451(c)(1), § 2451(c)(4), and § 2451(c)(5).

HSSI alleges that NASA, by acting in bad faith and in violation of Federal statutes in the matter of the review and evaluation of the PROPOSAL, as described above, failed "*to conduct space activities of the United States so as to contribute materially to the expansion of human knowledge in space*" [§ 2451(c)(1)] and failed "*to contribute materially to the preservation of the role of the United States as a leader in space science*" [§ 2451(c)(5)].

4.6 Violation of 15 USC 9(a) and 15 USC 9(b)(1)

The U. S. Congress has expressed in legislation its understanding that

"Research and development are major factors in the growth and in progress of industry and the national economy" [15 USC 9(a)]

and that

"It is the policy of the Congress that assistance be given to small-business concerns to enable them to undertake...research and development in order to maintain and strengthen the competitive free enterprise system and the national economy"
[15 USC 9(b)(1)].

HSSI, a small-business, for-profit concern, alleges that NASA knowingly and willingly implemented the NASA Investigation Acquisition System, prescribed by Appendix I to 18-70.103 NASA Federal Acquisition Regulation Supplement, in bad faith, in violation of Federal statutes, described above, and in violation of the spirit, intent, and letter of 15 USC 9(a) and 15 USC 9(b)(1) in the following ways: (i) by failing to give assistance to HSSI to enable it to undertake research, especially, by failing to enable HSSI's PROPOSAL to compete fairly and equitably in NASA's proposal evaluation process; and, (ii) by discouraging and preventing conduct of the research set forth in the PROPOSAL by means of the unlawful and unethical actions alleged in the present protest document. In those ways, HSSI alleges, NASA acted contrary to the policy of Congress as stated in 15 USC 9(a), 9(b)(1).

4.7 Violation of Executive Order 12138 and 48 CFR 19.901

HSSI, a women owned and controlled, small business, for-profit concern, alleges that NASA knowingly and willingly implemented the NASA Investigation Acquisition System, prescribed by Appendix I to 18-70.103 NASA Federal Acquisition Regulation Supplement, in violation of Executive Order 12138, May 18, 1979, and in violation of 48 CFR 19.901 in the following ways: (i) by failing to enable HSSI's PROPOSAL to compete fairly and equitably in NASA's proposal evaluation process; and, (ii) by discouraging and preventing conduct of the research set forth in the PROPOSAL by means of the unlawful and unethical actions alleged in the present protest document.

4.8 Violation of 48 CFR 15.508(b)

HSSI alleges that NASA violated 48 CFR 15.508(b) by disclosing trade secrets and/or information that is commercial or financial and confidential or privileged contained in the PROPOSAL to reviewers without first having obtained non-disclosure agreements, signed by said reviewers, before said PROPOSAL was sent to said reviewers.

4.9 Violation of 48 CFR Subpart 9.5, including 48 CFR 9.504

In the commercial sector, successful business transactions generally take place between separate parties that are on more or less equal footing and that are able, through mutually agreed upon terms, to maintain a creditable system of "checks and balances" on one another. HSSI alleges that, with respect to proposal evaluation, an equitable system of "checks and balances" does not exist within NASA's Planetary Geology and Geophysics Program and believes that the absence of a creditable system of "checks and balances" has lead to the allegations of bad faith, fraud, and failure to comply with Federal statutes, that are contained in the present protest action.

HSSI committed its own resources to develop the theoretical justification for its own unique and innovative concept of nuclear fission reactors as energy sources for the giant planets and has committed its own resources to prepare and submit the PROPOSAL in response to NASA's SOLICITATION. HSSI has acted in good faith.

All decisions made after submission of the PROPOSAL are NASA decisions, made without HSSI input or review. NASA decides who to ask to review the PROPOSAL. NASA decides whether the reviewer is qualified. NASA decides whether or not conflicts of interest exist with respect to the reviewers in NASA's opinion. NASA decides the criterion for acceptable reviews. NASA decides whether the reviews are acceptable. NASA decides who will be involved in the evaluation process. NASA decides whether those involved in the evaluation process are qualified. NASA decides whether or not conflicts of interest exist with respect to those involved in the evaluation process in NASA's opinion. HSSI is apparently expected not to question NASA's judgement in these matters.

HSSI is not permitted by NASA to participate in any NASA decisions after submitting the PROPOSAL. In fact, the identities of reviewers and the identities of those involved in the evaluation process, important for evaluation of real and potential conflicts of interest, are not divulged to HSSI by NASA, even after proposal selections are made. HSSI believes that, to be equitable, such a grossly one-sided proposal evaluation system, without the benefit of a credible system of "checks and balances" between HSSI and NASA, requires a level of capability,

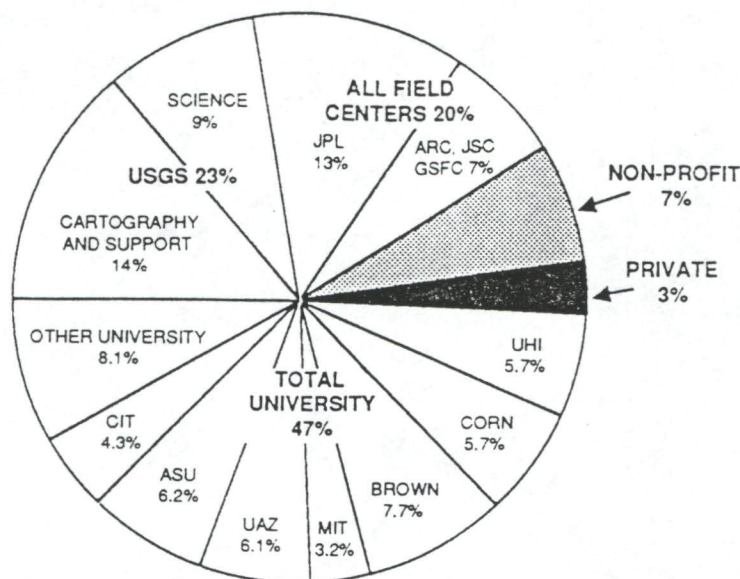
integrity, and objectivity from NASA that is generally unrealistic to expect from humans and particularly unrealistic to expect from those who are in one way or another competitors.

There is a general understanding among scientists that in a program which has limited funds available, such as NASA's Planetary Geology and Geophysics Program, that funding one organization's proposal will diminish the chances that a competitor organization's proposal will be funded. HSSI believes that some of the unethical and unlawful misrepresentations alleged in the present Bid Protest arise from conflicts of interest.

HSSI alleges, in the matter of the review and evaluation of the PROPOSAL, that NASA in violation of 48 CFR 9.504 failed to identify and to avoid significant potential conflicts of interest. NASA's Planetary Geology and Geophysics Program's Discipline Scientist, under whose signature Exhibit B was transmitted, represents a potential conflict of interest because he is currently a Principal Investigator on a grant or contract funded by NASA's Planetary Geology and Geophysics Program [NASA Technical Memorandum 4211, page 89]. HSSI believes that NASA's policy of not divulging the identities and institutional affiliations of proposal reviewers and evaluators operates to obscure violations of 48 CFR 9.504 and acts to encourage illegal and unfair competitive practices. HSSI alleges that NASA permitted organizational conflicts of interest to occur with respect to providing assistance in technical evaluations of the PROPOSAL in violation of 48 CFR Subpart 9.5. HSSI believes that revealing the identities and institutional affiliations of reviewers and evaluators will reveal wide spread conflicts of interest, particularly among reviewers and evaluators of HSSI's PROPOSAL.

The distribution of funding by NASA's Planetary Geology and Geophysics program in Fiscal Year 1989 is shown in Figure 1 [copied from NASA Technical Memorandum 4210, page 616]. Figure 1 is particularly revealing in that it shows, for F.Y. 1989, that seven separate universities each received a greater amount of funding than the total of funding that all private companies received.

Figure 1



HSSI believes a thorough investigation will reveal that NASA has been negligent and has systematically engaged in violations of Federal statutes to the detriment of private concerns.

HSSI believes that a thorough investigation of NASA's Planetary Geology and Geophysics Program will reveal a pattern of organizational conflicts of interest among proposal reviewers and evaluators. In NASA's Planetary Geology and Geophysics Program neither reviewers nor *ad hoc* committee evaluators are paid for their services. Consequently, some may be superficial in their reviews. Others, however, may use NASA's proposal review and evaluation process to limit or eliminate competition for themselves and for their organizations. The *modus operandi* is evident from the treatment of HSSI's PROPOSAL by NASA; in the review process, negative and pejorative assertions are made that are without substantive basis, important new concepts and new ideas or new methods are ignored, and the relevance to NASA's mission is ignored. HSSI believes that the type of bad faith and fraudulent activity alleged in the present Bid Protest arises in a system that is without an equitable system of "checks and balances" and believes that a thorough investigation should be conducted of NASA's Planetary Geology and Geophysics Program as part of the present Bid Protest.

4.10 Violation of 41 USC 253(A)(1)

In addition to, and because of, the allegations of bad faith and violations of Federal statutes set forth in the present Bid Protest, HSSI alleges that NASA violated 41 USC 253(A)(1) for failing to use "*competitive procedures*".

5.0 REASONS THE PROTEST SHOULD BE SUSTAINED:

The present Bid Protest should be sustained for the following reasons:

Science is a branch of knowledge or study dealing with a body of facts or truths relating to the physical world, systematically arranged, documented in the scientific literature, and showing the operation of general laws. Historically, the application of scientific methods and practices has permitted the separation of truth from the diversity of human opinion. Falsification and misrepresentation have no place in science, in scientific research, and in the review and evaluation of scientific research proposals. NASA and those individuals within the jurisdiction of NASA should not be permitted to engage in falsification and misrepresentation in the review and evaluation of research proposals, especially as relates to this PROPOSAL.

The U. S. Congress has recognized that research is an important factor in the growth and in the progress of the national economy [e.g. 15 USC 9(a)]. Congress has enacted laws [e.g. Competition in Contracting Act of 1984] and Federal regulations have been promulgated [e.g. 48 CFR 15.506-2(a)] to ensure that Executive Agencies use procurement practices that are both legal and to the benefit of the national interest as relates to supporting basic research. NASA should not be permitted to engage in unlawful procurement practices, especially as relates to this PROPOSAL.

HSSI's PROPOSAL contains unique and innovative concepts and ideas that neither NASA nor the scientific establishment imagined or conceived and which represents an example of the best of American science, produced by a small business concern at its own expense. HSSI's proposed research contributes in important and significant ways to NASA's specific mission. HSSI has extremely well qualified personnel possessing the highest levels of competence to conduct the research. The costs are competitive. Moreover, and most important, the research concepts set forth in the PROPOSAL would not exist were it not for the efforts and expenditures of HSSI.

During the last twenty years the scientific capability of the United States has diminished. HSSI believes that the present Bid Protest is an excellent example of some of the most serious and pervasive problems that beset modern science. HSSI believes that misrepresentations in scientific review and evaluation arise in programs that do not have an equitable system of "checks and balances". HSSI believes that the problems revealed in the present Bid Protest are manifest in American scientific reviews and evaluations throughout other Executive Agencies. HSSI believes that the present Protest should be sustained as a statement attesting to the need for an equitable and accountable system of scientific review and evaluation.

6.0 SPECIFIC REQUEST FOR A RULING BY THE COMPTROLLER GENERAL:

HSSI specifically requests a ruling by the Comptroller General of the United States in the matter of the present Protest.

7.0 STATEMENT OF THE RELIEF REQUESTED:

HSSI requests that the General Accounting Office determine that the award of a research contract as proposed by HSSI in its PROPOSAL is consistent with statute and regulation and declare that HSSI should be awarded the contract.

HSSI requests that the General Accounting Office conduct a thorough investigation of the allegations of bad faith and violation of Federal statutes that are set forth in the present Bid Protest.

HSSI requests that the General Accounting Office conduct a thorough investigation of the review and evaluation practices that NASA permits which violate Federal statutes and which pose unfair competitive advantages. In particular, HSSI requests that attention be directed to the question of whether certain organizations and/or certain individuals have systematically engaged in, or established a pattern of engaging in, unlawfully and adversely affecting the review and evaluation process by (1) making negative and pejorative assertions that are without substantive basis, (2) ignoring new concepts, new ideas, or new methods, and/or (3) ignoring the relevance to NASA's mission.

HSSI requests that the General Accounting Office take any and all such actions or make any and all such recommendations that the General Accounting Office determines necessary to promote compliance.

HSSI requests that the General Accounting Office declare that HSSI is entitled to reasonable costs of filing and pursuing the present Protest.

DOCTRACK.BP COVER' Line 46. [B] Non-numeric data when numeric required. Zero

"CORRESPONDENCE TRACKING"

TYPE: PRESIDENTIAL PRIORITY DOCUMENT NUMBER: 9123949
ORIGINATOR: 02 STATUS I DIRECTORATE STATUS

FROM: THE HONORABLE S DILLION RIPLEY

TO: PRESIDENT BUSH

DATE OF
CORRESPONDENCE: 09/09/91

SUBJECT: REPORTS ON THE MEETING OF THE DARWIN SCIENTIFIC
FOUNDATIONS REGARDING THE IMPLICATIONS OF THE
EXTRAORDINARY OIL PLUME NOW RISING IN THE SKY OVER
KUWAIT

DIRECTORATE STAFF
ASSIGNED: ENVIRONMENT ASSIGNED:

ACTION STAFF
REQUIRED: FOR DAB'S SIGNATURE ACTION:
AS/IF NECESSARY

SENDER'S DUE DATE: 09/22/91
OSTP DUE DATE: 09/22/91 STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT:

COPIES TO: D. Allan Bromley

WHITE HOUSE TRACKING #: CONTACT PERSON:
PHONE: EXT:
REMARKS:

CLOSED

OSTP RECEIVED: 09/10/91 FILE: P-EOP-PRESIDENTIAL PRIORITY
DEPT RECEIVED:

NO response necessary - already

SEARCH:- QUERY
00001, KUWAIT AND OIL

249798CU. DOCUMENT= 31 OF 37

DPID CJ
DOCDATE 910621
RECTYP IBA
MEDIA L
STAFF BOYDEN GRAY
CUGRAY
NAME MR. JOHN M. EATON
STREET 1555 35TH STREET, NW
ADDR WASHINGTON DC 20006
SUBJECT DARWIN SCIENTIFIC FOUNDATION 'S VIDEO ON
PERSIAN GULF ENVIRONMENT CRISIS, KUWAIT OIL
WILL FIRES
SUBCODE PR010
CO001-07 NR CO083 CM010
ACTION CUOFC ORG 910624
CUAT17 RSA 910625 S 910708

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T H E W H I T E H O U S E O F F I C E

REFERRAL

SEPTEMBER 9, 1991

TO: OFFICE OF SCIENCE AND TECHNOLOGY POLICY

ACTION REQUESTED:

DESCRIPTION OF INCOMING:

ID: 267782

MEDIA: LETTER, DATED AUGUST 20, 1991

TO: PRESIDENT BUSH

FROM: THE HONORABLE S. DILLON RIPLEY
 SECRETARY EMERITUS
 SMITHSONIAN INSTITUTION

WASHINGTON DC 20560

SUBJECT: REPORTS ON THE MEETING OF THE DARWIN
 SCIENTIFIC FOUNDATION REGARDING THE
 IMPLICATIONS OF THE EXTRAORDINARY OIL PLUME
 NOW RISING IN THE SKY OVER KUWAIT

PROMPT ACTION IS ESSENTIAL -- IF REQUIRED ACTION HAS NOT BEEN
TAKEN WITHIN 9 WORKING DAYS OF RECEIPT, PLEASE TELEPHONE THE
UNDERSIGNED AT 456-7486.

RETURN CORRESPONDENCE, WORKSHEET AND COPY OF RESPONSE
(OR DRAFT) TO:

AGENCY LIAISON, ROOM 91, THE WHITE HOUSE, 20500

SALLY KELLEY
DIRECTOR OF AGENCY LIAISON
PRESIDENTIAL CORRESPONDENCE

THE WHITE HOUSE
CORRESPONDENCE TRACKING WORKSHEET

INCOMING

HE007-01

DATE RECEIVED: SEPTEMBER 04, 1991

NAME OF CORRESPONDENT: THE HONORABLE S. DILLON RIPLEY

SUBJECT: REPORTS ON THE MEETING OF THE DARWIN
SCIENTIFIC FOUNDATION REGARDING THE
IMPLICATIONS OF THE EXTRAORDINARY OIL PLUME
NOW RISING IN THE SKY OVER KUWAIT

		ACTION		DISPOSITION	
ROUTE TO: OFFICE/AGENCY	(STAFF NAME)	ACT CODE	DATE YY/MM/DD	TYPE RESP	C COMPLETED D YY/MM/DD
OFFICE OF SCIENCE AND TECHNOLOGY POLIC		ORG	91/09/04		
JAN BURMEISTER		RSI	91/09/04		C 91/09/04
REFERRAL NOTE: _____					
REFERRAL NOTE: _____					
REFERRAL NOTE: _____					
REFERRAL NOTE: _____					
REFERRAL NOTE: _____					

copy of
signature
to u/t

COMMENTS: CC5, WRITER IS ALSO CHAIRMAN OF THE DARWIN
SCIENTIFIC FOUNDATION

ADDITIONAL CORRESPONDENTS: MEDIA:L INDIVIDUAL CODES: 1140 4660 _____
MI MAIL USER CODES: (A) _____ (B) _____ (C) _____

*ACTION CODES:	*DISPOSITION	*OUTGOING	*
*	*	*CORRESPONDENCE:	*
*A-APPROPRIATE ACTION	*A-ANSWERED	*TYPE RESP=INITIALS	*
*C-COMMENT/RECOM	*B-NON-SPEC-REFERRAL	*OF SIGNER	*
*D-DRAFT RESPONSE	*C-COMPLETED	*CODE = A	*
*F-FURNISH FACT SHEET	*S-SUSPENDED	*COMPLETED = DATE OF	*
I-INFO COPY/NO ACT NEC		*OUTGOING	*
*R-DIRECT REPLY W/COPY *			*
*S-FOR-SIGNATURE			*
*X-INTERIM REPLY			*

REFER QUESTIONS AND ROUTING UPDATES TO CENTRAL REFERENCE
(ROOM 75, OEOB) EXT-2590
KEEP THIS WORKSHEET ATTACHED TO THE ORIGINAL INCOMING
LETTER AT ALL TIMES AND SEND COMPLETED RECORD TO RECORDS
MANAGEMENT.

267782

OSTP
cc J.B.



NHB Room 336
SMITHSONIAN INSTITUTION
Washington, D.C. 20560
U.S.A.

20 August 1991

The President
The White House
Washington, D.C. 20500

Dear Mr. President,

The Darwin Scientific Foundation, of which I am the Chairman, has recently had an interesting meeting in Boston, and there discussed, with a measure of competent, almost unparalleled participation, the scientific implications of the extraordinary oil plume which is now rising in the sky over Kuwait at a temperature estimated in the neighborhood of 2,000 degrees centigrade.

This immense out-thrust of oil under tremendous pressure has produced huge lakes of oil in some places and will, no doubt, continue to burn, in part, and poison the atmosphere up and down the Arabian Gulf and all about creating a vast pall of smoke which has now been visible to the recent astronauts and will potentially envelop the earth at varying altitudes, spreading long-term results which could include disease and carcinogens galore.

I am hopeful that we can conclude these discussions with an additional report emanating from a meeting at the Smithsonian on September 28th, and believe that at that time it could well filter into the consciousness of the agencies involved sufficiently to require continuing concern and supervision. At least it is important in the realm of public concern to see if it would not be possible to initiate some long-term monitoring of these effects which are likely to be somewhat catastrophic as they spread ~~west~~ ^{west} east over central and southern Asia and ~~east~~ ^{west} across Arabia into Africa. As this is an international area, I am wondering if you feel that this can all be paid for at present by the rather hard-up Kuwaitis?

All of this is coming rather close to home, and I am inclined to feel, with others who have been affected in their thinking about these matters, that it would be wise to send out a major military figure as the Arab savants have

urged from their vantage point. However, I would think that such a person should be in a private capacity such as General Sewall. In this way a liaison to the White House could be accomplished without too close a connection.

I am sure that such an event, irreparably depressing as it may be, will stir your interest and is of sufficient magnitude to require international attention at the U.N. level. Parenthetically, if the Secretary General is eventually to be replaced with another personality, I would suggest an ideal person like Mrs. Thatcher, now waiting in the wings, one in whom we all have tremendous confidence.

We may well be on the threshold of new developments in this regard, approaching an apocalyptic scale. I have been in touch with Allan Bromley, Brent Scowcroft, Nick Brady and other colleagues who would, I am sure, respect these suggestions and be capable of useful advice to yourself.

After a rather hectic summer, and some bouts with arthritis (an intimation, I suppose, of other coming events?) I hope that I may have a chance to continue to communicate with your offices and to impress these officials with the magnitude of the problem and the vital importance that this represents.

Warmly and with much admiration and respect for all that you have been achieving, I am,

As ever,

Dillon

S. Dillon Ripley
Secretary Emeritus

THE WHITE HOUSE

WASHINGTON

September 17, 1991

MEMORANDUM FOR THE PRESIDENT

FROM: D. ALLAN BROMLEY

Duan

SUBJECT: Kuwait Oil Fires

You have received a letter, dated 20 August, from Dillon Ripley, an old Yale colleague of mine, former Secretary of the Smithsonian and now Chairman of the Darwin Scientific Foundation. The letter concerned the alleged ill affects of the Kuwait oil fires.

I regret to say that Dillon and his colleagues appear to be overestimating the consequences of these fires and extrapolating to potential worldwide effects for which there are no current scientific foundations.

As you know, at your request, Bill Reilly visited the area and I have been briefed by him, by John Knauss of NOAA, as well as several others who have visited Kuwait recently. While there are, admittedly, always possible surprises, the consensus of those I trust is that the environmental and health consequences of the fires--both locally and globally--are very much less than had initially been anticipated. Largely this reflects the relatively low altitudes to which the smoke plumes have been injected into the atmosphere and the relatively rapid rate at which the oil spills have been cleared at the higher temperatures characteristic of the Gulf as compared to more familiar spills at higher latitudes.

Bill Reilly's op-ed piece--a copy of which I include herewith makes these points.

My impression is that Bill, John and their colleagues are doing an excellent job of monitoring--and measuring--the Kuwait situation and that, although obviously well-meaning, the Darwin Foundation would have little to contribute at least at this time.

Enclosures

William K. Reilly

Facing Facts on the Environment

A recent poll by the Roper Organization on "Environmental Protection in the 1990s" shows that environmentalism tops safe sex, patriotism and "The Simpsons" for what's "in" in 1991. That's heady company, and I hope the environment continues to keep it. It is good news for those of us in the business of protecting it.

But evidence suggests the environment's high standing reflects growing concern over risks large and small, and a feeling that there is no risk so small—and none so expensive—that government should not work to eliminate it.

Until recently we have made little effort to assess our overall environmental quality objectives, to target our laws and scarce resources to reduce the greatest risks to human health and natural systems. Now I think we've got to. There simply are more anxieties than we can possibly create laws to alleviate, and far more risks than resources to eliminate them. Determining which risks need a full-scale response by government and which do not is a value-laden task. If there is a source of trustworthy information that can lend authority and coherence in helping characterize and even rank risk, it is good science.

In my opinion, the environmental debate has long suffered from too little science. There has been plenty of emotion and politics, but scientific data have not always been featured prominently in environmental efforts, and have sometimes been ignored even when available. As major new environmental problems arise, I propose we approach them as scientifically as possible, asking: "How much do we know? What are the critical questions to which we need answers? Are we organizing to get key information? What do the data tell us about the seriousness of the problem and the magnitude of the appropriate response?"

Suppose we apply this to the Kuwait oil fires. I traveled to Kuwait at the request of the president to assess the environmental threats from the fires and to observe firsthand both the containment and cleanup efforts and the environmental monitoring work of an interagency team of U.S. scientists and technical experts. Two concerns are uppermost: impacts on global climate and short- and long-term health effects.

Both a U.S. interagency team and another team of federally funded scientists operating under the auspices of the National Science Foundation—as well as British scientists from the Royal Meteorological Society—believe global climatic effects from the fires are unlikely. The plumes generally rise to between 10,000 and 12,000 feet, with the highest readings to date taken at around 20,000 feet. This suggests they will not reach heights of 38,000 to 40,000 feet, at which altitude we might see the plumes distributed around the globe by the stream.

So, regarding the risk to the global environment, there is emerging scientific consensus that the volcanic eruptions at Mount Pinatubo in the Philippines—which do reach the upper altitudes—pose a greater threat worldwide to the atmosphere.

And what of risks to public health? Our air monitoring data and those of the Kuwaitis thus far show significant levels of toxic gases—sulfur dioxide or hydrogen sulfide, for instance—that would have meant acute effects for those living in the region. Particulates are heavy—but our initial analyses did not reveal heavy metals, hydrocarbons or volatile organics that would mean problems. We are still studying the samples, and we are mounting a more extensive monitoring effort, so we may yet find something troubling.

We have urged Kuwait to link air monitoring and weather reports, and issue daily air quality advisories. And the World Meteorological Organization is overseeing a long-term monitoring plan at the request of the Saudi Arabian and Kuwaiti governments. These efforts should provide real-time air alerts and establish with some certainty what's happening. Coupled with the work of the World Health Organization, the air monitoring also should begin to give us a picture of any potential for long-term, chronic health effects on the people living in the Persian Gulf countries. Our Department of Defense is monitoring the health of U.S. troops—those who served and those still there.

I caution—as I've made clear all along—that our findings are preliminary and may change as results of ongoing scientific assessments come in, as Kuwait's full monitoring system comes on line, or as the wind and weather patterns shift. It runs counter to experience to see pollution on the scale encountered in Kuwait without also seeing impacts on health, particularly affecting asthmatics and others with lung disorders. Nevertheless, thus far, hospital admissions for respiratory disorders are no greater this year than in prior years. Much of the most polluted area is uninhabited desert or water.

To date, the risk to public health in no way compares to the deadly London fog of 1952, in which almost 4,000 people died, or to the dense fog of 1948 in Donora, Pa., in which 10,000 people were overcome and 20 died. These were acute episodes in heavily populated areas—with clear but immediate evidence of health effects.

Despite the recent U.S. findings, some refuse to believe the data. The Bush administration is committed to environmental policies that are grounded in science. In the matter of the Kuwaiti oil fires—as I hope in all other environmental matters before us—we are prepared to subject our work to the review of outside experts, to be inclusive in the fact-finding process as possible, and to be open always to revising our opinions and strategies in the light of new information. I invite anyone with hard information from Kuwait that contradicts our preliminary findings to get it to us as quickly as possible.

We will continue to monitor the environment of Kuwait, to analyze pollution samples and to calculate risks and advise on any protective policies needed. But we also need to recall that to equate every incident, every problem, with a major risk undermines our ability to focus on the most significant risks. Nothing is 100 percent safe. Neither are all risks equal. That is as true in the United States as it is true in Kuwait.

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THE WHITE HOUSE
WASHINGTON

September 19, 1991

Dear Dillon:

The President has asked me to respond to your letter of August 20 concerning the projected activities of the Darwin Scientific Foundation which you chair.

Obviously, we all share your concern regarding the Kuwait fires and their possible consequences.

To that end, the President requested Bill Reilly, the Administrator of the Environmental Protection Agency, to make a personal inspection tour and a number of other senior members of the Administration, including Dr. John Knauss, the Director of the National Oceanographic and Atmospheric Administration, have spent substantial time in the Gulf region specifically organizing the experimental measurements which are crucial, not only in understanding and making it possible to respond to the present situation, but also to take advantage of what is an unprecedented and hopefully, unique opportunity to obtain scientific data on a fire situation of totally unprecedented scope.

You have very probably seen Bill Reilly's op-ed piece that was published in the **Washington Post** on August 20 entitled **Facing Facts on the Environment** which comments on some of the conclusions reached during his visit to the Gulf. I have been briefed by Mr. Reilly, by Dr. Knauss, and by a number of representatives of the Defense Department on different occasions since the beginning of these fires and have been keeping in touch with the progress of the international program of study and measurement that we played a significant part in organizing.

As I understand the situation at present, we have been extraordinarily fortunate in the extent of the damage that has been done in that it is substantially less than had been originally estimated.

In major part this reflects the fact that the smoke from the Kuwait fires has not been injected into the upper atmosphere as would have been the case from nuclear explosions and is the case from a great many volcanic eruptions. Only when the debris from such explosions reaches something like 40 thousand feet does one find the global transport that had been feared. In Kuwait, the smoke plumes seem not in general to have exceeded some 15 thousand feet and therefore, although the environmental effects have been devastatingly severe in restricted local areas

immediately adjacent to the fires, there has been no evidence of major impact either globally or in areas such as India and Pakistan that are relatively close. Similarly, there has been no evidence, as yet, of impact on other than very local weather and climate.

In the case of the oil spills our findings have been that natural processes take care of them much more rapidly in the high temperatures that are characteristic of the Gulf than of the lower temperatures that have characterized most of the temperate zone oil spills with which we have become much more familiar.

Finally, with respect to health effects, although one obviously cannot rule out some unknown long-term phenomenon, again the situation is, I am told, substantially better than had been anticipated in that the major particulate content of the air once one is outside the specific plumes themselves, is silica and other debris from the desert surface rather than the much more dangerous carbon-containing particulates that might have been expected from the fires. Indeed, by a very substantial measure I am told that the major health risk at the present time is that from unexploded munitions that remain on or just below the surface and we, together with a number of the other coalition members, are involved in activities designed to clear these hazards as rapidly as possible working with the Kuwaitis.

It bears emphasis that the responsibility for extinguishing the fires has been taken up by the Kuwaitis from the very beginning and they are the ones who are negotiating contracts with various organizations from the US and elsewhere to undertake this task. Estimates of the time required to complete the task vary substantially and it is reported that some of the groups at work are substantially more experienced than others.

As Bill Reilly's op-ed piece emphasizes, however, and, as all the additional information available to me confirms, we have been, from a global point of view, extremely fortunate.

I can assure you that the combination of EPA, NOAA, DOD, and DOE are keeping close watch on what is happening in the Gulf, continuing our measurements on this unique situation, and working with other groups under the auspices of the United Nations. First, to minimize the damage wherever possible, and secondly, to obtain as much information as we possibly can from this unique situation. Because of the high level of cooperation already in place, and the good coordination that we have experienced, I do not believe that it would be desirable at this time to establish yet another level of oversight, but we shall certainly keep the Darwin Scientific Foundation in mind should an opportunity to utilize its experience and strengths arise.

We shall be happy to keep in touch with you and the Foundation as this situation develops.

As I mentioned to you earlier, I still hope that it will be possible to bring the
Dissenters from New Haven for dinner at the White House Mess some time during the
coming season and I very much hope that you will be able to join us.

With warmest best wishes,

Sincerely yours,

A handwritten signature in dark ink, appearing to read 'D. Allan Bromley', written in a cursive style.

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

The Honorable S. Dillon Ripley
Secretary Emeritus
Smithsonian Institution
Washington, D.C. 20560

THE WHITE HOUSE
WASHINGTON

September 17, 1991

MEMORANDUM FOR THE PRESIDENT

FROM: D. ALLAN BROMLEY

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