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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: General Science Files

OA/ID Number: 62045
Folder ID Number: 62045-014

Folder Title:
Research and Development: Funding [1992]

Stack:	Row:	Section:	Shelf:	Position:
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"Document Control"

TYPE: Information

DOCUMENT NUMBER: 9203137

ORIGINATOR: 03

STATUS

DIRECTORATE STATUS C

FROM: BROMLEY, D. Alan

TO: D. ATWOOD

DATE OF
CORRESPONDENCE: 10/20/92

SUBJECT: Letter regarding funding S&T in the DoD.

DIRECTORATE

STAFF

ASSIGNED:

ASSIGNED: Karl Erb

ACTION
REQUIRED:

STAFF
ACTION:

SENDER'S DUE DATE:

OSTP DUE DATE:

STAFF DUE DATE

DATE COMPLETED:

DATE COMPLETED/DEPT: 10/20/92

COPIES TO:

WHITE HOUSE TRACKING #:

CONTACT PERSON:

PHONE:

EXT:

REMARKS: Dr. Erb drafted letter for DAB.

OSTP RECEIVED:
FILE: R&D--FUNDING

DEPT RECEIVED:

CENTRAL FILES:

THE WHITE HOUSE
WASHINGTON

October 20, 1992

Don
Dear Mr. ~~Atwood~~:

I am writing concerning the current discussion of the method for funding S&T in the DoD. As I understand it, consideration is being given to splitting the administration of funding for basic and applied research (6.1 and 6.2) from that for exploratory development (6.3a).

As you know, the Bush Administration's commitment to accelerate the transition of research discoveries into useful applications is meeting with real success, thanks to the leadership efforts of the Departments of Defense, Energy, and Commerce, and even the National Science Foundation.

I believe that the flow from basic through applied research to product development can best be enhanced by coordinating the administration of 6.1, 6.2 and 6.3a funds. Placing the development funds under separate control would, it seems to me, make it significantly less likely that promising research results would be carried through the development stage.

I hope you will continue to maximize the opportunities for technology development by keeping basic, applied, and exploratory development funding decisions closely coupled, as in the past.

Sincerely yours,

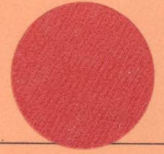
D. Allan Bromley

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

The Honorable Donald J. Atwood, Jr.
Deputy Secretary of Defense
The Pentagon
Washington D.C. 20301

OFFICE OF SCIENCE AND TECHNOLOGY POLICY

STAFFING SHEET



SUBJECT: Let. to Atwood

ORIGINATOR: K. ERB **PHONE:** 5130

DATE ORIGINATED: 10/20 **DATE DUE:** ASAP **CORR TRACKING NO:** _____

EXTERNAL COORDINATION: _____

	COMMENTS	DATE
DIRECTOR		
GENERAL COUNSEL		
SPECIAL ASST.		

ACTION REQUESTED:

COORDINATION	COMMENTS	DATE
Erb, K. <input checked="" type="checkbox"/> Concur: _____ <input type="checkbox"/> Non Concur: _____	<i>[Signature]</i>	10/20
Henderson, D. A. <input type="checkbox"/> Concur: _____ <input type="checkbox"/> Non Concur: _____		
Ratchford, J. T. <input type="checkbox"/> Concur: _____ <input type="checkbox"/> Non Concur: _____		
Wong, E. <input type="checkbox"/> Concur: _____ <input type="checkbox"/> Non Concur: _____		
Maynard, N. <input type="checkbox"/> Concur: _____ <input type="checkbox"/> Non Concur: _____		
Sutton, V. <input type="checkbox"/> Concur: _____ <input type="checkbox"/> Non Concur: _____		
Van Cleave, M. <input type="checkbox"/> Concur: _____ <input type="checkbox"/> Non Concur: _____		
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OCT 1 1992

"Document Control"

TYPE: ACTION DOCUMENT NUMBER: 9202846
ORIGINATOR: 02 STATUS I DIRECTORATE STATUS

FROM: TAYLOR, William D.: U.S. NAVY (RETIRED)

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 09/09/92

SUBJECT: HE IS WRITING TO EXPRESS HIS CONCERN OVER THE
ALLOCATION OF FUNDING FOR SCIENCE AND ASKS IF THERE
IS ANY WAY FOR HIS COMMENTS TO BE FORWARDED TO THE
PRESIDENT.

DIRECTORATE STAFF
ASSIGNED: PHYSICAL SCIENCES ASSIGNED:

ACTION STAFF
REQUIRED: DARFT FOR DAB ACTION:

SENDER'S DUE DATE:
OSTP DUE DATE: 10/06/92 STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT: 11/20/92

COPIES TO: D. Allan Bromley

WHITE HOUSE TRACKING #: CONTACT PERSON:
PHONE: EXT:
REMARKS: REASSIGNED TO PHYSICAL SCIENCES PER DR. BROMLEY.

Dr. Eub. drafted response.

OSTP RECEIVED: 09/22/92 DEPT RECEIVED:
FILE: P-PHYSICAL SCIENCES

CENTRAL FILES: *R+D Funding*



"Document Control"

TYPE: ACTION DOCUMENT NUMBER: 9202846
ORIGINATOR: 02 STATUS I DIRECTORATE STATUS

FROM: TAYLOR, William D.: U.S. NAVY (RETIRED)

TO: DR. D.A. BROMLEY

DATE OF CORRESPONDENCE: 09/09/92

SUBJECT: HE IS WRITING TO EXPRESS HIS CONCERN OVER THE ALLOCATION OF FUNDING FOR SCIENCE AND ASKS IF THERE IS ANY WAY FOR HIS COMMENTS TO BE FORWARDED TO THE PRESIDENT.

DIRECTORATE STAFF
ASSIGNED: DIRECTOR'S OFFICE ASSIGNED:

Hand Exp. Want to draft a memo reply for you

ACTION REQUIRED: AS APPROPRIATE STAFF ACTION:

SENDER'S DUE DATE:
OSTP DUE DATE: 10/06/92 STAFF DUE DATE
DATE COMPLETED: DATE COMPLETED/DEPT:

COPIES TO: D. Allan Bromley
PHYSICAL SCIENCES

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

OSTP RECEIVED: 09/22/92 DEPT RECEIVED:
FILE: P-PHYSICAL SCIENCES
CENTRAL FILES:

Capt. W. D. Taylor USN (Ret) Ph.D.
2506 Lakevale Dr. Vienna, VA 22181

9 Sep 92

Dr. Allan Bromley
Executive Office Bldg.
The White House
Washington D.C

Dear Dr. Bromley:

I am appalled by the seemingly total lack of understanding of the causes of the current economic recession by either national political party. After fifty years of wartime economies that spurred industrial growth and consumer consumption, the "Peace Dividend" creates a vast vacuum into which a good deal of trash concepts are falling. To achieve a real recovery there must be a better sense of direction. Objectives supported by the Federal Government toward which industries can plan and commit retooling with a sense of confidence that they will be supported, are needed desperately. The projected dumping of upwards of two million skilled and able personnel into the job market this decade from the Armed Forces and Defense Industries is a resource of unlimited potential if properly directed.

As an experienced implementer of advanced technologies to operational objectives, I can see potential solutions in at least fifteen areas that could support the recovery. These include:

Aquaculture, communication infrastructure, real education/skills, energy, health, highway/bridge infrastructure, housing, international trade, mass transportation, ocean floor mining, railways, space mining and waste management.

I wrote the enclosed in an attempt to surface some of these challenges. Is there any hope of getting the President to take a serious look?

Sincerely,


William D. Taylor

P.S. George Will had two good articles in this morning's Post with reasons for not voting for either candidate. Its long past time our leaders(?) came up with some constructive programming. Retraining for what? Retooling for what?

✓

Capt. W. D. Taylor USN (Ret) Ph.D.
2506 Lakevale Dr.
Vienna, VA 22181

5 June 1992

Mr. Ross Perot
P.O. Box 577010
Dallas, TX 75251-7010

Dear Mr. Perot:

Your probable independent candidacy for President this year is a long overdue challenge to the political parties whose real objectives have never been the good of the country but self preservation and support of special interest groups. As a voter for over fifty years, I have had the objective of living long enough to vote for a candidate of choice rather than vote for the least objectionable. Maybe this year.

As an independent I consider the liberal left and conservative far right as equal threats to the welfare of the national and the world economies. No U.S. President is going to solve the myriad problems of this country, let alone the UNs, but I should at least like to see a candidate who recognizes the root cause of the recession and has some constructive ideas to improve the situation.

Having written several letters to Senators and party leaders without any indication of their acknowledgement or understanding, I will try the independent route to stimulating some action. If you can scare the hell out of the party incumbents and leadership(?) you will have achieved a worthwhile goal even if you don't run or win. There are indications that the White House is scared, if not panicked, but no indication that they understand or care about the major issues.

To me the situation seems simple overall, however, complex in execution. The U.S. and much of the world has been on a wartime economy since 1960. Collapse of the USSR and most communist governments so obviously reduced the requirement for acquisition of military capabilities for world wars that everyone wants a big share of the peace dividend. As many have observed, the dividend is peace and a three trillion dollar US debt, not a bank full of funds to pass out for welfare programs.

Our affluence of the 80s was created by the jobs generated to run the arms race which was fueled by credit. When Churchill initiated world wide fear of Russia, aided considerably by the philosophy of Lenin as executed by Stalin, the politicians on both sides could point to the outside threat to enslave/tax and incite their constituents. The formula worked to empower and corrupt officials on both sides of the "curtain."

With a daughter living in Exeter, I witnessed the start of the current recession in New Hampshire when Pease AFB was shut down. The very affluent and growing local economy was suddenly stripped of the military and civilian jobs that had supported the structure of housing, banking and community functions. The collapse put the State of NH

Mr. Ross Perot
5 June 1992
Page 2

in a depression that was not recognize by Bush as he was given the red carpet treatment by the Air Guard when passing through on his way to play in Kennebuckport.

The succeeding deep cuts, executed and proposed, in Defense forces and acquisitions not only eliminate jobs and trim excesses in over staffed industries but add close to one million skilled military personnel to the ranks of job seekers.

The Nation, and the World, needs a challenge to fill the vacuum. There are at least fifteen areas of endeavor that need challenging leadership from the President. Any one of these could provide major leverage to a recovery. Listed alphabetically:

1. Acquaculture (deep ocean as well as coastal farms)
2. Communication/Information Processing/Networking Infrastructures
3. Education/Marketable Skill Training (Not Degrees)
4. Energy
5. Environmentally Responsible Development/Environmental Reformation
6. Health
7. Highway/bridge Infrastructure
8. Housing (Project Habitat is very good)
9. International Trade
10. Maritime Industry
11. Mass Transportation
12. Ocean Floor Mining
13. Railways
14. Space, including near earth orbit mining of asteroids
15. Waste Management

We have had some talk but little leadership or policy on a few of these. "Let the market place work it out" won't do it. Many areas are interrelated. Some regulation and some funding will be required, but not bureaucracies that suck up the funding with little pass through to the action/production forces.

Education is a major screwup. We must erase the social stigma of a blue collar career. Master craftsmen deserve at least as much recognition as Ph.Ds.

Over twenty years without an energy policy is disgraceful.

As you are well aware, the computer software industry has great unrealized potential but most software companies are incompetent. They fail to understand their customers objectives.

Mr. Ross Perot
5 June 1992
Page 3

The President is in the right ballpark on trade but fails to recognize that it is primarily conducted with foreign carriers, resulting in near total loss of our once dominant maritime industry.

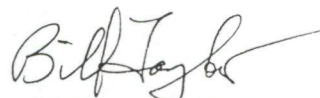
Too much emphasis on expensive junk for the military; BBs, SSNs, B2s, M1A1s, etc. has left us with forces barely adequate to cover the many potential contingency areas. Deep cuts will further reduce flexibility and readiness. Building 3 SSN 21s and 20 B2s will placate a few voters temporarily but we need a continuing production line of affordable units with reduced manning requirements that can cover more contingency bases. The fact that the majority of Allied casualties in Desert Storm were due to "friendly" fire is a disgrace. We have had the technology for over twenty years to solve the problem but "that's not the way we do it" attitudes have impeded implementation.

Paul Tsongas has been the only candidate honest enough to tell the voters they will have to help pay for recovery and the parties killed him.

Capitol gains taxes should be graduated, zero to 25K/yr then gradually raised to hit the big boys unless reinvested in job creating endeavors. Capitol gains is about the only way for poor people to get to middle class. I know from experience.

If you can initiate action in any of these areas you should have the upper hand in any debate. Give em hell!

Sincerely,



William D. Taylor

THE WHITE HOUSE
WASHINGTON

November 20, 1992

Dear Captain Taylor:

Thank you for your letter suggesting challenges or goals that could serve as spurs to economic growth.

We in the Bush Administration have attempted to address several of these through R&D initiatives which my Office has orchestrated in areas such as High Performance Computing, Biotechnology, Advanced Materials and Manufacturing Technology.

The mechanisms which my Office put in place to coordinate the technology programs of the various executive branch departments and agencies are working and, in my opinion, represent a major departure from the traditional way of doing business in Washington. It is my sincere hope that comparable coordination can be achieved in the future among the various Congressional committees that provide appropriations for these technology programs. Without that, additional progress will prove difficult.

Thank you again for your comments.

Sincerely yours,

A handwritten signature in black ink, reading "D. Allan Bromley". The signature is written in a cursive, flowing style with a prominent initial "D".

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

Capt. W.D. Taylor, USN (Retired)
2506 Lakevale Drive
Vienna, VA 22181

OFFICE OF SCIENCE AND TECHNOLOGY POLICY

STAFFING SHEET

SUBJECT: Sta. to Capt. Taylor

ORIGINATOR: K. ERB **PHONE:** 5130

DATE ORIGINATED: 11/20 **DATE DUE:** ASAP **CORR TRACKING NO:** 9202846

EXTERNAL COORDINATION: _____

	COMMENTS	DATE
DIRECTOR		
GENERAL COUNSEL		
SPECIAL ASST.		

ACTION REQUESTED:

COORDINATION		COMMENTS	DATE
Erb, K.	Concur: <input checked="" type="checkbox"/>	<i>KE</i> 11/20/92	
	Non Concur: _____		
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Henderson, D. A.	Non Concur: _____		
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Ratchford, J. T.	Non Concur: _____		
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Wong, E.	Non Concur: _____		
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Maynard, N.	Non Concur: _____		
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Sutton, V.	Non Concur: _____		
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Van Cleave, M.	Non Concur: _____		
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9202415

Gene A. Nelson, Ph.D
7374 Brookside Parkway
Cleveland, OH 44130-5468
(216) 891 - 8809 [Voice/FAX]
Internet e-mail: au195@Cleveland.Freenet.edu

RECEIVED
SEP 19 11:52

August 11, 1992

MAIL ROOM

D. Allan Bromley Ph.D. - Director OSTP
The Assistant to the President for Science & Technology
Executive Office Building
Washington DC 20506
(202) 456 - 7116

Dear Dr. Bromley:

Today I received a copy of a letter dated July 29, 1992 that you sent to Ms. Cynthia Walsh of Albuquerque, NM. You outlined the rationale for providing \$35 million to fund Soviet science centers in Moscow and Kiev, and the federal role in providing additional funds to support ...a great many young Soviet scientists who are in desperate plights lacking not only jobs also even the basic necessities of life....

I have briefly spoken to the President in person, when he visited Cleveland on May 21, 1992, and have also corresponded with him and staffers about the fact that this is also a problem in the United States that demands immediate attention.

There is a U.S. R&D funding crisis that is affecting thousands of young scientists placing a significant number of them in the same challenging situations as their Soviet counterparts.

With the Wolpe hearings on April 8, 1992 written up in SCIENCE Vol 256, (10 April 1992 p. 172) the truth of the poor employment situation for young American Ph.D. scientists began to be acknowledged. Recognizing the dearth of up-to-date published statistics regarding unemployment and underemployment of young scientists, I have initiated a survey. This survey has been publicized via the Young Scientist's Network (YSN), ELECTRONIC ENGINEERING TIMES, and The American Association of Concerned Engineers. Preliminary data is available and points to significant problems, both in unemployment and underemployment.

Prompt action such as establishing a special program to provide thousands of research positions, both in industry and academia is necessary in order to make positive use of today's Ph.D.s and to also signal students "in the pipeline" that the United States values the direct and indirect investments that science students make in earning a Ph.D. in science. Possible funding mechanisms include special federal appropriations and tax incentives for the private sector.

I am an unemployed young Ph.D. scientist who is active in an electronic network called "The Young Scientist's Network" (YSN). [The YSN was described in a SCIENCE article, Vol. 256 (1 May 1992 p. 606)].

My research demonstrates that R&D underfunding has been a long-term problem in the United States that has recently become much worse.

I have made significant investments in preparing to become a scientist, and am well qualified. In summary, I was a finalist at the International Science Fair (Fort Worth, TX - 1969) and earned my B.S. in 1973 from Harvey Mudd College (HMC) in Claremont, CA. HMC has been ranked as the "best specialty engineering college in America" by U.S. News & World Report for the past three years. I have worked at NASA-JPL in Pasadena, CA.

I earned my doctorate in Biophysics from SUNY at Buffalo in 1984. With student loans, I could not afford the "postdoc" route and have worked in the clinical diagnostics industry. Since 1985, I have endured three terminations and over three years of no salary stemming from technical programs being ended and from the loss of R&D funds caused by leveraged buyout. With a dearth of opportunities for Ph.D.s in Cleveland, Ohio, I attempted to start a technology intensive business without success.

My wife will also be facing the same bleak situation shortly. She is completing her Ph.D. in Biochemistry from the University of Akron.

I look forward to hearing your action plan about this situation.

Sincerely,
Gene A. Nelson, Ph.D.

File: Bromley.txt

Biophysics

C O M P A N Y

7374 Brookside Parkway, Cleveland, OH 44130-5468 (216) 891 - 8809 [Voice/FAX]

Gene A. Nelson, Ph.D

May 21, 1992

The Honorable George Herbert Walker Bush
President of the United States
1600 Pennsylvania Avenue
Washington DC 20500

COPY

Dear President Bush:

AUG 11 1992

A couple of hours ago I shook your hand while you were visiting with some people in Parma, Ohio, after delivering a speech there. I urged that you "help high technology"... you quipped back "The economy is getting better". I showed you the pen - based computer that I have been working on for the past two and a quarter years and referenced the written and faxed communications that I have had with you over the past year. I hope that this dialogue can be extended since I see the success of high technology in the United States as being very tightly linked to a real improvement in the economy.

Simply expressed, this technology has the capability of substantially reducing the \$200 billion that this country presently spends on health care administration. We pay tremendous sums to have people move mountains of paperwork that does not improve the quality of health care. Pen based computing can eliminate the mountains of paperwork! The technology can also improve the quality of the delivered health care services.

This technology also illustrates the old adage that "you have to spend money to save money". I am asking for the federal government to help to provide the spark that will lead to the private sector adopting this new way of doing things. I have raised these concerns in speeches at national meetings in Baltimore and New York City, and it was one of the planks of a forum that I recently presented at the Cleveland City Club titled "Science and Technology - The Key to Cleveland's Economic Future". I will be making this point again when I speak in Los Angeles, California at the beginning of June.

Kindly refer to my letter of September 11, 1991 and my lengthy correspondence with NIH director Dr. Bernadine Healy for additional details. I look forward to talking about this policy area with you in person.

Sincerely,
Dr. Gene A. Nelson, President
Biophysics Company, An Ohio Corporation

/gn File: Bush1.txt

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

November 18, 1992

Dear Dr. Nelson:

Dr. Bromley has asked me to respond to your thoughtful letter concerning the difficulties experienced by highly trained young scientists and engineers, like yourself, who are seeking employment commensurate with their training. After the years of effort and sacrifice which go into achieving an advanced degree, it is obviously a "bitter pill" not to be able to find work in either one's immediate area of expertise or in an associated field. I can remember a similar period occurring in the late 1960's and into the 1970's when the explosive growth experienced in U.S. science, as a general response to the cold war and Sputnik, started to taper off dramatically. The result was an overproduction of graduate students with a resultant very tight job market. Many of the sentiments that you expressed in your letter, were prevalent then as well.

Today's climate is somewhat similar, but, it is also different in some important ways. While our nation today faces substantial budgetary strigencies at federal, state and private levels, funding for R&D is still substantial. For example, in the President's fiscal 1993 budget submission to Congress, over \$72B was requested for civilian and defense R&D--which approximately doubles when you add in R&D carried out by the private sector. This trend, toward enhancing R&D efforts, has been our goal for a number of years, and hopefully will continue as such in the future. While Congress has been generally supportive of this goal, it is also true that the appropriated dollars have generally fallen far short of expectations. To further complicate this, Congress has often taken to "ear-marking" pet projects, further diluting the funds available for supporting R&D requests.

Another aspect, present today, is represented by the end of the cold war--which should free up valuable resources. But, under present budget agreements, a "cap" on discretionary spending exists. However, in fiscal 1994 the so-called "fire-wall" between civilian and defense spending is to come down. This will allow transfer of funds across this boundary. Such funds will be heavily contested for by many elements of our economy--and hard work needs to be done to capture some of these funds for R&D activities. Also, it must be remembered that defense expenditures support a host of scientists and engineers--reducing defense spending will not necessarily improve the overall scientist and engineer employment situation. Increased support for the R&D community is not simply a job creation mechanism but is central to the nation's overall economical well-being. It is vitally clear that our economic competitiveness and position in the international community requires that we produce a balance of technically competent scientists, engineers, and technicians in the areas of basic and applied

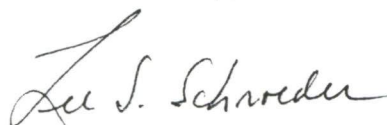
research. In order to accomplish this, renewed attention must also be paid to our educational infrastructure, at all levels.

In your letter you specifically suggest two mechanisms that could be used to create research positions in academia and industry; namely, through special federal appropriations and tax incentives for the private sector. I would encourage you to take every opportunity to communicate your ideas along these lines to Congress and their staff.

At the same time I should note that there will never be sufficient funding to permit the exploration of every good research idea. The very nature of research is that every research result generates a shower of new questions, only some of which can or need be answered. It may be paradoxical--but it is true--that as our national basic research enterprise becomes ever more successful, it will generate increasing numbers of unanswered questions and, possibly, of scientists competing for funds to answer these questions.

It is clear from your letter that you have not given up on putting your education and research background to work. I wish both you and your wife good luck in these endeavors and every success in pursuing your professional goals.

Sincerely,

A handwritten signature in cursive script that reads "Lee S. Schroeder".

Lee S. Schroeder
Assistant Director for
Physical Sciences and Engineering

Dr. Gene A. Nelson
7374 Brookside Parkway
Cleveland, OH 44130-5468

THE WHITE HOUSE
WASHINGTON

July 29, 1992

Karl: This is JAB
letter that Dr. Nelson
~~refers~~ refers to.

Dear Ms. Walsh:

Many thanks for sending me a copy of your letter of May 21 addressed to Dr. Ernest Henley of the American Physical Society. For reasons unknown this has taken a considerable time to reach me.

As a professional physicist who has supervised the work of over 50 graduate students in the field, let me begin by assuring you that I share the concern that you express for the difficulties currently being experienced by young American physicists in finding what they consider to be adequate and satisfying career opportunities.

I have always considered it one of my major responsibilities and, indeed, probably the most important thing that I can do for one of my graduate students is to make sure that they have a challenging position when they complete their PhD work. I have usually been able to convince myself that by working hard on this particular aspect of their pre-professional training that I can move their careers forward between five and ten years as compared to what they would be able to do on their own working through personnel departments rather than through senior members of whatever institution they may chose to consider. I remain totally convinced that a good solid education in physics or, indeed, in any of the technical fields still provides the best hope (although certainly not a guarantee) of a very satisfying and challenging career. At the same time I would have felt myself a total failure had all of my students wanted to work as academics and I have been rather proud of the fact that, over the 30 years, some 40 percent of them have found attractive positions in industry, some 20 percent in government and other activities, with the remaining 40 percent now holding challenging academic positions.

Having said all this, I would however still emphasize that it is very important for us as a Nation to act and to act now to stabilize the scientific community in the former Soviet Union. As you know, Soviet scientists

had a very privileged position in their society and in consequence have very substantial influence, both politically and economically. In our efforts to convert the Soviet Union into a stable market oriented society I believe that it is particularly important for us to stabilize the scientific and technical communities in the Soviet Union and for a variety of reasons the situation that many of the members of these communities face at the present time is little short of crucial. I know a number of senior academicians who are unable to support their families and I am told of a great many young Soviet scientists who are in desperate plights lacking not only jobs but also even the basic necessities of life. It is for these reasons that the Federal Government, as well as the American Physical Society, the American Chemical Society and many of our private foundations have been raising funding that we will hope to use in the most beneficial fashion to support and stabilize the Soviet scientific and technical communities. It is particularly important in doing this for us to recognize that we have to focus on excellence and that young as well as established scientists who have demonstrated excellence are both very much worthy of support at this critical time. I would emphasize that this support is of very limited magnitude, amounting to, in most cases, a few hundred dollars per year because, with the inflation factor now standing at about 100, such contributions makes it possible for the minimum living standard to be maintained.

We have two Federal programs, one as you know designed specifically to try to prevent proliferation of weapons technology from the Soviet Union to other parts of the world where it would be much more difficult to defend against it, and the second designed to address the problems of the civilian sector. In the former case we have established centers in Moscow and in Kiev currently funded at \$25 and \$10 million dollars respectively and, in the civilian sector, in addition to the activities of the Foundations and the technical societies noted above, our focus is on the joint Soviet-American projects that are currently being funded by NSF and by NIH on the basis of competitive proposals that were submitted over the past two and a half years when my colleagues and I in the Bush Administration have been working to change the nature of Soviet-US cooperation from one established from the top down to one that grows from the bottom up on the basis of proposals submitted by individual scientists in the two countries. These mechanisms make it possible for us to transfer funding relatively quickly and for that funding to be used for the support of young physicists as well as the older, recognized ones to whom it may formally be given as well as for travel, procurement of equipment and the like. Again, I would emphasize that these grants are of minimum size but because of the multiplier resulting from the exchange rate between our two currencies, still very effective.

Let me finally emphasize that these Federal programs are intended simply to respond to a crisis situation in the Soviet Union where it is a matter, in many cases, of survival rather than simply of career development and, although part of the incentive is humanitarian, the major thrust is, as I have noted above, the important task of maintaining the stability of the Soviet science and technology enterprise now primarily centered in the Russian Republic. I remain totally convinced, however, that in the long run it will be essential that the burden of support for the Soviet enterprise rests with the American and other developed country private sectors rather than their governments. Only in this way can we expect to obtain the long-term stability that is essential and benefits that are positive for both us and for the members of the former Soviet Union.

I hope that this information will make it possible for you to approach the current crisis response on the part of the American Physical Society as well as many other organizations here in the U.S. to the plight of Soviet scientists in a somewhat different light and not as directly competitive with our own young people whose cause is, after all, enormously important to the government and to the Nation.

I am sure that you will be hearing from Dr. Henley and, in the meantime, my thanks for sending me a copy of your letter to him.

There are difficulties in bringing about private sector participation at this time because the former Soviet Republics lack adequate laws concerning ownership, patent and copyright matters, and in general, the protection of intellectual property as well as legal systems wherein disputes can be resolved in what we would consider, an adequate and timely fashion. I have worked with some of the senior Soviet leaders as have many members of the Bush Administration and am optimistic that in the not too distant future such legal structures will be available.

Accepted to Dr.
Henley at The
U of Washington
Physics Dept in
Seattle

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Zemley
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**Ms. Cynthia A. Walsh, JD
2445 Hiawatha Northeast
Albuquerque, New Mexico 87112**

"Document Control"

TYPE: INFORMATION DOCUMENT NUMBER: 9201992
ORIGINATOR: 02 STATUS C DIRECTORATE STATUS

FROM: REAM, KATHLEEN: AMERICAN CHEMICAL SOCIETY

TO: DR. D.A. BROMLEY

DATE OF CORRESPONDENCE: 05/27/92

SUBJECT: ENCLOSED ARE LETTERS TO SEVERAL MEMBERS-IDENTIFICATION OF FEDERAL SUPPORT FOR SCIENTIFIC RESEARCH.

DIRECTORATE STAFF
ASSIGNED: ASSIGNED:

ACTION STAFF
REQUIRED: ACTION:

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

COPIES TO: PHYSICAL SCIENCES
D. Allan Bromley
Please draft reply to DJB signature, & after I approve it, route it through the other AD's for concurrence.


WHITE HOUSE TRACKING #: CONTACT PERSON: KAE 6/6/92
PHONE: EXT:

REMARKS: Ms Kathleen A Reem

NSF ✓
NIH
EPA
DOE fossil fuel.

Dear Ms Reem,
Thank you for forwarding the statements to the American Chemical Society concerning FY 1993 funding for NSF, NIH, EPA and the DOE Fossil Fuel program.

OSTP RECEIVED: 06/01/92 DEPT RECEIVED:
FILE: PHYSICAL SCIENCES

CENTRAL FILES: I very much appreciate the ACS support for our NSF programs budget request, and I hope the Congress will act accordingly. Concerning the NIH and EPA research budget requests, and the DOE Advanced Coal Research Program, the Administration found that the constraints of the domestic discretionary budget caps forced us to limit our requests. This is not to say 



American Chemical Society

DEPARTMENT OF GOVERNMENT RELATIONS
AND SCIENCE POLICY

1155 SIXTEENTH STREET, N.W.
WASHINGTON, D.C. 20036
Phone (202) 872-4477

May 27, 1992

The Honorable D. Allan Bromley
Assistant to the President for
Science and Technology
Old Executive Office Building
17th St. & Pennsylvania Ave., N.W.
Washington, DC 20500

Dear Dr. Bromley:

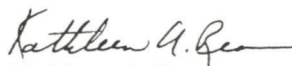
The American Chemical Society consistently has identified federal support for scientific research as an area of concern for its membership of over 144,000 individual chemical scientists and engineers. The *1992 ACS Federal Policy Agenda* includes federal research as one of the four major thrusts for the Society's government affairs activities, not only because of the obvious interest of our membership, but because stability and predictability in federal funding for research are key to the long-term competitiveness of the United States.

Accordingly, over the last six weeks, the Society has presented its recommendations concerning the proposed FY 1993 budgets of four federal research agencies to their relevant congressional Appropriations Subcommittees. The enclosed statements are intended to encourage congressional support for the National Science Foundation (NSF), the National Institutes of Health, the Office of Research and Development of the U.S. Environmental Protection Agency, and the Fossil Energy R&D program of the U.S. Department of Energy, as well as to express the priorities of ACS members.

The Society has undertaken several activities to complement these statements. These include testimony by ACS President Ernest L. Eliel before the House Appropriations Subcommittee on VA, HUD, and Independent Agencies in support of the President's request for research and education activities at NSF. ACS members also have contacted and visited Members of Congress and staff to reinforce the Society's message regarding these budgets.

I hope that you find these statements informative. If you have any questions, or would like further information, please contact Mr. Paul Graves of the ACS Office of Science Policy Analysis at (202) 872-4394.

Sincerely yours,


Kathleen A. Ream
Head

KAR/RJG

Enclosures (4)



American Chemical Society

OFFICE OF THE PRESIDENT

1155 SIXTEENTH STREET, N.W.
WASHINGTON, D.C. 20036
Phone (202) 872-4600

Ernest L. Eiel
President-Elect, 1991
President, 1992
Immediate Past President, 1993

May 8, 1992

The Honorable Barbara A. Mikulski
Chair
Subcommittee on VA, HUD, and Independent Agencies
Committee on Appropriations
United States Senate
Washington, DC 20515

Dear Madam Chair:

The United States faces fierce international economic competition. Government and industry must bring all available resources to bear on those areas which will enable the Nation to meet the challenges of competition today and to prepare for those of tomorrow. Basic research and science education are the cornerstones of America's success, and the National Science Foundation is a pivotal player in these areas. ***Based on the critical role NSF plays, the American Chemical Society (ACS) urges Congress to fund fully the National Science Foundation's (NSF) FY 1993 budget request of \$2.21 billion for Research and Related Activities (R&RA), and \$479 million for Education and Human Resources (EHR).***

The Nation's academic research enterprise has a history of remarkable successes. Academic research supported by the federal government provides a sound knowledge base and insights at the frontiers of science. In addition, it also provides valuable experience and training for students at both undergraduate and graduate levels. The Foundation plays a crucial role in funding basic research and science education at all levels. Since World War II the Foundation's activities have been a major source of the creativity, knowledge, and talent that has made American science and technology strong. NSF provides crucial support to researchers at universities and at national facilities. The Foundation consciously directs the majority of its grant funds to academia on the basis of the excellence of the proposals and on the training opportunities such research presents to students through direct participation in "hands-on" research. Consequently, the American Chemical Society:

- ***strongly supports the activities proposed by NSF as part of the government-wide initiatives under the Federal Coordinating Council for Science, Engineering, and Technology (FCCSET); and***
- ***endorses the initiative proposed by NSF involving Multidisciplinary Research on the Environment.***

The effective transfer of the results of research in the chemical sciences supported by NSF to the "chemical and allied products" industries is a key factor in their exceptional performance. These industries are among the few sectors that still produce a favorable balance of trade for the Nation. In 1991, the U.S. chemical industry achieved a \$18.5 billion **positive** balance of trade. This strong showing relates directly to the investment made in academic research in the chemical sciences by the federal government in the past. The Foundation positions its "core" research programs to maximize progress at the frontiers of human understanding. To reap fully the benefits this research offers our Nation,

- ***the Society urges Congress to fund fully the FY 1993 requests for the Divisions of Chemistry, Materials Research, and Chemical and Thermal Systems.***

As more Federal agencies become involved in our national efforts to improve the teaching and learning of science and mathematics at all levels, the need to define each agency's role in this effort—in as unambiguous a manner as possible—has never been more apparent. For many years the American

APPENDIX

The Nation's ability to compete in a worldwide marketplace depends on scientific advances resulting from long-term support of basic research conducted at our colleges and universities, as well as on the education systems that prepare the scientifically literate work force needed to maintain the flow of discoveries being made today and apply them to societal needs. The National Science Foundation (NSF) plays a central role in funding science education and research at all levels and is the principal funding source for non-mission oriented basic research in academia. Congress was quick to recognize the importance of these activities when, in 1988, it endorsed a five-year authorization for NSF designed to double the Foundation's budget; however, final appropriations for NSF over the past four years have failed to meet the goals for research set out in the authorization.

RESEARCH AND RELATED ACTIVITIES

The Nation's academic research enterprise has a history of remarkable successes to its credit. Academic research supported by the federal government provides more than a sound knowledge base and insights at the frontiers of science; it also provides valuable experience and training for undergraduates. The research programs at NSF are particularly important in this regard. NSF provides crucial support to researchers at universities and at national facilities. The Foundation consciously directs the majority of its grant funds to academia, based in part on the training opportunities such research presents to students, particularly women and minorities, through direct participation in "hands-on" research.

The ACS believes that a healthy infrastructure is essential to ensure the Nation's future competitiveness and is indispensable if U.S. colleges and universities are to attract and retain their faculties, who are needed to educate and train the next generation of science teachers and researchers. Basic research in all fields must be nurtured in order to create a more stable research environment at our universities. While the costs of conducting research have skyrocketed, funding for these programs has either barely kept pace with or, in some cases, has lost ground to inflation.

The Society commends the Foundation for moving to restore the health of its core research programs. Due to recent underfunding, many excellent proposals presently go unfunded and exciting discoveries stand to be lost as a consequence. The impact of underfunding deters young people from entering careers in research. The difficulty facing many researchers as they attempt to seek grants serves as a strong message to students--namely, that a career in research represents an inordinate amount of hunting for increasingly scarce grants and, therefore, less time spent on research. While the special initiatives proposed in NSF's budget represent heightened emphasis in areas of national importance, care should be taken to ensure that the core disciplinary research programs, including those not directly associated with initiatives, receive adequate increases as well. It is essential that the health of these programs be restored in order to secure the future health of our academic research enterprise. *The American Chemical Society, therefore, urges Congress to fund fully the Research and Related Activities request of \$2.21 billion in FY 1993.*

NSF's FY 1993 request emphasizes initiatives in science and technology across the federal government in areas of national need as defined by the Federal Coordinating Council for Science, Engineering, and Technology (FCCSET). Many of these initiatives involve significant research activities in the chemical sciences and engineering. The Society would like to comment on three of these initiatives; those in which chemistry plays a major part.

problems that NSF is proposing in the FY 1993 budget. While chemistry is an important component of understanding environmental problems, biology and mathematics also play a vital role in understanding ecosystems and modeling, respectively. In January 1992, the Society testified before the National Academy of Sciences (NAS) Committee on Environmental Research. Many of the comments made to the NAS complement NSF's environmental research efforts. Areas that the Society has highlighted that are in need of research support include risk assessment (health and ecological), pollution prevention, and remediation technology development. The ACS is pleased to see that these issues also are the focus of NSF's initiative.

Under this thrust research in environmental chemistry within NSF's Chemistry Division would grow \$2.9 million and would fund proposals on new catalytic processes to reduce waste production, the modeling of environmental kinetics, light-induced reactions of chemicals in the biosphere, and separation and detection methods. One example of the potential yield of the Foundation's activities is the joint venture between the Chemistry, and Chemical and Thermal Systems Divisions, in conjunction with the Council for Chemical Research, to explore various methods of pollution prevention through the development of environmentally benign chemical manufacturing processes. The heightened emphasis given to environmental chemistry research within these Divisions' budgets is significant in that it represents priority-setting within the Foundation, in consultation with the chemistry community, to fund areas of pressing national importance in a time of shrinking funds.

NSF can play an important role in the environmental research field by stimulating broad, long-term, basic research. An important outgrowth of NSF's involvement is its ability to educate and train future environmental scientists. The complexity of global and regional environmental issues requires the best efforts of highly trained scientists in a number of fields, including chemistry, ecology, and other physical and life sciences. *Therefore, the Society supports NSF's proposed initiative in Multidisciplinary Research on the Environment in FY 1993, and urges Congress to provide the full request of \$118 million in FY 1993.*

CHEMISTRY, MATERIALS RESEARCH, AND CHEMICAL ENGINEERING

Outside the research initiatives proposed in NSF's FY 1993 request, the core chemical sciences research programs at the Foundation play important roles in extending our scientific understanding, as well as contributing to the Nation's economic competitiveness. Within the U.S. economy, the "chemical and allied products" industries are among the few sectors that continue to produce a favorable balance of trade. In 1991, the U.S. chemical industry produced an \$18.5 billion *positive* trade balance. This strong showing directly relates to the investment made by the federal government in past years in academic research in the chemical sciences. Research in the related fields of chemistry, materials research, and chemical engineering serves to further the development of new products and technologies; and the effective transfer of those technologies to industry is critical to maintaining the exceptional performance of these industries.

Exciting discoveries stem from federally-funded academic research in the chemical sciences. One recent example includes Wesleyan graduate Deshan Govender and Professor Robert Birge of Syracuse University, who, working together through NSF's Research Experiences for Undergraduates (REU) program, have discovered and are patenting a light-activated, three-dimensional optical memory device. The device, in which a photosensitive protein is oriented and immobilized in a polymeric medium, is potentially much faster and has greater capacity than present, mass storage memories. This discovery has the potential to revolutionize computer technology.

Recent progress in materials research has been made by chemical researchers at the University of Illinois, Johns Hopkins University, the University of Nebraska, the University of Michigan, and elsewhere. They have successfully fabricated new composite materials layer by atomic layer. These "heterostructures" are composed of alternating or complex layers of semiconducting, metallic, magnetic, and even

Systemic change and the development, assessment, and implementation of national standards are cross-pollinating activities. *While the Department of Education has played an admirable leadership role in initiating the national standards effort through the National Academy of Sciences, the ACS would like to see NSF actively participate in this project as an equal partner with the Department.* It is not clear from NSF's FY 1993 budget explanation that the Foundation intends to seek this partnership. NSF participation would significantly enhance the current project.

The American Chemical Society normally refrains from critiquing the reorganization of programs within the NSF Education and Human Resources Directorate. However, the Society is concerned about the recent separation of teacher preparation from teacher enhancement activities that results from the current reorganization. In the past the ACS has strongly endorsed programs that link teacher preparation and enhancement.

A current example of an exemplary effort of this type is the Collaboratives for Excellence in Teacher Training program, which supports efforts to build governance structures between science departments and colleges of education for reform of science teacher preparation. This program includes teacher enhancement activities and supports the development of an academic reward structure for participants in a collaborative. Under the reorganization, this program would be transferred to the Undergraduate Education Subactivity.

The ACS believes that it is important that the existing Collaboratives program has an opportunity to flourish within the new administrative structure, with its existing components intact. *If the proposed level of funding does not permit this, then the Society would support an increase in funding of \$5 million in FY 1993 to ensure the survival of this program.*

As in previous years, *the American Chemical Society strongly supports a special emphasis on the particular needs of the two-year college community.* The Society is aware of, and strongly supports, current NSF efforts directed specifically toward two-year colleges. However, the magnitude of these efforts in the FY 1993 budget is very small at \$8.3 million. The fact that two-year colleges may qualify for funding through programs that are open to other kinds of institutions does not, in our view, alter our concerns. Given that the total Federal support specifically for science, mathematics, and engineering education in two-year institutions across the eleven Federal agencies tabulated in the FCCSET/EHR FY 1993 budget is only \$12.42 million, out of a budget request totalling \$2.09 billion, it is clear that the special needs of the two-year college community are not being met elsewhere in the Administration's budget.

The Society is pleased to note that NSF is focusing the Undergraduate Curriculum and Laboratory Development program on introductory courses and on strengthening the undergraduate laboratory experience at all types of institutions, since these aims are in line with ACS recommendations for FY 1991 and FY 1992. However, the Society is dismayed at the level funding from FY 1992 to FY 1993. As the ACS noted in its statement to Congress on the FY 1992 budget, the funding for Instrumentation and Laboratory Improvement has shown no real growth since FY 1990. The Society notes also, without further comment, that the \$23 million increase in the Graduate Education and Research Development Subactivity results from a roll-over of funds from FY 1992 and not the infusion of "new" monies into the program.

The American Chemical Society continues to support the targeting of funds in the Human Resource Development Subactivity and elsewhere within the Foundation to increase the participation of minorities, women, and persons with disabilities in science, mathematics, and engineering careers. Without this special attention, these groups will continue to be underrepresented in the quantitative disciplines, with implications for the availability of sufficient numbers of scientifically and technically trained personnel well into the next century.



American Chemical Society

OFFICE OF THE PRESIDENT

1155 SIXTEENTH STREET, N.W.
WASHINGTON, D.C. 20036
Phone (202) 872-4600Ernest L. Eliel
President-Elect, 1991
President, 1992
Immediate Past President, 1993

May 13, 1992

The Honorable Tom Harkin
Chairman
Subcommittee on Labor, Health and Human
Services, Education, and Related Agencies
Committee on Appropriations
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

The American Chemical Society (ACS) strongly supports the activities of the National Institutes of Health (NIH) and recommends a budget that will increase the ability of American scientists to pursue vigorously the opportunities that loom in health-related research. The unfailing commitment of your Subcommittee to NIH research has been admirable. In an era of fiscal constraint, however, the ACS is concerned that the resources allocated to NIH will not prove adequate for the present and future needs of this Nation. The Society urges that additional resources be provided to further improvements in the health and well-being of Americans while simultaneously training the next generation of scientists to supply our Country's pharmaceutical and health-care industries.

Our background in this area stems from the fact that chemists have had a long and intimate role in medicine and the health-related industries. Chemistry is the central science that advances the fundamental understanding of living systems and the molecular science that has been a critical part of the development of biotechnology. By examining the metabolites of plants and microorganisms, chemists have found efficacious substances for treatment of infectious diseases, including viral diseases, as well as for a variety of cancers. By devising computerized techniques of drug design and by developing chemical reactions and strategies for medical use, chemists have synthesized these substances and other new medicines that are effective for treatment of cancer, hypertension, glaucoma, ulcers, depression, diabetes, heart disease, and atherosclerosis. Pharmaceutical chemistry has given society drugs that inhibit undesirable enzymatic processes and alleviate life-threatening conditions.

Chemists play a prominent role in the development, adaptation, and use of instrumentation for health research and care. By developing diagnostic tests and instrumentation, chemists have contributed to the detection, monitoring, and treatment of diseases, thereby improving the quality of life. For example, chemical scientists helped to develop the magnetic resonance imaging (MRI) instrument, an adjunct to X-ray technology and a noninvasive diagnostic tool used in hospitals across the Nation.

Many other health-related research fields, such as structural biology and molecular biology, are rooted in chemistry. Thus, training in chemistry forms a strong basis for pursuits in those fields. Recognizing these important connections, the pharmaceutical industry employs chemists in large numbers to fill its needs.

Over the last two decades, remarkable progress in health-related research has resulted from the contributions of scientists in many disciplines. Chemistry is central to our understanding of the health sciences at their most fundamental level and has provided noteworthy contributions to new treatments for numerous diseases. This progress is likely to continue with appropriate support for the NIH. Recent advances in biotechnology and computer science have provided us with new abilities to address basic questions. Health-related scientific researchers are acquiring an understanding of the molecular bases of



American Chemical Society

OFFICE OF THE PRESIDENT

1155 SIXTEENTH STREET, N.W.
WASHINGTON, D.C. 20036
Phone (202) 872-4600

Ernest L. Eliel
President-Elect, 1991
President, 1992
Immediate Past President, 1993

April 21, 1992

The Honorable Bob Traxler
Chairman
Subcommittee on VA, HUD, and Independent Agencies
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

Environmental research is one of the most important issues of concern to the American Chemical Society (ACS) because chemistry plays such a central role in our understanding of environmental processes. Recently, the Society selected the goal of enhancing environmental research as one of its key priority policy concerns. The ACS has given careful thought to this goal, and has begun a range of activities to affect the support for and priorities of environmental research. Other organizations also share our concerns in this area. For example, the recently issued report of the Expert Panel on the Role of Science at EPA—*Safeguarding the Future: Credible Science, Credible Decisions*—presents recommendations to improve the Agency's science base. At the request of Congress, the National Academy of Sciences is undertaking a study of federal support for environmental research. These activities highlight the importance of research to improve environmental quality.

As the Subcommittee on VA, HUD, and Independent Agencies reviews the Administration's FY 1993 budget request, the American Chemical Society would like to express its appreciation to your Subcommittee for its recent attention to R&D issues at the Environmental Protection Agency (EPA). Last year's aggregate increase of nine percent (6 percent above inflation) for R&D continues the trend toward returning the Office of Research and Development (ORD) to the levels of support it received during the late 1970s and early 1980s. By comparison, the ACS strongly believes that the FY 1993 Administration request for a 5.3 percent increase, to a total of \$528.4 million for R&D, is insufficient to meet growing needs. This amount is considerably lower than the 13.3 percent requested in FY 1992 and would leave ORD receiving 10.8 percent less funding (GDP inflation adjusted) than it did in FY 1980. An annual investment of approximately a half billion dollars is inadequate for research that (1) supports regulatory activities, (2) attempts to maximize the return on the Nation's investment in environmental clean-up (which EPA estimates was \$115 billion in 1990, and will rise to over \$170 billion by the year 2000), and (3) increases opportunities in pollution prevention. ORD's ability to conduct the necessary R&D in support of the Agency's mission has been severely diluted over the last several years by the Office's increasing workload in the face of diminished resources.

To help resolve this situation, *the American Chemical Society advocates bringing the total support for R&D at EPA to \$589.3 million.* The ACS believes that the \$519.6 million approved for R&D operating (S&E and R&D) programs by the House Science, Space, and Technology Committee in the Environmental Research, Development, and Demonstration Authorization Act of 1991 (H.R. 2404), along with the President's request for \$69.7 million of R&D support from the trust funds, represents a more appropriate level of funding for these programs in FY 1993. This funding level would place ORD about even with its size in FY 1980 and closer to its peak level of support in FY 1975. While the Society recognizes the difficulty faced by the Subcommittee in providing a 17 percent increase, the level of need is obvious when one considers that EPA requested a 23 percent ORD increase from OMB. This investment would provide significant return both in the near- and long-term.

APPENDIX

Core Research Program

Risk Assessment. According to EPA Deputy Administrator F. Henry Habicht II, "[r]isk reduction will shape the Environmental Protection Agency's priorities for the future." Unfortunately, the accuracy and precision of estimates of human and ecological risk, which are based on scientific data and principles, are adversely affected by factors inherent in the current approaches to conducting **risk assessment**. Risk assessments require extensive information that may not be known, such as data on the environmental fate of pollutants or data on human exposure to such substances. For this reason, the Society concurs with the Agency's Science Advisory Board that "EPA should improve the data and analytical methodologies that support the assessment, comparison, and reduction of different environmental risks" (Executive Summary, *Reducing Risk: Setting Priorities and Strategies for Environmental Protection*, EPA Science Advisory Board, 1990). While the resources requested for risk assessment research in the FY 1993 budget are spread through many of ORD's programs, and therefore are difficult to determine precisely, it appears that the aggregate funding would grow at or near inflation next year. To meet the goal of making risk a primary criterion for decision-making, funding for these programs must grow more rapidly.

The federal government needs to enhance its expertise in the ecological sciences. An expanded effort must be made to bring the ecological sciences into environmental research activities, especially with respect to large ecosystems. The federal government must improve its environmental monitoring capabilities in terms of ecological and human risk assessment. In this regard, the increase to EPA's Environmental Monitoring and Assessment Program is an important investment, and the Society is pleased to see that it is growing at the rate projected in the *Protecting the Environment* report.

Human risk assessment is another area where increased funding is needed. Understanding more fully what poses risk to humans is critical to developing scientifically credible regulations. While relatively more data on human than on ecological risk assessment has been gathered at the federal level, the ACS encourages the Subcommittee to continue support for the various research programs that increase the Agency's capabilities to assess human risk. The Society believes that the most important research topics in human risk assessment involve exposure assessment, DNA repair and other cellular defenses, and mechanisms of toxicity.

Pollution Prevention. ACS advocates research that will provide new insights into cheaper, more effective ways to avoid pollution production, as an alternative to the "end-of-pipe" strategy that historically has driven EPA activities. The American Chemical Society commends EPA for its recent efforts in this area, but additional research support is crucial. Considerable research efforts are required to take advantage of opportunities (e.g., pollution prevention technologies) that might avoid future environmental problems rather than attempt to mitigate the inherently more difficult problems that result from the introduction of a pollutant into the environment. The opportunities available in this area justify more resources than the Agency advocates in its request to increase ORD's pollution prevention research by only 2.1 percent (-1.2 percent adjusted for inflation) to \$12.6 million.

Exploratory Grants and Research Centers. The Agency has requested a 2.4 percent decline in the Exploratory Research Grants Program and a 0.4 percent decline in the Academic Research Centers Program. The Society, however, believes it is important to increase support in these areas. These two elements of the core research plan were intended to expand EPA access to the full range of capabilities in the environmental science and engineering community. The programs also serve to provide opportunities for students to participate in cutting-edge research and to develop an interest in environmental research careers. The Society concurs with the *Safeguarding the Future* report that "EPA should move quickly to bolster its grants and centers program."

In the area of research grants, the Agency has failed to request the needed resources that it projected in the *Protecting the Environment* report. The goals of stimulating progress in fundamental knowledge, providing for training of future scientists, and increasing the probability of early detection of environmental problems merit more resources than the Administration requested. The Society supports



American Chemical Society

OFFICE OF THE PRESIDENT

1155 SIXTEENTH STREET, N.W.
WASHINGTON, D.C. 20036
Phone (202) 872-4600

Ernest L. Eliel
President-Elect, 1991
President, 1992
Immediate Past President, 1993

May 6, 1992

The Honorable Robert C. Byrd
Chairman
Subcommittee on Interior and Related Agencies
Committee on Appropriations
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

The American Chemical Society (ACS) wishes to express its appreciation for the concerns and support that you and your Subcommittee have demonstrated for the Department of Energy's Fossil Energy R&D programs in recent years. As a society with over 144,000 members, many of whom have direct professional interests in energy and related industries, the ACS firmly believes that a national goal should be to improve significantly the U.S. energy situation by ensuring secure energy supplies, increasing energy conversion efficiency, and reducing pollutants and greenhouse gases. Achievement of these goals will lead to the reduction of the Nation's reliance on imported fuels, enhance U.S. economic competitiveness, and improve the environment.

The Society is convinced that fossil fuels will play an increasing role in meeting the energy needs of the future. Within that scenario, advantage must be taken of this Nation's abundant resources of coal in order to produce electricity, and to provide alternate sources of transportation fuels and natural gas. To optimize the long-term, responsible use of coal, the United States should continue to be the world leader in coal research and development. At present, the only major source of funding for such an effort is the federal government. Unfortunately, the current budget request for Fossil Energy R&D represents a substantial reduction of 30 percent from the FY 1992 level of support. The picture for Advanced Coal Research programs is even more dismal since the FY 1993 request is a 46 percent decline in funding. It is within these programs that cutting edge research for coal is funded.

Details of the funding history for the Advanced Coal Research programs are given in the accompanying Appendix. It is obvious that the budget request is intended to almost curtail federal funding for these important research areas. Thus, this Country is trying to solve increasingly complex energy-related problems with a diminishing resource base.

In order for the United States to maintain its technological leadership in advanced uses of coal, the Society believes that the budgets for the Advanced Coal Research programs must be increased to levels that correspond to those of the early 1980's. **The American Chemical Society recommends that the total FY 1993 budget for Advanced Coal Research programs be at least a minimum of \$60 million and that each of the programs listed in the Appendix be funded appropriately. Further, the ACS supports a doubling to about \$12 million for the University/National Laboratory Coal research and training component of the Advanced Research and Technology Development program.**

Since the National Energy Strategy was published just over one year ago, there has been considerable national debate on the future energy policy of the United States. During this time, the debate has been heightened by events related to the Persian Gulf War, and concerns about U.S. industrial competitiveness and global warming. These concerns are related in varying degrees to this Country's widespread use of fossil fuels. It is clear that guaranteed, substantial supplies of clean-burning fossil fuels are vital to the current, and future, well-being of our Nation.

APPENDIX

Federal Support for Advanced Coal Research Programs^a
(Dollars in Thousands)

Fiscal Year	Control Technology & Preparation Advanced Research	Advanced Research & Technology Development	Coal Liquefaction Advanced Research	Combustion Systems Advanced Research	Fuel Cells Advanced Research	Surface Coal Gasification Advanced Research	TOTAL
1981		58,383					58,383
1982		51,936					51,936
1983		31,650					31,650
1984		38,996					38,996
1985		30,804	5,511			3,364	39,679
1986		33,849	5,157			3,379	42,385
1987	1,139	26,630	4,470	3,248	1,350	2,806	39,643
1988	2,042	24,937	6,132	3,351	1,547	2,698	40,707
1989	1,774	25,564	6,902	2,972	1,597	2,679	41,488
1990	2,092	26,466	6,784	2,360	1,458	2,716	41,876
1991	3,206	31,683	8,046	3,141	1,444	1,875	49,395
1992	2,208	30,227	7,126	3,517	1,580	1,673	46,331
1993 ^b	1,000	21,500	1,000	500	500	500	25,000
1993 ^c	(-55%)	(-29%)	(-86%)	(-86%)	(-68%)	(-70%)	(-46%)

^a Until 1986, Coal Liquefaction Advanced Research and Surface Coal Gasification Advanced Research were funded under Advanced Research and Technology Development as the Processes subprogram. Part of the Direct Utilization subprogram under AR&TD was transferred to Advanced Research within Control Technology and Coal Preparation, Combustion Systems, and Fuel Cells to comply with FY 1988 Congressional direction.

^b Administration's Budget Request.

^c Percentage change from FY 1992 enacted budget to FY 1993 administration's request.

Source: Budget Justification Books for the Department of Energy.

THE WHITE HOUSE

WASHINGTON

June 8, 1992

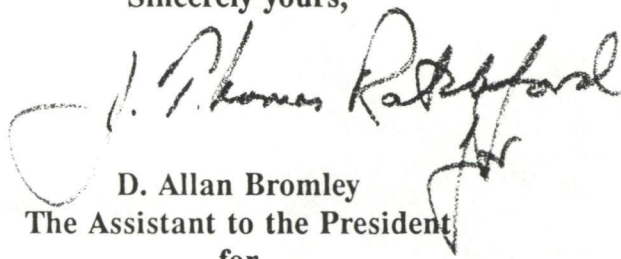
Dear Ms. Ream:

Thank you for forwarding the statements of the American Chemical Society concerning FY 1993 funding for NSF, NIH, EPA and the DOE Fossil Fuel program.

I very much appreciate the ACS support for our NSF budget request, and I hope the Congress will act accordingly.

The Administration's budget requests for NIH and EPA research activities, and that for the DOE Advanced Coal Research Program, were limited by the constraints of the domestic discretionary budget caps. This is not to say that the additional funds recommended by the ACS could not be spent wisely, but rather that there were higher priority needs elsewhere.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "D. Allan Bromley". The signature is written in a cursive style and is positioned above the typed name and title.

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

Ms. Kathleen Ream
Head
Department of Government Relations
and Science Policy
American Chemical Society
1155 Sixteenth St., N.W.
Washington, D.C. 20036