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DIRECTORATE STATUS

FROM: THE 1992 WISE INTERNS AND DR. HERMAN HILL

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 07/27/92

SUBJECT: THANK YOU TO DR. BROMLEY AND DR. ERB REGARDING THE
OPPORTUNITY FOR THE INTERNS TO MEET AND DISCUSS THE
IMPORTANCE OF ENGINEERS IN PUBLIC POLICY.

DIRECTORATE
ASSIGNED:

STAFF
ASSIGNED:

ACTION
REQUIRED:

STAFF
ACTION:

SENDER'S DUE DATE:

OSTP DUE DATE:
DATE COMPLETED:

STAFF DUE DATE
DATE COMPLETED/DEPT:

COPIES TO: D. Allan Bromley
Karl Erb

WHITE HOUSE TRACKING #:

CONTACT PERSON:

PHONE:

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REMARKS:

OSTP RECEIVED: 08/11/92
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Edwards



Washington Internships for Students of Engineering

July 27, 1992

Dr. Allan Bromley
Assistant to the President for Science and Technology
Office of Science and Technology Policy
Old Executive Office Bldg.
17th St. & Pennsylvania Ave., NW
Washington, D.C. 20500

Dr. Bromley:

We would like to extend our sincere thanks to you and to Mr. Karl Erb for taking the time to meet with us earlier this month. We appreciate the unique opportunity to hear your opinions on the role and the importance of engineers in public policy decisions as well as your insightful answers to our questions. We now better understand the role we must play as engineers in helping the government continue to make educated decisions on technical issues. Once again, thank you for your time and effort.

Respectfully yours,

The 1992 WISE Interns
and Dr. Herman Hill

Steve Bradton
John G. Hill
David M. Hill
Michael J. Hill
John Hill
Michael Hill
Robert Hill
Robert Hill

Karen Mulligan
Michael Hill
Robert Hill
Robert Hill
Robert Hill
Robert Hill

Project Director: Michael Devine, Ph.D.
Associate Vice-President for Research
Florida State University
Tallahassee, FL 32306-(904) 644-8636

Project Coordinator: Tim Turner, Deputy Manager
Grants and Contracts
American Society for Engineering Education
Eleven Dupont Circle-Washington, D.C. 20036
(202) 986-8525

Funded by the American Institute of Chemical Engineers;
American Nuclear Society; American Society of Civil
Engineers; American Society of Heating, Refrigerating
and Air-Conditioning Engineers; American Society of
Mechanical Engineers; American Society of Testing and
Materials; Institute of Electrical and Electronics Engineers;
Institute of Environmental Sciences; National Society of
Professional Engineers; and the Society of Automotive
Engineers.

JUN 22 1992

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TYPE: ACTION

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STATUS I

DIRECTORATE STATUS

FROM: CARMI, S.: DREXEL UNIVERSITY

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 06/04/92

SUBJECT: HE IS SEEKING DR. BROMLEY'S OPINION ON THE MATERIAL
HE IS FORWARDING REGARDING TECHNOLOGY AND
COMPETITION.

DIRECTORATE

STAFF

ASSIGNED: KARL ERB

ASSIGNED:

ACTION

STAFF

REQUIRED: AS NECESSARY

ACTION:

SENDER'S DUE DATE:

OSTP DUE DATE: 06/25/92

STAFF DUE DATE

DATE COMPLETED:

DATE COMPLETED/DEPT:

6/29/92

COPIES TO: D. Allan Bromley

WHITE HOUSE TRACKING #:

CONTACT PERSON:

PHONE:

EXT:

REMARKS:

Dear Dr. Carmin,
Thank you for sending me your remarks on the desirability of roles of engineers and engineering in modern society. I agree wholeheartedly that ^{both} technical engineers and scientists - you may not know that my undergraduate education was in electrical engineering - ^{bringing} critically and ^{important} unique tools qualifications to bear on the problems we face, and that we, as a society, must take better advantage of these qualifications and must ensure that they are instilled in future generations of Americans.

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FOR
DAB'S
Signature



*Department of
Mechanical Engineering
and Mechanics
College of Engineering*

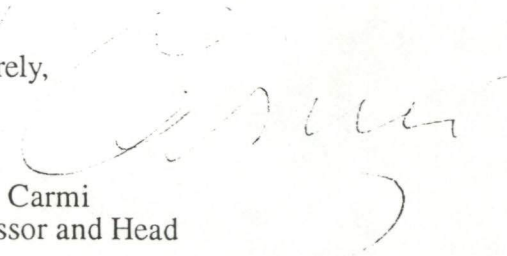
Dr. D. Allan Bromley
Assistant to the President
for Science and Technology
Director, Office of Science
and Technology Policy (OSTP)
Executive Office Building
1600 Pennsylvania Ave.
The White House
Washington, DC 20500

Dear Dr. Bromley,

As the chief spokesperson of science and engineering in the Executive Branch, I would like to express our appreciation for your efforts to promote the engine driving our competitive edge in the global economic arena. With the upcoming 8th Annual Convocation of NAE and Professional Engineering Societies June 8 - 9, 1992 in Washington, DC, I have sent Dr. Robert White, President, NAE material on some "burning" issues on the national agenda and engineering education. Enclosed please find for your reference a copy of this material including a short article I wrote as a Foreword to an Engineering Foundation Conference which I co-chaired. I would appreciate your comments on any of the issues raised. If I can be of any help, I will be happy to contribute.

With best wishes.

Sincerely,


Dr. S. Carmi
Professor and Head

SC:kc
encl.



Dr. Shlomo Carmi
Professor and Head

*Department of Mechanical
Engineering and Mechanics
College of Engineering
32nd & Chestnut Streets
Philadelphia, Pennsylvania 19104
(215) 895-1488, 2352
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ENGINEERING EDUCATION AND THE PROFESSION

S. Carmi, Professor and Head
Department of Mechanical Engineering and Mechanics
Drexel University
Philadelphia, PA 19104

Intertwined political and economic events are currently taking place in the world at an ever accelerating and breathtaking pace. We are wondering how technology, in all its facets, will help "solve" all problems. "Our world today is a product of engineering, and our world tomorrow will be even more so" said current ASME President Nathan H. Hurt, who also chairs the 1992 National Engineers Week (Feb. 15 - 22, 1992). The implications of this quote are enormous. Engineers are the innovators of society (who constantly come up with new products) and problem solvers (who make sure that the environment is preserved while economic development takes place). Futurists constantly highlight the new eras of technology and information as those that will dominate the next century (J.F. Coats, "Engineering 2000"). In the USA, the only military/economic superpower left on the world stage, engineers and scientists, however, are not in the driver's seat of the political/economic machine. Our toughest competitors in the economic arena, both in Europe and the Pacific Rim, are in a more advantageous position to face the technological world of tomorrow. In Japan and Germany, for example, a great majority (over 70%) of top level executives in industry have technical backgrounds. In Taiwan and South Korea many cabinet ministers have such backgrounds. It is not just for the sake of getting "respect", as comedian Rodney Dangerfield would put it, that we engineers in the U.S. should seek more recognition; it is for the sake of national viability and survival

as the leading political and economic force in the international arena that we have to promote engineers to top echelons of decision making positions in industry and government. Why? Because a well balanced technical background equips an individual with *both* the analytical tools to penetrate the essence of the physical or social problem and the design tools to synthesize a technically sound, economically feasible and socially acceptable solution.

For the most part we should assign the blame for today's economic/social problems on ourselves. It took GM, once the world's largest and most profitable corporation, 34 years to put another engineer in charge as CEO. In major industries most top level executives, until recently, had non-technical backgrounds (in contrast to the reverse ratio in Japan), while in government (Executive Branch and Congress) it is mostly lawyers who are running the show (not to speak of the Judiciary). We engineers are the problem solvers but not the decision makers in our society. How do we change the perception among the younger generation that science and engineering are tough and boring fields leading to careers that do not pay enough and do not command enough social status when compared to other professions like medicine and law? It all starts with *education* and the role model we provide for our kids. Starting with the elementary school we should dispel the notion that the technical professions are "nerdy" -- they certainly are not. If anything they are very interesting, stimulate creativity and can be a lot of fun. The contention should

be that with a technical background you can go far into any field and choose many career options along the way, including high profile professions like law and medicine (the reverse is much more difficult -- for example, lawyers trying to obtain technical training at a later stage in their careers). K-12 teachers should be properly trained and competitively paid to carry out this important mission.

The role model which we provide should also apply in the entertainment world, mostly in the video/audio medium which constitutes such a predominant force in our society. Today's TV shows do not portray scientists/engineers as main characters the way they do lawyers (LA Law) or medical doctors (Doogie Howser, MD). One discontinued TV series (Gung Ho) which came close to an "engineering" show, portrayed Japanese executives operating in a U.S. manufacturing environment and dealing with work ethics in a diverse cultural environment. To penetrate the entertainment world, we have our work cut out for us. For starters, we engineers, should be more articulate, master better communication skills in front of or behind the camera, and be more image conscious and public relations oriented.

In the five keynote addresses and the ten sessions at our conference we touched upon many of the crucial subjects addressing these very issues. How do we get more talented students interested in engineering, when at the same time the total student population is shrinking? The Pipeline, Recruiting and Retention sessions dealt with some of these issues. The "Galaxy Classroom" project, for example, shows corporate involvement. More corporations should do the same. The State of Illinois is very involved in its Math and Science Academy project. More state and local governments should do the same. At the federal level, NSF, in addition to its main mission of basic research support, is already doing a lot in the education arena and will do even more in the future. Curriculum Innovation sessions deal with the "delivery" of the engineering science (analysis) in the context of design (synthesis), using the latest advances in computer hardware and software. We want to increase the hands-on laboratory and design activity up front at the freshman level, and simultaneously increase the humanities and communications skills content

in the curriculum. If it gets too compressed, what do we take out? And what about the Total Quality Engineering, the all important Q-word? How do we take into account and satisfy the customer's (student's) needs and desires without compromising the curriculum integrity and... have some fun at the same time? What is the role of ABET, the accreditation agency, in all of this?

While dealing with input (the two R's: Recruiting and Retention) we should also address the issue of output: what happens after earning a baccalaureate degree in a technical field like engineering? Where does it lead to? To attract the most qualified students to the engineering field we have to sell the idea of the engineering degree being the *optimum launching pad*, the preferred technical background, leading first and foremost to our main mission, the practice of engineering, a very creative and rewarding profession. Should we seriously consider the first professional degree to be at the Master of Engineering level and concurrently accommodate two years of practical industrial experience (residence) beyond the B.S.? And what about a nationwide PE exam with state specific characteristics (similar to the Bar or Board Exam) that further enhances the "engineering" status as a profession? The B.S. in engineering, however, can also serve as a great avenue to other professional schools like medicine, law and business (economics), an avenue which could eventually lead to decision making leadership positions in the political arena. The career mix described above has the potential to attract the best and brightest of our young generation. This in turn should put engineering at the forefront of society, integrating the problem solvers with the decision makers. This is where it counts, if engineers are to make their mark in society. Unless we as a nation address these issues soon, our position as the only superpower will be challenged, especially by European and the Pacific Rim countries, where potential combinations of human and natural resources with economic superpower structure seem formidable. We have an excellent opportunity at our conference here to discuss and explore many of these vital issues. Furthermore, our professional societies should be brought into the dynamics of this debate in order to develop and implement a plan of action.

ENGINEERING FOUNDATION CONFERENCES

345 East 47th Street, New York, New York 10017 •

• Telephone: (212) 705-7835

ENGINEERING EDUCATION: CURRICULUM INNOVATION AND INTEGRATION

PROCEEDINGS

SHERATON SANTA BARBARA HOTEL
SANTA BARBARA, CALIFORNIA

JANUARY 5 - 10, 1992

Conference Chairmen:

Win Aung
National Science Foundation
Washington, DC

Shlomo Carmi
Drexel University
Philadelphia, Pennsylvania

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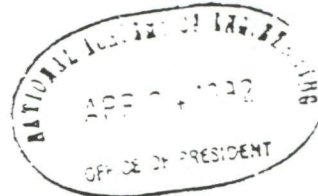
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**IEEE**

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

Dr. Gideon Kantor
FDA/CDRH, HFZ-133
12721 Twinbrook Parkway
Rockville, Md 20857



April 22, 1992

Dr. Robert M. White
President, National
Academy of Engineering
2101 Wisconsin Avenue, NW
Washington D. C. 20418

Dear Dr. White:

When I discussed the need for professional engineering schools with Dr. Allan Rosenstein yesterday, he suggested that I contact you. Here are my thoughts on this matter.

To maintain our technological competitiveness in the global market, it is imperative that we revisit the scope of our four year engineering programs. To compete in this market with Japanese and European engineers, our students need to acquire basic engineering tools and must be able to communicate well orally and in writing in English and preferably at least in one foreign language. We know that a four engineering curriculum is not able to handle this challenge.

One solution to meet this challenge is to do what doctors and lawyers have done. Like medical and law schools, have professional engineering schools that would also require an undergraduate degree for admission. Accordingly I strongly urge you to appoint a committee of your Academy to study the need for professional engineering schools.

Your kind interest in this vital matter is highly appreciated. Surely an undergraduate program of four years does not qualify a U. S. engineer to compete in the highly competitive world market.

I am looking forward hearing from you.

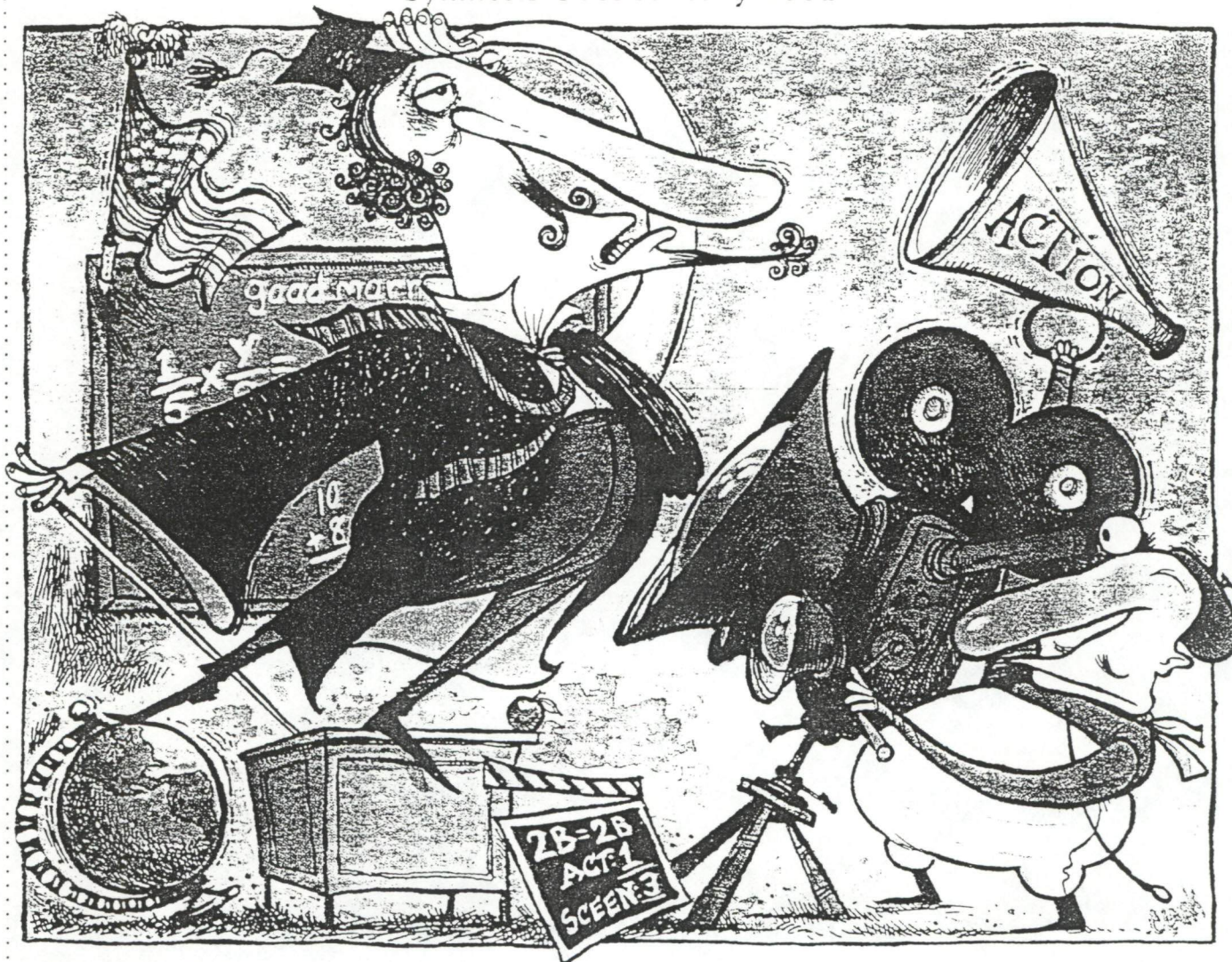
Sincerely you,

Gideon Kantor, Ph. D.
Fellow, IEEE

cc. A. Rosenstein

On Campus

Synthesis Goes to Hollywood



The Synthesis Coalition, one of the multi-institutional engineering education coalitions funded by NSF, has joined forces with the entertainment world to promote technical careers and improve K-12 education in science and math. In February, it formed a partnership with EDUCATION FIRST!, a non-profit organization of concerned individuals in the film and television industries and print media. Through these media, EDUCATION FIRST! informs the public about current problems in education and recommends solutions. It also sponsors workshops to encourage TV and film producers, directors, and writers to incorporate positive messages about

education into their work.

The partnership's first step is creating a task force to establish "strategic plans that build on and complement each group's projects," says Jeanne Aceto, Synthesis's associate director of linkages. Next, the task force hopes to "pull in the heads of the major studios" to support its goals through their products. The coalition's industry partners and the corporations that sponsored National Engineers Week are also involved in the partnership.

For more information: Jeanne Aceto, California Polytechnic State University, (805) 756-2350.



OFFICE OF THE CHANCELLOR

BERKELEY, CALIFORNIA 94720

May 28, 1992

Dr. Shlomo Carmi, Professor and Head
Department of Mechanical Engineering and Mechanics
College of Engineering
Drexel University
32nd and Chestnut Streets
Philadelphia, Pennsylvania 19104

Dear Dr. Carmi:

Thank you for your note of May 21st and the copy of the article, "Engineering Education and the Profession," written as a preface to a conference on engineering education.

It will be a grand day, indeed, when engineers and the engineering profession command the same social status as do the professions of medicine and law. I commend your efforts to promote the idea of an engineering degree as the springboard, the "optimum launching pad," into any field and the means to bring people with technical backgrounds into the top echelons of society, "integrating the problem solvers with the decisions makers."

Please accept my best regards.

Sincerely,

Chang-Lin Tien
Chancellor and
A. Martin Berlin Professor

THE WHITE HOUSE
WASHINGTON

June 29, 1992

Dear Dr. Carmi:

Thank you for sending me your remarks on the roles engineers and engineering play in modern society. I believe wholeheartedly that the problem-solving ability of engineers and scientists is a critical national resource. (You may not know that my own undergraduate education was in electrical engineering.) We, as a society, must take better advantage of this resource and we must ensure that future generations of Americans receive first-rate engineering educations.

Sincerely yours,

A handwritten signature in black ink, reading "D. Allan Bromley". The signature is fluid and cursive, with the first name "D." being small and the last name "Bromley" being larger and more prominent.

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

Dr. S. Carmi
Professor and Head
Department of Mechanical
Engineering and Mechanics
College of Engineering
Drexel University
32nd & Chestnut Streets
Philadelphia, PA 19104

STAFFING SHEET

[illegible]

"Document Control"

TYPE: MEETING REQUEST
ORIGINATOR: 02

STATUS I

DOCUMENT NUMBER: 9202024
DIRECTORATE STATUS

FROM: DENNEY, Patrick: AMERICAN SOCIETY FOR ENGINEERING EDUCATION

TO: DR. D.A. BROMLEY

DATE OF
CORRESPONDENCE: 06/01/92

SUBJECT: DR. BROMLEY TO
THE INTERSHIP PR

Priscilla
Please ask
Ralph, please
by DAB save time
shid week
shanks
KAE

DR. BROMLEY TO
THE INTERSHIP PR

ST
AS

ST
AC

S DUE DATE:

STAFF DUE DATE
DATE COMPLETED/DEPT:

COPIES TO: D. Allan Bromley

WHITE HOUSE TRACKING #:

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PHONE:

EXT:

REMARKS: REASSIGNED PER DR. WONG, RECOMMENDS DR. ERB SPEAK TO THEM.

Allan I would be delighted to meet with the ASEE
student interns this summer. I would hope to
involve Dan Pryor in this, as well, Dan being
a real engineer. If we brought the students

OSTP RECEIVED: 06/03/92

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FILE: P-INVITATION-MEETING REQUEST

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to the EOP, and if your schedule
permitted, would you be interested in
chatting briefly with them?
Karl

T 6/25 sent to Ralph
June 10, 1992 6/23
never returned
(lost)

6/24 Ralph called
DAB agreed to do book - DAB
is min. it is already entered
KE speaks to min. by someone else
Ralph w/assess - @ WISE
7/16 @ 11:00
Last year,
Dr. Phillips
(IT) met
with this group.
FYI.
PJ.



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

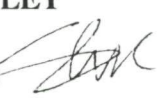
T
7/16
11:00
Rm. 180

July 14, 1992

✓
Done
7/16

MEMORANDUM FOR ALLAN BROMLEY

FROM:

STEVE OLSON 

SUBJECT:

MEETING WITH ENGINEERING STUDENT INTERNS

This Thursday, July 16, in Room 180 you and Karl Erb are scheduled to meet with a group of undergraduate engineering students who are in Washington doing summer internships. The program is known as WISE (Washington Internships for Students of Engineering).

The meeting will be very informal and, as you indicated this morning, I won't bother to write some formal talking points for it. Ralph feels that comments much like the ones you delivered to the Physics Olympiad students would be appropriate.

A good format would probably be for you to speak for 10 or 15 minutes, for Karl to follow you with a few comments, and then to open the floor to questions. Topics for discussions could include:

- The history and functions of OSTP
- Your emphasis on the T in OSTP
- The Administration's commitment to technology development
- The importance of engineering to the U.S. economy
- The new respect for engineering and engineering students

cc: Karl Erb 



**American Society for
Engineering Education**
Eleven Dupont Circle, Suite 200
Washington, D.C. 20036-1207

Tele: (202) 293-7080
Fax: (202) 265-8504

FACSIMILE TRANSMISSION

ATTENTION TO:	Ralph Brescia
ORGANIZATION:	OSTP
FAX NUMBER:	395-3719
TELEPHONE NUMBER:	(301)654-0509

FROM:	Jason Shumaker		
DATE:	July 14, 1992	TIME SENT:	3:15
NUMBER OF PAGES TO FOLLOW:	2		

COMMENTS:	If you have any questions, please don't hesitate to call.

IF PAGES ARE NOT RECEIVED PROPERLY, PLEASE CALL: _____

HANDLING INSTRUCTIONS

- ____ HIGH PRIORITY (HAND DELIVER IMMEDIATELY)
____ CALL WHEN COMPLETE
____ NORMAL PROCESSING
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Withdrawal/Redaction Sheet

(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
01a. Memorandum	To: ralph Brescia From: Jason Shumaker Re: WISE Intern visit to OSTP [dates of birth redacted] (1 pp.)	7/14/92	(b)(6)	

Collection:

Record Group: Bush Presidential Records
Office: Science and Technology Policy, Office of (OSTP)
Series: Bromley, D. Allan, Files
Subseries: Education Files
WHORM Cat.:
File Location: Education [1992]

Date Closed:	3/9/2010	OA/ID Number:	62032-002
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]
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 (b)(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
 (b)(9) Release would disclose geological or geophysical information

Applications are being accepted for the 1993 program to be held from May 24, to July 30, 1993

Each student in the 1993 WISE program will be selected by one of the participating organizations which include the American Institute of Chemical Engineers, American Nuclear Society, American Society of Heating, Refrigeration and Air Conditioning Engineers, American Society of Mechanical Engineers, American Society for Testing & Materials, Institute of Electrical & Electronics Engineers, Institute of Environmental Sciences, National Society of Professional Engineers, and Society of Automotive Engineers. The program is administered by the American Society for Engineering Education.

Applications for WISE are sought from outstanding third-year engineering students who display evidence of leadership skills and interest in public policy. Minority and international students are encouraged to apply.

For application forms, contact:

WISE

American Society
for Engineering Education
Suite 200,

11 Dupont Circle, NW
Washington, DC 20036
(202) 986-8525

or (202) 986-8509
FAX (202) 265-8504

APPLICATION DEADLINE:
must be received by
December 10, 1992

A Ten-week Summer Program in Engineering and Public Policy

The students will be under the guidance of a nationally prominent engineering professor and receive 5 quarter credits. A stipend of \$2,700 is provided along with a travel allowance to cover living expenses during the 10-week program. Room and board must be paid out of the stipend and all participants are housed in a dormitory on the campus of George Washington University.

specific engineering-public policy issues of concern to the sponsoring society. These papers will be disseminated by the sponsoring societies and, if acceptable, published in an appropriate journal or magazine. Examples of recent papers include:

"Trade Policy and the Environment:
U.S.-Mexico Free Trade"

"The President's
Education Strategy:
Analysis of the Effects of America
2000 on Mathematics and
Science Education in America"

"Improving the
Medical Device Industry:
Recent Legislation
and Regulations"

WISE Washington Internship for Students of Engineering

Fifteen students will be selected in a nationwide competition to spend 10 weeks in the summer of 1993 in Washington, DC learning how engineers contribute to public policy decisions on complex technological matters. Students will study the roles of engineers at government hearings, as staff members of legislative and regulatory bodies, as lobbyists, as members of corporate staffs interacting with government agencies, and as representatives of professional engineering societies, standards setting organizations, or public interest groups. Through frequent meetings and discussions with prominent engineers and government officials, students examine a variety of public policy issues such as:

Do government officials understand technology? Whom do they rely on for help in understanding the technological aspects of their decisions? Should engineers be objective analysts or vocal advocates? Are there conflicts between professional judgments and political realities? In addition, each student will complete a paper that analyzes

"As a Congressman and engineer, I am very pleased to see the engineering societies help future leaders of the engineering profession learn about the role of public policy in science and technology. WISE is a truly outstanding program."

Joe Barton
Representative Texas

"I believe it is vitally important for more scientists and engineers to participate in the development and execution of policy decisions in technological areas. The WISE program provides an excellent opportunity for a group of highly talented engineering students to get an early introduction to the setting of policy at the national level."

Commissioner
Kenneth C. Rogers
U.S. Nuclear Regulatory
Commission

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01b. Memorandum	To: Offic-in-charge Re: request for appointments [dates of birth redacted] (2 pp.)	7/16/92	(b)(6)	

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