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Folder Title:
January 1991: 1/11/91 (11:00 a.m.) PCAST [President's Council of Advisors on Science and Technology] Meeting with A. Bromley [Agenda and Talking Points]

Stack:	Row:	Section:	Shelf:	Position:
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Document originally attached to following page.

To AW
Date 1/7 Time 9:00


WHILE YOU WERE OUT
M Bill Snyder
of _____
Phone X5101
Area Code Number Extension

TELEPHONED	PLEASE CALL
CALLED TO SEE YOU	WILL CALL AGAIN
WANTS TO SEE YOU	URGENT

RETURNED YOUR CALL

Message
1-7-91 YNB
asked to change to basket
to name Dr. Baskin

Operator _____

 AMPAD EFFICIENCY® 23-023 CARBONLESS

THE WHITE HOUSE

WASHINGTON

January 4, 1990

Ask Bill Snyder
to change MB's
name to
Dr.

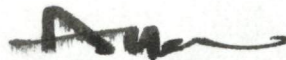
Dear Mike,

I am most pleased that you can meet with the President's Council of Advisors on Science and Technology on Friday, January 11, 1991.

At its inception a year ago, the President asked the PCAST to study and later advise him on specific issues of National importance. We have done this and will continue to offer advice on these issues. Now we believe it appropriate to revisit the needs of the President and the Presidency and identify those issues which the PCAST can offer helpful and substantive advice in 1991.

Your participation on January 11 will greatly assist us in meeting this goal and setting our priorities for this coming year.

Sincerely,



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

The Honorable Michael Boskin
Chairman
Council of Economic Advisors
Room 314
Old Executive Office Building

Enclosures: Draft Agenda for PCAST Meeting
 PCAST Membership
 PCAST Executive Order

DRAFT

As of noon, January 4, 1991

**PRESIDENT'S COUNCIL OF ADVISORS
ON SCIENCE AND TECHNOLOGY**

JANUARY 10-11, 1991

AGENDA

THURSDAY, JANUARY 10, 1991

**OPEN SESSION 9:00 AM - 12:00 NOON
CONFERENCE ROOM
COUNCIL ON ENVIRONMENTAL QUALITY
722 JACKSON PLACE, NW**

8:30 - 9:00	ARRIVAL -- COFFEE AND PASTRIES	
9:00 - 9:30	OPENING REMARKS	DR. BROMLEY
9:30 - 10:30	BIODIVERSITY - AN INFORMATION BRIEFING	DR. WILSON
10:30 - 10:45	DISCUSSION	
10:45 - 11:45	U.S. GLOBAL CHANGE RESEARCH PROGRAM - A PROGRESS REPORT	DR. PECK
11:45 - 12:00	CLOSING REMARKS	DR. BROMLEY

DRAFT

THURSDAY, JANUARY 10, 1991 Continued ...

**CLOSED SESSION, 12:00 NOON - 5:00 PM
ROOM 248
OMB DIRECTOR'S CONFERENCE ROOM
OLD EXECUTIVE OFFICE BUILDING**

12:00 - 12:45	LUNCH	
12:45 - 1:00	BREAK	
1:00 - 4:30	ISSUES FOR PCAST CONSIDERATION	DR. BROMLEY
	1:00 - 2:00	MR. DARMAN
	2:00 - 3:00	MR. BERNTHAL
	3:00 - 4:00	GENERAL SCOWCROFT
	4:00 - 4:30	ADMIRAL TRULY
- 4:30	OTHER BUSINESS	DR. BROMLEY
- 6:30	COCKTAILS AND DINNER MAYFLOWER HOTEL	

DRAFT

FRIDAY, JANUARY 11, 1991

**CLOSED SESSION 9:00 AM - 12:00 NOON
ROOM 180
OLD EXECUTIVE OFFICE BUILDING**

8:30 - 9:00	ARRIVAL -- COFFEE AND PASTRIES (DR. BROMLEY'S OFFICE, ROOM 360, OEOB)	
9:00 - 10:00	DISCUSSION OF FEBRUARY AGENDA AND OTHER ISSUES	DR. BROMLEY
10:00 - 12:00	ISSUES FOR PCAST CONSIDERATION	DR. BROMLEY
	10:00 - 11:00 GOVERNOR SUNUNU 11:00 - 12:00 MR. BOSKIN	
- 12:00	CLOSING REMARKS	DR. BROMLEY

**THE PRESIDENT'S COUNCIL OF ADVISERS ON SCIENCE AND TECHNOLOGY
(PCAST)**

**NORMAN BORLAUG, Distinguished Professor, Department of Soils and Crop Sciences,
Texas A&M University**

**ALLAN BROMLEY, Assistant to the President for Science and Technology, Executive Office
of the President (Chairman)**

**SOLOMON BUCHSBAUM, Senior Vice President, Technology Systems, AT&T Bell
Laboratories**

**CHARLES DRAKE, Albert Bradley Professor of Earth Sciences and Professor of Geology,
Dartmouth College**

RALPH GOMORY, President, The Alfred P. Sloan Foundation

**BERNADINE HEALY, Chairman of the Research Institute, The Cleveland Clinic Foundation
(Vice-Chairman)**

PETER LIKINS, President, Lehigh University

THOMAS LOVEJOY, Assistant Secretary for External Affairs, Smithsonian Institution

**WALTER MASSEY, Vice President for Research and for Argonne National Laboratory,
University of Chicago**

JOHN McTAGUE, Vice President-Research, Ford Motor Company

**DANIEL NATHANS, Professor of Molecular Biology and Genetics, Johns Hopkins University
School of Medicine**

DAVID PACKARD, Chairman of the Board, Hewlett-Packard Company

HAROLD SHAPIRO, President, Princeton University

For Immediate Release

January 19, 1990

EXECUTIVE ORDER

- - - - -

PRESIDENT'S COUNCIL OF ADVISORS ON SCIENCE AND TECHNOLOGY

By the authority vested in me as President by the Constitution and laws of the United States of America, and in order to establish, in accordance with the provisions of the Federal Advisory Committee Act, as amended (5 U.S.C. App. 2), an advisory committee on science and technology, it is hereby ordered as follows:

Section 1. Establishment. There is established the President's Council of Advisors on Science and Technology ("Council"). The Council shall be composed of not more than 15 members, one of whom shall be the Director of the Office of Science and Technology Policy, and 14 of whom shall be distinguished individuals from the private sector to be appointed by the President. The Director of the Office of Science and Technology Policy shall serve as Chairman of the Council. The Vice Chairman shall be appointed by the President from among the 14 private sector members. The Chairman shall report directly to the President.

Sec. 2. Functions. (a) The Council shall advise the President on matters involving all areas of science and technology.

(b) In the performance of its advisory duties the Council shall conduct a continuing review and assessment of developments in science and technology, and shall, through the Chairman, report thereon to the President whenever requested.

(c) The Chairman may, from time to time, invite experts to investigate and report to the Council on specific issues of national consequence.

Sec. 3. Administration. (a) The heads of Executive agencies shall, to the extent permitted by law, provide the Council and its panels such information with respect to scientific and technological matters as required for the purpose of carrying out its functions.

(b) Members of the Council shall serve without any compensation for their work on the Council. However, members appointed from among private citizens of the United States may be allowed travel expenses, including per diem in lieu of subsistence, as authorized by law for persons serving intermittently in the Government service (5 U.S.C. 5701-5707).

(c) Any expenses of the Council shall be paid from the funds available for the expenses of the Office of Science and Technology Policy.

(d) The Office of Administration shall, on a reimbursable basis, provide such administrative services as may be required.

Document originally attached to following page.

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EXECUTIVE OFFICE OF THE PRESIDENT
COUNCIL OF ECONOMIC ADVISERS



Michael -

Here are some notes
for your meeting
@ Bronley's fellos
Lamar. Let us know
if you want +s or
Δ's.

Rich ①
 ② record + Richard
 responsibility
 better management
 ③ future
 necessary
 members

Chris

Richard Schmalensee
 Member

Directed
 individual
 long-term
 strategy
 or
 procedure

CNS Lab {Observance
new products

RS/AJ/1/10

TALKING POINTS: PCAST SESSION 1/11/91

Note: You are down for an hour with this crowd, "12 prestigious individuals from academia and industry," much of which I assume is to be in the form of conversation. You follow Sununu. Per Bromley's form letter, they are interested "in learning about activities of your office and can give advice and assistance on science and technology issues," "in hearing your top objectives for 1991 and how PCAST can be of assistance," "to hear other issues that are of importance to you and your office and those issues for which you believe the PCAST can offer advice," and "your ideas on private sector initiatives that might be supportive of your objectives and the needs of the President." What follows is organized roughly around "S&T-related issues I care about and on which you might conceivably be able to help."

0. CEA's task is to advise the President about the health of the economy as a whole and to work for policies that contribute to its health. We often think of our constituents as U.S. consumers, since other agencies represent our citizens in their roles as workers, shareholders, patients, etc.
 - A. We are smaller than Allan's massive operation and have a staff mainly on leave from academia... add details at will.
- I. The President's top economic priority is maximizing sustainable economic growth -- add hymn. The CEA is interested in technology and innovation because they are major determinants of growth, and thus of the economic success of nations:
 - A. We know this empirically from economic history and from economic research (e.g., Boskin/Lau)
 - B. Thus your work, and Allan's are of vital importance to the economy and the nation. (add praise in layers)
 - C. I want to talk briefly about what I see as the federal government's role in encouraging science and technology.
- II. Government Must Create the Right Environment: The government has a crucial role to play in creating an economic and institutional environment that fosters both the development and widespread diffusion of new technologies. We stressed this in last year's ERP and continue to push it.

PCAST can help us set priorities in B & C...?

A. General investment environment

1. Stable macroeconomic environment (through stable policy rules)
2. Lower interest rates through deficit reduction

B. Tax policy

1. Permanent R&E tax credit (Note: according to Treasury, a final decision has not yet been made on whether to repeat our proposal to make the R&E credit permanent in the 1992 Budget submission.)
2. Incentives for entrepreneurship and capital formation, e.g., K-gains (As above, have pushed but may drop...?)

C. Legal environment

1. Strong protection for intellectual property, at home (resisting softening the orphan drug law) and abroad (GATT)
2. Predictable and balanced product liability rules (we tried and will, presumably, try again)
3. Fostering competition, which generally spurs innovation, through economic deregulation (go light on telephone; you likely have old Bell labs guys in the audience)
4. Environmental and product-safety regulation that is sensitive to the need not to unduly burden innovation (a hot area here is biotechnology, where a variety of useless restrictions have been a problem)
5. Antitrust policy that recognizes that cooperative research may be desirable (again, we tried to broaden the cooperative R&D exemption to include production)

III. Education: A progressive economy clearly requires leading edge S&T professionals, but it also requires a well-educated work force and a general public that can think sensibly about science and technology.

K. S. ... not ...

- A. K-12 education is failing to do its job -- I'm aware that this has been a concern of yours as well. (They have given the President a generally sensible paper on this subject.) What's needed are, among other things:
1. comprehensive reform to improve the flexibility and accountability of the school system; and
 2. more attention to attracting talented individuals into math and science teaching (alternative certification) in order to create a technically literate, adaptable workforce.
- B. Public education is needed to develop better general understanding of:
1. the importance of innovation and entrepreneurship for the economy;
 2. scientific reasoning, to distinguish between a provocative conjecture (e.g., being near wires that carry electricity is bad for you) and a well-supported theory -- a problem I have frequently in discussions of economic matters; and
 3. the issue of risk, and the harm that is created by an explicit or implicit standard of zero risk for new technologies. The public seems simply unable to deal with low probability/high loss risks in any sort of rational manner (e.g., pesticides get hysteria, while radon is ignored) -- what can be done? // this should generate discussion //
- IV. the Fed government does have an important role in supporting R&D investments that generate large spillovers (and hence will be inadequately provided by the private sector acting alone).

And we do a lot of it: \$66.1 billion in FY91, up 6% from FY90. Much of this is military, of course, but we spent \$27.2 billion on civilian R&D, up 11% from FY90

The problem is how to allocate these resources so as to maximize the long-run return to the taxpayer.

A. A few principles seem clear:

1. Government should not second-guess private decisions with respect to investments which, if successful, would yield significant profits to a firm undertaking them. That is,

Other
ex?

- We should avoid choosing particular industries to support - government is bad at determining which industries are truly "strategic" in anything but the strict DOD sense and is very vulnerable to special pleading.
 - We should also avoid supporting the development of particular commercial technologies - these pose no special spillover problem, so that rejection of some technologies in favor of others by the private sector generally means simply that the rejected technologies are bad investments.
2. Some investments may yield significant social benefits, but in such a way that even if the project is successful no private firm could exploit those benefits to its own advantage. These investments will be underprovided by the private sector.
 3. Thus, if we observe a certain research endeavor not being undertaken by the private sector we should ask: If a private firm undertook this endeavor, and it achieved its objective, would it make money from it?
 - If the answer to the question is yes, then the failure of the private sector to fund it suggests that it is not worthwhile.
 - If the answer is no, then the endeavor is at least a candidate for public support, depending on the expected social benefit, the investment cost, and the likelihood of success.
 4. Using the criterion of market failure/appropriability of benefits in this fashion is a superior decision rule about government's role in R&D than using the simple linear model of basic research/applied research/development, with a presumption that government starts the process with basic research, and then firms take over.

The key consideration is not how far along some hypothetical basic-applied-commercial trajectory

the endeavor lies, but rather whether the private incentives are approximately correct.

B. Translating these principles into specific policies is sometimes difficult, of course. But two categories that generate spillovers seem clear:

1. Basic research whose commercial implications are unclear
 - a. Outcomes are serendipitous; any particular firm will be reluctant to undertake research whose benefits are not privately appropriable.
 - b. Difficult or impossible to establish or enforce property rights in many cases.
 - c. CEA has worked hard in this area to get funding increased; to double the NSF budget...

(Something about economic research contributing to public policy and education?)

2. Applied research with generic applicability, on what Allan has called "generic, enabling, pre-commercial technologies"
 - a. Here outcomes may be more predictable, but if results are applicable to widely diverse technical or market circumstances, any one firm may be unable to exploit them fully. If research is very expensive, benefits in narrow application may not be sufficient motivation.
 - b. Again property rights may be difficult to establish, particularly for process developments.
 - c. Cooperative (or joint venture) research among private firms may be a partial solution, but some government involvement may be desirable to ensure wide dissemination and fostering of market competition.
 - d. This is the area in which the tension with the "don't pick commercial winners and losers" principle is greatest.

Any R&D funding decision, of course, involves choice, even in basic research (chemistry or biology?). But here one's choices have clearer implications for at least clusters of industries.

It is important nonetheless both to mine this ore and to be very careful that the government does not attempt to do that which it simply can't do well.

Federal Funding of R & D (For Background)

	<u>FY 1990</u>	<u>FY 1991</u>	
Basic	\$11.3 b	\$12.3 b	+8%
Applied	\$10.3 b	\$11.0 b	+6%
Development	\$40.6 b	\$42.9 b	+6%
TOTAL	\$62.3 b	\$66.1 b	+6%
Defense (DOD & DOE)	\$37.8 b	\$38.8 b	+3%
Civilian	\$24.6 b	\$27.2 b	+11%

Need any other numbers?