MEMORANDUM

January 7, 1989

To: Andy Card

From: Brad Mitchell

Re: Issues concerning the Office of Science and Technology Policy (OSTP)

Overriding Issue: The world is becoming technologically sophisticated at an exponential rate. As the end of the century approaches, it is increasingly clear that familiar policy mechanisms and standard approaches may no longer be sufficient to deal with future realities and problems. Policy-makers must have available methods for increasing their own level of technological sophistication so well-informed decisions can be made in this complex world. Furthermore, careful consideration must be given to the choice of the policy-makers themselves and their advisors.

Objective: This memo addresses the President-elect's stated desire to improve the process by which advice and analysis on matters pertaining to science and technology policy are provided to the President.

Brief Assessment: The primary issue confronting OSTP is overall credibility within the federal government and with the science and technology community outside the government, including academia and industry. At the present time, questions and concerns exist as to the role and effectiveness of OSTP in the policy making process.

The resources appropriated to OSTP in terms of budget and FTE's are not at a level which would enable OSTP to carry out its mission, as outlined in P.L. 94-282. See Attachment A, Title I and Title II blue highlights.

As a result of the President-elect's strong positive statements concerning science and technology during the campaign, the science and technology community has high expectations for the Bush Administration.

Specific Problems:

1. Organization:

- It is perceived that the current Director of OSTP does not have direct access to the President and, consequently, does not play a major role in policy design.
- OSTP does not have clearly defined roles and responsibilities.
- OSTP has not effectively advised the President on the setting of national science and technology goals.
- The current organizational structure does not reflect the President-elect's stated priorities and goals in the area of science and technology.

2. Resources:

- The OSTP budget has declined the last four consecutive years. The 1989 OSTP appropriation is the lowest in over a decade (real dollars). See Attachment B. The decline in funding adds to the perception that the Office is not vital.
- OSTP has a total staff of 27 people, only 9 of whom are permanent employees. The remaining 18 are detailees or liasons from other agencies.

Potential Solutions:

President Bush must clearly define the role, responsibilities, and priorities of OSTP as they relate to other offices in the Executive Office of the President (National Space Council, National Security Council, Economic Policy Council, Domestic Policy Council, Office of Management and Budget, etc.), so that the Office can be more effective in advising the President on setting national goals. Only after this definition is complete can an effective organization in terms of personnel and budget be designed. The following recommendations reflect my view that the Assistant to the President for Science and Technology should play the role of "honest broker", presenting proposals and offering advice to the President as objectively as possible.

1. **Organization:** Please see Attachment C for suggested organization.

   - o Elevate the President's Science Advisor to Assistant to the President for Science and Technology with Cabinet level status (without portfolio). Establish direct access between the Assistant and the President, thereby enhancing the Assistant's role in the policy making process.

   - o Appoint a Director of OSTP to be confirmed by the Senate. This person could also serve as the unofficial deputy to the Assistant to the President. The Director of OSTP would be the line manager of the Assistant to the President's organizational capacity.

   - o Establish the President's Council of Science and Technology Advisors, composed of leading scientists, engineers and distinquished executives from the private sector. The members of this elite group should be appointed by the President. The Assistant to the President for Science and Technology should serve as the chairman of the President's Council of Science and Technology Advisors.

   Rationale:

   - The Assistant to the President would not be the Director of OSTP under this organizational plan. The Assistant would be free of OSTP's daily operational requirements and could more fully serve the President as an "honest broker;"

   - The Assistant would play a key role in the science and technology priority-setting process as "pork barrel" science becomes increasingly problematic;

   - The person named to the Assistant position would be exempt from Congressional confirmation. The Director of OSTP would be the liason to Congress.

This would cut the tie between the President's top science and technology advisor and the Congress, enabling the Assistant to provide confidential, objective advice to the President.

2. Resources:

o Appoint the Assistant to the President for Science and Technology early in the transition period, preferably before the inauguration.

Rationale:

- An early appointment allows the Assistant to take part in early budget battles, especially FY 90, which may help address the resource problem indicated above;

- The Assistant could advise the President on the many other key scientific and technological appointments early in the Administration;

- The Assistant would have a reasonable amount of time to design the organizational structure of OSTP in a manner which would reflect the President-elect's priorities;

- An early appointment sends a strong, clear signal that this post is important to the President-elect. Better candidates will be attracted to science and technology jobs in the Administration if they perceive President-elect Bush has a personal interest in S&T.

  Note: In 1981, the Reagan Administration waited several months before selecting a Science Advisor. Not surprisingly, the first seven distinguished professionals asked to take the position turned the job down.

12/5/92

ED KNAPP conversation

Guy Stever was President Nixon's science advisor & the head NSF.

NSF & ERIC Bloch term expires ~ 1990.
done good job building

12-5-88

Hanns Kuttner conversation

OSTP Assistant to Pres. for Sci + Tech

should be honest broker objective presentation

Make Assistant to Pres. make his Deputy &

Director of OSTP

Presidential Interaction

Michelle can clear

NSPG

~~NPSC~~ meetings (if S+T dimension)

NSC deeply (if S+T dimension)

Member of Economic Policy Council (if S+T dimension)

Domestic Policy Council (if S+T dimension)

~~Instead~~ critical issue

Funds

staffs.

~~Direct~~ Access to Pres.

+ White House Science Council

Advisors meet every other month.

PR. Bill Graham
Notes

1-25-89
Wed.

① - WHSC membership

② - ASEAN Conference JAN 30 - Feb 4.

tell him about (Budget Director)

(1) FY89 + FY90 Budget
Total R&D budget = 65 B.

(2) Pikes involved in EPC, DPC & NSC mtgs.
* Should institutionalize those.

(3) better window to Academia + industry.

Call Allison to get things going!!

- Scott Bush
- Ryan Porter
- Kate
- letter to Bill Eldridge

QSTP Michelle Van Kleeve

Mission

- science & technology explanation to press
  Jan 9
- special analysis J → for S&T
- 9 permanent
  5 political → 3 professional
  4 career
- S&T policy model I
  coordinate S&T → principal focal pt.
- ~~model II~~ → honest broker
- Issue → split → Congressional
  → presidential
  - change title
- ↑ to the Chief of staff
  NSPG → when tech. subjects
  NSC → " "

  Domestic Policy Council
  Economic Policy Council
  White House Science Council
- Issue
  - funding
  - access to Pres.

Joe Hezir, ~~Marilyn~~ Norma Norman OMB 11 Jan 89

NASA

ISSUE

* ¶ keep run out would entail budget increases in the vollant

¶ Bush commitments
- Mission to Planet Earth

¶ 3yr appropriation for space station?

¶ ELV not in budget
Shuttle C as an option w/ (ALS)
Advanced heavy lift (ALS) w/ DOD
↓ no leap in technology

* ¶ commercialization
- use appropriations for what private mkt won't invest
- commercially developed space facility
NAS, NA Finan, NASA looking
- get private financing
  - support facilities
  - manufacturing facility for solid fuel motor
    Govt owned contractor operator
    (as COCO (as govt property)

- only one buyer (govt)

* must go to multi year budget process

* need to market other benefits

OSTP

Graham → the problem, staff weak → can't command other agency respect
- un responsive to Congress → did OSTP get the message
Budget cuts punitive by Congress
- roles
  - inside advisor
  - lobbyist of science community
  - policy spokesperson
- Global report done by OMB, Fixit system?

- never have used FTE

* - major fence mending on Hill, Agencies

- more concerned w/ representation than substance

* - get some relief / flexibility on some of the draconian 50% pay cut

- ~~Levers~~ Budget
- fix it
  OSTP w/
* role of DOD
  - top line policy w/ ~~con~~ DOD → OMB loses control

NSF

4 double NSF budget over 5 years
4 retooling Budget
  - instrumentation
  -
4 Education
  - evaluation

10 Jun 89 Mary English Public Affairs

- Keeping public informed, answer all queries from Press
- liaison w/ WH / agencies
  - speech writers
- member of senior staff
- coordinate Graham's speaking engagements
- oversee speeches

- present structure OK
  - Science Advisor / Director of OSTP ⇒ should remain
  - separate cabinet dept not needed
    - can call on experts when you need
    - Graham good at getting people to cooperate
  - short on staffing
  - many people fighting for the job
  - Economic & ~~Domestic~~ Council membership could be valuable
  - White House Science Council ⇒ reflection
    - briefs Pres
    - report to Science Advisor

Deborah Smith

- Science & Tech Dev. w/ India
  - IPR ?

- highest priority w/ Japan
  - global competitiveness

- Soviet Union
  - no int'l science & tech policy w/ no oversight
    - no coordinated overall structure

- constant tension between state & OSTP

- symmetrical access in trade bill & protection of IPR's

- global competitiveness
  - tech transfer

- elevation to Assistant to the President important for implementation capabilities

- 1992 EEC
  - reciprocity of tech trans

- June
  Science Advisor hosts massive China - U.S. delegation meeting

- Fall Japanese visit

10 Jun 09 Dr Joe DeSutter

Military Assistant to the Director but now more External Director → manage day-to-day

Arms Control Expert
- good relationships w/ NSC w/ OSTP

- need priority setting

  - serious priorities
  - strengthen offices
    - get a vote

Deborah Wince-Smith

- longest term at 4 yrs
* - issue → longetivity of mgmt group
- plugged in Economic & Domestic Councils

  - Policy developer
  - Coordinator

- rivalry w/ OMB
  Pres. priorities set by the budget

* - understaffing causing credibility/implementation problem

Under sec. Tech & Science → Commerce

10 Jan 89 Dr Rona

- NASA
  - dilemma aspirations vs budget constraints → short cuts
    - on verge of subcritical

- not ready for Space Station
  Nat'l Space Policy
- DoD can provide own space
  - Space station
  - added planetary exploration

- Who sets priorities

- focus on big projects
  National Aerospace plane

- make projects more efficient

OSTP

Role: small but influential

① objective
- serve nat'l interest as directed by the Pres.
- articulate to agencies +

Wish List

① Director's role should not change
② more professional staff 15130 B R&D
③ formal recognitions → to be essentially involved
  - must not need to fight for this
  - statutory members of councils

- access of DoD ⇒ discriminant deterrance ?
  - higher sophistication of missiles issues?

long range national security strategy

what is the backup of REV

Sp. Asst to the Dir.

Bob Post — 10 Jan 89

detailed from OMB

50% of work initiated by B.G.

- Press briefing

✗ ↓ Weaknesses
- lack of budgetary understanding
- need better relationships w/ OMB

≠ ↓ staff substantial
- may not be able for OSTP to satisfy Congressional task owners

- trade off between Ex. branch & Congressional demands

↓ Budget → necessary but sufficient

✗ ↓ OSTP to be more activist
- global climate
- competitive
> cross agency issues

↓ got FY'90 budget

↓ checking assumptions on major projects
- SSC
- Space station
- Human Genome Mission

- FY'90 Budget OSTP
- NASA

Beverly Berger

4 Life Sciences
- damage limitation (Honest Broker) avoiding policy decisions on sub policy levels
- invited to most meetings

4 Issues
- Int'l
  - environmental
- regulatory
  - Bio tech
  - risk assessment
- AIDS
- issues (org)
  - preeminence of national security
- tech transfer still needed badly

OSTP

Joe Pesther

Joe Pesther
1-9-99

Executive Director of UHSC & of OSTP

been here about 2 yrs.
came here to be military Assistant

when Thompson left assumed duties of Exec. Director of OSTP.

Role of Military Assistant
new arms control expert for Graham

established close working relationships with NSC staff.
Liaison OSTP to NSC staff

Executive Director more or less chief operating officer
geography is a real problem

Problems - Science Advisor is OEOB & OSTP is in new Executive office Bldg.

* The Priority setting role of OSTP

way to strengthen

OSTP

Special Assistant to President
Budget

Bus Pol
1-10-89

- Detailed from OMB here since May

Do 50% line work
Do 50% special projects for Graham

Weakness - lack of budgetary expertise.
budget - statement of policy + priorities.

OMB is more driven seat than OSTP in terms of budget.

OSTP operate in a vacuum

Congress driving OSTP agenda
- reports
- Questions + Answers
- testimony

OSTP must respond to Congress

- this year OSTP holding off oblivion - tremendous workload - upcoming

Bus Post
1/9/89

FY 90 Budget request 2.0 mill.

this will bring budget back to about where it was in 1988.

Actual 1989 Budget Appropriation 1.57 million

Jack Simon fellow former GM man
- Machine tools, numerical controlled machine

OSTP – forecast studies
certain critical mass of expertise to understand the analysis

* Most pressing issue is budget:
more activist at higher profile

1-9-89

* desire like priority setting device

in top down fashion * takes priority setting more from bottom up.

George comments the budget is a symptom of a larger problem.

FY 89 budget — OSTP is stripped

need supplemental budget to get through

How does the process work

Joe Hizer

Science Projects Priorities

Shuttle Cuts

Michelle VanCleave
12/22

Goals/Mission:

Support the President in S&T Matters
support policy council DPC, EPC
Advise OMB

Flexible office geared by the President

OSTP does Briefing the Press on S&T budget issues.
Jan 9th briefing on budget S&T issues

key

Federal Budget
special Analysis J. → what OSTP reviews

⇒ 9 Nine persons permanently allowed
detailees for network persons

2 PAS Director
Deputy

SES (Non-career) Michelle K. VanCleave

NO: 902000
DATE: 1/20/88

SPACE/NASA

STATEMENT OF VICE PRESIDENT
GEORGE BUSH

I am committed to reestablishing America as the world's leader in space. Americans are explorers -- we need to push back the frontier of our knowledge. Continued space exploration is vital to the nation's security and economic growth as well.

- The new technologies resulting from space experiments have produced dynamic improvements in fields such as electronics and medicine.

- Space exploration provides our children, the next generation of scientists and engineers, with a sense of vision to encourage their imaginations and energies.

- These are four specific aspects to my space program:

  - The federal government should get out of the business of being a freight service for routine commercial payloads. I want to encourage the development of -- not compete with -- private commercial space development.

  - I will create a National Space Council chaired by the Vice President and composed of the Secretaries of Commerce, Defense, State and Transportation as well as the Administrator of NASA.

  - I support construction of a replacement space shuttle and a heavy lift launch capability that will provide us with flexible, reliable access to space, and I've strongly supported the development of a space station.

  - I support "Mission to the Planet Earth" -- which is a project designed to establish platforms in space to observe climatic changes on earth. The information gained through this project will be of great value to farmers, fishermen, weathermen, scientists, all of us.

###

Coordinate Rule

Difficult

① Presidents Science Advisor

2 HATS:

② Director of OSTP

③ Rule? → Honest broker in the Executive Branch

Use NSC as Model for OSTP

Deborah Wince

competitiveness / Japanese

check with Andrew about NSC Model.

& he is called to testify in Capitol

Pros / Cons of my plan

Pro:

- Closer player a inner circle

Con:

- do STAFF or organization inside to support what he does.

NO: 901000
DATE: 6/22/88

STATEMENT OF VICE PRESIDENT GEORGE BUSH

Science and Technology

Technology is America's economic fountain of youth. It is what keeps us prosperous and vital. To stimulate our technological progress, we must adopt a program emphasizing innovation:

- We must commit to increasing our national investment in research and development. Both government and business must devote more resources to R&D.
- The federal government should increase its research and development investment; we should make the R&D tax credit permanent.
- To encourage innovation, we must strengthen intellectual property protection both at home and abroad.
- We must constantly oppose regulation which stifles competition, striving instead for innovative products and services. An illustrative example is the new biotechnology industry, which offers much promise in improved health care.

American business needs to get closer to the source of American inventiveness. It should have closer partnerships with government and university labs, so business can better commercialize scientific advances.

###

1-10-99

Kuttelenski

8:45 395-7326

give him #

9:00 Depart DirectAir's Room

10:00 English

11:00 Ms. Smith

1:00 Resutter

2:00 Berger

3:00 Bus Post

① Porter: 323-4300

② ~~Elizabeth Mahoney~~ 566-0689

③ Ann ~~Rowley~~ ~~453-2300~~

B031702 RESEARCH AND DEVELOPMENT

The vice president also toured the world's largest wind tunnel at NASA's Ames Research Center, where space agency officials briefed Bush on current research and also pushed for an increase in the NASA budget and for the proposed space station.

"The space station is very important to us," Bush said. "Obviously the thing is to get the space shuttle flying, and that will happen. Then we can move to the space station."

06/28/88 UNITED PRESS INTERNATIONAL
MOLINSKI, MICHAEL

We should also concentrate on developing new markets for our farm products at home. I am a tremendous believer in alcohol fuels -- not only to aid corn farmers, but because of the enormous payoffs they bring in energy security and environmental quality. Many cities will find that the only feasible way to reduce their carbon monoxide and ozone emissions will be through the use of alcohol fuels. The Administration's Task Force on Regulatory Relief, which I am proud to chair, has very actively cleared away bureaucratic obstacles to that development.

At the same time, we should take a serious look at the focus of our agricultural research efforts. For decades, we have put our primary emphasis on increasing production. But increasing farmers' production does ot necessarily increase farmers' profits. We should also concentrate on lowering the cost it takes to produce a bushel of corn.

Bush's statement on Rebuilding Rural America, 07/31/87

07/31/87 REPUBLICAN SPEECHES

B031702 SCIENCE AND TECHNOLOGY.RESEARCH AND DEVELOPMENT

George Bush goes him one better in space. On a campaign swing through Alabama, he suggests to National Aeronautics and Space Administration workers at the space flight center in Huntsville that he might approve a manned mission to Mars, which could cost a whopping $300 billion. The vice president's science advisers can't name a single big science project Mr. Bush opposes.

SKIPPED PARAGRAPHS

For instance, he advocates making the research-and-development tax credit permanent, which could cost $800 million a year. And he backs an ambitious program to study the Earth from space, at a cost of about $500 million a year.

08/09/88 WALL STREET JOURNAL
DAVIS, ROBERT

And I want to prepare the way for future growth. I want to keep America in the forefront of innovation. That's why I want a permanent extension of the R&D tax credit.

09/13/88 '88 CAMPAIGN SPEECHES

I've formulated a comprehensive policy for national energy security that includes:

* Tax incentives for returning stripper wells to production and more R&D to encourage more secondary and tertiary recovery.
* Tax credits for exploration and drilling. This will get the rig count up and decrease our dependence on foreign oil.
* Liberalization of the intangible drilling cost provisions in the tax code.
* Increasing the fill rate of the Strategic Petroleum Reserve.
* Decontrol of natural gas. The Democrat-controlled Congress has blocked decontrol for too long -- and my opponent said in his book, "Massachusetts Miracle", that it must be a "priority" to "press for the reregulation of natural gas."

09/22/88 REPUBLICAN SPEECHES

Bush promised to "make sure America remains the world's high-tech leader," saying he will make the research and development tax credit permanent, and seek government research and development authorization for five years and appropriations for two years at a time to provide for better long-range planning.

"It will be tough with Congress, but I'm going to fight for that," he said.

He said private industry should decide which technologies have the most potential in the marketplace and merit further research and development.

"Centralized planning leads only to centralized stagnation," he said. "Entrepreneurs, not bureaucrats, are going to blaze America's trail to the future."

10/25/88 UNITED PRESS INTERNATIONAL

B031702 SCIENCE AND TECHNOLOGY.RESEARCH AND DEVELOPMENT

I think it's high time we got our energy, not just from the Middle East, but from the Middle West. And in the bargains, farmers can turn their crop surpluses into cash. Greater use of alternative fuels will be the centerpiece of my efforts to open new markets for America's crops, but there are many other exciting potential uses for our farm products. For example, we are already using corn starch to make biodegradable plastic and soybean oil to make printers ink. New food technology and production, processing and packaging will create still other new markets. In the future, new technology and education are the keys to keeping America's agricultural competitive edge. To be competitive today and tomorrow, we cannot rely on yesterday's technologies. And as President, I will remain strongly in support of research, development and implementation of new technologies.

07/11/88 REPUBLICAN SPEECHES

I was profoundly impressed, what Earl and Jack Block were telling me about the job that so many of you do in going, taking the message from the laboratory to the farm. Today, only about $50 million, out of a billion dollars of agricultural research budget, is directed toward funding promising alternative products and uses. My administration would shift the focus to lowering production costs and developing new markets for crops, some of which I've just mentioned. And when we make advances in technology, we will move them as quickly as possible from the laboratory to the farm.

07/11/88 REPUBLICAN SPEECHES

Later in the day, Mr. Bush further sought to take advantage of the Discovery's triumphant return by telling an audience in Redding, Calif., that if he is elected he will commit the nation to launching an operational manned space station by 1996.

10/04/88 WASHINGTON TIMES

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07/11/88 REPUBLICAN SPEECHES

We're going to expand our efforts to make rural communities more attractive to industry. We're going to have to open the tax bill to do that, and we haven't been willing to do that in this administration because we wanted to settle down after that Tax Reform Act. But as I look at it, we should, in a very laser-like way, open up the whole tax structure so we can attract more industry to rural America. We're going to provide better education for our children, and continuing education for our farmers and ranchers, to help them adapt to these new technologies. For displaced farmers and their families, we've got to do a good job, a better job, on job retraining. I am very heartened by the economic statistics, in terms of the overall unemployment in this country. We've reached a brand new low. We've reached a high in terms of the greatest percentage of the work force at work than in any time in modern history, more Americans at work than at any time in American history. Things are good. People are optimistic. They say, "Yes, we are better off than we were," and then they look into the future with typical American optimism, and they say, by something like six to one, "We are going to be better off tomorrow than we are today."

07/11/88 REPUBLICAN SPEECHES

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07/11/88 REPUBLICAN SPEECHES

Bush also has pledged to create a National Space Council, led by his vice president, that would give NASA a greater voice in administration decisions than the civilian agency has under the present structure.

05/27/88 ORLANDO SENTINEL

The vice president also toured the world's largest wind tunnel at NASA's Ames Research Center, where space agency officials briefed Bush on current research and also pushed for an increase in the NASA budget and for the proposed space station.

"The space station is very important to us," Bush said. "Obviously the thing is to get the space shuttle flying, and that will happen. Then we can move to the space station."

06/28/88 UNITED PRESS INTERNATIONAL
MOLINSKI, MICHAEL

In a Huntsville, Ala., speech, Vice President George Bush urged a "long-term commitment to manned and unmanned exploration of the solar system. There is much to be done--further exploration of the moon, a mission to Mars..."

07/18/88 NEWSWEEK

B031701 SCIENCE AND TECHNOLOGY.NASA

The launch of the space shuttle Discovery also figured prominently in the 1988 campaign for the White House.

Bush announced to wildly cheering supporters at a rally in St. Charles, Mo., that the shuttle had lifted off and he declared, "We're going to keep the edge in space. We're back! America is back!"

09/29/88 UNITED PRESS INTERNATIONAL

"Just great," Bush said after watching the shuttle landing from a flag-draped observation stand. "A great day for our country," the campaigning vice president added, standing front and center as the space program concluded its first mission since the Challenger disaster more than two years ago.

Bush formally hailed the astronauts at a welcoming ceremony a few hours later, saying he was proud to "welcome the space shuttle Discovery back to earth, back to America, and back to the future."

In his prepared remarks, Bush thanked the astronauts, thanked the support crews and recalled the "seven departed friends, who will never be forgotten, cheering you from above." That reference to the victims of the Challenger disaster more than two years ago was the only somber note of a campaign day scripted to accentuate the positive.

10/03/88 ASSOCIATED PRESS

The vice president, at a rally in the northern California town, said, "The return of the shuttle, the return of America to space, has been enormously moving for all of us."

**********skipped paragraphs**********

"I am convinced this is not only an adventure but a responsibility, and one we shirk at our peril," he said.

Bush said the National Space Council would be headed by the vice president and would be composed of the heads of the departments of Defense, State, Transportation, Commerce and of NASA, and would make recommendations regarding specific directions for the future.

He also called for an operational space station by 1996 and called the goal a "feasible, sensible and worthy of a great nation."

10/03/88 UNITED PRESS INTERNATIONAL

Hauck was first out of Discovery, smiling and waving a giant American flag. Vice President George Bush, NASA Administrator James Fletcher and Truly greeted the crew.

At the afternoon welcoming ceremony, the crew thanked NASA, its contractors and the American public for making the mission a success.

Bush said to the astronauts, "Thank you for putting America back in space. Thank you for reminding us that's where we belong. And thank you for all that unheralded hard work and thank you for your courage."

The vice president also invoked the names of the Challenger Seven.

"Now, what was once remembered in sadness, is now relived in triumph. I can't help but think that just as you had millions cheering for you from below, you had seven departed friends who will never be forgotten cheering for you from above."

10/03/88 UNITED PRESS INTERNATIONAL

"When heroes return to a grateful nation, those who welcomed them often strain to come up with words that equal their deeds," said Bush in prepared remarks.

"But in this case that isn't possible, and all we can say, from our hearts is : Thank you for putting America back in space. Thank you for reminding us that's where we belong."

skipped paragraph

"You have proven that the space program is stronger than ever and more supported ever," said Bush. "You have shown that the shuttle is a strong ol' bird and that it could -- and should -- fly again."

10/04/88 BOSTON GLOBE

EDWARDS AIR FORCE BASE, Calif. (UPI) _ With the shuttle Discovery safely home and in "beautiful" shape, the born-again space agency turned today to the future, its recovery from the shock of the Challenger disaster finally over.

SKIPPED PARAGRAPH

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10/04/88 UNITED PRESS INTERNATIONAL

✓B031702 SCIENCE AND TECHNOLOGY.RESEARCH AND DEVELOPMENT

"Technology is America's economic fountain of youth. It is what keeps us prosperous and vital. To stimulate our technological progress, we should do the following:

---We must commit to increasing our national investment in research and development. Both government and business must devote more resources to R & D.

---The federal government should increase research and development investment even beyond the current strong levels.

---To encourage more business investment, we should make the R & D tax credit permanent.

---To encourage innovation, we should strengthen intellectual property protection both at home and abroad.

"...American business needs to get closer to the source of America's inventiveness. It should have closer partnerships with government labs and university labs, so business can better commercialize scientific advances."

--St. Louis U., May 16, 1987

05/16/87 REPUBLICAN SPEECHES

George Bush - a one-time oilman - said in Morgantown, W.Va., that Americans have "gotten a little fat, dumb and happy in this country in terms of our relaxation in the face of our becoming increasingly dependent on foreign oil. People working in research institutes, pushing back the frontiers of human understanding, will have more of an impact on the 21st century than all of us down in Washington, D.C.

05/04/88 USA TODAY

The vice president also toured the world's largest wind tunnel at NASA's Ames Research Center, where space agency officials briefed Bush on current research and also pushed for an increase in the NASA budget and for the proposed space station.

"The space station is very important to us," Bush said. "Obviously the thing is to get the space shuttle flying, and that will happen. Then we can move to the space station."

06/28/88 UNITED PRESS INTERNATIONAL
MOLINSKI, MICHAEL

MEMORANDUM

To: Richard English

From: Brad Mitchell

Re: Science and Technology Promises, Commitments

- Establish the position of Assistant to the President for Science and Technology in the Executive Office of the President.
- Reinvigorate the Office of Science and Technology Policy (OSTP).
- Create a President's Council of Science and Technology Advisors, composed of leading scientists, engineers and distinguished executives from the private sector.
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- Supports making all federal R&D authorizations for 5 years and all federal R&D appropriations for 2 years.
- Believes study of the sciences should be part of every child's basic education.
- Supports increased funding for magnet schools (many emphasize science education).
- Believes science education must continue to be key priority for National Science Foundation.
- Supports efforts of states to enhance math and science education by developing alternative certification programs.
- Will convene White House Conference on Education placing special emphasis on math and science education. Will discuss and define the goals of our math and science curricula.
- Supports making the R&D tax credit permanent.
- Supports cutting capital gains tax rate from 28 percent to 15 percent on all assets held more than one year.

- Encourages Partnerships for Progress -- partnerships between business, universities and government to advance base building technologies.

- Committed to protecting American intellectual property rights both at home and abroad.

- Committed to increasing our national investment in research and development.

- Committed to expanding exports.

- Must streamline and strengthen export control system.

- Will work with leaders of American high-tech industries to develop a coherent and comprehensive high-tech trade policy.

- Will work to provide consistent economic incentives and regulatory reform to enhance the ability of American business to commercialize new ideas and new technologies.

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__✓__Brad Mitchell

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December 4, 1988

SCIENCE AND TECHNOLOGY POLICY

Campaign commitments:

- Double National Science Foundation budget over five years.
- Federal support will be concentrated on basic research.
- Federal government should not attempt central planning for American research.
- Make the Research and Development tax credit permanent.
- Cut capital gains tax rate to 15 percent.
- Seek government R&D authorizations for five years and appropriations for two years at a time.
- Encourage cooperation between government, laboratories, and business.
- Protect intellectual property and see that American companies have just as much access to foreign research projects as foreign companies have to ours.
- Reestablish the National Space Council, chaired by the Vice President.
- Support the Special Isotope Reactor at the Idaho National Engineering Laboratory.
- Upgrade position of science advisor to the President and make the new Assistant to the President a member of the Economic Policy Council and the national security planning process.
- Establish a President's Council of Science and Technology Advisors.
- Support the "Mission to Planet Earth."
- Develop and deploy SDI.
- Improve math and science education.
- Increase funding for AIDS research
- Provide adequate funding for research into the causes of long-term chronic disability, like Alzheimer's disease and strokes.

SCIENCE AND TECHNOLOGY POLICY
(Questions for all science and technology appointments)

1. Should the Federal government emphasize basic scientific research in its funding of research?

2. How would you help resolve the tensions between scientists who work on defense-related projects and scientists who do not? Is there sufficient funding for both groups?

3. How, practically, can we build partnerships among government, business, and universities?

4. Should certain Federal grantees be prohibited from publishing the results of their research because of national security concerns? How would you decide which areas should be classified? How would you reconcile this with universities' belief in academic freedom?

5. Should we adopt a policy of reciprocity against countries that do not give American researchers the same access to their labs that we give to foreign researchers?

6. How can we encourage more young people to consider careers in science and engineering?

7. What steps can we take to ensure better quality in American products?

EXCERPTS OF REMARKS FOR
VICE PRESIDENT GEORGE BUSH
OHIO ASSOCIATION OF BROADCASTERS
COLUMBUS, OHIO
TUESDAY, OCTOBER 25, 1988

We have grown accustomed in the political arena to speaking in the language of economics. We talk of Gross National Product, the consumer price index and the leading economic indicators. The economists sift and tally their numbers and present us with the facts of our economic existence.

But I want to talk today about another kind of economic fact, one that is often overlooked by those numbers, but one that is, in many ways, more fundamental.

Imagine a computer the size of a room, shrunk down to a size that will fit comfortably on your lap. Imagine today's super-computer shrunk down so that it fits on a single silicon chip -- this is the kind of dramatic improvment the experts now predict. This is the computer revolution -- the positive explosion of productivity at the heart of our economy.

It is accelerating the process of discovery, of innovation and change and has helped give America, in these last eight years, one of the most remarkable periods of creativity our economy has ever known.

But the fundamental point I want to make today is this -- these dramatic breakthroughs don't only effect silicon valley or other high-tech centers, its effects are spreading throughout our economy.

It is a mistake to segregate in one's mind "high tech" from the rest of our industrial base. In fact, one of the most profound effects of this technological revolution is the revitalization of our traditional industries -- not replacement, but revitalization -- making our products more competitive in global markets. Technology is America's economic fountain of youth.

We are in a new era of American industry, where the "service sector" melds with the industrial sector to create modern manufacturing. Americans are taking America's high-tech advantage and putting it to work reshaping our factories to be more competitive in the new information age. Some of the most dramatic examples are right here in Ohio.

-more-

There are so many successes here in Ohio, its hard to pick just a few. For example, take American Steel and Wire Corporation in Cleveland, which bought several of United States Steel's "moth balled" facilities and remodeled them with the latest steel technology. They are also paving the way to the future with an ambitious Employee Stock Ownership Plan -- in my view, some of the best labor relations are when employees become owners.

Take the Castite Corporation, also of Cleveland, whose President, Joan Lamson, personifies American entrepreneurship. Utilizing a new technology that makes metal castings pressure-tight, she decided to start her own company -- and she took it to an inner-city community, hiring half of her employees from one of the roughest parts of town.

Mead Corporation in Dayton, a maker of paper products, is also utilizing new technology in their paper mills, as well as diversifying into, among other things, information services, with their dramatically successful "Lexis" and "Nexis." Employment at their information division has gone from roughly 490 employees in 1980 to over 2,400 today.

It's this kind of restructuring that is putting new strength in the heartland's rebound and making the term "rustbelt" obsolete. A few numbers: unemployment, a painful 12.5 percent in Ohio during the recession, is now 5.9 percent -- still too high, but moving dramatically in the right direction. Throughout our nation's heartland, in almost every state, service sector and manufacturing employment has jumped. In Iowa, manufacturing employment is up 5 percent over last year, 10 percent over two years ago. Wisconsin's industrial employment is up four percent, Minnesota's 3.7 percent, Indiana's three percent. 26,000 new businesses sprang up in Ohio last year alone, creating many of the new jobs.

I think we sometimes make the mistake of thinking of the high-tech, "service sectors" of our economy as being in competition with the industrial sectors. But the industrial revolution didn't replace agriculture. Its inventions, from John Deere's steel plow and Cyrus McCormick's reaper to the steam combine and now to today's most modern farm machinery only made agriculture hugely more productive and created new markets for its products -- and, not incidentally, raised living standards for all. In the same way, the high-tech revolution isn't replacing basic manufacturing, it's creating new markets and, by playing to America's greatest strengths -- entrepreneurship and innovation -- it's making American industry more competitive abroad.

I have spent this campaign trying to delineate as clearly as I possibly can the profound differences between me and my opponent. On no issue are our two approaches more profoundly opposed, than on the question of how America must respond to this historic transformation as we enter the new information age in a truly global economy. These next four to eight years are crucial. To a great extent they will determine whether the United States continues to lead the world through openness and innovation -- or falls behind, retreating into isolation, economic provincialism, and destructive policies that protect special interests.

Let me take a moment to outline some of the principles and proposals a Bush administration will adopt to make sure America remains the world's high-tech leader.

The federal investment in research and development should focus on basic research and allow the private sector -- also a tremendous source of basic R&D -- to decide which technologies will have the most potential in the marketplace. Centralized planning leads only to centralized stagnation. Entrepreneurs, not bureaucrats, are going to blaze America's trail to the future.

Despite the extraordinary pressures on the budget, the Reagan/Bush administration has increased basic research funding by over 50 percent after adjusting for inflation. I will continue our strong support of federal investments in basic research, and I will make the Research and Development tax credit permanent. At the same time, I will seek government R&D authorizations for five years and appropriations for two years at a time -- so that researchers in our businesses and universities have a more stable, consistent environment in which to plan.

Improved commercialization is also vital. I will enhance the commercialization of new technologies by encouraging cooperation between laboratories and business.

A Bush Administration will vigorously move to protect intellectual property in the world marketplace and see that American companies have just as much access to foreign research projects as foreign companies have to ours.

I will upgrade the President's science advisor to Assistant to the President and make him an active member of the Economic Policy Council and our national security planning processes. And I will create a President's Council of Science and Technology Advisors, composed of leading scientists, engineers and distinguished executives from the private sector.

I will urge states and school boards to focus on science and math education from elementary grades to graduate school. Today, the United States awards about half the number of engineering

degrees as Japan, per capita. It's estimated that by 1995, we will need 300,000 additional secondary-school math and science teachers.

I've said before that I will call a conference of the nation's Governors to discuss the most urgent problems facing our schools, including curricula and achievement levels. One of our tasks will be to set goals and timetables for improving Math and Science Education -- and I will encourage states to adopt Alternate Certification for Teachers, ACT, so that science and technology professionals, among others, can share their crucial knowledge with our nation's students.

Finally, the United States government shouldn't, through misguided policies, put United States industry at a disadvantage.

We must realize that American industry faces global competition. We need vigorous enforcement of our anti-trust laws to ensure fair play, but when we consider the range of competition, we must take into account that the marketplace has expanded enormously and that American business is in a race with foreign competitors. A Bush Administration will conduct a thorough review of anti-competitive laws and regulations and work with Congress to rewrite them as need be to give ourselves a level playing field -- while still protecting the American consumer.

Perhaps most important of all, a Bush Administration will seek to cut the Capital Gains tax from 28 to 15 percent.

Let's learn from history -- there is nothing more crucial than cutting the capital gains tax if we want to spur investment, innovation and jobs.

My opponent says he wants American industry to be competitive -- yet most of our major competitors don't even have a capital gains tax. Japan doesn't have one. Neither do Hong Kong, South Korea, Taiwan or Singapore. Perhaps my opponent can explain why he wants to shackle America's entrepreneurs and businesses with a tax many of our foreign competitors don't have to contend with.

Does my opponent really want to put American business at a disadvantage against its foreign competitors? He's the one that would prevent American industry from competing on a level playing field -- in fact, he's the one who would tip it in favor of our foreign competition.

I have wondered if there is any rhyme or reason behind my opponent's fierce opposition to the capital gains tax cut. Every time we've cut it in the past, we've actually brought in more revenue because of increased investment and economic activity. That's history. That's fact. It's estimated that our cut would have zero revenue loss. So its not the effect on the deficit.

I have come to the conclusion -- it is my belief -- that my opponent's economic polices cannot be understood as a rational approach to economic growth and the creation of jobs. He clings, despite all the evidence of the last two decades, to the discredited polices of high taxes and big government spending.

It is my belief that my opponent is far outside the mainstream of economic thinking, and has broken with the American traditions of entrepreneurship and free enterprise.

He advocates what is called an "industrial policy" -- which means having bureaucrats in Washington pick the winners and the losers, and that would simply make us all losers.

Perhaps twenty or thirty years ago, I understand some people considered it reasonable to believe such things. Today, it is quite simply irrational. Those policies have been tried, and they have failed. Dramatically. Across the Atlantic, the stagnation and high unemployment caused by high taxation and over-regulation was called the "European Disease." Here at home, I seem to remember, when we were moving that direction last time a tax-and-spend Governor was in the White House, we called it "malaise."

Around the world, governments are abandoning socialism, in all its various guises and degrees, and embracing the American model of low taxation, entrepreneurship and individual initiative. Now is not the time to throw America's gears full speed in reverse back to the 1970s with policies that would stymie the competitive transformation of American industry taking place in America's heartland.

I spoke of irrationality. I must say that I've been disturbed, as I've witnessed my opponent's campaign over the last several weeks, at the increasing appeals to class conflict. In my view, there is no place in American public life for philosophies that divide Americans one from another and that excite conflict among them.

America will move forward together, or not at all. America will find her future by keeping with the traditions of her past -- traditions of openness, generosity and cooperation. We will move forward, not by succumbing to the base temptations of fear and envy, but by following, as Abraham Lincoln said, those "better Angels of our nature."

The world today is in the midst of a profound transformation -- one so far-reaching in its consequences that past revolutions -- political, economic or scientific -- will all be dwarfed by comparison.

Because this transformation encompasses all three. We are entering the information age at a time of sweeping change in the economic and political spheres, the decline of communism as an economic philosophy, and the tide of democratic governments that is changing the face of the world -- all based on the right of the individual to be, in Milton Friedman's resounding phrase, Free to Choose.

America is uniquely suited to lead this world revolution to a new era of peace and prosperity. Founded in freedom, our nation is imbued with the spirit of enterprise, the torch of creativity that will light our way.

As I said earlier, these next four to eight years will be watershed years when we decide whether America goes forward as a leader, or slips back into the past. I am dedicated to expanding our economic freedom and unleashing the creativity of our entrepreneurs that is revitalizing American industry. I believe that America must lead the world in every field -- economic, political and scientific, or we will fall behind in all.

I am proud to have worked with our great President and had the experience of helping to create six years of record setting economic growth, technological innovation and record setting employment. I have an optimistic faith in America and the limitless capabilities of its people who will carry those policies on to the future.

Thank you all very much and God bless you.

# # # #

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January 1989