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Doc. No. / Type	Subject/Title	Date	Restriction	Classification
01. Notes	Conversation with Frank Lavin (1 pp.)	12/20/89	~~P-5~~	
02. Memo	From Brad Mitchell to Andy Card Re: Issues Concerning the Office of Science and Technology Policy (OSTP) [Open Upon Deed of Gift - March 16, 2015] (4 pp.)	1/7/89	~~PRM~~	
03. Notes	Science Advisor Advice (1 pp.)	n.d.	~~P-5~~	
04a. Notes	Meeting with Deborah Wince [FOIA restrictions redacted] (1 pp.)	3/15/89	(b)(6)	
04b. Notes	Meeting with George Gilmore (1 pp.)	03/13/89	~~P-5~~	

Collection:

Record Group: Bush Presidential Records
Office: Policy Development, Office of
Series: Goldstein, Ed, Files
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File Location: Office of Science and Technology Policy

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Science and Technology Advice in the White House

Recommendations for President-Elect George Bush

NATIONAL ACADEMY OF SCIENCES
NATIONAL ACADEMY OF ENGINEERING
INSTITUTE OF MEDICINE

NATIONAL ACADEMY OF SCIENCES
NATIONAL ACADEMY OF ENGINEERING
INSTITUTE OF MEDICINE
2101 Constitution Avenue, Washington, D.C. 20418

The Honorable George Bush
The President-Elect of the United States
Old Executive Office Building
Washington, D.C. 20501

Dear Mr. President-Elect:

Many of the issues that will demand your personal attention in the course of your Administration combine political, economic, and scientific or technological components. Industrial competitiveness, weapons programs, federal budget priorities, AIDS, and environmental regulation are a few such issues whose technical aspects are recognized but not resolved. Other national concerns of equal or greater technical complexity will almost certainly emerge during your term of office. In all of these cases, you will profit by having a senior assistant who recognizes what areas of science and technology are involved, who knows what analysis needs to be brought to bear and where it can be obtained, and who can help identify options for you to consider. As you suggested in your speech to the Ohio Association of Broadcasters in Columbus on October 25, we believe that a science and technology adviser designated as an assistant to the President or accorded Cabinet status can best serve these functions.

A science and technology adviser's principal duty is to provide objective technical advice, on a timely basis, for you to consider along with counsel from other sources on the issues you face. In developing that advice, your science and technology adviser will selectively draw upon government expertise that is often widely dispersed across agencies, remote from the White House, and colored by bureaucratic interests. He or she will exploit the resources of the academic and industrial communities without becoming their advocate. In making a decision, you may accord other advice more weight than the views of your science and technology adviser; but you can be confident

that you are aware of technical factors that could either advance or undermine your policies.

In addition to helping you formulate policies on matters with scientific and technical aspects, an adviser of stature can serve you in several other capacities—helping your personnel director identify superior candidates for sub-Cabinet positions and agency directorships requiring scientific and technical competence; working with the Director of OMB to ensure that your priorities are reflected in proposed budgets for science and technology activities, now amounting to more than $60 billion; helping to coordinate multi-agency research and development in support of competitiveness, environmental protection, AIDS prevention and treatment, and other national objectives; and, occasionally, representing you in international discussions of sensitive issues of science and technology.

The person that you appoint to this position should have three major attributes:

- a commitment to the success of your presidency and an ability to work effectively with other senior advisers on whom you will depend;
- outstanding scientific or engineering credentials that command the respect of the industrial and academic communities and parts of the bureaucracy whose help you will need; and
- familiarity with influences on the federal role in science and technology and with the political environment of the Executive Branch.

We believe that the position of Director of the Office of Science and Technology Policy, as it has functioned in recent Administrations, needs to be enhanced to attract a person of the caliber who will best serve your needs. You have a range of options with regard to the status, staffing, budget, and external advisory mechanisms of the office. Your choices should be governed by the organization and mode of operation of the White House staff as a whole. The essential element is to enable your science and technology adviser to participate in presidential policy deliberations on a par with other senior White House advisers.

Whatever arrangements you make for the office, we urge you to proceed rapidly to select a science and technology adviser as you consider other senior White House and Cabinet positions. Otherwise, you may forfeit an opportunity to obtain the best advice on key appointments to executive positions in agen-

cies with science and technology responsibilities, to make adjustments to the FY 1990 budget, and to address other matters on which your early decisions will have lasting consequences for your presidency. Equally important, an early appointment will signal the importance you attach to the role of science and technology in meeting your objectives for the country.

We elaborate on these points in the attached paper, "Science and Technology Advice in the White House: Recommendations for President-Elect George Bush."

Yours sincerely,

Frank Press
President
National Academy
of Sciences

Robert M. White
President
National Academy
of Engineering

Samuel O. Thier
President
Institute of
Medicine

Attachment

Science and Technology Advice in the White House

NATIONAL ACADEMY OF SCIENCES
NATIONAL ACADEMY OF ENGINEERING
INSTITUTE OF MEDICINE

National Academy Press
Washington, D.C. 1988

National Academy Press 2101 Constitution Avenue, NW Washington, DC 20418

The National Academy of Sciences (NAS) is a private, self-perpetuating society of distinguished scholars in scientific and engineering research, dedicated to the furtherance of science and technology and their use for the general welfare. Under the authority of its congressional charter of 1863, the Academy has a working mandate that calls upon it to advise the federal government on scientific and technical matters. The Academy carries out this mandate primarily through the National Research Council, which it jointly administers with the National Academy of Engineering and the Institute of Medicine. Dr. Frank Press is President of the NAS.

The National Academy of Engineering (NAE) was established in 1964, under the charter of the NAS, as a parallel organization of distinguished engineers, autonomous in its administration and in the selection of members, sharing with the NAS its responsibilities for advising the federal government. Dr. Robert M. White is President of the NAE.

The Institute of Medicine (IOM) was chartered in 1970 by the NAS to enlist distinguished members of appropriate professions in the examination of policy matters pertaining to the health sciences and to the health of the public. In this, the Institute acts under both the Academy's 1863 congressional charter responsibility to be an adviser to the federal government and its own initiative in identifying issues of medical care, research, and education. Dr. Samuel O. Thier is President of the IOM.

Printed in the United States of America

PREFACE

In anticipation of a new Administration, the presidents of the National Academies of Sciences and Engineering and the Institute of Medicine decided early in 1988 to prepare "White Papers" on a few important national issues involving science and technology.

The role of the President's science and technology adviser was a natural topic for such a paper. The adviser's office should be a focal point for consideration and coordination of S&T policies that require attention at the highest level of government. For example, the office is likely to have a major role in each of the issues—civilian space policy, global environmental change, and AIDS—examined in the other White Papers. Beyond the current agenda, it is uncertain what new issues with significant scientific or technical aspects will emerge to demand the President's attention; but it is obvious that the quality and timeliness of the advice he receives will influence whether he is successful in dealing with them.

In preparing this paper, the presidents of the Academies and the Institute had the assistance of two members of the Academy staff with relevant experience. Philip M. Smith, Executive Officer of the National Research Council, was Associate Director of the Office of Science and Technology Policy (OSTP) from 1976 to 1981. Stephen A. Merrill, director of government affairs of the National Research Council, contributed to congressional oversight of OSTP as a staff member of the Senate Commerce, Science, and Transportation Committee from 1977 to 1981. The presidents met several times to review and revise their drafts of the paper, which were also circulated within the three institutions and their respective Councils for comment.

This paper considers the role and qualifications of the science and technology adviser from the perspective of pressures upon and opportunities available to the Bush Administration. Like the office itself, the following analysis and recommendations serve no purpose unless they serve the interests of the President of the United States.

In its first few months, your Administration will face a range of international and domestic issues whose scientific and technical aspects are important to their resolution—weapon system acquisitions and arms control, economic growth and competitiveness, AIDS and other public health threats, space policy, trade negotiations, alternative energy strategies driven by global climate change, environmental degradation, regulatory policy, and the allocation of federal research and development funds that exceed $60 billion this fiscal year. Varied issues with complex technical aspects that are not always apparent will continue to emerge during your presidency, possibly more often than in previous Administrations.

Regardless of how you organize your staff, you will have access to technical expertise and opinion in and out of the government. Nevertheless, establishing your own source of technical advice in the White House will supplement the political and economic wisdom of your senior advisers, enable you to select the best advice, and help you avoid the pitfalls and exploit the opportunities that each of these issues poses. A science and technology adviser committed to the success of your presidency but willing to present the facts even when they are disquieting, detached from the federal bureaucracy but having its respect and that of the scientific and technical communities, can help you formulate and implement effective policies.

YOUR AGENDA AND NEEDS

In the ***international arena***, the nature of the scientific and technical issues requiring your personal attention is changing and their range is expanding.

Major weapon system acquisitions and arms control measures are inherently presidential issues because they bear on your fundamental responsibility to protect the national security and because they have a substantial impact on the federal budget. This is an area of fierce competition among interested parties with ample technical resources—the military services and defense contractors, among others. Presidents have generally relied on a strong national security adviser to help them sort through opposing views and narrow the options from which they choose. Today that task is complicated by several recent developments:

- Weapon systems, both nuclear and conventional, have become ever more technologically sophisticated, subject to conflicting claims of feasibility and performance, and vulnerable to unanticipated technical problems and human error in either development or operation.

- As a consequence of actions by your predecessor and the last Congress, the Strategic Defense Initiative, in particular, requires your early review and decisions on technological directions and funding levels.
- The nation's defense industrial base is becoming more dependent on civilian technological advances at home and abroad. In the postwar period, the military sector typically led the development of technologies that sooner or later found civilian applications—semiconductors, computers, and numerically controlled machine tools, among others. Today, military applications frequently lag behind commercial technology. Indeed, there are grounds for concern about the vitality of the domestic technology base in the military's growing reliance on foreign commercial sources of critical components and manufacturing equipment.
- Arms control agreements increasingly hinge on the technology of verification rather than on issues of grand strategy.

The traditional strengths of the National Security Council staff need to be supplemented by expertise in these kinds of developments.

In economic and bilateral summit meetings, leaders of other industrialized countries are raising directly with the President of the United States issues of technology trade, collaboration on large-scale technology projects (e.g., a joint mission to Mars), cooperative research, access to know-how, and environmental protection. And because these leaders regard such matters as vital to their countries' welfare, they have become sophisticated advocates. In the United States, some of these are areas of more limited national government responsibility. Authority and expertise tend to be dispersed among agencies removed from the White House and its coordination. In the next four years, expert advice will be valuable to you in dealing with our allies, adversaries, and industrializing countries on:

- terms of trade in technology-based products and services;
- rules for restricting technology flows for national security or commercial reasons;
- conditions for collaborating on and sharing the results of major science and technology projects; and
- means of alleviating or adapting to man-made changes in the global environment—atmospheric warming and acid deposition attributable mainly to the use of fossil fuels, stratospheric ozone depletion resulting mainly from the use of chlorofluorocarbons, and the decline in biological diversity from a variety of activities.

In the ***global competition arena***, which affects the nation's security, foreign relations, and economic welfare, you will confront America's loss of

world market share in several strategic industries, the relative decline of the U.S. technology base and of its performance in science and mathematics education, erosion of intellectual property protection in major foreign markets, and concern about the effects of technological change on the work force. Competitive pressures will grow as more and more industrializing countries look to technology-based domestic production as a source of job creation, exports, and in some cases debt relief.

Scientific advances and technological innovation contribute importantly to productivity growth and international competitiveness—keys to raising Americans' standard of living. But there are varied macroeconomic policy prescriptions to improve industry's innovative capacity. And despite a proliferation of public initiatives, especially at the state level, the government role in technology development and commercialization remains controversial, its influences varied but mostly indirect, and responsibility dispersed throughout the Executive Branch with little if any coordination.

Consider two important recent cases in which policies were hastily improvised, not necessarily successfully:

- The uncoordinated response to the precipitous loss of world market share by the U.S. semiconductor industry. A semiconductor trade agreement with Japan has apparently curtailed dumping on world markets but contributed to rising prices and shortages of semiconductor memory devices. The formation of Sematech with federal assistance poses the dilemma of when and how to craft effective public-private sector collaboration for technology development.
- The tepid response to breakthroughs in the field of high-temperature superconducting materials. Here there is reason to doubt that industrial and government efforts are sufficient to translate U.S. scientific prowess into leadership in commercial applications in electronics, transportation, power generation, and other industries.

In the ***domestic arena***, the challenges are equally complex. In health, they extend from allocating resources to basic research to incorporating technological advances in health care delivery, from educating providers and the public to reforming the means of financing services.

With regard to the ongoing AIDS epidemic, the federal government has primary responsibility for developing the scientific knowledge base, a function that is centralized in the health research agencies that are repositories of much of the relevant expertise. But until there are breakthroughs toward a vaccine or effective treatments, the immediate tasks are educating the public, curbing drug abuse, protecting victims' rights, and paying mounting health care expenses. On these issues, knowledge is limited, opinion sharply divided, and respon-

sibility fragmented. Nevertheless, you will be held accountable for the adequacy of research, the responsiveness of industry and regulatory agencies in vaccine development, leadership in public education, paying a large share of medical costs, and devising alternatives to costly long-term hospitalization. White House staff must provide you with the best independent judgment available, gathered and synthesized from all available sources, on what makes sense to do and what could make the AIDS scourge worse.

Science and technology initiatives in any of these areas, international or domestic, whether to ameliorate problems or to capitalize on new opportunities, imply substantial investments in research, development, and training at a time of persistent budget deficits. They therefore impinge on one of your urgent tasks as President—to resolve the fiscal crisis. Federally supported R&D activities, including for defense, amount to more than $60 billion; and the share of that total devoted to civilian R&D represents a rising percentage of non-defense discretionary spending—the part of the budget under severest pressure from the deficit reduction imperative and where pent-up public demand for services is greatest.

In budgeting for R&D, the previous Administration increased spending, especially for basic research, beyond the inflation rate but in the end only to a level equivalent to expenditures in the 1960s. Since 1980 federal R&D (again, including military) has risen in real terms but stagnated or declined in relation to other measures—the cost of doing research, the shares of their GNPs spent by our major foreign competitors, and the proportion of U.S. GNP generated by the technology-intensive sector of our economy.

Total public R&D spending, in any case, conceals shifts in relative priorities during the last dozen years:

- an increase in military R&D relative to R&D for civilian purposes;
- from civilian applied R&D projects to fundamental research; and
- on the military side, the reverse—from basic research to development.

That these shifts are in many cases opposite to the policies of our competitors doesn't make them wrong. But they need to be reviewed carefully, in light of your principal objectives and by a process involving technically qualified advisers who are not also stakeholders.

Finally, several science and technology projects with multibillion dollar price tags have reached a critical juncture. They are poised somewhere between research and preliminary development and the much more costly construction/deployment/operations phases. In the next few months, you will have to decide whether and how to proceed with the Superconducting Supercollider, the Space Station and/or a subsidized but privately sponsored manned space facility, and, of course, the Strategic Defense Initiative. Each of these projects

has its proponents and detractors, arguing its worth or lack thereof in terms of science, jobs, profits, national prestige, or a conception of military security. At a time of fierce competition for limited money and talent, the objective counsel of a science and technology adviser can help you assess the merits of competing claims.

FUNCTIONS OF A SCIENCE AND TECHNOLOGY ADVISER

A personal science and technology adviser can assist you and senior officials of your administration in five important ways: (1) policy formulation; (2) recruitment to executive positions in agencies with science and technology functions; (3) evaluation of R&D budgets, in cooperation with the Office of Management and Budget; (4) coordination of R&D management among the various departments and agencies; and (5) international negotiations involving issues of science and technology.

- *Policy Formulation.* None of the issues outlined above can be decided exclusively on the basis of scientific or technical considerations; they also entail an array of budget, economic, national security, diplomatic, and domestic political considerations. A technical perspective is important to a full vetting of the issues, but it is most useful to you when integrated with the analysis and recommendations of other senior White House advisers. An effective science and technology adviser and his or her staff must work closely with other White House principals and Executive Office units—the domestic policy and National Security Council staffs, Council of Economic Advisers, and Office of Management and Budget. The science and technology adviser should have an opportunity to comment on decision memoranda originating with or involving the Cabinet departments and agencies and should participate in any deliberations where his or her perspective can illuminate technical and scientific questions associated with a presidential policy decision. Once you have made a decision, you will find it advantageous to have a technically qualified spokesperson to explain your objectives to Congress and other audiences.
- *Appointments.* Some two dozen positions subject to your appointment offer you an opportunity to install scientific and technical competence at high levels across the government. No White House official can make up for deficiencies in appointees to these sub-Cabinet positions in the Defense, Energy, Health and Human Services, Agriculture, Commerce, and Interior Departments and the directorships of such agencies as the National Science Foundation, NASA, and the Environmental Protection

Agency. But your science and technology adviser can help you and the director of White House personnel define the necessary qualifications and identify top-notch candidates whose philosophies are compatible with your own.

- *Budgeting for R&D.* The dilemma you face in allocating funds for science and technology is a function of their increasing importance to national goals and expanding opportunities in virtually every field of science and engineering at a time of severe budget constraints. The temptation in such circumstances is to invest for short-term returns and to embrace attractive new projects without adequate attention to the base of long-term research, its infrastructure, and the training of scientists and engineers.

  Support of these activities is a responsibility of several agencies, divisions of OMB, and congressional committees, as is sponsorship of research and development contributing to national objectives such as industrial competitiveness, environmental protection, and AIDS prevention and treatment. Uniquely, your science and technology adviser can play a supporting role in articulating your priorities and ensuring that they are reflected in your budget proposals in these cross-cutting areas.
- *Coordination.* Although the federal government's organization by mission separates research and development activities into at least a dozen major agency units, the issues you face and the research and technical support that may eventually help to resolve them cut across bureaucratic boundaries. Examples include

  —acid precipitation, climatic change, and techniques for amelioration;
  —water quality and quantity;
  —biotechnology regulation;
  —research and other government policies to foster the competitiveness of particular industries;
  —basic and applied research to exploit scientific breakthroughs, as in superconductivity; and
  —prevention and treatment of AIDS and other diseases.

  Although the competence of departmental and agency staff and their external advisers remains high, recent personnel policies and attitudes toward public service have discouraged retention of strong scientific and engineering talent in government. And even with the best personnel there are inevitable territorial rivalries, overlapping jurisdictions, ambiguous legislative guidance, and tendencies to support agency positions regardless of their wisdom. A science and technology adviser can play an important mediating, coordinating, and troubleshooting role to

help you implement policies and boost the productivity of the government's research and development enterprise.

Your science and technology adviser should be encouraged to use and be included in your high-level coordinating councils for national security and domestic affairs and in appropriate Cabinet committees. On matters requiring coordination among research agencies, a statutory mechanism, the Federal Coordinating Council for Science, Engineering, and Technology (FCCSET), can play an important role. Under the chairmanship of the science and technology adviser, FCCSET can bring together Cabinet officials and agency directors to address issues of mutual interest—regulatory, administrative, or budget.

- *International Negotiations.* Presidents have often found it useful to rely on their science and technology advisers and support staffs to coordinate policy formulation on important international issues, to assume a lead role in certain sensitive diplomatic initiatives such as the negotiation of groundbreaking bilateral science and technology agreements, and to advise on technical issues that arise in summit negotiations. On international assignment, the science and technology adviser serves the interests of the White House, ensuring that the U.S. position reflects the President's policy, arrived at after wide consultation with the interested departments and agencies.

  On occasion, science and technology initiatives spearhead broader foreign policy objectives, as in the opening of exchanges with the People's Republic of China and the promotion of bilateral scientific exchanges between Israel and Egypt. In the 1990s, equally dramatic breakthroughs may arise in other parts of the world—Africa, the Middle East, or Latin America. A science and technology adviser can help you not only anticipate but also consummate such opportunities.

QUALIFICATIONS OF A SCIENCE AND TECHNOLOGY ADVISER

Your science and technology adviser should be a source of independent, objective technical counsel. But to be effective, he or she must merit your confidence and that of your closest political advisers. We therefore believe that the first attribute you should consider in choosing an adviser is the person's ability to balance respect for and candor in presenting factual evidence with a strong commitment to the success of your presidency. Other important qualifications are:

- A broad knowledge of the science and technology enterprise and of the process of scientific discovery and its application. This presumes expertise in a field of work and experience in a university, industrial, or government research setting; but it does not imply that a background in one particular discipline or type of research institution is preferable to another.
- Professional standing and personal qualities that command the respect of the science and technology communities in the private and public sectors. Without these qualifications, your adviser will have difficulty drawing on a broad range of intellectual resources in and out of government.
- Familiarity with the federal role in science and technology is valuable and perhaps indispensable, as is an understanding of the political environment of the Executive Branch.

It follows that your science and technology adviser should not be:

- a pure technician untutored in policymaking and inexperienced in the culture of the bureaucracy;
- a constituency advocate, whether on behalf of a particular discipline, set of research performers, research program, or the science and technology community as a whole; nor
- a political partisan who bends technical argument to support positions based on ideology.

An incumbent identified as having any of these characteristics would defeat the utility of the appointment.

STATUS OF THE SCIENCE AND TECHNOLOGY ADVISER

Congress formally established a science and technology advisory function in the Executive Office of the President in 1976 (P.L. 94-282). The act provides for an Office of Science and Technology Policy with a director and as many as four associate directors appointed with the advice and consent of the Senate. Legislation has not been essential to an effective advisory office, as witness the existence of a highly professional advisory staff in the Eisenhower White House and under Executive Order beginning with the Kennedy Administration and lasting until the second Nixon Administration. Morever, congressionally mandated OSTP functions may sometimes conflict with the President's requirements. On the whole, however, the legislation provides adequate flexibility for you to organize and employ the office in the manner you judge to be most consistent with the style of your Administration.

Your science and technology adviser's status and access should therefore be viewed from the perspective of how the White House will be organized to carry out the work of your Administration. The important issue is not a particular title or form of organization but his or her ability to contribute to your decision-making process. For example, if you rely for advice primarily on a group of White House staff members, you may wish to designate the science and technology adviser as an assistant to the President. Alternatively, if you rely on the Cabinet as an advisory body, you may find it desirable to make the science and technology adviser a Cabinet member but without portfolio. In France, the Federal Republic of Germany, the People's Republic of China, and the USSR the equivalent position carries cabinet rank. Either arrangement would signal inclusion of your adviser in the principal councils of your Administration, and it would strengthen his or her ability to serve you in policy formulation and interagency coordination roles.

An individual with the stature and experience required would, in any case, decline to serve without having access to the Oval Office and being considered on a par with other members of your senior staff.

ORGANIZATION OF THE SCIENCE AND TECHNOLOGY ADVISER'S OFFICE

No appointee will have all of the relevant technical expertise nor all of the credentials described above in equal measure. He or she must be supported by an adequate but moderate-size staff and budget. In staffing the office, you and your appointee should be guided by the need for:

- a diversity of technical expertise;
- a mix of institutional experience (e.g., industrial as well as academic), including familiarity with the requirements of R&D performance in the field; and
- experience in the Washington policy process.

Although OSTP is authorized to have four associate directors subject to Senate confirmation, at no time have more than two of these positions been filled in this manner. You may wish to consider using these relatively high-level positions to attract a combination of talents and experience that will supplement the qualifications of the Director. On the other hand, Executive Office units, such as the Council of Economic Advisers and Council on Environmental Quality, with several principal members have not noticeably benefited from additional positions subject to Senate confirmation.

The total staff should be adequate for the scope of responsibilities assigned to your science and technology adviser. The Director should have sufficient flexibility to augment the staff as new issues arise, as inevitably they will. These considerations suggest that an appropriately staffed OSTP will be comparable in size to such other White House and Executive Office units as the National Security Council, the Office of Policy Development, and the Council of Economic Advisers. Currently, these range from about 30 to 60 full-time permanent positions.

By contrast, OSTP has shrunk from 23 full-time permanent positions in the late 1970s to only 11 such positions today. This has compelled undue reliance on borrowed staff of executive agencies and national laboratories, many of whom have not had the requisite breadth of experience. The OSTP budget has been reduced during this period. Although there are eminently good reasons to contain the growth of the White House and EOP staffs, the current resources are inadequate to the tasks described above. Joint appointments, for example to the NSC and OSTP, can facilitate White House coordination and communication without proliferating staff.

EXTERNAL SOURCES OF ADVICE

Your science adviser will best serve you if he or she has ready access to external advice and analysis of the technical and scientific issues that will arise during your Presidency. The technical and scientific communities in universities and industry have a longstanding tradition of public service; they are accustomed to and enthusiastic about serving in advisory capacities in the executive R&D agencies and especially for the President.

- *Advisory Consultants.* OSTP's budget should enable the science and technology adviser to retain technical consultants, especially on a temporary basis for concentrated work on fast-breaking issues. This need not be a large number, perhaps a half dozen full-time equivalent positions. The Intergovernmental Personnel Act authority should be used to recruit people on a temporary basis from universities, industry, and other locations. Funds should be available to enable OSTP to reimburse agencies and tap nongovernmental organizations for special assignments.
- *Advisory Committees.* In past Administrations, the White House has had one or more advisory bodies, fully briefed on the work of OSTP and able to tackle quickly an emerging issue that needs urgent attention. The appointees to such committees must be technically current in one or more areas, but they must also be experienced in dealing with issues at a

presidential level. In the past, this advisory structure has been organized in three ways:

—ad hoc committees established to deal with specific problems and disbanded upon completion of their work;
—a standing advisory committee to the science and technology adviser; and
—a science and technology advisory committee appointed with the advice of the science and technology adviser but reporting directly to the President.

President Ford appointed a Presidential Science and Technology Committee. President Carter preferred to create ad hoc committees. President Reagan established a committee primarily to serve the science and technology adviser. There is no single best arrangement for obtaining external advice. You and your science and technology adviser should choose the committee structure that best suits the organization and operation of your White House.

Some observers of science and technology policymaking argue that the Presidential Science Advisory Committee (PSAC) that served Presidents Eisenhower and Kennedy is an essential means of obtaining external advice. Others believe that a single advisory committee cannot incorporate the breadth of technical expertise required to address the range and complexity of issues facing the President in the 1990s. Whatever mechanism best suits you, those who serve must be prepared to devote the time and effort necessary to develop sound advice; and they must do so with the understanding that White House service demands confidentiality.

IMPORTANCE OF AN EARLY APPOINTMENT

These organizational questions, although important to resolve, should not delay your selection of a science and technology adviser. If you follow the pattern of previous Administrations in appointing an OSTP director several months after the inauguration, you will forfeit an opportunity to obtain useful advice, not only on departmental and agency appointments and adjustments to the FY 1990 science and technology budget but also on issues that must be addressed in the first weeks of your Administration. More important, an early appointment, along with other senior White House staff, will signal the importance you attach to the position and help you to recruit a person of outstanding ability who can promote your objectives throughout your term of office.

S I M O N R A M O

9200 Sunset Boulevard, Suite #401
Los Angeles, California 90069

December 14, 1988

Dear Governor Sununu:

The purpose of this letter is to urge the most serious, early consideration of the recommendations of the Carnegie Commission on Science, Technology, and Government recently sent you. (A print of the Summary is attached).

I believe it extremely important that the proposed new Assistant to the President for science and technology be chosen as soon as possible, so as to commence immediately the relating of science and technology factors to the handling of major issues facing the new administration. These issues are usually (and correctly) seen as political, social, and economic. But the various facets intersect, and technology advance is plunk in the middle of the intersections -- sometimes exacerbating the problems, more often pointing the way to solutions, and frequently offering new opportunities which if grasped can lead to greater productivity, economic growth, new jobs, higher living standards, increased global competitiveness, and more cost-effective national security.

It would be particularly advantageous if the new post were designated as of Cabinet level. Then a thoroughly distinguished, multiple-career, scientist-engineer-executive could be attracted to the post. It would be even better if the present Office of Scisnce and Technology Policy were retained, with its director reporting to the new Cabinet appointee. The latter would then be exempt from Congressional confirmation and summons, and only the director of the OSTP would be subject to such calls and interrogations. This would enable the Assistant to provide confidential, objective advice to the President.

Sincerely,

Si Ramo

Simon Ramo

SR
bh

Attachment

EXECUTIVE SUMMARY

1. The Carnegie Commission on Science, Technology, and Government was established in April, 1988 to assess the process by which the government incorporates scientific and technical knowledge into policy and decisionmaking. The Commission is made up of individuals with broad experience in government and in science and technology.

2. Science and technology, effectively mobilized, can help the President achieve his Administration's goals. That mobilization can best be accomplished by bringing science and technology (S&T) into the highest levels of government. The Commission has therefore focused its attention first on how S&T knowledge and advice can help the President deal with S&T related matters in the transition period and beyond.

3. Some of the issues involving S&T that will come up include: national security (new weapons, arms control, SDI), health (health costs, AIDS, drugs), large S&T projects (the superconducting supercollider, the High Speed Civil Transport), the environment (acid rain, ozone depletion and greenhouse effect), economic competitiveness, energy and nuclear materials, and the S&T enterprise (science education, academic research and the defense technology base). Other issues are certain to emerge.

4. The President will need the help of a senior staff assistant to respond to his needs by providing independent counsel in matters involving S&T -- for advice, for assistance in policy formulation, budget preparations, policy and program implementation, responding to emergencies, and for early warning of major S&T developments.

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8. The President and his Assistant must have the ability to call on the national S&T community for help and to have the collective judgments of broad-gauged experts drawn from different facets of S&T. The Commission recommends that the President appoint an outside group of highly qualified and respected science and technology advisors to report to him through its chairman, the Assistant for Science and Technology. The members should be willing to devote a substantial portion of their time to its work.

9. The Commission stands ready to help the President and his Assistant for Science and Technology during and following the transition period.

SCIENCE & TECHNOLOGY AND THE PRESIDENT

A REPORT BY

THE CARNEGIE COMMISSION ON SCIENCE, TECHNOLOGY, AND GOVERNMENT

OCTOBER 24, 1988

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SCIENCE
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EXECUTIVE SUMMARY

1. The Carnegie Commission on Science, Technology, and Government was established in April, 1988 to assess the process by which the government incorporates scientific and technical knowledge into policy and decisionmaking. The Commission is made up of individuals with broad experience in government and in science and technology.

2. Science and technology, effectively mobilized, can help the President achieve his Administration's goals. That mobilization can best be accomplished by bringing science and technology (S&T) into the highest levels of government. The Commission has therefore focused its attention first on how S&T knowledge and advice can help the President deal with S&T related matters in the transition period and beyond.

3. Some of the issues involving S&T that will come up include: national security (new weapons, arms control, SDI), health (health costs, AIDS, drugs), large S&T projects (the superconducting supercollider, the High Speed Civil Transport), the environment (acid rain, ozone depletion and greenhouse effect), economic competitiveness, energy and nuclear materials, and the S&T enterprise (science education, academic research and the defense technology base). Other issues are certain to emerge.

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9. The Commission stands ready to help the President and his Assistant for Science and Technology during and following the transition period.

I. INTRODUCTION

This paper by the Carnegie Commission on Science, Technology and Government was prepared to assist the incoming President and his staff as they deal with matters involving science and technology (S&T) during the transition period and thereafter [1]. The paper:

- discusses the President's needs during the post-election period;
- highlights key S&T related issues that will require Presidential attention early in the new Administration;
- describes the major functions for the President's S&T staff; and
- outlines organizational requirements for obtaining S&T advice.

The Commission was established by Carnegie Corporation of New York in April 1988 to assess, over a three to five year period, the process by which the government brings S&T knowledge into policy and decisionmaking. Rapid and pervasive transformations resulting from developments in S&T have imposed critical burdens on this process [2].

While the Commission's mandate covers all parts and levels of government, it has given priority attention to how the President gets S&T advice and assistance. The organization of this function can influence the entire Federal decisionmaking system and the ability of the nation to use S&T to further military security and domestic well-being.

II. THE PRESIDENT'S NEEDS DURING THE TRANSITION

Even before his inauguration, the new President will have to

- set initial policy priorities for the new Administration;
- resolve critical budgetary questions concerning S&T investments in defense, space, health and other major programs that will affect his first Budget Message to the Congress;
- make several dozen key technical appointments to the Federal departments and agencies; and
- organize the White House and the Executive Office staffs.

Scientific and technical expertise and advice are relevant -- even necessary -- to all of these undertakings. A senior staff assistant who is compatible with the President and his other key staff advisers can be an important contributor to Presidential decisions during the transition period. The incoming President will want to be as knowledgeable as possible about the issues and have a staff capable of providing a confidential, independent, dependable and continuing source of S&T expertise.

The Commission believes that the President should upgrade the existing position of Science Adviser and appoint a senior staff member, with the title of Assistant to the President for Science and Technology, early in the transition period. The person appointed must be capable of obtaining and providing advice on these immediate tasks, have the full confidence of the President, have the respect of the S&T community, and have the breadth to assist the President as he addresses a substantial agenda of issues. The Assistant would also serve as the Director of the statutory Office of Science and Technology Policy (OSTP).

Many significant budget decisions will have to be made by the President during the transition and in the early days of his Administration. A number of them will require judgments on the S&T aspects of programs. Research and development expenditures are approximately 25% of the discretionary budget. The Assistant should work with the new director of the Office of Management and Budget on major budget issues involving S&T.

The Assistant should be a member of the group that recruits for key Presidential appointments calling for technical competence. Appendix B lists some sixty important positions requiring Presidential appointments that also require S&T qualifications. The people involved in personnel searches are typically not knowledgeable or experienced in identifying such persons. An Assistant for Science and Technology who is highly regarded by the President and the technical community can play a critical role in proposing and reviewing prospective candidates, and persuading distinguished individuals to accept high-level positions. In carrying out this task, the Assistant could enlist the help of organizations such

as the National Academies of Sciences and Engineering, the Institute of Medicine and the American Association for the Advancement of Science.

The President may wish to convene special task forces during the transition period to address immediate and longer-range policy issues. Where appropriate, the Assistant should be asked to recommend persons competent in S&T to serve as members of these task forces. When requested by the President or the transition team, the Assistant should also organize *ad hoc* expert working groups to probe S&T matters in depth.

The Commission recommends that the President appoint an Assistant for Science and Technology very early in the transition and that the Assistant be a member of internal staff groups addressing policy and budgetary issues and advising on Presidential appointments to positions that require a scientific or technical background.

The Commission further recommends that the Assistant be asked to propose technically qualified persons to serve on Presidential task forces dealing with particular areas of concern and to convene *ad hoc* groups of experts to examine selected S&T issues.

III. PRESIDENTIAL LEVEL ISSUES INVOLVING SCIENCE AND TECHNOLOGY

In recent years, there has been a substantial increase in the number and scope of issues coming before the President whose resolution require S&T knowledge and informed professional judgment. They stem from the acceleration of scientific knowledge and technological development, from the opportunities these developments offer, and from an increased understanding and awareness of their economic and societal consequences.

Beginning immediately and throughout his administration, the President will have four main areas in which he will need S&T advice. The first embraces the scientific and technical aspects of space and national security, including arms control issues. The second concerns civilian technology and economic competitiveness. The third involves biomedical questions, including health and drug abuse, and the environment. The fourth is the S&T technical base -- the entire research and development apparatus, basic science and generic technology, and science and engineering education. Many individual decisions affect more than one of these areas.

Among the critical S&T-related issues facing the next President are the following:

National Security

Many national security-related policies have interwoven technical, political and military dimensions:

New Weapons Systems Requirements. There is general agreement that the recent build-up in the Defense department has been designed for an annual operation level that is substantially higher than the level of $300 billion agreed for future expenditures by the Congress and the present Administration. As new weapons systems now come on-line, the President will face major decisions on the balance between strategic and conventional forces and between weapons procurement, operations and maintenance, force structure, and sustainment capabilities.

Strategic Forces. It will be necessary to restructure and modernize the strategic forces to incorporate new weapons technologies. How can the changes be made to ensure that these forces are adequately survivable? Do they enhance our security and do so in the most economical way? How can capabilities and objectives be better matched?

Strategic Interaction with Conventional Forces. If strategic forces were to be reduced by 50% under a START agreement, what changes would be needed in the level and mix of our remaining strategic as well as conventional forces? For example, to what extent and in what way should technological opportunities, such as high precision weapons, be exploited?

Arms Control. There are technical possibilities for unilateral verification of arms control agreements in addition to cooperative and more intrusive means of verification. How should these possibilities affect U.S. positions and goals in negotiating arms control treaties? The Strategic Defense Initiative program is a critical part of the arms control debate. Its goal requires changing the balance between defensive and offensive strategic forces. Is this goal technically and strategically viable?

Intelligence. In the past, White House leadership has been important to the development and continued improvement of new technologies for surveillance. Are there new possibilities for collecting and analyzing information? What is the value of additional technical intelligence capabilities in relation to their cost? How could new intelligence technologies open up opportunities for viable phasedowns of strategic and conventional weapons systems?

Space policy

U.S. dominance in space peaked with the Apollo manned lunar landings and the Viking unmanned exploration of Mars. It has since declined. The President will have to make critical decisions about the space program.

Space goals and initiatives. Priorities have to be set among the various expensive programs. Which major new initiatives -- planetary exploration, earth science, or manned missions to the Moon or Mars -- should the President support? Should any of these be cooperative programs with other countries? Will the space shuttle be able to justify its costs over time?

The Space Station. Funding the Space Station -- the logical next step to prepare for manned exploration -- may crowd out NASA's smaller scientific and operational programs. The President will need to decide whether to fully fund, stretch out, or modify the program.

Launch Capability. Launch capability for unmanned missions has deteriorated. How do the military and civilian programs obtain a balanced, mixed fleet of launchers?

Civilian Space Programs. While the U.S. did the pioneering work in civilian space applications, we are losing that lead. U.S. leadership in satellite communications is threatened by the Europeans and the Japanese. The French earth observation satellite is outperforming the American unclassified version, and French and Chinese launchers are gaining in the commercial satellite launching market. Should the government take a more active role in the development and promotion of civilian space applications?

Civilian Technology and Economic Competitiveness

The international competitiveness of American industry has suffered serious erosion. One of the underlying causes -- though only one of several -- is a loss of American leadership in important product and process technologies. The critical deficiency is not in research but in failure to achieve fast and effective commercialization of scientific and engineering advances. The hard task facing the government is to find ways to induce industry to abandon short-sighted management practices, without interfering in the details of business decision-making. Policy will have to go beyond the support of R&D to such complex goals as achieving a lower cost of capital for investment, stimulating long-range improvements in manufacturing technology, and creating a labor force with skills and motivations adequate for the modern competitive world. S&T machinery must interact with economic and fiscal policy.

Health

Health care accounts for over 11% of the U.S. GNP, but there is ever increasing dissatisfaction with the balance of costs and benefits. These conflicts will surely be aggravated for a variety of reasons including the aging of the U.S. population, the rapid evolution of new but more costly technologies (like the new artificial kidney and the magnetic resonance scanner), a host of new ethical dilemmas, and increasing expectations that technology can offer and society will pay for alleviation of all disease.

Meanwhile, substance abuse is a festering wound that threatens the fundamental tenets of civility, compounded by its further consequences in crime and in the spread of AIDS and other infections.

Scientific research related to health care is a legitimate source of pride in the U.S., but it constitutes barely 3% of the investment in care alone. Are expenditures in health care, disease prevention and research in proper balance and coherence?

Environment

Air Quality. Acid rain pollution has been a contentious issue between different geographic areas of the country. Ozone depletion in the upper atmosphere has focussed attention on the impact of apparently benign gases, such as chlorofluorocarbons, on the atmosphere. The increase in infrared-absorbing gases such as carbon dioxide and methane seems to be reinforcing concerns about a "greenhouse effect" that is causing global warming. These problems go beyond our borders, and require international agreements and Presidential attention.

Waste Disposal. Toxic chemicals and medical waste attract public attention, but the waste disposal problem is much broader. What more should be done to anticipate and reduce environmental threats?

Large-Scale S&T Programs

Large science and technology programs have become costly discretionary items in the budget. Many of them start out as relatively small items in a given agency's budget and do not appear to raise significant questions. Because these projects are generally sponsored by different agencies, their relative priorities are often not weighed systematically. The opportunities for international cooperation tend to be neglected. Some examples include:

New Aerospace Transports. The Air Force is developing technology for a National Aerospace Plane (NASP). This program -- currently budgeted to receive approximately $100 million per year -- is aimed at developing a Mach 25 aircraft that can go into space. At the same time NASA is pursuing the Mach 2.5-5.0 High Speed Civil Transport (HSCT), also scheduled to cost $100 million per year. The project competes with Japanese and European efforts.

The Superconducting Supercollider. Site selection is proceeding on this high energy accelerator that is expected to advance the field of fundamental particle physics. The project is sponsored by the Department of Energy. Congress has funded the program at a relatively low level, thereby deferring the decision to build to the next President. The program will eventually cost $5-6 billion.

The human genome program. The Department of Energy and the National Institutes of Health are co-sponsoring an ambitious, long-range effort to map the structure of the human genome. The long-term cost could reach $2-3 billion.

Scientific and Technical Education and Research

Scientific and technical education. The current quality and extent of science education are seriously inadequate in meeting the nation's need for an informed citizenry and for technological growth in the decades to come. While the states are mainly responsible for elementary and secondary education, Federal leadership is needed for upgrading curricula, development of tests, improvement of teaching, and meeting the special needs of women and minorities. At the college and graduate level, more American students are needed, particularly in engineering. In addition, the Federal government should find ways to encourage technical upgrading of those already in the work force.

Scientific and Technical Research. There needs to be stronger support from Federal research grants and contracts for basic research at universities. University research facilities are well behind the industry norm, reducing the opportunity for cutting-edge research. In considering the cost and value of "big science and technology" projects, the President will need to take into account the appropriate balance between them and investigator initiated "small science" -- the backbone of basic science and of S&T graduate education. To what extent should some of these large-scale projects be carried out cooperatively with other countries?

Government Technical Personnel.

The success of the next Administration will depend heavily on the quality of people it can recruit for technical positions. It is generally agreed that the quality has eroded. Low government salaries, conflict of interest laws, and lessened respect for civil servants may all contribute to the problem. Can recruitment policies and hiring procedures be modified to attract excellent technical people to managerial positions?

IV. SCIENCE AND TECHNOLOGY FUNCTIONS SUPPORTING THE PRESIDENT

The Assistant for Science and Technology wears two hats: that of a senior member of the White House staff, and that of Director of the statutory Office of Science and Technology Policy. In both capacities, the Assistant should perform the following principal functions drawing on the resources of the OSTP staff and outside consultants:

Advice: advising and assisting the President and his staff

Policy: participating in the formulation of policy involving S&T

Funding: advising on the priorities and funding of S&T

Implementation: tracking of S&T related policy implementation

Early Warning: alerting the President to developments in S&T and their policy significance

Emergencies: responding to emergencies such as electricity blackouts, technoterrorism, computer breakdown, natural disasters.

Matters coming to Presidential attention that involve S&T usually have one or more of the following characteristics:

- they reach across or beyond the interests and responsibilities of several departments and agencies;
- they have major budgetary or policy implications;
- they have significant national security or foreign policy dimensions;
- they have particularly high public visibility.

Advising the President

It is not possible to differentiate sharply between the roles of the Assistant and the Director of OSTP. The Assistant acts in an individual capacity as a member of the President's inner staff to respond to his day-to-day requests for advice and assistance and to integrate all S&T inputs and relevant considerations in making suggestions and recommendations to the President.

Science and technology advice and assistance to the President can take the form of weighing conflicting technical arguments, presenting policy alternatives and options, recommending choices and priorities, and evaluating scientific or technical solutions to problems.

An important function of the Assistant is to foresee opportunities and problems. As President Ford has noted in this context, Presidents don't like surprises. At the same time, the Assistant must balance his attention to longer range issues with current and ongoing problems and opportunities.

The Assistant can help the President in his meetings with the heads of foreign governments. Presidential meetings with the leaders of the Soviet Union, India, Japan, Korea and Taiwan have featured S&T initiatives and agreements. Such agreements often symbolize U.S. technical leadership, while serving broader foreign policy objectives.

Although the Assistant is selected from the S&T community, it is should be stressed that he is not a lobbyist for that community. Thus, the President can rely on the Assistant to monitor the health of science and engineering and to identify measures needed to strengthen the national S&T base, working closely with the National Science Board. In the past, some members of the S&T community have erroneously expected the Assistant to be their spokesperson. There have also been occasions when the Science Adviser has been viewed within government as a special pleader for science. The performance and effectiveness of the Assistant must challenge and transcend that misperception.

The departments and agencies will provide much of the help the President needs on S&T matters. While some may view the Assistant and the OSTP as a substitute for S&T competence in the agencies, they function most effectively when the agencies have good technical leadership and staff. In both roles, the Assistant works with departments and agencies to negotiate compromises or agreements among conflicting interests and to point them in new directions, linking them to Presidential concerns.

Working with Cabinet-level Councils.

The Assistant should work closely with other senior members of the President's staff and with Cabinet members as they come together in the National Security Council, the Domestic Policy Council, the Economic Policy Council, the Council of Economic Advisers, the Council on Environmental Quality, and other Executive Office mechanisms that may be established.

The National Security Council (NSC). In carrying out its integrative role, the NSC must involve specialized and sensitive understanding of modern military technologies and their future evolutionary prospects.

The NSC has added a number of staff members with technical training, many directly from the military services. However, for further depth, the NSC needs outside experts at the forefront of science and technology. These experts must, of course, be versed in the strategic and tactical, as well as the technological aspects of weapons systems.

Since 1951, the Presidential Science Advisers have been engaged in the national security area, and have attended NSC meetings when technical considerations were involved.

The Domestic Policy Council (DPC). In monitoring the Administration's domestic goals, the DPC reviews programs in areas such as health, natural resources, transportation, energy or education -- all of which are heavily influenced by S&T. Scientific and technological considerations may set limits on what can be accomplished, or may offer opportunities to reduce costs or increase benefits. In the DPC, these considerations interact with economic, social, legal, and political factors.

The Economic Policy Council (EPC). The EPC coordinates activities concerning domestic and international economic policy. The Assistant would help in defining the economic policy environment needed to strengthen the contribution of S&T to economic growth, and in framing economic and fiscal policies aimed at restoring American industrial leadership.

Other Executive Office Organizations. The President may wish to establish new Executive Office organizations or change existing ones. For example, new organizational and institutional arrangements may be needed to deal with U.S. industrial competitiveness, a major domestic policy issue facing the new Administration. The assistant must play a key role in this area.

> **The Commission recommends that the Assistant for Science and Technology have a strong and formal relationship with the National Security Council, the Domestic Council, the Economic Policy Council and the Office of Management and Budget.**

Supporting Executive Office Oversight.

Many of the activities of the Assistant, in his capacity as Director of the OSTP, involve review and oversight of S&T-related programs. The Assistant, through the OSTP, will need to cooperate with many parts of the Executive Office and with the departments and agencies to oversee programs and policies from an Executive Office perspective.

Office of Management and Budget (OMB). The Assistant's involvement in the budgetary process is particularly sensitive. As Director of OSTP, the Assistant is directed by the Congress to advise the President on S&T budgets and assist the OMB with an annual review and analysis of R&D funding proposals. OMB strongly influences the content, scope and direction of Federal research and development programs, and the organization of the government's S&T activities. The relationship between the Assistant and the OMB leadership must be robust if the Assistant is to be effective.

Program oversight and review. Because of the pervasiveness of S&T in departmental and agency programs, Executive oversight is critical. For example, research and development in atmospheric sciences are of interest to the Department of Commerce, the Department of Interior, the Department of Agriculture, the Department of Defense, the Department of Energy, the Environmental Protection Agency, and the National Science Foundation. At a minimum, information should flow readily among the departments and agencies and the Assistant. Ideally, fully informed oversight can identify undesirable duplication as well as locate gaps and assure that, overall, the research and development policies and programs are being effectively carried out.

One existing mechanism for these purposes is the statutory Federal Coordinating Council for Science, Engineering and Technology (FCCSET), chaired by the Director of OSTP. The members of FCCSET are the top-ranking scientists and engineers in the department and agencies. It operates through specialized panels. Informed observers believe that neither FCCSET nor its predecessor, the Federal Council for Science and Technology, performed the oversight functions adequately. The Assistant will need to explore other approaches to coordination.

The Science and Technology Report.

The OSTP Director is required to submit a "Science and Technology Report and Outlook" to the Congress no later than January 15 of each odd-numbered year. This report, which was intended to provide the Congress with a current statement of the President's policy for maintaining the nation's leadership in S&T, has not been provided regularly by the OSTP.

The biennial Science and Technology Report could serve a useful purpose and be a valuable mechanism for Presidential outreach not only to the Congress, but to the general public. Its preparation, however, is a substantial task requiring significant staff resources.

Testifying Before the Congress.

The Director of OSTP is called on to testify before the Congress, primarily on the OSTP appropriation, but also on substantive matters. There has been a lingering concern that requiring the OSTP Director to testify may conflict with the confidentiality of his advice to the President as a Presidential Assistant. Experience has shown that the Congressional Committees have been sensitive to this issue, and it has not been a significant problem.

V. S&T ORGANIZATION WITHIN THE EXECUTIVE OFFICE

The President must decide how to organize the S&T expertise and advice he needs within the White House staff and Executive Office of the President [3]. There are four organizational considerations:

- the status of the S&T staff Assistant,
- the S&T capabilities within the Executive Office,
- the capacity for in-depth S&T policy analysis, and
- drawing on outside S&T advice.

Although these considerations are treated separately in this report, they are interactive parts of an S&T management system that must involve the non-governmental as well as the governmental sector.

Status of the S&T Staff Assistant

We have recommended the appointment of an Assistant to the President for Science and Technology. The significance and pervasiveness of S&T in Presidential decisionmaking and the increased complexity of technological issues justify this status and the need for direct access to the President. The status of Assistant to the President is also a basic ingredient in the recruitment and effectiveness of an outstanding person to perform this function.

Clearly, the personal attributes of the Assistant are even more important than status and title: the ability to relate S&T to short-term needs as well as broad policy concerns, and personality and adaptability to the style of the President and his senior staff. Most important is the ability to establish and maintain the trust, confidence, and interest of the President.

It is essential that officials inside the government perceive that the Assistant has direct access to the President, is effective and has a close relationship with the White House senior staff. The perception may be as important as the reality. If government officials believe that the President understands the importance of S&T to his policy and decisionmaking and that he relies on his Assistant, their cooperation will be forthcoming. The Assistant's relationship with the President will also be the key factor in recruiting a strong technical staff and a cadre of high caliber consultants.

The Assistant could be accorded Cabinet rank (without portfolio). As a Cabinet member, he would participate in Cabinet meetings on his own initiative and could more appropriately chair meetings involving Cabinet members.

Some have suggested that the Adviser be appointed the Secretary of a new Department of Science and Technology that would incorporate a number of S&T

related agencies [4]. Even if there were ultimately to be a new Department of Science and Technology, there will remain a need for a separate S&T Assistant on the President's staff. The Assistant must be viewed as impartial and solely concerned with the interests of the President. If the Secretary of an operational Department of Science and Technology were also the Assistant to the President for Science and Technology, this could be rightly regarded as a conflict of interest when advising on the programs and priorities of other departments and agencies.

The Commission recommends that the science and technology advisory function not be fragmented and that there be a single senior staff assistant reporting to the President on S&T matters with the title of Assistant to the President for Science and Technology. The merits of Cabinet rank should also be considered.

Strengthening Executive Office S&T Capacity

The National Science and Technology Policy, Organization, and Priorities Act of 1976 (P.L. 94-282), which created the OSTP, charged that office with helping to define and implement national science and technology policy, to

- advise the President of S&T considerations involved in areas of national concern,
- evaluate the scale, quality and effectiveness of the Federal effort in S&T,
- advise the President on S&T considerations with regard to the Federal budgets, and
- assist the President in providing general leadership and coordination of R&D programs of the Federal Government.

Even after 12 years, the Office is a long way from fulfilling that mandate.

Of considerable importance in strengthening OSTP are the four Presidentially appointed Associate Director positions provided for in the OSTP legislation. These posts, mostly vacant through the years, should be filled by highly qualified individuals drawn from different scientific and technical fields. The posts should be used to reinforce the policy functions of the Office and to improve the coupling between OSTP and the various offices and councils in the Executive Office of the President. Serious consideration should be given to joint arrangements whereby one Associate Director would work part-time with the NSC staff. A similar arrangement in the early years of OSTP and its predecessor, the Office of Science and Technology, proved highly constructive in promoting cooperation between the two offices and introduced outside S&T expertise in the work of the NSC staff. Similar joint arrangements with the Office of Management and Budget and other Executive Office agencies should be considered for other Associate Directors.

The coupling problem extends outside of government as well. There are many perplexities about how to relate Federal S&T policies and programs to the private sector. It will be a task of the Assistant to find ways to strengthen and effectuate this coupling.

The performance of the OSTP depends on the size and quality of its full-time professional staff. Over the years, successive Administrations have tended to limit the number of the staff and outside consultants to levels that are unrealistic in relation to OSTP's policy and program responsibilities. The presently authorized staff is fifteen positions. Eleven of these are filled and there are about fifteen others on detail from other agencies. The budget for Fiscal Year 1989 is about $1.7 million.

The Commission recommends that the President strengthen the Office of Science and Technology Policy by appointing outstanding professionals to the four posts of Associate Director. Part-time assignments of Associate Directors to other bodies in the Executive Office, such as the NSC staff, should be explored, as well as arrangements to achieve close coupling with the budgetary and legislative staffs.

The Commission further recommends a substantial strengthening of the professional staff support of the OSTP as an essential step in the invigoration of the S&T advisory function.

S&T Policy Analysis.

For the President to have the best assessments of major policy options involving S&T, the Assistant and OSTP need clear-cut authority and suitable resources for eliciting independent policy-oriented analytical work outside of the Executive Branch. The National Research Council (the operating arm of the National Academies of Science and Engineering and the Institute of Medicine) can provide in-depth analysis of high quality. Additional analytical capabilities are found in scientific societies, universities, other not-for-profit organizations, and established technical consulting firms. In addition, the Congressional support agencies (the Office of Technology Assessment, the Congressional Research Service, the Congressional Budget Office, and the Government Accounting Office) are respected for the quality of their bipartisan reports dealing with matters of S&T.

The Commission recommends that the OSTP be funded for commissioning outside analytical studies in depth.

Drawing on the Outside S&T Community

The range and quality of S&T advice needed by the President cannot be obtained by depending solely on in-house competence. The President can often rely on the departmental and agency staffs, but their expertise is usually narrowly focussed and their advice is often colored by mission commitments and bureaucratic self-interest. Furthermore, developments at the frontiers of science and technology are diverse and their pace is accelerating. Not only does the President need the advice of individual experts from the scientific and technical community outside the Federal Government, but he also needs a responsive mechanism for securing their collective judgments.

The Commission considered the organizational arrangement of the White House Science Council (WHSC), which was established in 1982 by President Reagan's first Science Adviser. Members of WHSC are appointed by and report to the Adviser, and it is chaired by a council member.

The Commission also considered reliance on *ad hoc* panels. This approach, which was employed during the Ford and Carter Administrations, can deal usefully with specific questions. Without an overview committee, however, the early warning and agenda setting function is lost and the findings of the panels cannot readily be judged or their broader applicability determined.

Having considered the organizational alternatives, the Commission fully supports the establishment of a Presidentially appointed S&T advisory group that reports to the President through the Assistant for Science and Technology, who serves as its chairman. Many informed participants in the contemporary S&T scene strongly support this approach.

The advisory group would both respond to the President's requests and initiate studies in areas of national significance, consistent with the wishes of the President. It would critically review S&T proposals, act as a sounding board for the Assistant, and add authority to the Assistant's judgments on S&T issues. The Advisory group's deliberations could also help resolve differences of views among the Executive Departments and Agencies. Presidential appointment will be important to recruit outstanding members of the group and, particularly, to elicit the time commitment necessary if the group is to be effective and useful.

> **The Commission recommends that the President establish an outside group of dedicated senior science and technology advisors appointed by the President, headed by and reporting to the President through the Assistant for Science and Technology. Members of the group should agree to devote a substantial portion of their time to its work.** *Ad hoc* **panels should be convened for in-depth examinations of particular subjects.**

ENDNOTES

[1] The members of the Commission and Advisory Council are listed on the inside front cover.

[2] See statement establishing the Commission by Dr. David A. Hamburg, President, Carnegie Corporation of New York, in Appendix A.

[3] The current apparatus has evolved gradually over the past three decades; some highlights of its organizational history are summarized in Appendix C.

[4] Suggestions for a Department of Science and Technology have arisen from time to time over many decades. A Departmental reorganization of this magnitude would likely entail very extensive analysis, discussion, and legislative attention. This question has not been studied by the Commission.

APPENDICES

APPENDIX A

STATEMENT ESTABLISHING COMMISSION

Statement by Dr. David A. Hamburg, President,
Carnegie Corporation of New York

Issues Underlying Formation of the Commission

Since 1940 the pace of advance in basic scientific knowledge -- of the structure of matter and life, of the nature of the universe, of the human environment and even self-knowledge -- has accelerated dramatically. These scientific advances have provided an unprecedented basis for technological innovation, especially in the context of political and economic freedom. Such technological innovations have pervasive, worldwide effects beyond prior experience.

Science and technology bear upon war and peace, health and disease, the economy and society, resources and the environment -- indeed the entire human future. The international economy, for example, is increasingly driven by developments in science and technology: witness telecommunications, biotechnology, computers, and the technical upgrading of established industries. No reminder is needed of the immense impact on societies of weapons development and distribution. The issues involve not only the existence of the new hardware but the uses of hardware.

These trends are intrinsically worldwide in scope. Many problems historically considered as internal might better be viewed as domestic aspects of international problems. Moreover, the opportunities and problems arising out of modern science and technology cut across traditional disciplines and sectors of society. Thus, institutional innovations are needed that can transcend traditional barriers -- disciplinary, sectoral, and geopolitical.

Clearly, wise policy and administrative decision making in each sphere of life depend on access to the best available knowledge and advice in the various fields of science and technology. Sound advice requires analysis, and analysis requires a broad base of research and development on which informed decisions can be made. Decision makers, moreover, need an understanding of major facets of the scientific enterprise itself.

The rapid and pervasive transformations resulting from science and technology call for strengthening the institutional capability for objective analysis of critical issues based on a broad foundation of knowledge and experience. The government of the United States is in an extraordinary position to stimulate and support such inquiries at a level far beyond what it has done up to now. In

addition, the states, the "laboratories of democracy," need better means for dealing with the ongoing and potential applications of research and development.

The Federal Government and the states have an obligation to see that the country exploits the opportunities and avoids the dangers inherent in modern science and technology. This involves, among other desiderata, an understanding of the impact of science and technology on both governmental and nongovernmental tasks. It requires the establishment of a continuing, dependable capability for analyzing policy questions in ways that take adequate account of their scientific and technological aspects.

Science and technology policy itself should strive to meet the following goals: 1) maintaining excellence, technical competence, and efficiency in the conduct of research and development; 2) broadening participation in scientific activity as well as in the benefits of applied science; 3) shaping the uses of science toward widely shared ends -- for example, the relief of human suffering, economic well-being, equitable distribution of resources, and the peaceful resolution of disputes; and 4) encouraging scientists to participate analytically in the uses of science -- at the interfaces of fact and value -- neither avoiding nor dominating the processes by which the social uses of science are decided.

The nation needs several mechanisms, both governmental and nongovernmental, for analyzing thoroughly and objectively the various options relating to two broad questions: What can science do for society, and how can society keep the scientific enterprise healthy? The capacity for providing the best possible analysis and advice on long-term issues of great national importance must not only be built into government operations themselves; the nation must institute ways of capitalizing on the capability of its diverse nongovernmental institutions to gain and provide such analysis and advice. This orientation emphasizes ways in which science and technology can help to identify the early warning signals of emerging problems and spot neglected or new opportunities for improving national and international well-being.

The Challenge

Thoughtful policymakers have increasingly felt the need for intelligible and credible syntheses of research related to important public policy questions. What is the factual basis drawn from many sources that can provide the underpinning for constructive options in the future? Pertinent information is widely scattered among government agencies and quasi-governmental or nongovernmental institutions. Moreover, it is very difficult for the nonexpert and sometimes even for the expert to assess the credibility of assertions on emotionally charged issues. In the current process of world transformation, studies are needed to tackle vital and complex issues analytically rather than polemically. This means having access to a wide range of high-quality information, analyses, and options. Jumping to conclusions, or using a heavy ideological filter, can easily lead to major mistakes, missed opportunities, or even disasters.

The central question for thoughtful consideration is how the various branches of government can take careful account of science and technology in policy formulation and implementation affecting all aspects of modern society. What are the mechanisms government now has that are useful for analysis in each major area of responsibility? Which mechanisms should be strengthened or created? How can the various branches of government be organized to improve their operations through the use of modern scientific advances?

Further, how can the government stimulate and utilize the full range of science and technology in the scholarly community both in and out of government, taking into account ethical considerations pertinent to each problem area? Questions about government's role in specific facets of the scientific enterprise include:

l) Science policy: What are the conditions under which science flourishes in the United States?

2) Technology policy: What are the conditions under which the science base can fruitfully be drawn upon for useful technological innovation?

3) Technology assessment policy: What institutional mechanisms and analytical methods are needed for ongoing assessment of major technologies with respect to the humane, constructive uses of technology?

4) Science education policy: How can the nation achieve a technically literate citizenry and a skilled work force at all levels of human endeavor as well as prepare first-rate scientists and science-based professionals?

Carnegie Commission On Science, Technology, And Government

In November 1987, the Corporation convened a consultative group of experienced scientists and administrators to examine the issues concerning the central role of government in using and stimulating scientific and technological advances for humane purposes. There was general consensus that problems in this regard exist in the executive, legislative, judicial, and regulatory branches and that in-depth analysis of these problems is needed if enduring improvements are to be made. There was additional agreement that an effective approach to the problem would be a commission that would work for about three years with a small high-quality staff. The commission would be intersectoral in nature and include distinguished former government officials, eminent scientists, and private sector leaders.

It was further recommended that the commission should consider the entire range of the sciences -- physical, biological, behavioral, and social -- as well as the technologies based on them. The main emphasis should be on mechanisms by which the government can systematically assess the ways in which science can contribute to the general well-being of the nation, with special emphasis on the most serious social problems. Mechanisms for sustaining the health of the scientific enterprise should also be considered.

The recommendations of the consultative group were adopted at the Corporation's February 17 meeting of the board of trustees, and the new Carnegie Commission on Science, Technology, and Government was duly created with an initial $500,000 grant.

In addition to eminent scientists, the Commission includes former government officials who have served at high levels in all branches of the government. Leaders from nongovernmental sectors of American society are also included.

Co-chairs of the Commission are Joshua Lederberg, president of The Rockefeller University, and William T. Golden, president of the New York Academy of Sciences and editor of *Science and Technology Advice to the President, Congress, and Judiciary* (Pergamon Press, 1988).

Executive director and member of the Carnegie Commission is David Z. Robinson, most recently executive vice president and treasurer of the Corporation. Dr. Robinson, who received a Ph.D. in physics from Harvard University, is a former research physicist and was a staff member of the President's Science Advisory Committee. He will continue to serve Carnegie Corporation as senior counselor to the president.

The Commission will organize studies, issue interim reports, and make its final recommendations in about three years, with a two-year follow-up period. It will be assisted by an advisory council.

APPENDIX B

LIST OF PRESIDENTIAL S&T APPOINTMENTS

EXECUTIVE OFFICE OF THE PRESIDENT

President's Foreign Intelligence Advisory Board

Office of Management and Budget
- Associate Director for Human Resources
- Associate Director for National Security and International Affairs
- Deputy Associate Director, National Security Division
- Associate Director for Natural Resources, Energy and Science

National Security Council
- Special Assistant for Arms Control
- Special Assistant for Defense Policy
- Special Assistant for Intelligence Programs
- Special Assistant for International Programs/Technology Affairs

Central Intelligence Agency
- Deputy Director for Intelligence
- Deputy Director for Science and Technology

Council on Environmental Quality
- 3 Members

Office of Science and Technology Policy
- 4 Associate Directors

CABINET DEPARTMENTS

Department of Agriculture
- Assistant Secretary for Science and Education

Department of Commerce
- Undersecretary for Oceans and Atmosphere (NOAA)
- Assistant Secretary for Telecommunications (NTIA)
- Assistant Secretary and Commissioner of Patents and Trademarks
- Director, National Institute of Standards and Technology (NIST)
- Assistant Secretary for Productivity, Technology and Innovation

Department of Defense

Assistant Secretary, Production and Logistics
Assistant Secretary, Command and Control (C3I)
Director, Defense Research and Engineering
Assistant Secretary, Health Affairs

Department of Education

Assistant Secretary, Educational Research and Improvement

Department of Energy

Deputy Secretary
Undersecretary
Assistant Secretary, Conservation and Renewable Energy
Assistant Secretary, Defense Programs
Assistant Secretary, Environment, Safety and Health
Assistant Secretary, Fossil Energy
Assistant Secretary, International Affairs and Energy Emergencies
Assistant Secretary, Nuclear Energy

Department of Health and Human Services

Assistant Secretary for Health
Surgeon General, Public Health Service
Director, National Institutes of Health

Department of Housing and Urban Development

Assistant Secretary for Policy Development and Research

Department of the Interior

Science Advisor
Assistant Secretary, Land and Minerals Management
Assistant Secretary, Water and Science

Department of Labor

Assistant Secretary, Mine Safety and Health

Department of State

Undersecretary for Security Assistance, Science and Technology
Special Advisor, Arms Control Matters
Ambassador-at-Large, Non-Proliferation and Nuclear Energy Affairs
Office of Negotiations on Nuclear and Space Arms with USSR
Assistant Secretary, Bureau of Oceans and Environmental/Scientific Affairs

Department of Transportation

Assistant Secretary, Policy and International Affairs
Administrator, Federal Aviation Administration

AGENCIES

Arms Control and Disarmament Agency
Director

Consumer Product Safety Commission
5 Commissioners

Environmental Protection Agency
Administrator
Deputy Administrator
Assistant Administrator for Research and Development

National Aeronautics and Space Administration
Administrator
Deputy Administrator

National Science Foundation
Director
Deputy Director
National Science Board

Nuclear Regulatory Commission
5 Commissioners

APPENDIX C

HISTORY OF THE PRESIDENT'S S&T ORGANIZATION

All Presidents since Truman have recognized the value of tapping a broad range of S&T knowledge from outside the government. President Truman appointed a science adviser who served in the Office of Defense Mobilization and also had direct access to him, though this access was seldom used. The systematic use by the President of S&T advice began in 1957 with Sputnik. President Eisenhower brought James Killian into the White House as his Adviser, with the title of Special Assistant to the President, and elevated the Science Advisory Committee from the Office of Defense Mobilization so that it reported directly to him.

President Eisenhower sought advice in responding to Sputnik and to the competing proposals of the military services. The Adviser also was involved in the organization of NASA and the establishment of the Office of the Director of Defense Research and Engineering and the Advanced Research Projects Agency in the Department of Defense. There were important questions regarding technical intelligence, and the possibilities for a nuclear test ban. Members of the President's Science Advisory Committee were mobilized for these tasks, and many of them spent substantial time in Washington. The Adviser also helped establish high-level S&T posts in the departments and agencies. Toward the end of the Eisenhower Administration, the Adviser and PSAC added to their work the concern for the advancement of science.

President Kennedy kept the same bipartisan PSAC mechanism with some systematic rotation of its members. In order to institutionalize the advisory function, he established the Office of Science and Technology (OST) in the Executive Office of the President. The title of Director of OST (confirmed by the Senate) was added to that of Special Assistant to the President and Chairman of the President's Science Advisory Committee. The Adviser's staff was transferred from the White House to OST. The Adviser's portfolio broadened to include health, civilian science and the environment.

The Adviser's role continued under President Johnson and through President Nixon's first term. During this period, the Adviser and PSAC were deeply involved in national security issues particularly as related to the Vietnam war, arms control and the treaty to eliminate biological weapons.

After the election in 1972, President Nixon abolished both OST and PSAC. These actions appeared to derive from two principal concerns. One was that former PSAC members had opposed the President's position in testifying before the Congress on anti-ballistic missile defense. The other was the disclosure of the existence of a PSAC panel report questioning the development of a supersonic

transport, a project that had been strongly supported by the President. Perhaps the most important underlying factor was the cumulative effect of years of strain between the White House and the academic community over the Vietnam war, and the perception by the White House staff that PSAC was part of that community.

President Nixon added the duties of Science Adviser to those of the Director of the National Science Foundation. His advisory work concentrated on energy R&D, problems in industrial R&D, agricultural research, and academic-industrial cooperation.

President Ford asked Vice-President Rockefeller to recommend appropriate organization for S&T advice to the President. The OST function was resurrected in the Executive Office by an Act of Congress in 1976 in the form of the Office of Science and Technology Policy. President Ford reestablished the Adviser's position in the White House and created the President's Committee on Science and Technology, authorized by the legislation, which worked particularly on energy and individual research issues.

Presidents Carter and Reagan named their science advisers after their inauguration. Although the President's Committee was not continued, President Carter's Adviser appointed *ad hoc* panels of non-government scientists and engineers to advise him on certain issues. He dealt with questions such as the MX missile, the test ban, space policy and air quality standards.

In 1982, President Reagan's Adviser established a White House Science Council of outside consultants that reported to the Adviser, rather than to the President. During this Administration, the Adviser has dealt with matters such as strengthening basic research, the National Aerospace Plane, Stealth technology, the Strategic Defense Initiative, and international S&T agreements.

Science + Tech

THE WHITE HOUSE

WASHINGTON

June 12, 1990

Dear Mr. Kertzman:

The President has asked me to respond to your letter expressing concern about the Administration's commitment to U.S. technology.

As the President made clear in his State of the Union address, the Administration is committed to building a strong and competitive U.S. economy and encouraging technological innovation. He outlined a comprehensive program to achieve these goals. First, the Administration supports measures to increase U.S. capital investment and reduce the capital costs of start-up companies seeking to exploit new ideas and technologies. Second, we have proposed comprehensive educational reforms to improve the capabilities of our work force. A key goal is to strengthen the scientific and mathematical skills of our children, on whom our economic and technological future depend. Third, we have proposed significantly increased funding for research and development. We believe that these broad-based steps will strengthen the U.S. economy over the long term and are the key to future success in the global economic arena.

The Administration, however, does not support narrow sectoral efforts to target specific commercial technologies, particularly when these efforts involve government subsidies and restrictions on foreign trade and investment. Such actions would conflict with the Administration's broader fiscal, trade, and investment policies. The historical record for governments successfully selecting and subsidizing promising industries is very poor. The available evidence suggests that market forces and vigorous competition are much better at promoting innovation than is the political system.

The decision to assign Dr. Craig Fields to a new position as Deputy Director of Defense Research and Engineering for Defense Management Report Implementation was an internal Department of Defense matter. As Deputy Secretary Atwood testified, the Department remains committed to the development of new and advanced technology to strengthen its ability to carry out defense missions.

I hope that this helps clarify the Administration's policy. We look forward to working closely with AEA to achieve

our shared goal of strengthening long-term U.S. technological competitiveness.

Warmest regards,

Roger B. Porter
Assistant to the President
for Economic and Domestic Policy

Mr. Mitchell Kertzman
Chairman
American Electronics Association
5201 Great America Parkway
Santa Clara, California 95054

bcc: BRAD

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

APR 11 1990

Brad,

I very much enjoyed meeting you yesterday and look forward to more discussions.

Attached are a few PCAST and FCCSET papers that may be of interest. The next PCAST meeting will be April 25-26. You and Roger Porter are most welcome to attend. (An agenda should be available soon).

Tom

Tom Welch

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

FEDERAL COORDINATING COUNCIL FOR SCIENCE, ENGINEERING & TECHNOLOGY COMMITTEES MARCH 1990

Earth and Environmental Sciences

Chairman: Dallas Peck, Director, US Geological Survey, Department of the Interior
Vice Chairmen: Erich Bretthauer, Assistant Administrator for Research, Environmental Protection Agency
Lennard Fisk, Associate Administrator for Space Science and Applications, National Aeronautics and Space Administration
OSTP Liaison Member: James B. Wyngaarden, Associate Director for Life Sciences

Education and Human Resources

Chairman: Adm. James Watkins (Ret.), Secretary, Department of Energy
Vice Chairmen: Ted Sanders, Deputy Secretary, Department of Education
Luther Williams, Senior Science Advisor, National Science Foundation
OSTP Liaison Member: J. Thomas Ratchford, Associate Director for Policy and International Affairs

Food, Agriculture and Forest Research

Chairman: Charles Hess, Assistant Secretary for Science and Education, Department of Agriculture
Vice Chairmen: David O'Neil, Assistant Secretary for Land and Minerals Management, Department of the Interior
James Benson, Acting Commissioner, Food and Drug Administration, Department of Health and Human Services
OSTP Liaison Member: James B. Wyngaarden, Associate Director for Life Sciences

REVISED 4/4/90

International Science and Engineering

Chairman: Reginald Bartholomew, Under Secretary for Security Assistance, Science and Technology, Department of State
Vice Chairmen: Fred Bernthal, Deputy Director, National Science Foundation
Philip Schambra, Director, Fogarty International Center, National Institutes of Health, Department of Health and Human Services
OSTP Liaison Member: J. Thomas Ratchford, Associate Director for Policy and International Affairs

Life Sciences and Health

Chairman: James O. Mason, Assistant Secretary, Department of Health and Human Services
Vice Chairman: David Galas, Associate Director for Health and Environmental Research, Office of Energy Research, Department of Energy
OSTP Liaison Member: James B. Wyngaarden, Associate Director for Life Sciences

Physical, Mathematical and Engineering Sciences

Chairman: Erich Bloch, Director, National Science Foundation
Vice Chairman: Charles Herzfeld, Director Defense Research and Engineering, Department of Defense
OSTP Liaison Member: Eugene Wong, Associate Director (designate) for Physical Sciences and Engineering

Technology and Industry

Chairman: Thomas Murrin, Deputy Secretary, Department of Commerce
Vice Chairman: J.R. Thompson, Deputy Administrator, National Aeronautics and Space Administration
OSTP Liaison Member: William D. Phillips, Associate Director (designate) for Industrial Technology

April 12,1990

OSTP ORGANIZATION CHART

DIRECTOR'S OFFICE

DIRECTOR ---------- D. Allan Bromley
CHIEF OF STAFF----------William G. Wells, Jr.
EXECUTIVE ASSISTANT ------Damar Hawkins
COUNSEL/ETHICS OFFICER----Michelle K. Van Cleave
SPECIAL ASSISTANT --------Judith L. Bostock*
SPECIAL PROJECTS OFFICER--Jackeline J. Clawson
CONFIDENTIAL SECRETARY----Marian J. Nida
SECRETARY ---------- (Vacant)

ADMINISTRATIVE SERVICES

Special Assistant -------- Barbara J. Diering
Administrative Assistant-- (Vacant)
Administrative Assistant-- Jane E. Baker
Consultant ---------- Herb Hoppe *

NATIONAL SECURITY

Assistant Director -- Michelle Van Cleave
Policy Analyst ------ John F. O'Neil
Secretary ---------- Pat Neuhardt
Liaison ---------- Rick E. Yannuzzi
Liaison ---------- (Vacant)

PUBLIC AFFAIRS

Public Affairs Officer -- Sarah Keegan
Communications Officer -- Stephen E. Olson

LIFE SCIENCES

ASSOCIATE DIRECTOR ----- James B. Wyngaarden
Confidential Assistant - Margaret Quinlan

ASSISTANT DIRECTOR ----- Nancy G. Maynard
Policy Analyst --------- Rachel E. Levinson
Policy Analyst --------- Alicia K. Dustira
Secretary ---------- Patricia Longus

POLICY AND INTERNATIONAL AFFAIRS

ASSOCIATE DIRECTOR --- J. Thomas Ratchford
Confidential Assistant -- Virginia Rosell

Policy Analyst ---------- Sara Bowden
Education Assistant ----- Mary Kruter
Secretary ---------- Ruth Fisher
Fellow ---------- Kathy Yuracko

PHYSICAL SCIENCES AND ENGINEERING

ASSOCIATE DIRECTOR ------- Eugene Wong
Confidential Assistant --- Sally Sherman

ASSISTANT DIRECTOR ------- Karl A. Erb
Policy Analyst ---------- Diane Weisz
Fellow ---------- Ronald York
Consultant ---------- Paul Huray*

INDUSTRIAL TECHNOLOGY

ASSOCIATE DIRECTOR ----- William D. Phillips
Confidential Assistant-- Wanell L. Gale

ASSISTANT DIRECTOR ----- Judith L. Bostock
Fellow ---------- Lamont Eltinge
Fellow ---------- Jules Blake
Consultant ---------- James Ling*

ENVIRONMENTAL PROJECTS

Environmental Liaison -- William S. Busch
Conference Director ---- Robert Corell
Conference Coordinator - Franmarie Keel

COORDINATING/ADVISORY COUNCILS

FCCSET Executive Director ----- Thomas J. Welch
FCCSET Professional Staff ----- Hugh Stringer
FCCSET Professional Staff ----- Charles Dickens
FCCSET Confidential Assistant - (Vacant)
FCCSET Secretary -------- Jacqueline D. Tilghman
PCAST Executive Secretary ----- (Vacant)

CRITICAL TECHNOLOGIES STUDY

Executive Secretary -------- (Vacant)
Administrative Assistant --- (Vacant)
Assistant ---------- (Vacant)
Secretary ---------- (Vacant)

NATIONAL CRITICAL MATERIALS COUNCIL

Executive Director -------- Robert L. Post
Technical Director ------- Perry Lindstrom
Administrative Assistant - Mary Chuckerell
Secretary ---------- (Vacant)

* - Part-time
(D) - Designate

APPROVAL DATE April 10, 1990

APPROVAL SIGNATURE D. Allan Bromley

D. ALLAN BROMLEY, DIRECTOR

MEMO

FROM THE DESK OF —

DR. R. E. YORK

Brad,

Now that we have all our Assoc. Directors in place, we have an official organizational chart.

Ray

OFFICE OF SCIENCE AND TECHNOLOGY POLICY

		EXT.	ROOM	BLDG.
Assistant to the President for Science and Technology, and Director, OSTP	D. Allan Bromley	*7116	358	OEOB
Confidential Secretary	Marian J. Nida	*7116	358	OEOB
Executive Assistant	Damar Hawkins	*6272	360	OEOB
Counsel/Ethics Officer	Michelle Van Cleave	7326	5025	NEOB
Special Assistant to the Director	Judith L. Bostock	*7116	357	OEOB
Special Projects Officer	Jackeline Clawson	*2870	5013	NEOB
Public Affairs Officer	Sarah Keegan	6142	5005	NEOB
Communications Assistant	Stephen Olson	5860	5005	NEOB
Administrative Officer	Barbara J. Diering	7347	5013	NEOB
Administrative Assistant	Deborah Cox	3898	5013	NEOB
Associate Director for Life Sciences	James B. Wyngaarden	*6272	572	OEOB
Confidential Assistant	Margaret Quinlan	*6272	360	OEOB
Assistant Director for Environment	Nancy G. Maynard	*6202	5002	NEOB
Senior Policy Analyst	Rachel Levinson	4850	5002	NEOB
Senior Policy Analyst	Alicia Dustira	5680	5002	NEOB
Secretary	Patricia Longus	7394	5002	NEOB
Associate Director for Policy and International Affairs	J. Thomas Ratchford	7396	5005	NEOB
Confidential Assistant	Virginia Roseil	7396	5005	NEOB
Senior Policy Analyst	Sara Bowden	4626	5005	NEOB
Education Assistant	Mary Harley Kruter	4764	5025	NEOB
Fellow	Katherine Yuracko	3662	5002	NEOB
Secretary	Ruth Fisher	7268	5005	NEOB
Associate Director for Physical Sciences and Engineering (Designate)	Eugene Wong	3902	5026	NEOB
Confidential Assistant	Sally Sherman	3902	5026	NEOB
Assistant Director	Karl A. Erb	5130	5026	NEOB
Senior Policy Analyst	Diane B. Weisz	5636	5026	NEOB
Fellow	Ronald E. York	3557	5005	NEOB
Associate Director for Industrial Technology (Designate)	William D. Phillips	3125	5026	NEOB
Confidential Assistant	Wanell L. Gale	7347	5013	NEOB
Assistant Director (Acting)	Judith L. Bostock	3840	5013	NEOB
Fellow	Lamont Eltinge	7268	5005	NEOB
Fellow	Jules Blake	3637	5005	NEOB
Assistant Director for National Security	Michelle Van Cleave	7326	5005	NEOB
Senior Policy Analyst	John F. O'Neil	3272	5025	NEOB
Secretary	Pat Neuhardt	3272	5025	NEOB
Assistant to the Director	Robert L. Post	3170	5025	NEOB
President's Council of Advisors for Science and Technology, Chairman	D. Allan Bromley	*7116	358	OEOB
Vice Chairman	Bernadine Healy	*7116	360	OEOB
Secretary (Acting)	Marian Nida	*7116	358	OEOB

* Dial 456 plus extension number, all others are 395.

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US STRIPPING AID TO AFRICA & ASIA TO FUND DEMOCRATIC REFORM

The Bush Administration has been moving quickly in the wake of fast-moving events in Eastern Europe and Latin America to supply U.S. financial aid for efforts aimed at democratic reform.

But private specialists in international development, have told White House Weekly that one official of the U.S. Agency for International Development (USAID) have been looting programs -- which were funded by Congress to provide for the basic human needs of the poor in underdeveloped nations of Africa and Asia -- and has been channeling that money instead to promote democratic reform.

White House Weekly has learned that international development programs in Africa and Asia -- providing nutrition, water, and sanitation assistance -- are being stripped of money in this major shift in U.S. foreign aid priorities.

Sources said that the prime mover in this reorienting of priorities has been **Carol Adelman**, Assistant Administrator for the Bureau of Asia, Near East, and Europe, in USAID. Interestingly -- and reflective of the shifting Administration policy brought about in part by pro-democracy movements in Eastern Europe -- the title of the Bureau was only changed to add the word "Europe" in Nov. 1989.

The sources said that one reason that Adelman's actions have gone unchallenged is the fact that many of the USAID's senior executive positions have not yet been filled with permanent Bush Administration political appointees. Although Adelman was a Bush appointment, the names of nominees to fill other key slots in the Agency are still pending before the Senate.

Continued on page 2

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FOR THE RECORD:

Feb.23 Health and Human Services Secretary Louis Sullivan again goes on the offensive against cigarette smoking; he says the Virginia Slims womens professional tennis tournament is being backed with "blood money" because of its sponsorship by tobacco giant Phillip Morris Co.

23 Defense Secretary Richard Cheney, winding up a two-week tour of Asia, said the U.S. would modestly reduce its troop strength in the Far East, but would not pull out of the region.

25 After a weekend visit at his Camp David retreat, President Bush and West German Chancellor Helmut Kohl express hope for a reunification of East and West Germany, but with the new united Germany remaining an active member of the North Atlantic Treaty Organization.

26 Nicaraguan President Daniel Ortega concedes defeat by Violeta Chamorro in national elections; the Sandinistas, however, intend to retain control over the Nicaraguan military and police, at least so long as U.S.-backed Contra rebels still pose a threat.

26 White House Press Secretary Marlin Fitzwater says the Administration wants to lift U.S. sanctions against Nicaragua "fairly soon" and move to establish full diplomatic relations with the new leadership in Managua.

28 Bush tells reporters that he spoke at length by telephone with Soviet leader Mikhail Gorbachev; the President says he wants to hold such phone talks more often and reveals that the conversation centered on developments in Eastern Europe and Nicaragua.

28 Bush leaves Washington on a cross-country trip to make a series of political appearances.

Continued from page 1

In the absence of permanent officials, many key USAID jobs are being filled by career civil servants in "acting" roles. While sources said these officials are competent, they have been unwilling to resist Adelman's actions, because they feel they lack the authority of a presidential appointee.

International development specialists warned that unless the Bush Administration reverses what was happening within the USAID, the impoverished peoples of many Third World nations would be denied the American help they desperately need.

For the foreseeable future, the word among private and non-profit international development agencies is that nutrition, water, and sanitation were "out" as priorities for project funding, while democratic reform was now "in." And only programs for emerging democracies in Eastern Europe, as well as a handful of nations in the Western Hemisphere -- including Panama, Nicaragua, El Salvador, and Colombia -- could expect much help from USAID.

Sources in Congress told White House Weekly that there may or may not be a problem with what Adelman is doing. On the one hand, they said that the Administration may "reprogram" funds from one need to another, but only "within a specific item" of the USAID's appropriation. For example, money could be transferred under the category of refugee aid, from helping refugees in Africa to assisting refugees in the Near East.

However, reprogramming would not enable the USAID to move funds from providing nutrition, water, and sanitation aid to people in impoverished, underdeveloped countries, to providing aid to political reformists in Eastern Europe and Latin America.

A Senate aide said that reprogramming for similar activities was "normally no problem," but the Administration must first submit the request by letter and then negotiate it with the Foreign Operations Subcommittee of the Senate Appropriations Committee and the Subcommittee on Foreign Operations, Export Financing, and Related Agencies of the House Appropriations Committee.

If Adelman has been moving funds without telling Congress, one Capitol Hill staff member told White House Weekly that this "sounds like it's skirting the limits of reprogramming."

Congress and the Administration are "in sync" in supporting pro-democracy movements in Communist countries. Last November, lawmakers approved campaign support for democratic efforts in Poland and Hungary under the Support for Eastern European Democracy Act, and are soon expected to pass the Support for Eastern European Democracy Act II, which would expand U.S. aid to all countries in Eastern Europe.

But neither piece of legislation would authorize USAID officials to draw funds from human needs and funnel them into countries in the now-crumbling Warsaw Pact. Senior staff sources on Capitol Hill said they were not aware of Adelman's actions. On the contrary, they said they had seen "very little sign so far" that the USAID was "putting money into Eastern Europe."

As far as the USAID is concerned, Administration officials say the Agency will be getting a new boss. They expect the Senate to soon confirm **Ronald Roskens** as the USAID's new Administrator. Roskens, currently the president of the University of Nebraska, would replace **Mark Adelman**, the Agency's Acting Administrator.

When Roskens comes on board, the sources said they expect the now-vacant senior positions in the USAID will soon be filled on a permanent basis. It remains to be seen whether the new administration at USAID will result in any shift of policy or affect the fund-shifting which has alreeady taken place.

GOVERNORS PRESENT BUSH WITH EDUCATION GOALS & OBJECTIVES

In a White House ceremony on Feb. 26, leaders of the National Governors' Association (NGA), with the NGA membership looking on, formally presented to President **George Bush** the national education goals and objectives developed as a result of the Education Summit to which Bush invited the state leaders last fall.

Bush had announced the six goals to the American people in his State of the Union Address, on Jan. 31. Although Bush said the goals had been crafted in cooperation with the NGA, he did not specifically state the fact that they were actually written by the NGA's Education Task Force -- co-chaired by Gov. **Bill Clinton** (D-Ark.) and Gov. **Carroll Campbell** (R-S.C.) -- not by the White House.

Education Secretary **Lauro Cavazos** unintentionally confused things even more when he met with members of the White House press corps on Feb. 1. For his part, Cavazos did an unusually good job of answering reporters' questions. For their part, some prominent members of the White House press corps revealed that -- as might be expected -- education was not their specialty.

In response to a question about the fact that the goals announced by Bush had not yet been approved by the full NGA membership, Cavazos failed to explain explicitly that the Administration had not written the goals. Although crafted with White House input, the President had only announced them.

Officials of the NGA later told White House Weekly that this failure to clarify authorship had caused them great difficulty. They said they had to go to considerable trouble to set the record straight, and, indeed, informational materials released by the NGA to the news media, stated clearly, for the first time, that the NGA Task Force had actually written what White House reporters thought were Bush's goals, not the governors.

After that, the NGA Task Force labored to develop 21 objectives under the six goals, to flesh out the themes and to offer a more specific plan for achieving the desired outcomes by the year 2000. In presenting the document to Bush, Gov. **Terry Branstad**, chairman of the NGA, praised the President's leadership in initiating the Summit and goal-setting, adding that "this is a consensus process."

The President made it clear that the process was only beginning, and that the White House would remain involved. "This Administration is determined to walk with you every step of the way," he said, and announced that he would ask his Cabinet members to work with **Roger Porter** -- his chief domestic and economic advisor and Director of the White House Office of Policy Development -- "to find ways to work with the States" in efforts to follow-up the goal-setting process. Bush also said his new education advisory panel would report to him each year on the progress made in achieving the educational goals.

BUSH, GOVERNORS DON'T TALK PUBLICLY ABOUT PEACE DIVIDEND

In addition to approving the document containing education goals and objectives, which were presented to President Bush last week, the National Governors' Association (NGA) also approved a resolution on Feb. 25, which was not mentioned in the White House ceremony. Nor did it appear in copies of the NGA-crafted goals and objectives which were handed out under a White House letterhead to members of the news media.

The resolution -- which might be expected to prove somewhat controversial with the Administration -- dealt with the so-called "peace dividend," the federal budget funds which could presumably be freed up for non-defense purposes because of the dramatic pro-democracy movement in Eastern Europe, the perceived weakening of the Warsaw Pact, the voluntary scaling back of the potential Soviet military threat to Western Europe, and progress which has been made by the U.S. and the Soviet Union in negotiations to limit nuclear arms.

The resolution noted that Bush had directed Defense Secretary **Richard Cheney** "to review defense spending in light of recent developments in Eastern Europe and discussions with Soviet President Mikhail Gorbachev."

The governors concluded that "this review of defense spending is likely to result in a reduction in defense spending over the next several years, in addition to a restructuring of our armed forces to more appropriately reflect changes in our security needs and military strategy."

The NGA also noted that the federal debt had risen to $3 trillion, that interest on the debt was "the fastest growing component of the federal budget," and that "the continued high budget deficits handicap the nation's competitiveness in the world economy and bequeath a

legacy of debt and a lower standard of living to our children."

The state chief executives said they commend Bush "for his reexamination of defense spending and wish him a successful conclusion in all defense negotiations. We recognize that any resultant `peace dividend' will take a number of years to fully materialize and should not be viewed as a panacea to all of the issues that confront our nation. However, as this dividend accrues, we urge the President and the Congress to dedicate the peace dividend in a balanced manner among the federal budget deficit, education and other (programs) and the productivity investments as defined in NGA's budget policy to improve our nation's productivity and quality of life."

The original "peace dividend" document, introduced by Gov. **Mario Cuomo** (D-N.Y.) -- the only governor who was unable to attend the Winter Meeting -- urged only Bush, but NGA members accepted the suggestion of Gov. Michael Dukakis (D-Mass.) that "and the Congress" be added.

MANY ARE WATCHING DRAMATIC CHANGE IN CENTRAL AMERICA

Bush Administration officials are closely watching events as they unfold in Nicaragua, in the wake of the clear victory of president-elect **Violeta Chamorro** over **Daniel Orteg**a of the ruling Sandinistas.

President Bush was quick to praise the free election, welcome Chamorro's victory, and call for a swift transition in Managua.

Others watching the scene include members of the U.S.-backed Contra rebels, who could well be left out in the cold by the election results. It appears doubtful whether Chamorro's administration would be hospitable to the Contras, many of whom served in the hated National Guard of ousted dictator **Anastasio Somoza**.

Chamorro's husband was a martyr of the popular revolution which overthrew Somoza's regime, and the fact is that -- despite protestations from American officials to the contrary -- Washington heavily supported Somoza's rightwing dictatorship with arms, military advisors, and economic aid. All the while, economic conditions and political repression were growing to the point where they sparked a successful popular uprising.

Some believe the election result was primarily an expression of the Nicaraguan people that they have had enough of war and economic deprivation -- and not particularly either a condemnation of the Sandinistas or a vote of confidence for U.S. policy.

Some observers expect the Contras to disband, with many of their ranks probably ending up as refugees -- perhaps in Miami.

Also keeping a close eye of on developments in Managua are people in El Salvador. Prominent politicians opposed to that country's rightwing leadership see the Nicaraguan election as a harbinger of major change in El Salvador, as well.`

They expect the peaceful ouster of the Sandinistas to result in a cutoff of Nicaraguan aid to the leftist rebels of the FMLN in El Salvador. That could mean the end to that country's bloody civil war, and bring about the removal of U.S. military advisors and a reduction or cutoff of massive military aid from Washington.

Unfortunately, the end of El Salvador's civil war between the government and leftist guerrillas would not bring peace to that land. There would remain the reign of terror by rightwing death squads -- even within the Salvadoran military -- which has kept that nation from achieving real democracy.

The advent of democracy in Nicaragua not only threatens the livelihood of leftist rebels in El Salvador. It will also place renewed pressure on Salvadoran President Alfredo Cristiani, of the rightist Arena Party, to reform his regime and end, once and for all, the domination of his country by the terror of rightwing death squads.

White House Weekly has learned that non-Communist Salvadoran opposition leaders and church and non-profit agency officials involved in social, labor, and agrarian reform activities in El Salvador live in constant fear for their lives and the lives of their families because of the death squads. Meanwhile, they maintain that the U.S.-backed government is unable or unwilling to ensure their safety.

Denials of this fact by Bush Administration officials have a hollow ring, in view of the fact that they first blamed the recent massacre of Catholic church officials on leftist rebels, only to have Cristiani himself finally admit that the heinous crime was actually carried out by his own military -- in fact, by members of an elite battalion of troops organized and trained by the U.S. Army.

If the Salvadoran rebel threat winds down, because of a lack of Nicaraguan support, it is seen as likely that the Bush Administration will find it more and more difficult to convince Congress to pour a million dollars a day in military aid into El Salvador, without forcing leaders in San Salvador to clean up their act.

Sources on Capitol Hill say that without the Communist threat as a "selling point," they expect Congress to reorient U.S. aid. And they believe without the civil war and perceived Nicaraguan threat to distract them, U.S. lawmakers will be hard-put to ignore the continuing human rights abuses and death squad activity in El Salvador.

INSIDE THE WHITE HOUSE:

THE OFFICE OF SCIENCE AND TECHNOLOGY POLICY -- AN UPDATE

When White House Weekly first profiled the White House Office of Science and Technology Policy (OSTP), last August, the agency was still in its formative stage. Indeed, even today, a number of key positions in OSTP remain vacant -- but some of this situation may soon be rectified by confirmation actions in the Senate.

During the eight years of the Reagan Administration, the White House had been strongly criticized by the science and education communities for allowing OSTP to fall into disuse. Since his predecessor had basically ignored his science advisor, President Bush was urged to take positive action.

D. Allen Bromley is the Director of OSTP and holds the title of Assistant to the President for Science and Technology Policy. Before joining the Administration, Bromley was a scientist at Bush's alma mater, Yale University.

When fully staffed, OSTP will have four Associate Directors. Thus far, two have been

confirmed by the Senate. **J. Thomas Ratchford** is Associate Director for Policy and International Affairs. He came to the White House from the American Association for the Advancement of Science (AAAS).

James G. Wyngaarden is Associate Director for Life Sciences. He previously headed the National Institutes of Health (NIH).

Two nominees were awaiting Senate confirmation at press time. **Eugene Wong**, who would become Associate Director for Physical and Engineering Sciences, is currently at the University of California at Berkeley. **William D. Phillips**, who would become Associate Director for Industrial Technology, is president of the Missouri Advanced Technology Institute, science advisor to Gov. **John Ashcroft** (D-Mo.), and a faculty member at Washington University in St. Louis.

The Senate Commerce, Science, and Transportation Committee held a confirmation hearing for Wong and Phillips on Feb. 28. A committee staff member told White House Weekly that no date had yet been set for an executive session of the Committee, at which time a vote would be taken. The panel would then report the nominations to the full Senate for confirmation.

The staff source said the Committee hopes to vote on the nominations by the end of March, but the Senate recess from Mar. 9 to 20 may interfere.

Each of the OSTP Associate Directors would be assisted by a staff of senior policy analysts and policy analysts. **Sarah Keegan**, the OSTP Director of Public Affairs, said this supporting staff had "not jelled yet," although some analysts were already on board.

OSTP also has Assistant Directors who are not presidential nominees. Each has a specific technical specialty and reports directly to Bromley. They are: **Michelle Van Cleave**, Assistant Director for National Security Affairs; **Nancy G. Maynard**, Assistant Director for Environment, Research, and Development; and **Karl Erb**, Assistant Director for Physical Sciences.

Judith Bostock is Bromley's Special Assistant, heading up OSTP special projects. **Damar Hawkins** is the OSTP Executive Officer. **Robert Post** is Assistant to the Director for Critical Materials.

Keegan told White House Weekly that the mission of OSTP is two-fold. It provides advise on science and technology for policy, making sure that science and technology considerations are aired in Administration decisions in all areas. And, of course, OSTP also advises on Administration policy which deals specifically with science and technology.

She noted that OSTP is now also coordinating related activities of the Education Department and the National Science Foundation, and is involved with both government and non-government initiatives through two other entities.

One is the Federal Coordinating Council on Science, Engineering, and Technology (FCCSET), which is known by its nickname, "Fix-It." This agency, which Keegan said had been "moribund," would be "rejuvenated" to coordinate all research and development activities within the federal government.

The other is the President's Council of Advisors on Science and Technology (PCAST,

pronounced "P-Cast"), headed by Bromley. That panel reports directly to the President, replaced the old White House Science Council, and deals with academia and the private sector.

Under Bromley's leadership, it appears that OSTP has a new lease on life, after years of inactivity. Keegan said that Bromley sees the Office's role as providing input at "the very highest level of policy development."

COMINGS AND GOINGS:

President Bush announced his intention to appoint:

Arthur A. Fletcher to be a Member of the Commission on Civil Rights for a term expiring Nov. 29, 1995. He would succeed Sherwin Chan. Upon appointment, Fletcher would be designated Chairman. Fletcher, 64, is currently president of Arthur A. Fletcher and Associates, in Washington, D.C.. In his previous government posts, Fletcher served as Deputy Assistant to the President for Foreign Affairs, 1976-77, Alternate Delegate of the United States to the 26th Session of the General Assembly of the United Nations, 1971, and Assistant Secretary of Labor for Employment Standards, 1969-71. From 1972-73, Fletcher was executive director of the United Negro College Fund.

Clarence S. Avery as a Member of the Board of Regents of the Uniformed Services University of the Health Sciences. He would succeed Ann S. Peterson. Avery is a staff surgeon at the Nathaniel C. Holderman Hospital, in Lountville, Calif.

George Tryon Harding, IV, as a Member of the Board of Regents of the Uniformed Services University of the Health Sciences. This would be a reappointment. Harding is a clinical professor of psychiatry at Ohio State University College of Medicine, in Worthington, Ohio.

The President also announced his decision that **Timothy L. Coyle** will continue to serve as Assistant Secretary for Legislation and Congressional Relations in the Department of Housing and Urban Development (HUD). Coyle has held that post since 1988. Hr previously served in several other positions in HUD: Deputy Under Secretary for Field Coordination, 1986-88; Deputy Assistant Secretary for Legislation, 1983-84; and Executive Assistant for Field Operations in the Office of Housing for the Federal Housing Commission.

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THE WHITE HOUSE

WASHINGTON

March 21, 1990

Dear Roger,

The second meeting of the President's Council of Advisors on Science and Technology will be held here on Thursday, March 22 and half day on Friday, March 23. The morning of March 22 will be an open session and the remainder of the meeting will be closed.

You will note that the President plans to spend some time with the group on Friday morning and the enclosed agenda will be adjusted to ensure substantive discussion during the time that the President can be present.

You are cordially invited to attend any or all of the sessions. I would appreciate if you would be good enough to let my assistant, Damar Hawkins, know whether you will be able to join us.

Sincerely yours,

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

Enclosure

PRESIDENT'S COUNCIL OF ADVISERS ON SCIENCE AND TECHNOLOGY

MARCH 22-23, 1990

AGENDA

THURSDAY, MARCH 22, 1990

OPEN SESSION, 9:00 A.M. - 12:00 NOON
CONFERENCE ROOM, COUNCIL ON ENVIRONMENTAL QUALITY
722 JACKSON PLACE, N.W.

8:30-9:00 ARRIVAL AND COFFEE

9:00-9:30 OPENING REMARKS — **DR. BROMLEY**

9:30-10:30 HIGH PERFORMANCE COMPUTING INFORMATION BRIEFING AND DISCUSSION — **DR. WONG**

10:30-10:45 BREAK

10:45-11:45 MATERIALS INFORMATION BRIEFING AND DISCUSSION — **DR. PHILLIPS**

11:45-12:00 CLOSING REMARKS — **DR. BROMLEY**

THURSDAY, MARCH 22, 1990 continued

CLOSED SESSION, 1:00 - 5:00 P.M.
ROOM 208, CORDELL HULL CONFERENCE ROOM
OLD EXECUTIVE OFFICE BUILDING

1:00-2:00	COUNCIL DISCUSSION OF HIGH PERFORMANCE COMPUTING AND MATERIALS	
2:00-2:30	FOLLOW-ON THOUGHTS FROM CAMP DAVID DISCUSSION	
2:30-3:00	IMPORTANCE OF INTELLIGENCE SUPPORT	DR. BROMLEY
	DR. OEHLER AND DR. WEISS OFFICE OF THE DIRECTOR, CENTRAL INTELLIGENCE AGENCY	
3:00-3:3O	SCIENCE AND ECONOMICS RESEARCH FOR GLOBAL STEWARDSHIP, A WHITE HOUSE CONFERENCE - DISCUSSION	DR. BROMLEY
3:30-3:45	BREAK	
3:45-5:00	RELATIONSHIP OF PCAST, FCCSET AND OSTP STAFF PCAST STANDARD OPERATING PROCEDURES DISCUSSION	

FRIDAY, MARCH 23, 1990

CLOSED SESSION, 9:00 A.M. - 12:00 NOON
ROOSEVELT ROOM
WEST WING, THE WHITE HOUSE

THE PRESIDENT IS EXPECTED THIS MORNING

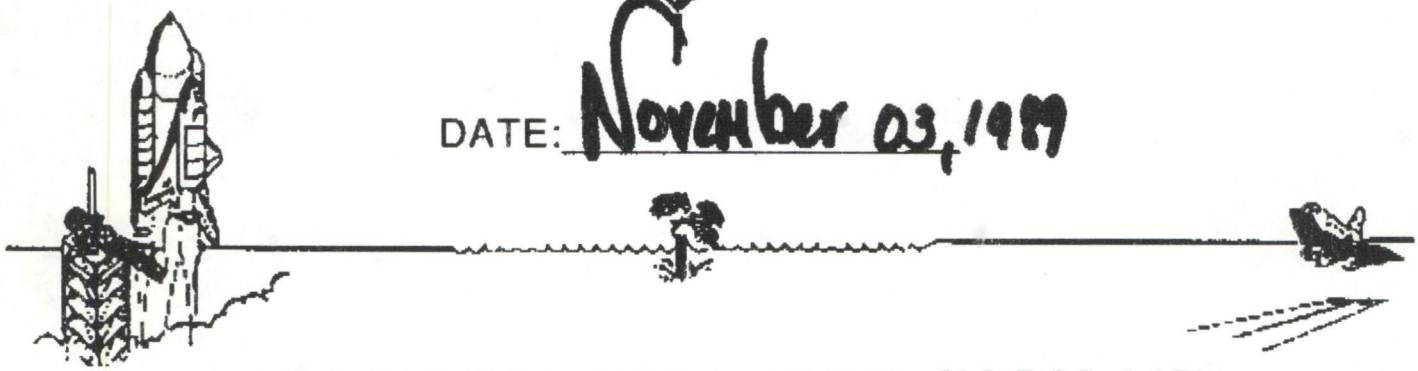
9:00-10:00	**DoD R&D PLANS AND DISCUSSIONS**	**DONALD ATWOOD**
10:00-10:30	**DISCUSSION OF PCAST PANEL STRUCTURE AND PRIORITY AREAS**	
10:30-10:45	**BREAK**	
10:45-11:30	**ORGANIZATION OF HIGH PERFORMANCE COMPUTER PANEL**	
11:30-12:00	**THE NEXT MEETING AND CLOSING REMARKS**	**DR. BROMLEY**



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National Aeronautics and Space Administration

89-220

Prepared by: News and Information Branch, Public Affairs Division

Date Friday, November 3, 1989

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LOS ANGELES TIMES Thursday, November 02, 1989

INNOVATION / MICHAEL SCHRAGE

Searching for National Policy on Science

Somewhere, stumbling aimlessly between Pennsylvania and Constitution avenues in Washington, is $18 billion-plus in search of a policy.

That's roughly what the federal government plans to spend on non-defense-related science and technology this fiscal year. Only in our nation's capital, where a dash of politics sweetens unpalatable taxes into tasty revenue enhancers, can a phrase such as "science policy" be an oxymoron. That's not healthy and it's not smart.

The irony is that, after an initial delay, the Bush Administration seems to have made all the right moves in setting up a policy infrastructure. The appointment of Yale physicist D. Allan Bromley as White House science adviser was well received—as was the upgrading of the post to Cabinet-level status. Bush even reconstituted an Office of Science and Technology Policy to further assure that intelligent policy advice and technical expertise wouldn't be total strangers.

"I couldn't have hoped for much more," says William Golden, president of the New York Academy of Sciences and a longtime player in science policy circles.

Moreover, the speech writer who penned candidate Bush's campaign commitments to emphasize science and innovation is now deputy to Office of Management and Budget Director Richard G. Darman, overseeing the science and technology budget. At 32, Robert Grady is one of the younger Turks shaping the dollar flow to the National Aeronautics and Space Administration, the National Science Foundation and the nation's universities, as well as brokering some of the budget trade-offs between Congress and the White House.

"Investments in science and technology are a priority," says Grady, who is less than thrilled with the way that Congress has trimmed Bush's initiatives. The Administration's rationale is crisp and well defined. A dollar spent on science and technology is an investment; a dollar spent on "entitlements" is a dollar destined for consumption.

Darman has publicly decried what he describes as America's "I want my Maypo . . . NOW!" culture, and it is clear that boosting the science budget sends a clear signal that this Administration wants to bias the budget toward investment and away from consumption. Investing in science and technology becomes a symbol.

Yet the trick is matching the symbolism with substance. Spending money is easy. Making intelligent investments for the long term is not. Despite having sharp people in the right places, the Bush Administration has yet to articulate a real policy to deal with the difficult trade-offs involved in funding this area:

- Are the National Science Foundation and the National Institutes of Health structured the best way for funding research?
- Should the government fund more "Little Science" efforts as opposed to "Big Science" projects, such as the superconducting supercollider?
- What should be the balance between basic and applied research?
- Should the government spend more on science equipment or science education?

NOV 3 '89 10:16 FROM HQ NEWSROOM I TO MITCHELL PAGE.002/003

• How much science should be funded with an eye toward global competitiveness?

These are precisely the questions that aren't being answered—and yet, these are precisely the questions that are getting lost amid the budget battles. They are also the questions that will determine what kind of return America's taxpayers get for their multibillion-dollar investments.

Grady freely acknowledges that "there will be a very healthy debate—maybe even a tension—about 'investment in emerging technology' versus 'industrial policy.' " When does one blur into the other? The answer is politically charged because Republican free traders/free marketers loathe "industrial policy" with a passion. They don't want Washington to be "picking winners." Instead they want to rely on, as Ronald Reagan put it, "the magic of the marketplace" to determine what emerging technologies are best.

Nevertheless, Grady says Darman is interested in "competitiveness inducing investments" in science and technology. "We're prepared to push that envelope a little further than our predecessors," Grady says.

What about the high-definition television technology consortium that Commerce Secretary Robert A. Mosbacher pushed to get U.S. industry back into consumer electronics? Or other consortia to encourage state-of-the-art science and technology? What is the policy guiding the budgeteers? "We'll decide that on a case-by-case basis," Grady says.

Which is precisely the point. Case by case means that there is no policy. What you find instead are themes impersonating initiatives. The Bush Administration has expressed intense interest in promoting space exploration. The Administration is also intrigued by establishing a supercomputer network to link up universities and industry. And for good old-fashioned scientific pork barreling, there's the superconducting supercollider—a high-energy physicist's dream that will be located in (surprise!) Texas, a state that has more electoral votes than quality physicists.

It's not that these efforts lack merit, it's that they lack focus, coherence and context. What is so troubling about the Bush Administration's approach to science and technology policy is that there seems to be no center. The people that Bush has are, I think and hear, top notch. Unfortunately, you can't tell this by what's happened so far.

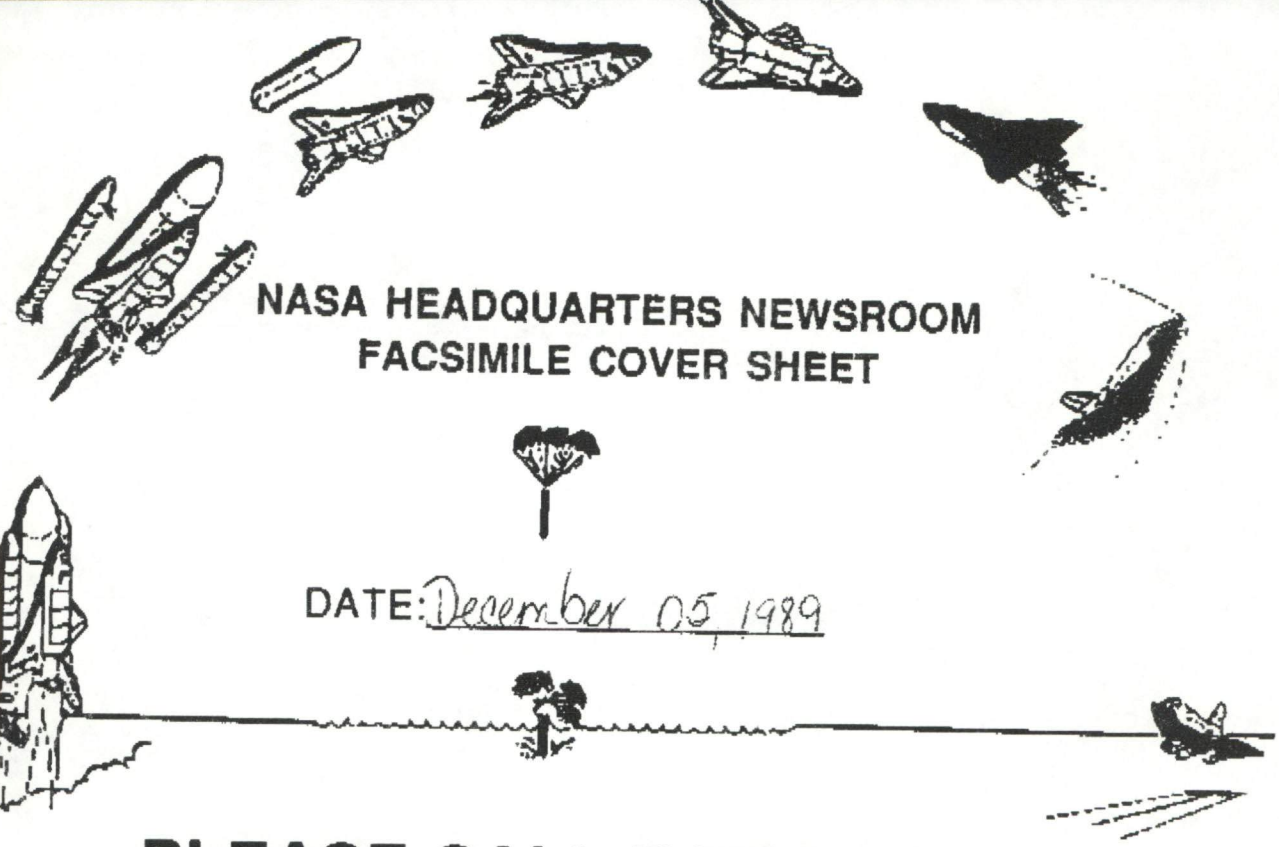
National Science Foundation Director Erich Bloch, who has seen his agency's proposed budget double under the new Administration, argues that the Administration's emphasis on education is a cornerstone of its science policy and that its commitment to science is a necessary precursor to whatever new policies emerge.

Bromley, Darman, Grady and Bloch will perform a great public service if, instead of simply discussing initiatives, they sit down with leaders in industry and science to explain what they think science policy means—and should mean—in an era of deficits. They should talk tough about which priorities of theirs are partisan and which priorities are motivated to keep this country the global leader in basic science.

What's more, they have to have the guts to be bipartisan. An Administration that gets America's science and business establishments to explore ways to get more bang for the science buck—instead of just more bucks—will have made a contribution to this country that leaves science in better condition than it found it.

NOV 3 '89 10:16 FROM HQ NEWSROOM 1 TO MITCHELL PAGE.003/003

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DEC 5 '89 11:19 FROM HQ NEWSROOM I TO MITCHELL PAGE.001/013

NASA Current News

National Aeronautics and Space Administration

89-240

Prepared by: News and Information Branch, Public Affairs Division

Date Tuesday, December 5, 1989

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THE WASHINGTON POST Tuesday, December 5, 1989

Ground Cracks Worry Quake Probers

By Jay Mathews
Washington Post Staff Writer

SAN FRANCISCO, Dec. 4—In the most comprehensive scientific report to date on the Loma Prieta earthquake, federal geologists said today that hidden underground faults may have added to the damage, and they called for more attention to the surprisingly widespread ground cracks that affected roads and buildings near the epicenter of the Oct. 17 temblor.

Heavy damage in one part of the otherwise untouched city of Los Gatos suggested "secondary movement on one or more of the southwest-dipping thrust faults," which are difficult to study because they often do not break the surface, according to the report by the U.S. Geological Survey. Thrust faults have drawn much attention since one was identified as the source of a damaging October 1987 quake near Los Angeles and two previously undetected thrust faults were discovered under that city.

The USGS report on lessons learned from the 7.1 magnitude Loma Prieta earthquake was released at a special session of the fall national meeting of the American Geophysical Union, the scientific society of geologists.

Richard Andrews, deputy director of the California office of emergency services, said modern "nonductile" concrete structures, like the Oakland freeway that collapsed in the quake, may present the greatest hazard in future large quakes because they remain brittle despite steel reinforcement. Rep. George E. Brown Jr. (D-Calif.) bemoaned the pre-quake decline in funding for the National Earthquake Hazard Reduction Program. It revealed "our national tendency to react to events rather than anticipate them," he said.

But most of today's reports concerned unusual scientific features of the earthquake, such as its failure to show any significant surface break of the San Andreas fault. USGS geologist Daniel J. Ponti noted that the 8.3 magnitude 1906 San Francisco earthquake, which created significant breaks north of San Francisco, also produced no primary surface faulting in the Santa Cruz Mountains area south of the city, apparently because of complex underground structures at a point where the San Andreas bends.

Instead of a surface fault, the Oct. 17 quake produced "a zone as much as three miles wide of numerous ground cracks" big enough to damage houses and roads, the USGS report said. "This type of distributed cracking constitutes a previously unappreciated category of earthquake hazard," it said—"one that can extend well beyond the well-defined and narrow fault trace that typifies most of the San Andreas fault."

Several scientists said they found no evidence of any unusual activity just before the quake that could help to predict future events. Karen C. McNally, a seismologist at the University of California, Santa Cruz, suggested further research, however, on two magnitude 5 pre-shocks in the same area. She said they repeated a pattern found in some other areas of progressively deeper and larger magnitude temblors preceding a damaging quake.

California Institute of Technology scientists also released a report that sonic booms from the space shuttle Columbia thumped the 400 highrise buildings of downtown Los Angeles like giant tuning forks. The buildings vibrated at a frequency that suggests buildings there may shake more violently than expected in a major earthquake.

DEC 5 '89 11:19 FROM HQ NEWSROOM I TO MITCHELL PAGE.002/013

THE SUN
December 5, 1989

Sonic booms spur questions about L.A. quake safety

SAN FRANCISCO (AP) — Sonic booms set off by a descending space shuttle created ground motion that showed earthquakes may shake Los Angeles skyscrapers more violently than was once thought, scientists said yesterday.

"Engineers say we don't need to worry about it, but I'm not so sure," said Hiroo Kanamori, a professor of geophysics at the California Institute of Technology in Pasadena.

A study by several Caltech and U.S. Geological Survey scientists was outlined by Mr. Kanamori during the American Geophysical Union's fall meeting.

The researchers found that the shuttle's twin sonic booms shook 400 high-rise buildings in downtown Los Angeles and the nearby Wilshire district when the shuttle Columbia swept to the northeast of the city at 2,600 mph before landing at Edwards Air Force Base Aug. 13.

The sonic booms' effects on the buildings were transmitted down to the soft sediment of the Los Angeles Basin. Because seismic waves move more quickly through rock than through air, the waves that were triggered reached Caltech instruments 12.5 seconds before the sonic booms were heard there.

The scientists learned from the data that the soft, 1.25-mile-deep sediment beneath Los Angeles amplifies the effects of slow, swaying "long-period" quake waves with a period — or time between wave crests — of two to three seconds. Short-period waves cause sharp jolts.

Buildings 20 to 30 stories tall tend to sway back and forth once every two to three seconds, making it possible that the Los Angeles basin would amplify ground motion in an earthquake, "giving 20- to 30-story buildings more shaking than if they were founded on [solid] rock," Caltech said in a news release.

Jim Mori, a Geological Survey seismologist co-author of the study, estimated that buildings on the sediment would shake three to five times more than those on solid rock.

USA TODAY Tuesday, December 5, 1989

Sonic booms give L.A. a quake lesson

By Jack Williams
USA TODAY

SAN FRANCISCO — Space shuttle sonic booms show an earthquake could shake Los Angeles' high-rises more than previously thought.

As the shuttle swooped over Los Angeles Aug. 13 to land at Edwards Air Force Base, its sonic booms crashed into the city's 400-plus high-rises, causing them to sway, California Institute of Technology scientists said in findings at the American Geophysical Union meeting here Monday.

The shaking buildings rattled against the relatively soft ground under them, starting small earthquake-like motions.

Scientists watching Cal Tech seismometers at nearby Pasadena were puzzled. They concluded the ground was amplifying the slow, swaying waves.

Cal Tech scientist Hiroo Kanamori says he doesn't think the extra shaking means Los Angeles high-rises are likely to tumble if the expected "big one" hits.

But he says, "It's probably prudent now to take a closer look at the problem.

"We don't really have much information about how earthquakes affect the high-rise buildings that have gone up around the world over the last 20 years."

Kanamori says sonic boom motions are a good way to see how a big earthquake could affect Los Angeles — "and it's a lot cheaper."

Meanwhile, scientists said the Oct. 17 California earthquake has given them much to study but no big surprises.

"Most of the damage was to structures that were vulnerable because of poor construction or sitting on poor ground," says Jim Dietrich of the U.S. Geological Survey.

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DEC 5 '89 11:20 FROM HQ NEWSROOM I TO MITCHELL PAGE.003/013

THE CHRISTIAN SCIENCE MONITOR December 5, 1989

Engineers Pick Top 10 Advances of 25 Years

ROBERT C. COWEN

ENGINEERING – turning knowledge into useful products, services, and structures – is one of humanity's great skills. We've been developing it for thousands of years.

Yet, as Robert M. White, president of the (United States) National Academy of Engineering, observes, the past quarter century has "witnessed more advancement in technology and, consequently, greater changes in the lives of people than any previous 25-year period in recorded history."

To celebrate its own 25th birthday, Dec. 5, the academy has issued a brochure describing what it considers the top 10 engineering accomplishments of this seminal era. The conclusions are thought-provoking.

This is no casual listing such as you might work up in after-dinner conversation. Academy members and engineering societies submitted 340 entries for this technological hit parade. The 10 the academy council picked are just the tip of a pyramid of achievement that really has changed our lives. Here, briefly, are the choices:

•Moon landing: This heads the list because it ranks with the Egyptian pyramids or the Panama Canal "as one of the most complex and significant achievements of all time."

•Application satellites: We take weather, communications, and ground-scanning resource satellites for granted now. But they have transformed our view of the planet.

•Microprocessors: The chips that run watches and "smart" appliances and make possible the computer-managed "information revolution" are another marvel that has quickly become commonplace.

•Computer-aided design and manufacturing: It's the new stage in the industrial revolution.

•CAT scan: A marriage of X-ray scanning and computer imaging that removes the need for exploratory surgery in many medical diagnoses.

•Advanced composite materials: These are the stronger, lighter-weight materials that have transformed tennis rackets and golf clubs and now find wide use in many products, including aircraft and spacecraft.

•The jumbo jet: This sophisticated workhorse aircraft – not the once-hyped supersonic transport – has cut costs and increased air travel dramatically.

•Lasers: They now find use in such applications as CD players and office printers as well as in research, communications, and some medical and manufacturing operations.

•Fiber optics: The glass cables that carry laser light handle many times the information at lower cost than do the old copper wires are revolutionizing communications.

•Genetic engineering: This portentous technology has only begun to find applications.

It's an impressive list. Perhaps its most awesome implication is to illustrate the fact that our engineering prowess is changing our world profoundly, in ways and with a speed that we scarcely grasp.

And those changes are by no means always benign. As Dr. White notes, "some engineering achievements are often viewed as sources of environmental degradation."

It's worth considering something the academy doesn't mention – once-promising technologies that have lost their luster during the past quarter century. For example, issues of radioactive waste disposal and safety have put the future of nuclear

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power in question. Pesticides and other farm chemicals developed to boost food supplies now are serious pollutants. The chloroflorocarbon (CFC) "wonder" chemicals that brought cheap refrigeration threaten the ozone layer. And the cars that provide unprecedented mobility degrade the air we breath.

White rightly points out that "the engineering achievements of the future are limited only by the laws of nature and our own imagination." But if those achievements are to be a boon and not a bane, they must be planned and implemented with far more foresight than has been exercised to date. Helping engineers – and the rest of us – to gain this wisdom may be the biggest challenge the National Academy of Engineering will face during its next 25 years.

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DEC 5 '89 11:21 FROM HQ NEWSROOM 1 TO MITCHELL PAGE.005/013

12 UPI 12-05-89
By WILLIAM HARWOOD
UPI Science Writer

CAPE CANAVERAL, Fla. (UPI) _ NASA managers are reviewing the status of launch processing to determine if the shuttle Columbia will be ready for blastoff as planned around Dec. 18 on a 10-day Christmas flight, the sixth shuttle mission of 1989.

A two-day flight readiness review began Monday and while officials said launch processing was extremely tight, they were optimistic about getting Columbia off the pad before Christmas to give workers at the Kennedy Space Center time off over the holidays.

NASA traditionally announces a formal launch date at the conclusion of each flight readiness review, but sources said Kennedy Space Center officials were arguing to delay such an announcement until more work is completed.

As of Monday, it was not clear whether the shuttle could be ready for liftoff by Dec. 18.

Officials have said the agency probably would delay the eighth post-Challenger launch to the first week in January if problems prevented a liftoff by Dec. 21 or 22.

Columbia's crew _ commander Daniel Brandenstein, 46, co-pilot James Wetherbee, 37, Bonnie Dunbar, 40, Marsha Ivins, 38, and G. David Low, 33 _ plans to launch a Navy communications satellite and to bring a science satellite back to Earth that was dropped off in orbit in 1984.

Columbia is scheduled to blast off after dark, but the launch time changes from day to day based on a variety of technical requirements, including the position of the satellite the astronauts plan to retrieve.

As of Monday, the following liftoff times were in effect for the year's sixth shuttle mission (all times in EST):

- Dec. 18: 7:29 p.m.
- Dec. 19: 6:54 p.m.
- Dec. 20: 6:24 p.m.
- Dec. 21: 5:53 p.m.
- Dec. 22: 5:18 p.m.

Columbia's flight will be the third shuttle launch in three months, following the flight of Discovery on a secret military mission that ended last Monday with landing at Edwards Air Force Base, Calif.

Bolted to the back of a NASA 747 transport jet, Discovery arrived back at the Kennedy Space Center Monday after a two-day cross-country flight from Edwards.

Discovery is not scheduled to fly again until liftoff in early April to ferry the $1.4 billion Hubble Space Telescope into orbit. Between now and then, NASA plans to launch Columbia at the end of this month and Atlantis, in mid February, on another secret military mission.

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A pool reporter aboard a Navy support ship said sailors aboard the USS Grasp used water hoses to spray the Greenpeace before the ramming incident and that three helicopters were used to stir up choppy 12-foot seas in a bid to keep the protesters from approaching the Tennessee.

"Stop hosing our boat," the Greenpeace radioed at one point as sailors aboard the USS Grasp fired water hoses at the activists.

"Clear the area now," replied the USS Nashville.

"You are doing your best, but you haven't sunk us yet," the Greenpeace skipper said. "We are staying."

Steve Shallhorn, reached by ship-to-shore telephone aboard the MV Greenpeace, said his ship was "rammed repeatedly by two U.S. Navy auxiliary ships" and that "we have hull damage on our port side, a hole about a meter wide and are taking on some water."

While no one was injured, Fagen said the vessel suffered holes 1 foot and 3 feet across in its hull.

After the Greenpeace had been damaged, the activists launched two Zodiac rafts, but one apparently had engine problems. Bacon said sailors in an inflatable boat of their own caught up with the other Zodiac and cut its fuel lines.

Both disabled Zodiacs then were towed back to the Greenpeace.

Fagen said teams of Navy SEAL commandos "boarded our two Zodiacs, slashed the fuel lines, punctured the pontoons and towed them back to the MV Greenpeace. We're definitely pursuing this whole thing and considering charges against the Navy."

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3 UPI 12-05-89

By MARaHA BRIDEGAM

SAN FRANCISCO (UPI) _ The space shuttle Columbia performed an unintended test as it landed in Southern California last summer, triggering a tiny "earthquake" that has led scientists to believe Los Angeles skyscrapers may not be a good match with the land on which they are built.

Participants at Monday's opening of the semiannual meeting of the American Geophysical Union were told that the shuttle's twin sonic booms as it glided in for a landing Aug. 13 shook high-rise buildings, whose motion caused the ground to shake.

The slow ripple of ground motion was measured 9 miles away at the California Institute of Technology in Pasadena and other seismic stations in the Los Angeles Basin. The motion puzzled scientists because the waves resembled a small earthquake _ quite different from waves normally caused by sonic booms.

The scientists studied the data and came up with an answer.

"We believe that the sonic boom pushed almost simultaneously against the 400 high-rise buildings in downtown Los Angeles," said Caltech's Hiroo Kanamori. "The high-rises, in turn, pushed against the relatively soft sediment of the L.A. Basin, and it's this ground motion we recorded in Pasadena."

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DEC 5 '89 11:23 FROM HQ NEWSROOM 1 TO MITCHELL PAGE.008/013

19 UPI 12-05-89
By WILLIAM HARWOOD
UPI Science Writer

CAPE CANAVERAL, Fla. (UPI) _ The Navy used "minimum force" in a high seas confrontation that left a Greenpeace vessel with a hole in its hull before the successful test firing of a Trident 2 submarine missile, officials said.

The confrontation occurred just after sunrise Monday when environmentalactivists aboard the 190-foot MV Greenpeace entered a 5,000-yard launch danger zone to prevent the Navy from test firing the big missile from the submerged USS Tennessee, an Ohio-class nuclear submarine cruising about 40 miles east of Cape Canaveral.

But the Dutch-flagged Greenpeace was quickly surrounded by three Navy ships, including one that nudged the vessel away from the danger zone, punching a 3-foot hole in the hull of the environmentalists' vessel.

"It's outrageous," said Shannon Fagen, a spokeswoman for Greenpeace. "The Navy has violated international law. It has no legal right to cordon off a test zone in international waters for a missile test and it certainly has no right to ram our boats and endanger the lives of our crew."

But Navy officials said the action was taken to protect the safety of the civilians. Vice Adm. Roger Bacon, commander of the Atlantic submarine fleet, said the activists ignored "at least 50 and maybe more" warnings to leave the area.

In any case, with the Greenpeace vessel out of the danger zone, the crew of the Tennessee successfully launched an unarmed $23.7 million Trident 2 missile at 10:40 a.m. EST. The damaged Greenpeace ship later headed for port in Jacksonville, Fla., under its own power.

"We did a perfect launch, just beautiful," Bacon told pool reporters aboard the USS Nashville, an amphibious landing ship. "We used the minimum force necessary to clear the area."

The 126,000-pound solid-fuel Trident 2, built by Lockheed Missiles and Space Co. of Sunnyvale, Calif., is scheduled for deployment aboard Ohio-class nuclear submarines in March to replace less-powerful Trident 1 missiles.

Sixteen of 19 Trident 2 test firings from a ground pad at the Cape Canaveral Air Force Station were successful, but two of the previous three test launches from the Tennessee ended in spectacular failures and the Navy has been under pressure to fix the problems and complete the test program.

The launch Monday more than 40 miles east of Cape Canaveral came 31 minutes late because of the confrontation with Greenpeace.

Greenpeace officials vowed last week to block the launch in a protest against the Trident 2. A similar effort was successful in July when Greenpeace activists aboard small Zodiac inflatable rafts surprised the crew of the Tennessee and refused to leave the launch danger zone.

"We were more prepared today," Bacon said after the MV Greenpeace had been "shouldered" out of the launch danger zone by Navy ships.

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It is not simply a nifty piece of scientific detective work. If swaying buildings can cause the floor of the basin to shake the way it does during an earthquake, it might mean the area is particularly vulnerable to certain kinds of quakes, the scientists said.

Kanamori and his colleagues were careful to say they did not see any immediate danger to Los Angeles skyscrapers, but seismologists already believe the sediment that constitutes the floor of much of the Los Angeles Basin vibrates easily at around one pulse every two seconds. Kanamori's research group now suggests that buildings between 20 and 30 stories high do the same.

If the buildings, which are designed to sway in an earthquake, resonate at the same frequency as the ground they stand on _ they could be more susceptible to damage during an earthquake.

The suggestion is that the buildings and the city are not a good match because the soil could amplify earthquake shock waves.

Caltech engineer James L. Beck said the discovery will be looked at closely, but he doubted that the Los Angeles Basin would amplify ground motion at anywhere near the rate as in the great Mexico City quake of 1985. Many buildings were toppled because the quake waves were amplified up to 10 times.

"That situation isn't operating to anywhere near the same extent in the Los Angeles Basin," Beck said.

Many of the nation's top seismologists meeting seven weeks after the devastating Bay Area earthquake said more money is needed for research and readiness to deal with future quakes.

Some speakers appeared to criticize San Francisco Bay Area officials for not acting on previous research, and many urged more government funding for structural reinforcement and civil preparedness.

The Oct. 17 earthquake, which had a magnitude of 7.1 on the open-ended Richter scale, has been blamed for 67 deaths, and damages have been estimated at up to $10 billion.

Thomas O'Rourke of Cornell University's civil and environmental engineering school said the soft landfill under parts of San Francisco, including the hard-hit Marina district, were liquefied in the quake, just as they were in the great 1906 earthquake _ both times with tragic results.

O'Rourke said disaster planners should take note that in both earthquakes, water mains broke and were quickly emptied in the same areas where huge fires started. In the Oct. 17 quake, he said, only water pumped a few hundred feet from San Francisco Bay stopped fire from racing through the Marina.

Karen C. McNally, a researcher at the University of California at Santa Cruz, reported on a pair of shocks in August and September that she now believes were precursors of the October quake.

McNally said researchers understood the two smaller quakes fully only after the larger one hit. In retrospect, she said, the shocks appeared related to the 7.1 temblor, moving progressively deeper underground towards the epicenter of the larger earthquake.

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As part of their appeal for more research money, several of the scientists said they would need far better and more expensive instruments to bridge the gap between work like McNally's and actual earthquake prediction.

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10 AP-BA-12-05-89
Copyright (C) 1989. The Associated Press. All Rights Reserved
CAPE CANAVERAL, Fla. (AP) _ Space shuttle Columbia will lift off the week before Christmas unless NASA officials turn up major problems during a flight readiness review.

But shuttle managers said Monday they might have to delay the Dec. 18 launch, but will postpone the flight until after the first of the year if they can't launch by Dec. 21 or 22.

Columbia will stay in space 10 days. The crew of five will deploy a Navy communications satellite and then retrieve a science satellite that has orbited the Earth nearly six years.

The biggest potential problem is getting launch pad 39A ready for its first liftoff in nearly four years. The pad underwent a $50 million overhaul to improve safety, fueling and other systems, and several minor glitches have cropped up since Discovery moved to the pedestal last week.

Launch pad 39B has been used for all seven shuttle launches since flights resumed last year.

AP-BA-12-05-89

9 AP-BA-12-04-89
Copyright (C) 1989. The Associated Press. All Rights Reserved
CAPE CANAVERAL, Fla. (AP) _ The shuttle Discovery, riding piggyback on a Boeing 747 jetliner, returned to its launch base today a week after completing a military space mission.

The 747 left Edwards Air Force Base, Calif., on Sunday, made a refueling stop in Texas and stopped overnight at Eglin Air Force Base, Fla.

Discovery landed at Edwards Nov. 27 after a five-day flight during which the crew of five astronauts reportedly deployed a spy satellite.

Its next mission is scheduled in March, when another crew of five is to release the Hubble Space Telescope.

As Discovery landed, shuttle managers were meeting to select a date for the launch of Columbia on a flight to deploy a Navy communications satellite and to retrieve a science satellite that has been orbiting Earth for nearly six years.

Dec. 18 has been the target, but NASA said the schedule is tight and that it might have to delay a day or two.

The date is supposed to be set Tuesday at the conclusion of the two-day flight readiness review. But space agency spokesman Geroge Diller said the managers might wait until later in the week when they have a better idea how work is progressing at the launch pad.

AP-BA-12-04-89

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AVIATION WEEK December 4, 1989

LUNAR HIGH-TECH

THE NATIONAL SPACE COUNCIL is moving toward a consensus that the Administration's Moon/Mars mission should be paced by a technology effort similar to that used in the Strategic Defense Initiative. Under this approach, several key technologies, such as advanced propulsion and life support, would be funded aggressively for several years to determine if progress in these areas would have a substantial impact on overall design and schedule. This "racetrack" approach has impressed members of the council. It differs from NASA's initial lunar/Mars presentation, which focused instead on existing technologies with an aggressive schedule for development from the start. If the council's initial consensus is sustained, it will have a fundamental impact on the Moon/Mars program and the overall development of U. S. space technology in the 1990s.

THE LATEST LANDSAT funding proposal has two key members of Congress upset. Reps. James H. Scheuer (D.-N. Y.) and George E. Brown, Jr., (D.-Calif.) report "disturbing rumors" that one of the options under serious consideration for the Earth observing system is transfer of its control to the Pentagon. They registered their objections in a joint letter to Vice President Dan Quayle, head of the National Space Council, who temporarily rescued the system from fiscal default early this year. Not long after his intercession, the Commerce Dept. slapped the hands of its National Oceanic and Atmospheric Administration, which owns Landsat, for sounding out the French space agency, CNES, about a commercial merger with France's Spot (AW&ST Jan. 9, p. 17).

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LOS ANGELES TIMES SUNDAY, December 03, 1989

Scientists See Space Station Freedom as Launch Pad to Renewed U.S. Space Effort

By HOWARD BENEDICT
ASSOCIATED PRESS

KENNEDY SPACE CENTER, Fla.—The manned station Freedom, an orbiting outpost of America in the icy silence of space, will take center stage in the U.S. space effort in the 1990s and be a springboard for human journeys to the moon and Mars.

American scientists also expect to reap a rich harvest during the decade with an armada of sophisticated unmanned spacecraft that will explore the planets and peer back into the beginning of time.

At the same time, the Soviets will continue development of a space shuttle and exploit their own space station Mir as they pursue their stated goal of dispatching cosmonauts to Mars early in the 21st Century.

And the growing space programs of the European Space Agency, Japan and China will expand as they embark on their own manned space efforts.

As the new decade begins, America's future course is uncertain. Its space program is at a crossroads, and it will be up to the Bush Administration, the Congress and the people to decide which direction it should take.

In July, on the 20th anniversary of man's first landing on the moon, President Bush stood on the steps of the National Air and Space Museum and declared: "We must commit ourselves anew to a sustained program of manned exploration of the solar system, and, yes, the permanent settlement of space."

He proposed "a long-term, continuing commitment" to completion of space station Freedom in the 1990s and to a permanent base on the moon and a manned mission to Mars early in the next century.

But the President provided no firm timetable or budgets for such grand schemes, instead directing Vice President Dan Quayle, as head of the National Space Council, to work out the details.

Bush is expected to offer a more detailed plan in his State of the Union address early next year.

Freedom is the key element in the entire exploration plan, since it would serve as a training base and launch pad for the more ambitious flights to the moon and Mars.

But the space station has had a troubled history. The original plan called for astronauts aboard space shuttles to begin assembling it in orbit in 1992, with a total of 20 shuttle flights needed to have it fully operational by 1995.

Cost overruns, budget cuts and NASA's poor job of selling the station to a skeptical Congress have delayed the project, and initial assembly is now scheduled to start in 1995 or 1996.

The U.S. cost will be about $25 billion, with European, Japanese and Canadian partners contributing modules and other station facilities worth an additional $8 billion. This will give astronaut-researchers of these nations access to the station and provide them with valuable experience for developing independent manned space programs.

Orbiting 250 miles up, the station would provide living and working quarters for as many as eight people, with astronauts rotating back to Earth after four to six months. Some would stay longer to gain long-term exposure to weightless living, in preparation for a Mars flight that might take as long as 18 months.

As a scientific base, the station will allow humans to study the stars and planets from the pollution-free environment of space. The weightless world will permit the processing of new, pure medicines, metals and other products that cannot be made in Earth's gravity. And astronauts aboard Freedom would assemble, service and repair satellites and send them out to explore space.

Space science is experiencing a resurgence after years of neglect because of tight NASA budgets.

"We are embarking on a golden age of space science," said Lennard Fisk, the agency's associate administrator for space science and applications. "What's coming up is an era of unprecedented excitement and activity."

Among the events scheduled in the 1990s:

•Magellan, launched from a space shuttle last May, is to orbit Venus next August and will study that planet for several years.

•Galileo, launched from a shuttle in October, is to orbit Jupiter in 1995 and fire a probe into its atmosphere. En route, Galileo will probe Venus and take the first close-up look at an asteroid.

•COBE (Cosmic Background Explorer), launched Nov. 18, will spend years studying how stars and galaxies were formed by analyzing cosmic background radiation consisting of particles of light, or photons, permeating the universe.

•ROSAT, a cooperative mission with West Germany, will be launched next year to send back a detailed survey of X-rays emitted into the universe by violent explosions, such as those occurring at the end of a star's life.

•Hubble Space Telescope, to be launched from a shuttle next March, will enable astronomers to observe stars and galaxies so far away that they will be viewing these remote bodies as they existed 14 billion years ago, near the time scientists believe the universe was formed.

•Mars Observer will be launched in 1992 to orbit the red planet for a multiyear examination.

•Other payloads scheduled for deployment from the shuttle in the next few years include a series of Astro spacecraft carrying ultraviolet and X-ray telescopes to study quasars, pulsars and other celestial objects; the Gamma Ray Observatory to explore gamma ray sources throughout the universe, and Ulysses, to probe the sun.

DEC 5 '89 11:25 FROM HQ NEWSROOM I TO MITCHELL PAGE.012/013

FLORIDA TODAY November 25, 1989

KSC landings for Shuttle due NASA's high priority

When the Space Shuttle Discovery ends its current military mission and returns to earth Sunday night, it will land on the opposite side of the continent from its Kennedy Space Center launch pad.

The spaceport's huge, concrete runway — built just for Shuttle landings — will be spurned again in favor of a dry lake bed at Edwards Air Force Base in California.

Such has been the case since April 19, 1985.

That was the day Shuttle pilot Karol Bobko had one tire blow out and another suffer severe shredding after he brought the 100-ton craft in for its powerless landing.

Although the trouble resulted from the Shuttle's faulty braking system — not a flaw in the runway — it was decided not to land here again until NASA feels safer about using the 300-foot wide by 15,000-foot long runway at KSC.

Despite its Olympic-size proportions, this runway is small compared to the dry lake bed or deserts out west that have been used as landing sites.

To a Shuttle pilot bringing his craft in at a hotter speed than a landing jetliner — at a steeper approach angle with no engine power to maneuver — the canal-flanked strip at KSC might resemble the deck of an aircraft carrier.

Notwithstanding the degree of difficulty, every landing of a Shuttle appears to be right on the centerline, right on the timeline and with a softer touchdown than many commercial flights.

Could it be that NASA has become overly conservative about making the decision to return to KSC landings?

Every time the Shuttle lands in California, it costs nearly $2 million to bring it back here flying piggyback on a special 747 jet. West Coast landings also result in lost time for reprocessing the Shuttle.

Shuttle program chief Robert Crippen, who piloted the first Shuttle mission in 1981, said last week he gives a "reasonably high" priority to returning to landings at KSC.

"I'm going to have to decide what it is I really need to put on (the Shuttle) before we go back. I hope to get to that decision around the first of the year."

One of the "things" he is considering is a drag parachute to help slow the craft after landing. Better brakes and improved steering are needed. More sophisticated weather monitoring equipment also is on the list. The Cape's "changeable" weather is a cause for concern.

No one wants to see reasonable safety margins trimmed. But it is important to resume using the KSC landing facility, if the Shuttle fleet is to even approach the service capabilities that were originally advertised to Congress.

12

DEC 5 '89 11:26 FROM HQ NEWSROOM I TO MITCHELL PAGE.013/013

Science + Technology Policy

November 3, 1989

MEMORANDUM FOR JIM PINKERTON

FROM: BRAD MITCHELL

SUBJECT: Science and Technology Accomplishments

SCIENCE AND TECHNOLOGY POLICY

Reinvigorated and Expanded the Office of Science and Technology Policy

The President has designated the Director of the Office of Science and Technology Policy Assistant to the President for Science and Technology. The President obtained a full 82 percent increase in the OSTP budget, reflecting the importance he places on the scientific and technological advice provided by OSTP.

Doubling the National Science Foundation Budget by 1993

The President's NSF budget continues to increase at a rate that will enable the NSF's budget to double by 1993. These increases will allow the NSF to support the Engineering Research Centers, Advanced Scientific Computing Centers, and the 11 interdisciplinary Science and Technology Centers established in 1989.

Improving Science Education

The President unveiled the Educational Excellence Act of 1989 in April of this year. Included in this package is the National Science Scholars program. The National Science Scholars program would encourage achievement in the sciences by providing scholarships to graduating high school students who have excelled in the sciences, mathematics or engineering. A group of 570 scholars would be selected each year with each scholar receiving up to $10,000 a year for each year of their undergraduate education.

SCIENCE AND TECHNOLOGY 5/16/87 St. Louis, MO

- Make the R&D tax credit permanent
- Both government and business must devote more resources to R & D
- Business should have a closer partnership with government and university labs

8/7/87 Yale University

- Greater cooperation between private and public sectors
- Flexible approach to management of government funding

10/20/88

- Improve Math and Science Education
- Promote commercialization of technological breakthroughs
- Upgrade Science Advisor to Assistant to President for Science and Technology
- Reinvigorate OSTP (Office of Science and Technology Policy)
- Federal investment should focus on basic research
- Federal government should ensure rules of game are fair in global markets
- Double USF budget over next five years
- Supports making all R&D authorizations for 5 years and R&D appropriations for 2 years at a time

① Check OSTP budget

② Council of Science + Technology Advisors

SPACE PROGRAM

3/16/87 Melbourne, FL

- o Support a permanently-manned space station
- o Commit to a vigorous SDI program

10/29/87 Huntsville, AL

- o Support Mission to Planet Earth
- o Support the role of NASA and the private sector
- o Support construction of the replacement shuttle
- o Support a heavy-lift launch vehicle
- o Promote international cooperation for commercialization

10/3/88 Redding, CA

- o Commit to peaceful exploration of near- and far-space
- o Create a National Space Council chaired by the Vice President
- o Committed to operational space station by 1996
- o Commit space exploration to Mars

HHS NEWS

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

FOR IMMEDIATE RELEASE
Friday, Dec. 29, 1989

Contact: Campbell Gardett
(202) 245-6343

HHS Secretary Louis W. Sullivan, M.D., issued the following statement today:

"On September 15, the National Institutes of Health proposed new guidelines in the NIH Guide for Grants and Contracts which were intended to address potential conflicts of interest in research supported by NIH grants. Widespread concern has been expressed as to the effect of these proposed guidelines.

"With strong NIH support, America's biotechnology industry is a world leader, and basic biomedical research in the United States is unparalleled. While there is a crucial need to protect against possible abuses in the research system, it is also important that we not impose on our scientific community regulatory burdens which may be unnecessary or counterproductive. Likewise, it is important that we not unnecessarily jeopardize the international leadership position we have built up through years of cooperative government and private investment.

"I believe any change in this important area should undergo the fullest consideration and comment. Therefore, I have today instructed the National Institutes of Health to submit to me options for addressing potential conflicts of interest that properly treat potential abuse while keeping the research process free of unnecessary burdens and disincentives.

"Furthermore, it is my intention to implement all changes through a formal regulatory procedure, involving at the minimum the publication of a Notice of Proposed Rulemaking, a specified comment period, and publication of Final Rules with additional opportunity for comment before the rules become effective."

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12. 29. 89 09:12AM *DHHS/IOS 245-7591 P02

tried to highlight the images of the members of Peary's team, consequently washing out most of the shadows in the snow. Hall was thus looking at inadequate and distorted pictures when he made his judgment about where they had been taken.

But the Navigation Foundation—a small organization founded and led by 75-year-old Thomas D. Davies, a retired rear admiral and former assistant director of the U.S. Arms Control and Disarmament Agency—found a large

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Science + Technology

Scientists Finc

■ **Politics:** After years of being all but ignored, science experts are finally hav their say. And President Bush is getting the message through adviser D. Allan Bromley.

LAT 12/18/89

By EDWIN CHEN
TIMES STAFF WRITER

WASHINGTON—When President Bush disclosed during the Malta summit that he had reversed himself and now favors adoption of a global warming treaty, it confirmed what D. Allan Bromley has been telling science audiences all year: When he talks, the President listens.

That the White House science adviser has the ear of the President is in itself a notable turnaround. Most of Bromley's predecessors during the last quarter-century have wielded little clout, especially during the Reagan years.

But Bromley, the new director of the Office of Science and Technology Policy (OSTP), is enjoying a heady status unprecedented for a science adviser. His high profile reflects Bush's propensity to seek advice as well as Bromley's stature in the world of Big Science, which during the 1988 presidential campaign had passionately advocated just such a role for the next presidential science adviser.

"The charge Dr. Bromley has been given is the broadest ever," said Frank Press, the National Academy of Sciences president who was President Jimmy Carter's science adviser.

And in successfully urging Bush to propose a U.S.-sponsored, international conference aimed at reducing the emission of greenhouse gases, Bromley has demonstrated that he is pragmatic as well as persuasive.

Previously, Bromley had favored a go-slow approach toward the emerging crisis, as did Bush. But the adviser changed his mind after global warming experts convinced him that, among other things, some Western nations might go their own way in seeking solutions without waiting for Washington, sources said.

Two weeks later, at the Malta summit, Bush announced his shift.

With perhaps one exception, Bromley's record since his August Senate confirmation has more than lived up to the hopes of a science community that had grown accustomed in recent years to seeing science advisers languish in near-obscurity, all but ignored by the White House.

Bromley now consults with Richard G. Darman, director of the Office of Management and Budget, on funding issues involving science and technology. He confers with Defense Secretary Dick Cheney about the prospects of shifting money from military research to civilian programs. And he meets regularly with Secretary of Health and Human Services Louis W. Sullivan on matters such as the appointment of a director for the National Institutes of Health.

Still, the skeptics were heard from in November after Bromley confessed that he had been bypassed when the Administration decided to extend the controversial ban on federal funding for research using tissues from aborted fetuses.

No big deal, the former Yale physics professor replied gamely.

Abortion is not a science or technology issue, he insisted. "It's an issue on which scientists have no special insights," he said. "I know precious little about the medical field."



PETE BENTOVOJA / Los Angeles Times

D. Allan Bromley

In 1988, candidate Bush delivered a major science policy address that elated scientists. He pledged a deep commitment to government investment in basic research as well as in science and math education. Bush also vowed to significantly upgrade the science adviser's status.

Bromley reportedly helped draft the speech, although he recently declined to discuss his role in that address.

But after the inauguration, as months passed and no science adviser was appointed, the science community grew restless.

Those trepidations evaporated when Bromley was named in April.

There was further cause for elation because Bush gave Bromley the additional title of assistant to the President, thus granting him direct Oval Office access.

"There are very great expectations," said Donald Hornig, who served as science adviser in the last days of the Kennedy Administration and then under President Lyndon B. Johnson.

"Allan Bromley is known to be a first-rate physicist and a person of some force and views. And that's a very big difference from the recent past," Hornig said.

Bromley, 63, was a member of the White House Science Council in the early days of the Reagan Administration when he and Bush met.

A man partial to bow ties and precise enunciations, Bromley is outspoken to the point of abrasiveness, some say. But he is considered urbane and witty by others—including, insiders say, the President.

The Canadian-born nuclear physicist is widely praised both as a scientist who knows how to design an experiment and as a bureaucratic infighter who knows how to get things done in Washington.

That latter reputation was immediately put to the test.

During the Reagan years, the White House science office's staff and budget shrank by more than 50%.

"OSTP was all but ignored," recalled Sen. Albert Gore Jr. (D-Tenn.), chairman of the Senate science, technology and space subcommittee. "And science and

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narrowing down the location by comparing the three sets with each other, the foundation concluded that the photos "place Peary within four or five miles of his reported position and certainly no more than 15 miles away."

Considering the instruments used in those days, scientists agree that this would have put the American hero close enough for all to say that he had achieved his lifelong goal and could boast, as he did in his dispatch to the news agencies, "Stars and Stripes nailed to the Pole!"

at the White House



E BENTOVOJA
s Angeles Times

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technology policy was based more on the whims of speech writers than on sound scientific analysis."

By the time Ronald Reagan returned to California, many scientists were deeply disturbed by what they regarded as a severe neglect of science and technology—especially at a time when America's competitiveness appeared increasingly at stake and when so many "mega-projects," like the super collider, the human genome mapping project and the space station, were vying for funds.

□

While Bromley's early reviews have been positive, many observers note that science advisers make few, if any, policy decisions themselves. Rather, their influence rests largely on their ability to persuade the President and key Administration officials.

"Nothing comes along which the science adviser has to say yes or no to. He's just not in a position of deciding yes or no about *anything*," said Hornig, now chairman of the department of environmental science and physiology at Harvard's School of Public Health.

"But he can take initiatives and carry great weight," he added.

Bromley said he does not intend to sit back and wait to be asked for his advice. As a presidential assistant, he said, "I can inject science and technology whenever it's important."

He also has persuaded Bush to create a President's Council of Advisers on Science and Technology—to be chaired, of course, by Bromley.

The adviser said Bush has promised to act as host of the council's first meeting, probably in January, and to sit in "as frequently as time permits."

Bromley said his most important role will be to ensure that the President "has access to sound advice" on science and technology issues, such as in setting priorities on the many mega-projects on the drawing boards.

"It's quite clear that not all of them can continue on a parallel path," Bromley said. "We'll have to do some phasing. It's a very difficult process, but we're getting under way."

Among Bromley's current preoccupations is the rebuilding of the Office of Science and Technology Policy. Already, he has persuaded the Office of Management and Budget to double his staff to 33 next year.

"And I have a gentlemen's agreement with Dick Darman," Bromley said, for 45 slots in 1991.

He said he and the budget director also have worked out an arrangement in which corresponding levels of employees in both offices meet to thrash out budgetary issues involving science and technology.

As Bromley noted in a Science magazine interview on the eve of his confirmation hearing: "It became evident a long time ago that if you control the budget, you control public policy."

□

A past president of the American Assn. for the Advancement of Science, Bromley has served on many national and international science policy boards and committees. He was vice chairman of a panel that recommended a doubling of the National Science Foundation budget in 1986.

But above all, he is known for his candor.

In criticizing the quality of America's science education, Bromley heatedly told a Washington Science Writers Assn. meeting last month, "We are perpetuating a fraud on our children." Thumping the dais, he said many so-called science classes are "troughs of mediocrity."

Improving the quality of such education, Bromley said, is "without any question the most important

babies with five types of heart defects and 6,966 women who gave birth to babies with other types of birth defects from 1976 through 1986 in Boston, Philadelphia, Iowa and Ontario, Canada.

The researchers failed to find any significant association between aspirin use and the heart deformities overall, they reported in the New England Journal of Medicine.

Star May Give Hint of Galaxy Mass

Astronomers have spotted the most distant known star in the Milky Way and say the accidental discovery could help determine the total mass of the galaxy. That includes mysterious invisible, or dark, matter that astronomers know exists but are unable to identify, an astronomer with the Space Telescope Science Institute said last week.

The scientists stumbled upon the star while studying a distant galaxy. The star is 160,000 light years from Earth in the direction of the constellation Virgo.

"It was just dumb luck that this star was in the way of what they were looking at. It was totally serendipitous," said Ray Villard, a spokesman for the institute. "It just shows that there are a lot of wonderful surprises out there that we may stumble upon when we're looking for something else."

"Astronomers suspect that there is a lot of additional material surrounding our galaxy that doesn't give off light," said Howard Bond, who along with two others discovered the distant star last spring.

Astronomers theorize that the galaxy's dark matter could be dim stars that are too faint to be seen, black hole remnants of massive stars that exploded early in the galaxy's history or some unknown type of subatomic particle, Bond said.

Synthetic Blood Protein Reported

A major Japanese oil refining company says it has developed an artificial, contamination-free method of making the blood protein albumin. Masanori Suzuki, head of genetic engineering for the Tonen Corp., said in an interview Wednesday that the technique is the first to synthesize human albumin with an authentic cell structure.

The protein, now commonly extracted from donated blood, is used to treat burn victims and people with albumin deficiency.

Suzuki said albumin taken from human blood is sometimes contaminated with the acquired immune deficiency syndrome virus or other disease-causing agents. Synthetic albumin, however, presents no risk of contamination.

Tonen aims for full-scale production in three to five years.

Frogs' Decline Stirs Concerns

Populations of frogs, toads and salamanders appear to be declining mysteriously in many places around the world, and scientists fear the dramatic disappearance of the amphibians may be a sign of widespread environmental degradation of some unknown kind.

For several years, there have been rumors and scattered reports that frogs and toads appear to be far less common than they once were. More recently, many field biologists have begun documenting precipitous declines, sometimes measuring from 50% to 90%, and local extinctions in a variety of settings, from tropical forests to temperate mountain lakes.

"We are very concerned," said David Wake of UC Berkeley. "There seems to be something going on, something we don't yet understand."

The cause of the decline remains a mystery. Some researchers suspect acid rain. But others believe the crashing populations could be caused by pesticides, viruses, hard winters or dry summers. In some locations, the frogs and other amphibians may have been wiped out by introduced competitors such as fish. The animals may also be exploited for food or even by scientists themselves, who collect specimens for research.

From Times Staff and Wire Reports

OSTP

12/12/89

Judy Bostok meeting

Bromley

Assoc. Director Physical Sciences Engineering

Industrial Activities

Life Sciences

Policy & International Affairs

Tom Ratchford

call RP

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Bostok High Perf. Computing

OSTP

Withdrawal/Redaction Sheet
(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
01. Notes	Conversation with Frank Lavin (1 pp.)	12/20/89	~~P-5~~	

Collection: Bush Presidential Records
Office of Policy Development
Ed Goldstein Files

Record Group: Bush Presidential Records
Office: Economic and Domestic Policy, Office of
Series: Goldstein, Ed
Subseries:
WHORM Cat.:
File Location: Office of Science and Technology Policy

Open on Expiration of PRA
(Document Follows)
By KA (NLGB) on 10/28/2005

Date Closed:	3/27/2000	**OA/ID Number:**	06672-009
FOIA/SYS Case #:	1999-0093-F		
Re-review Case #:	2005-0289-S		
P-2/P-5 Review Case #:			
MR Case #:		**Appeal Case #:**	
MR Disposition:		**Appeal Disposition:**	
Disposition Date:		**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 advise 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.

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

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

12-20-89

Frank Lavin conversation *

Weds.

* Financial Firm RP.

1. what are the chemicals programs coming down the pike. Genuine etc. (Anticipate) (PARPA more)

2. what is our political PLAN to address these issues & competitive PLAN 4 Point PLAN to address these & Trade, etc

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961-0770

Science + Technology

Document No. _____

WHITE HOUSE STAFFING MEMORANDUM

DATE: 1/31/90 **ACTION/CONCURRENCE/COMMENT DUE BY:** 2/1/90 10:30 AM

SUBJECT: DRAFT FACT SHEET ON SCIENCE AND TECHNOLOGY ACCOMPLISHMENTS

	ACTION	FYI		ACTION	FYI
VICE PRESIDENT	☐	☑	MCCLURE	☑	☐
SUNUNU	☑	☐	NEWMAN	☐	☐
SCOWCROFT	☑	☐	PORTER	☑	☐
DARMAN	☐	☑	ROGICH	☐	☐
BATES	☑	☐	UNTERMEYER	☐	☐
CARD	☐	☑	BROMLEY	☑	☐
CICCONI	☐	☑	ALBRECHT	☑	☐
DEMAREST	☑	☐	DELAND	☑	☐
FITZWATER	☐	☑	BOSKIN	☑	☐
GRAY	☑	☐	KRISTOL	☑	☐
HAGIN	☐	☐	PINKERTON	☑	☐

REMARKS:

Please provide comments to David Haun, OMB, x3060, by 10:30 AM tomorrow, February 1, with a copy to my office.
Our intention is to release this fact sheet on Friday in conjunction conjunction with the announcement of PCAST members. Thank you.

RESPONSE:

James W. Cicconi
Assistant to the President
and Deputy to the Chief of Staff
Ext. 2702

SCIENCE AND TECHNOLOGY ACCOMPLISHMENTS
AND INITIATIVES OF THE BUSH ADMINISTRATION
FACT SHEET

The President announced today the establishment of the President's Council of Advisors on Science and Technology (PCAST). This distinguished panel of scientists, engineers and industry leaders will provide high-level advice directly to the President on a wide range of important issues concerning science and technology.

Advances in science and technology are the key to increased economic cometitiveness and improving our quality of life. The President's action today caps a year of vigorous activity by the Administration to advance science and technology issues on a broad front. These actions, in three broad areas, are summarized below:

I. Strengthening Federal Science and Technology Policy

II. Enhancing Federal Research and Development Activities

III. Encouraging Increased Private Sector Involvement in Research and Development

I. Strengthening Federal Science and Technology Policy

- o Upgrading the Status of the Science Advisor and Increasing the Budget for the Office of Science and Technology Policy. -- The President has raised the status of the Science Advisor to Assistant to the President for Science and Technology. The Science Advisor now participates in all deliberations of the Cabinet and of the Domestic and Economic Policy Councils to ensure that Science and Technology issues are fully reflected in Administration policy development. In addition, the 1991 budget proposes $3.3 million for OSTP, a doubling of the 1989 level.

- o Strengthening the Federal Coordinating Council on Science, Engineering and Technology (FCCSET). -- The Science Advisor initiated action to improve the interagency coordination apparatus for science and technology by consolidating and enhancing the current FCCSET committee structure. Building on the successful experience of the FCCSET Committee on Earth Science, new committees will be formed to coordinate Federal efforts in education and human resource development, materials science and others.

- o Establishing the National Space Council. -- The President issued an Executive Order on April 20, 1989, establishing the National Space Council, chaired by the Vice President The Space Council provides advice and assistance to the President on space policy and strategy and fosters close coordination, cooperation and information exchange among the space sectors.

- Establishing the Administration's Council on Competitiveness. -- The President established the Council on Competitiveness, chaired by the Vice President, to oversee regulatory and other competitiveness issues, such as reform of product liability laws.

- Reinvigorating the Council on Environmental Quality (CEQ). -- The President is committed to strengthening the CEQ and to ensuring that it has the capacity to serve as an effective source of environmental analysis and information in White House. Accordingly, the President's 1991 budget increases CEQ's budget by 90 percent and CEQ's staff by 70 percent.

II. Enhancing Federal Research and Development Activities

A. Increased Investment in Federal R&D

- The President has proposed a total of $71 billion for research and development (R&D), including R&D facilities, in his 1991 budget. This is an increase of $4.5 billion, or 7 percent, over 1990 enacted levels.

- Within this total, civilian R&D will increase by 12 percent, while defense-related R&D will increase by 4 percent.

- The President has also proposed to allocate $12 billion for basic research, an increase of $1 billion or 8 percent over 1990. Basic research is an essential investment in the nation's scientific and technological future, including its future scientists and engineers.

B. Science and Technology Education

The President has moved aggressively to address the shortcomings in the nation's science and technology education enterprise. He has set goals for the nation's schools and students in science and math, and the 1991 budget will provide over $1 billion in direct spending in five agencies for science, mathematics and engineering education.

- National Science Foundation (NSF). -- NSF will allocate $463 million in 1991, a 30 percent increase over 1990, for a wide variety of education activities to improve the quality of teachers and students, the numbers of students choosing science, math, or engineering careers, and the numbers staying in, particularly those in traditionally underrepresented groups.

- Department of Education. -- The Department will continue to build on its strong relationships with State educational entities. The 1991 budget proposes

$230 million, an increase of 69 percent, for the Dwight D. Eisenhower Mathematics and Science program, which provides funds to States to implement improved programs for teaching math and science.

- o National Aeronautics and Space Administration (NASA). -- NASA will allocate $51 million in 1991, an increase of 21 percent, for education activities including the "Spacemobile" program, teacher and student workshops and research experiences at NASA laboratories, and special efforts to increase minority participation in science and engineering.

- o Department of Energy (DOE). -- DOE will provide $25 million in 1991, a 47 percent increase, for educational activities including support for graduate and undergraduate students, high school and university faculty. DOE will implement a new program, in collaboration with the private sector, to train high school faculty in the state-of-the-art science and technology conducted at the DOE laboratories.

- o National Institutes of Health (NIH). -- The research training grant program will be funded at a level of $292 million which will support almost 12,000 graduate trainees in research laboratories throughout the nation.

C. Doubling the Budget of the National Science Foundation

The President has maintained his strong commitment to the importance of basic research by proposing $2.4 in budget authority, a more than 14 percent increase, for the National Science Foundation. This will continue progress toward doubling the NSF budget by 1993.

- o World-Class Research Equipment. -- The President has also recognized that world-class science and technology requires world-class research equipment. He has supported the construction of a replacement for the important radiotelescope at Greenbank, West Virginia, and, for 1991, has proposed the initiation or continuation of several high-priority, specialized research facilities including the National High Magnetic Field Laboratory, the Laser Interferometer Gravitational Wave Observatory, and two 8-meter optical/infrared telescopes.

- o Academic Research Facilities Modernization. -- In addition to research support, the Administration will also continue the Academic Research Facilties modernization program begun by NSF in 1990. This will allow experience to be gained in managing the program and time to evaluate the impact on U.S. science and technology.

- o U.S. Antarctic Program. -- NSF manages the U.S. Antarctic Program for the government. This program supports national goals in the Antarctic and is the principal expression of U.S. presence on the Antarctic continent. The 1991 budget will expand an important environmental, safety, and health initiative in the Antarctic to ensure that this world scientific resource is preserved and that the safety and health of scientists working on the continent is assured.

D. Understanding and Exploring Space

The President is firmly committed to a continuing, active and exciting American presence in space -- indeed, to America's leadership in space science and exploration. Overall, the 1991 budget proposes $15.2 billion for NASA, an increase of $2.9 billion or 24 percent. NASA's budget has increased by almost 40 percent over 1989.

- o Space Shuttle. -- The current fleet of three Space Shuttles are the world's most versatile launch vehicles. In 1989, the Space Shuttle fleet completed 4 successful flights. The Space Shuttle Columbia recently accomplished the spectacular retrieval of the Long Duration Exposure Facility. The 1991 budget proposes $4.2 billion, an increase of 22 percent, for Space Shuttle production and operations. This funding will allow for a safe build-up to 10 Shuttle flights, the delivery of the fourth Shuttle, Endeavor, and enhancements such as the Advanced Solid Rocket Motor and the Extended Duration Orbiter capability.

- o Space Station Freedom. -- Space Station Freedom is the largest international R&D project ever undertaken. In 1989, the program underwent a reevaluation that has resulted in a more achievable program and funding profile. The 1991 budget continues the President's commitment to the Space Station by proposing a total of $2.6 billion, an increase of 36 percent. This will provide for the critical transition from design to actual fabrication.

- o Moon/Mars Exploration. -- On July 20, 1989, the President proposed that America undertake an ambitious mission of manned exploration of the solar system. This journey of a trillion miles will begin with the first step in the 1991 budget -- nearly $1.3 billion, an increase of 47 percent -- to support robotic science missions and to develop the pacing technologies that will be needed. Of particular interest is the continued commitment of the Administration to the National Aerospace Plane (NASP) program. In 1989 the National Space Council reviewed and revised this program in keeping with a more stable and sustainable pace of technology and funding.

- o Space Science and Applications. -- The U.S. is committed to maintaining its world leadership in space science. An exciting new era of discovery has now begun in unmanned planetary exploration, astronomy, and Earth observations. In 1989, three important scientific missions were launched: Magellan to Venus, Galileo to Jupiter, and the Cosmic Background Explorer. The 1991 budget proposes $3.3 billion, an increase of 22 percent, for the continued support of missions planned for launch in 1990 including the Hubble Space Telescope, the Gamma Ray Observatory, and the Ulysses to explore the Sun, and development of future missions such as the Comet Rendezvous/Asteroid Flyby and the Cassini mission to Saturn.

E. Global Environmental Change

- o U.S. Global Change Research Program (USGCRP). -- The U.S. is the world leader in global change research. The President has endorsed the USGCRP, a coordinated, multiagency research program of space- and ground-based research and observations designed to provide a sound scientific basis for rational policy decisionmaking on global change issues. The 1991 budget proposes over $1 billion for this effort, an increase of 57 percent.

- o Mission to Planet Earth (MTPE). -- Also on July 20, the President affirmed the importance of NASA's contribution to the USGCRP, Mission to Planet Earth. The largest part of this initiative consists of a major new program for 1991, the Earth Observing System, a series of space platforms and instruments developed by the U.S., Europe and Japan, which will collect a broad spectrum of environmental data related to global warming, drought, oceans, etc. MTPE will permit, for the first time, Earth to be analyzed as an integrated system.

- o International Activities. -- The President believes that continuing U.S. scientific leadership is needed to address global environmental issues. In the past year, the President announced U.S. support for a worldwide phaseout of chloroflurocarbon (CFC) production to the extent safe substitutes are available. In 1990, the U.S. will host the Plenary Session of the Intergovernmental Panel on Climate Change (IPCC) in February; a meeting of the world's economic, scientific, and environmental officials to discuss global environmental issues in the Spring; and the first negotiation session on the Framework Convention on Climate Change in late Fall.

F. Environment

- o Clean Air Act. -- The President demonstrated his commitment to clean air by transmitting Clean Air Act

Amendments to Congress in July of 1989. The President's plan allows for both environmental protection and economic development and is based on a commitment to using the best science available. In support of his Clean Air proposals, the 1991 air research budget of the Environmental Protection Agency will increase by $8 million to a total of $95 million.

G. The Superconducting Super Collider and High Energy Physics

- The Superconducting Super Collider (SSC). -- The SSC will provide an enormous advance in the capability to explore the secrets of matter and energy. Over the past year, the Department of Energy has established the SSC laboratory at the site near Dallas, Texas. The new laboratory team is conducting a thorough reevaluation of all technical systems with particular attention to magnet design and technical performance of the accelerator. In 1989, research continued on the design and testing of magnets. Approximately 8,000 magnets will be used in the 53-mile SSC tunnel. In addition, during 1989, DOE continued work on the site-specific Environmental Impact Statement (EIS). The EIS is necessary before DOE makes a decision on the "footprint" of the SSC and starts acquiring land for the project.

- High Energy and Nuclear Physics. -- The Administration is pursuing a robust program of research in the area of high-energy and nuclear physics, which offer the prospects of increasing our knowledge of the basic constituents of matter. Last year, scientists discovered and conducted measurements of the Z-nought particle utilizing the recently upgraded Stanford Linear Collider. The Z-nought particle is important because it transmits one of the basic forces between elementary particles. The 1991 budget provides a funding increase of 8 percent to continue research at Stanford and the three other large accelerator centers: the Brookhaven National Laboratory on Long Island; the Cornell Electron Storage Ring in New York State; and the Fermilab National Laboratory.

H. Life Sciences

- Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome. -- The Administration remains committed to making continued progress against HIV/AIDS. Five therapies have been approved for use, and since January 1989 over 35 clinical trials have been initiated in a search for additional therapeutic drugs. The Administration has recently taken action to enable State Medicaid programs to cover the costs of the drug AZT for HIV-infected individuals who do not yet exhibit AIDS symptoms. The 1991 budget proposes $3.5 billion in total for HIV/AIDS research, treatment,

prevention and income support, an increase of 18 percent.

- o Human Genome Project. -- The advent and evolution of genetic engineering techniques over the last decade has enabled the initiation of one of the most exciting science projects ever undertaken -- the development of a map of the full complement of human genetic material (the human genome). Such an undertaking will vastly increase our understanding of the nature and cause of many diseases. The 1991 budget proposes $108 million for the National Institutes of Health and $46 million for the Department of Energy to pursue collaboratively this important project.

- o Biotechnology. -- Recent breakthroughs in biotechnology, such as recombinant DNA techniques, cell fusion and gene therapy, offer unprecendented opportunities for improving the nation's productivity, health, and well-being. Increasing Federal investment in basic biotechnology research will spur further advances, as will initiatives that improve payoffs on investments. The 1991 budget proposes $3.6 billion for biotechnology R&D, an increase of 6 percent over 1990.

- o Agricultural Research Initiative. -- American farmers are among the most productive in the world. New techniques in genetics, molecular and cell biology enable the innovative approaches that will enhance our ability to produce food, while addressing concerns of safety, nutrition and the enviroment. The 1991 budget will launch a National Research Initiative to more than double the size of USDA's competitive grants program. This will expand funds for plant and animal biotechnology to $50 million, with a particular emphasis on mapping the genomes of important crop plants. Like the Human Genome Initiative, this effort will enable new opportunities to explore the genetic potential of plants.

I. Energy

- o National Energy Strategy. -- The President has directed Secretary of Energy Watkins to develop a National Energy Strategy to guide the Administration's energy policies and programs. The Department has held two rounds of public hearings and plans to issue a draft document in April. A key element of the strategy will be a blueprint for future energy R&D programs and activities.

- o Clean Coal Technology. -- The Administration is committed to a $2.5 billion program to demonstrate emerging Clean Coal Technologies. This program will provide additional cost-effective alternatives for reducing acid rain.

- Solar/Renewables and Energy Conservation R&D. -- The Administration is committed to assisting the development of emerging technologies that offer the potential to provide new sources of energy as well as new ways to use it more efficiently, while protecting the environment. On January 26, 1990, the Department of Energy announced a new 11-point initiative in this area. The 1991 budget provides a increase of 8 percent in funding for conservation, solar and other renewable energy technology R&D.

- Enhanced Oil and Gas Recovery Research. -- Up to two-thirds of oil and gas reserves are still left in the ground with conventional recovery techniques. In order to stimulate the use of new technologies to increase production from these existing fields, the Administration proposed four new tax initiatives, including a 10 percent credit for new tertiary enhanced recovery projects. In addition, the 1991 budget proposes $17 million to establish oil and gas geosciences research consortia with industry and universities to advance the science underlying oil and gas recovery.

J. Advanced Technology

- Manufacturing Technology Centers. -- The Administration proposes to continue funding for these centers, requesting $5 million in 1991. This Department of Commerce program provides matching grants to universities or non-profit organizations to establish centers for the transfer of innovative, advanced manufacturing technology to small and medium-sized businesses.

- Advanced Technology Program (ATP). -- The Administration requests $10 million in 1991, the 1990 funding level, for this new Department of Commerce program. The ATP will provide seed money to industry-led consortia doing generic, pre-competitive research into promising technologies.

- Magnetic Levitation Transportation. -- The 1991 budget proposes nearly $10 million for R&D on this emerging technology, an increase of almost 400 percent. These efforts are being carried out by both the Department of Transportation (about $6 million proposed by 1991) and the Army Corps of Engineers (almost $4 million). Each agency is pursuing a public-private partnership designed to facilitate private development of an operational maglev system in the U.S.

K. National Security

- o DOD Technology Base. -- The Administration supports a strong technology base to develop options for future weapons systems and to guard against technological surprise by adversaries. The 1991 budget includes $3.4 billion for the technology base (basic and applied research) funded through the Department of Defense. This will support programs ranging from basic research in the physical sciences to development of high speed semiconductors for use in advanced communications systems and computers.

- o Strategic Defense Initiative (SDI). -- The SDI program remains a high priority of the Administration. The 1991 budget requests $4.5 billion for SDI, an increase of $0.9 billion over 1990. The SDI program is developing options for the deployment of strategic defenses based on advanced technologies. Particular emphasis is being placed on promising new concepts such as the "Brilliant Pebbles" small space-based interceptor missiles.

III. Encouraging Increased Private Sector R&D Investment

Private sector investment accounts for about 50 percent of the total national investment in R&D. In addition, the private sector is the principal performer for R&D and is ultimately responsible for transforming R&D results into useful new products and processes. The Administration has taken a number of steps to encourage increased private sector R&D investment and technological innovation.

- o Encouraging Savings and Investment. -- The Administration is proposing the Family Savings Account to stimulate increased savings that provide the resources needed for investments in the future. In addition, the Administration is proposing to lower the tax on capital gains in order to promote increased entrepreneurial activity and investment.

- o Research and Experimentation Tax Credit. -- The Administration again proposes to make permanent the 20 percent tax credit targeted specifically to research and experimentation (R&E) by allowing 100 percent of total research expenses to be used for the computation of the credit for all years after December 31, 1989. In 1989, the Congress enacted a short-term extension in response to the President's proposal of last February.

- o Encouraging R&D by Transnational Companies. -- The Administration proposes to make permanent the rules, as modified by the Omnibus Budget Reconciliation Act of 1989, for the allocation of foreign and domestic R&E

expenditures for companies with foreign operations. The proposal would also allow 100 percent of U.S. expenditures to be covered rather than the current 75 percent. This proposal would apply to all tax years beginning after August 1, 1990, when the current rules expire.

- Intellectual Property. -- The Administration is committed to pursuing aggressively improved international protection of intellectual property. The current negotiations in the Uruguay Round of the General Agreement on Tariffs and Trade are an important forum for this activity.

- Tort reform/New Product Liability. -- The Administration has endorsed changes in product liability laws to help restore balance to the tort system, to increase competitiveness, and to reduce uncertainty, particularly for new products, while providing incentives to produce safe products.

THE WHITE HOUSE

WASHINGTON

September 7, 1989

MEMORANDUM FOR LARRY LINDSEY

FROM: BRADLEY J. MITCHELL

SUBJECT: The Federal High Performance Computing Program ($2 Billion High-Tech Initiative)

I have done some investigating into the "$2 Billion, High-Tech Initiative" cited in the Washington Post today. Apparently, Dr. Bromley released a draft of this report to Senator Gore and the Washington Post during his confirmation hearings last month.

The report, scheduled for public release tomorrow, is a program planning document and does not include specific budget commitments. The report was drafted under the auspices of the Office of Science and Technology Policy. Under the heading "Scope Of This Report" on page four of the document, the following paragraph appears.

> "This report is designed for agency-level planning purposes and does not represent the Administration's approval or support of any program not included in the President's budget request. Programs discussed in this document are subject to budget constraints and Administration approval."

Bob Post of OSTP can provide more detail on the report.

Attachment

THURSDAY, SEPTEMBER 7, 1989
THE WASHINGTON POST

Bush to Propose $2 Billion High-Tech Initiative

Computing Project Would Include Data 'Superhighway' as Part of Effort to Increase U.S. Expertise

By Evelyn Richards
Washington Post Staff Writer

The Bush administration plans to unveil tomorrow an ambitious plan to spend nearly $2 billion enhancing the nation's technological know-how, including the creation of a high-speed data "superhighway" that would link more than 1,000 research sites around the country.

Comparable to an interstate highway system for electronic data, the network, its backers say, would move the country an important step closer to a distant dream of "wiring the nation" so that businesses and homes could receive high-definition television pictures, tap into vast electronic libraries and send video images to one another. Establishment of the government-funded network eventually could serve as a catalyst for a massive private effort to develop the technologies needed for such high-volume transmission and to install fiber-optic links that would send information using pulses of light, according to its proponents.

The White House "high-performance computing" initiative follows years of coordination among several government agencies and lays out various strategies for keeping the United States at the forefront of computer technology and scientific research.

A final draft of the plan argues that "a competitive domestic high-performance computer industry contributes to U.S. leadership in critical national security areas and in . . . the civilian economy.

While the five-year plan proposes federal funding for research on supercomputers and on developing software for large projects such as high-speed aircraft design and weather forecasting, its most far-reaching element is the network. Building upon the same infrastructure of long-distance lines and fiber-optic cables that computers use to communicate now, the network would employ new transmission technologies to increase by 1,000-fold the current capacity for sending data. This would allow more users to exchange more scientific data at speeds the equivalent of 50,000 single-spaced typed pages each second.

The need for an expanded network is magnified by the exploding use of supercomputers, large machines that can manipulate massive amounts of complex data at blindingly fast speeds. From cell biology to geology, from econometric modeling to weather forecasting, scientists have concocted ways to make use of mountains of data, much of which is stored in computer databases. In addition, a number of huge scientific projects have been proposed, including mapping every gene in the human body and predicting global climate changes, that will generate masses more information.

Many of these projects require linking experts from around the country so that they can share data to solve huge computational problems. Network "communications are to

CONT 3

SEP 7 '89 12:23 FROM NASA HQ NEWSROOM TO MITCHELL PAGE.004/023

technology what interstate highways are to commerce," said Michael Connors, director of computing systems in the research division of International Business Machines Corp.

The high-volume networks also may make possible more efficient use of expensive instruments such as telescopes or medical equipment—if clear images can be transmitted instantly to medical specialists thousands of miles away, more rapid diagnosis may be available, for instance.

Experts expect that once scientific sites are connected by the proposed National Research and Education Network, commercial uses will evolve, thus giving telephone companies and other firms incentives to expand the networks and offer more services. "If it became a piece of the infrastructure . . . I'm sure there would be industrial and entertainment use," said Robert Haber, a scientist at the National Center for Supercomputing Applications at the University of Illinois.

A similar plan for a high-capacity network has been proposed by Sen. Albert Gore (D-Tenn.), whose legislation also proposes creating a vast electronic library that could be accessed by users seeking such federally gathered information as weather and census data. Gore proposes support to begin in fiscal 1990, while the administration favors funding from various agencies beginning in fiscal 1991.

Both proposals, basing their estimates on a strategy report issued in 1987, call for nearly $2 billion of federal funds to be spent on the supercomputing initiative above the existing level of outlays for high performance computing. The administration's final draft proposes spending an additional $1.9 billion over the five years, of which $400 million would go for the network.

Today, a series of networks loosely known as the Internet links an estimated 500,000 users at colleges, companies and government labs. But its use is mushrooming—the number of computers connected to the networks grew from 20,000 in 1987 to 60,000 last year—and many users complain it is too limited for heavy scientific use.

A segment of the Internet was enhanced last year to carry 1.5 million bits of information, or about 50 pages, per second. The administration's plan envisions first extending this capability to more sites, and then increasing the capacity to 45 million bits for selected sites, according to a still-unreleased document prepared in May.

Although the document does not spell out the next stage specifically, officials said the aim is to install in about a decade a network that would carry about 3 billion bits of information per second. While the first two stages essentially build on existing networking technology and are almost certain to be implemented, carrying 1 billion bits or more will take major technology advancements and considerable expense.

Besides being able to accommodate more users, such capacities also would allow the network to carry massive amounts of computer data that can be translated into moving images, much like a video.

With faster networks, scientists hope to be able to allow colleagues around the country to watch as an image unfolds and to be able to stop the calculations and make adjustments.

Capacity limitations are among the factors keeping researchers at Johns Hopkins School of Medicine in Baltimore from rapidly adjusting their models of protein molecules, for example. Professor Mario Amzel now submits his calculations to a remote supercomputer and waits for the results, while a faster network, among other improvements, "could make things more efficient," he said.

While higher-capacity networks would help scientists, a report issued last year by the National Research Council warned of focusing too narrowly on network quantity over quality. As important as speed are "widespread access, user-friendly service . . . [and] quality and performance," the report said. It also cautioned that financing the network should not diminish funding for other research.

4

SEP 7 '89 12:24 FROM NASA HQ NEWSROOM TO MITCHELL PAGE.005/023

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 distinquished professionals asked to take the position turned the job down.

OSTP file

C. Calendar of Key Events:

- December 31, 1988 - nominations due for the National Technology Medals pursuant to 15 USC 3711.

- December 31, 1989 - OSTP Task Force on Women, Minorities and Handicapped in Science and Technology, report due pursuant to P.L. 99-383 (42 USC 1985a).

- January, 1989 - Senate confirmation hearing for OSTP Director.

- January-February, 1989 - Press conference with the Science press re: FY '90 R&D Priorities in the President's budget.

- January-February, 1989 - OSTP Posture Hearing before the House Science, Space and Technology Committee and possibly Senate Commerce Committee.

- February-March, 1989 - Nominations for the four vacancies on NSF National Science Board (vacant since 1988); eight additional vacancies will occur in 1990.

- February 1, 1989 - Report due by the Advisory Council on Federal Participation in SEMATECH established under 15 USC 4603(a); P.L. 100-180, pursuant to P.L. 100-408.

- February 15, 1989 - The annual revision to five-year outlook and the Science and Technology Report as called for by P.L. 94-282.

- February 23, 1989 - Report due to President and Congress by the National Commission on Superconductivity pursuant to section 5143 of H.R. 3, the Omnibus Trade Act (P.L. 100-308).

- August-October, 1989 - Presidential Math and Science Teachers Awards.

- September 31, 1989 - Report due by the National Advisory Committee on Semiconductors pursuant to section 5142 of H.R. 3, the Omnibus Trade Act (P.L. 100-408).

- November, 1989 - National Quality Improvement Awards pursuant to 15 USC 3711a.

Withdrawal/Redaction Sheet
(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
03. Notes	"Science Advisor Advice" (1 pp.)	n.d.	P-5	

Collection: Bush Presidential Records
Office of Policy Development
Ed Goldstein Files

Record Group: Bush Presidential Records
Office: Economic and Domestic Policy, Office of
Series: Goldstein, Ed
Subseries:
WHORM Cat.:
File Location: Office of Science and Technology Policy

Open on Expiration of PRA
(Document Follows)
By VA (NLGB) on 10/28/2005

Date Closed:	3/27/2000	**OA/ID Number:**	06672-009
FOIA/SYS Case #:	1999-0093-F		
Re-review Case #:	2005-0289-S		
P-2/P-5 Review Case #:			
MR Case #:		**Appeal Case #:**	
MR Disposition:		**Appeal Disposition:**	
Disposition Date:		**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 advise 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.

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

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

Science Advisor Advice

- Meet Budget Director + GRAdy
  - objective get supplemental budget for 89.
  - create good working relationship

- define with the President the role of Science Advisor. (role + responsibilities).

- courtesy calls on the hill

- courtesy calls with other agencies work with
  - NASA
  - NSF

Withdrawal/Redaction Sheet
(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
04a. notes	Handwritten Notes of meeting with Deborah Wince [FOIA Restrictions Redacted] (1 pp.)	3/15/89	~~P-5~~, ~~P-6~~, (b)(6)	

Collection: Bush Presidential Records
Office of Policy Development
Ed Goldstein Files

Record Group: Bush Presidential Records
Office: Economic and Domestic Policy, Office of
Series: Goldstein, Ed
Subseries:
WHORM Cat.:
File Location: Office of Science and Technology Policy

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(Document Follows)
By KA (NLGB) on 10/28/2005

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FOIA/SYS Case #: 1999-0093-F
Re-review Case #: 2005-0289-S
P-2/P-5 Review Case #:

OA/ID Number: 06672-009

MR Case #:
MR Disposition:
Disposition Date:

Appeal Case #:
Appeal Disposition:
Disposition Date:

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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

3-15-99

Deborah Wince: Wells.

- What is going on at ORTP? Who is staffed here?

- New Position

  - signal not important

① - Deborah

② Joe > key people have left.

③ Michelle

- Graham is still active
  Heavily involved in FSX
  Technology issues
  - Pale
  - Mosladek
  - Watkins
  - Baking

should do it

(b)(6) [redacted]

Withdrawal/Redaction Sheet
(George Bush Library)

Document No. and Type	Subject/Title of Document	Date	Restriction	Class.
04b. notes	Handwritten Notes of meeting with George Gilmore (1 pp.)	03/13/89	P-5	

Collection: Bush Presidential Records
Office of Policy Development
Ed Goldstein Files

Record Group: Bush Presidential Records
Office: Economic and Domestic Policy, Office of
Series: Goldstein, Ed
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WHORM Cat.:
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Re-review Case #:	2005-0289-S		
P-2/P-5 Review Case #:			
MR Case #:		**Appeal Case #:**	
MR Disposition:		**Appeal Disposition:**	
Disposition Date:		**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 advise 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.

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

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

George Gilmore Mtg. 3-13-89

OSTP "de-coupling" Jane Lute

- ASH. to President + Nobody there right now.

(1) ~~ORGANIZATION~~ rules of organization
objectives how relate to other agencies

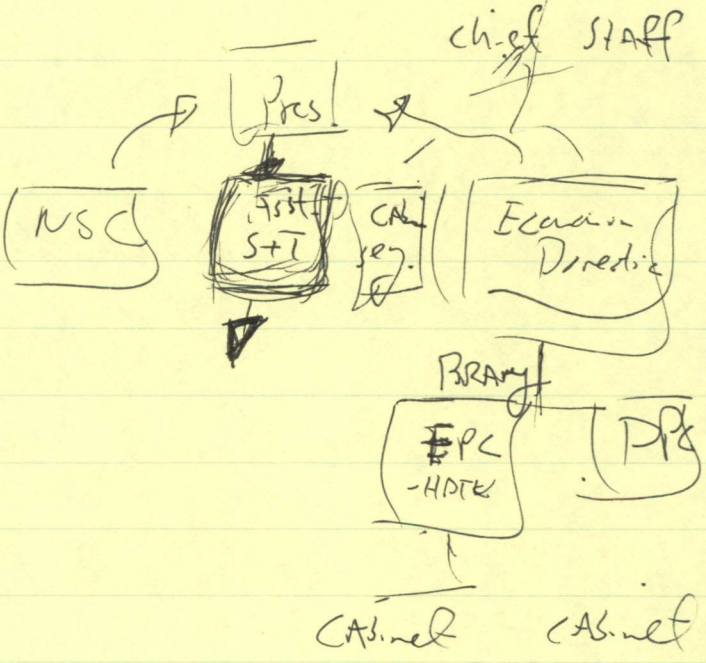
(2) structure characteristics of typ guy type of person need

(3) ~~structure~~.

Profile: falls out of (1)

OSTP two organization

1. Priority setting
2. Coordination



UPdate

VOL. 6, NO. 7

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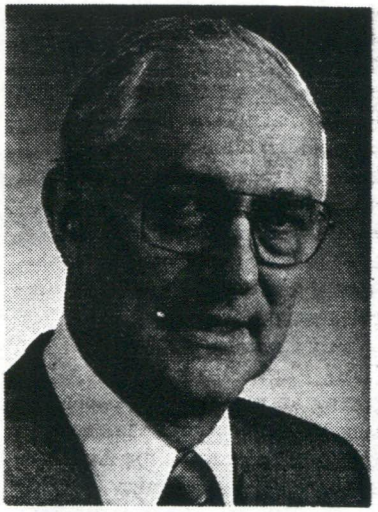
oximately 40 technical have been planned, in- presentations on tank fety, new trends in com- vehicle electronics, ac- i-active suspensions, new ruck products, vehicle s related to braking and , future steering systems aptive steering, vehicle/ erface, engine emissions sign, new commercial models, low profile ve- nd safety inspections. further details on the l program, contact Tim at SAE, 412/776-4841. prestigious Engineering r's Panel (formerly the ngineers Panel) will be Thursday, November 9, a.m. panel's theme is "Truck ogy for the 1990s." Par- s are still being selected l be announced at a later

continuing education rs will also be offered to g attendees. For informa- topics or fees, please con- SAE Continuing Educa- artment at 412/772-7148. plementing the technical a will be the Truck and position. This year's expo dy the largest in Truck & eting history and is well vay to becoming a sellout.) companies will be exhib-

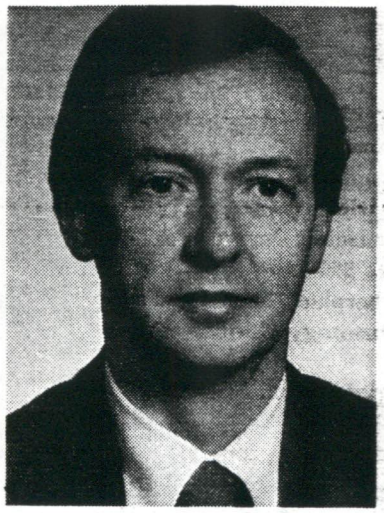
see Truck, page 2.)

Program enters fourth year

SAE to sponsor two OSTP Fellows



Lamont W. Eltinge



Ronald E. York

For 1989-90, SAE will send two Fellows to the Executive Office of the President, Office of Science and Technology Policy (OSTP) in Washington, DC. This is the fourth year of the SAE/OSTP Fellow program, but the first time two Fellows have been chosen.

Lamont Eltinge and Ronald E. York will serve for one year as Senior Policy Analysts. They will contribute to technical decision-making at the highest level of the federal government for a 13-month period from August 1989 through August 1990.

Dr. Eltinge is Director of Research for Eaton Corporation, where he has worked since 1973. Prior to that, he served as Vice President, Research & Technology, at Cummins Engine Co., Inc. He earned his B.S. from Purdue University and his M.S. and Ph.D. degrees from the Illinois Institute of Technology, all in mechanical engineering.

Dr. York is Chief Test Engineer for the Allison Gas Turbine Division of General Motors, where he has spent his entire career. His department is responsible for all component and engine tests in support of Allison's product development and product support programs. Dr. York received his B.E.E. from General Motors Institute in 1966. Purdue University awarded his M.S.E. and Ph.D. degrees.

The OSTP advises the U.S. President on science and technology considerations affecting decisions on the economy, national security, health, foreign relations, environment, and recovery and use of resources. OSTP also assists the Office of Management and Budget and federal agencies such as the National Science Foundation, Patent Office, National Institute for Science & Technology, Federal Aviation Administration, Department of Energy, and the military to prepare and evaluate the science and technology budget.

Dr. Eltinge hopes to use his experience to contribute to improving:

- cooperation among government, industry, and academia,
- the level of math, science, and technical capability in the U.S., and
- the stature of government and industry in the eyes of the media and the public.

Dr. York states, "Regaining the American commitment to technological superiority is a critical issue facing the nation," and looks forward to the chance to influence U.S. government policies that will strengthen the country's technology base.

SAE continues to have a strong interest in providing input to government activity, and the expansion of the SAE/OSTP Fellow program as it enters its fourth year is evidence of the important role the Society can play.

9 SAE Uniroyal/Goodrich Engineering Scholarships awarded

) high school seniors were y selected as winners of 9 SAE Uniroyal/Goodrich ering Scholarship. scholarship, now in its year, provides each of the nts with $2,000 per year our year period. The schol- are awarded on the basis of academic performance as well as other criteria including ACT/SAT math and verbal test scores and activities in and out of school.

This year for the first time, the program was offered exclusively to sons and daughters of SAE members in the United States. This year's recipients are Kathryn A. Mayer of Strath Haven High School, Wallingford, PA (Philadelphia Section) and Gary D. Chirhart of Woodbury High School, Woodbury, MN (Twin Cities Section).

Kathryn is the daughter of Dr. and Mrs. T. Jack Mayer, Wallingford, PA. She is a National Merit Commended Scholar, a member of the National Honor Society, and a participant in the varsity basketball and track teams.

He plans to major in mechanical engineering at either MIT or Notre Dame.

All funding for the scholarships is provided by the Uniroyal Goodrich Tire Company. Annual recipients are chosen by the Board of Award under the auspices of the SAE Engineering Education Board. Details for the 1989/90

sident Mabley visits Germany