THE WHITE HOUSE

Office of the Press Secretary
(Miami, Florida)

For Immediate Release January 19, 1990

EXECUTIVE ORDER

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PRESIDENT'S COUNCIL OF ADVISORS ON SCIENCE AND TECHNOLOGY

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

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

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

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

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

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

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

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

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

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Sec. 4. General. (a) Notwithstanding any other Executive order, the functions of the President under the Federal Advisory Committee Act, as amended, except that of reporting to the Congress, which are applicable to the Council, shall be performed by the Office of Administration in accord with the guidelines and procedures established by the Administrator of General Services.

(b) The Council shall terminate on June 30, 1991, unless sooner extended.

GEORGE BUSH

THE WHITE HOUSE,

January 19, 1990.

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THE WHITE HOUSE

Office of the Press Secretary
(Knoxville, Tennessee)

For Immediate Release February 2, 1990

The President today announced the appointment of the President's Council of Advisers on Science and Technology (PCAST), comprised of 12 distinguished scientists and engineers. This panel will provide high-level advice directly to the President on a wide range of important issues concerning science and technology.

PCAST will be the first Presidential scientific advisory group in many years to report directly to the President. Its establishment is a measure of the Bush Administration's high esteem for science and a recognition that advances in science and technology contribute in a major way to increased economic competitiveness. It also reflects the President's desire to strengthen Federal science and technology policy, enhance Federal research and development activities, and encourage private sector involvement in research and development.

The United States scientific community leads the world in creating new knowledge. Through PCAST, the President is seeking to provide the best obtainable private sector advice to Executive Branch decision-making in science and technology.

PCAST will be chaired by Dr. D. Allan Bromley, Assistant to the President for Science and Technology. A list of the members and their affiliations is attached, along with a fact sheet on science and technology accomplishments in the Bush Administration.

PCAST was established January 19, 1990, by Executive Order 12700. Its members will be sworn in later today by the Vice President at the White House.

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NORMAN E. BORLAUG

Nobel Laureate Borlaug, of Texas, is currently leader of the Sasakawa-Global-2000 agricultural program in sub-Saharan Africa, Distinguished Professor of International Agriculture at Texas A&M University, and a Senior Consultant to CIMMYT. He was Director of the Wheat Research and Production Program of the International Maize and Wheat Improvement Center, Mexico, from 1964 until his retirement in 1979.

Dr. Borlaug's career began in 1935 in the U.S. Forest Service, and he subsequently worked as an instructor in plant pathology at the University of Minnesota in 1941, where he received his Ph.D. From 1942 through 1944 he was a microbiologist with the E. I. DuPont de Nemours & Co.. He also served as research scientist in charge of wheat improvement with the Cooperative Mexican Agricultural Program, Mexican Ministry of Agriculture and the Rockefeller Foundation, 1944-60, and later, as Associate Director of the Foundation assigned to the Inter-American Food Crop Program, 1960-63.

D. ALLAN BROMLEY, CHAIRMAN

D. Allan Bromley, of Connecticut, is Assistant to the President for Science and Technology and Director of the Office of Science and Technology Policy (OSTP).

Dr. Bromley carried out pioneering studies on both the structure and dynamics of nuclei and is considered the father of modern heavy ion science. He has played major roles in the development of accelerators, of detection systems, and in computer based data acquisition and analysis systems. He is currently on leave from his position as Henry Ford II Professor of Physics at Yale University, where he was founder and Director of the A.W. Wright Nuclear Structure Laboratory.

Dr. Bromley has been a leader in the national and international science and science policy communities for more than 20 years, serving as a member of the White House Science Council throughout the Reagan Administration and as a member of the National Science Board in 1988-89. He received the President's National Medal of Science in 1988 and the Presidential Medal of the New York Academy of Sciences in 1989. He has served as President of the American Association for the Advancement of Science and of the International Union of Pure and Applied Physics.

Dr. Bromley received the B.Sc. degree in 1948 at Queen's University, Canada, the M.Sc. degree from Queen's University in 1950, and the Ph.D. degree in nuclear physics from the University of Rochester in 1952. He has since been awarded 10 honorary doctorates.

SOLOMON J. BUCHSBAUM

Solomon J. Buchsbaum, of New Jersey, has been Senior Vice President, Technology Systems, at AT&T Bell Laboratories since 1979. His early career included work at the MIT Research Laboratory of Electronics. He received his Ph.D. in physics from MIT in 1957. He joined Bell Laboratories in 1958 as a member of the technical staff and later became department head and director of the Electronics Research Laboratory. In 1968, he was named Vice President for Research at the Sandia Laboratories and served in a number of different capacities. He returned to Bell Laboratories in 1971 as an Executive Director. In 1976 he became Vice President, Network Planning and Customer Systems.

Dr. Buchsbaum is a member of the National Academy of Sciences and of the National Academy of Engineering. He was the recipient of the President's National Medal of Science in 1986.

CHARLES L. DRAKE

Charles L. Drake, of Vermont, has been the Albert Bradley Professor of Earth Sciences at Dartmouth since 1984 and Professor of Geology since 1969. Dr. Drake's professional career began at Columbia University in 1953. He joined the staff at Dartmouth in 1958 after receiving his Ph.D. in geology from Columbia University where he has continued his career, including service as Professor and Chairman of the Department, 1967-69; as Dean of Graduate Studies and as Associate Dean of the Science Department, 1978-81.

Dr. Drake is a recipient of the G. P. Woollard Award, Geophysical Division of the Geological Society of America.

RALPH E. GOMORY

Ralph E. Gomory, of New York, is President of the Sloan Foundation and, until his recent retirement, was Senior Vice President for Science and Technology, IBM Corporation. He received his Ph.D. in mathematics from Princeton in 1954.

Dr. Gomory's professional experience includes teaching and research at Princeton from 1957-59. In 1959, he joined the Research Division of IBM and was named Director of the Mathematical Sciences Department in 1965. In 1970 he became IBM Director of Research and held that position until 1985, becoming IBM Vice President in 1973, Senior Vice President in 1985, and IBM Senior Vice President for Science and Technology in 1986. He has been awarded a number of honorary degrees and prizes, including the John von Neumann Theory Prize in 1984 and the National Medal of Science in 1988.

BERNADINE HEALY, VICE CHAIRMAN

Bernadine Healy, of Ohio, is Chairman of the Research Institute of The Cleveland Clinic Foundation, a position she assumed in 1985, and is a staff member of the Clinic's Department of Cardiology. Prior to that time, she was Deputy Director of the Office of Science and Technology Policy at the White House, and until that appointment had been a Professor at The Johns Hopkins University School of Medicine and Hospital. Dr. Healy received her medical degree from Harvard Medical School in 1970. Her medical career continued at Johns Hopkins from 1976 to 1984, where she was Professor of Cardiology and Medicine, Director of the Coronary Care Unit, and Assistant Dean for Postdoctoral Programs and Faculty Development.

Dr. Healy is a member of the Institute of Medicine of the National Academy of Sciences. She is the immediate Past President of the American Heart Association and a former President of the American Federation for Clinical Research.

PETER W. LIKINS

Peter W. Likins, of Pennsylvania, has been President of Lehigh University since 1982. His professional career began as a development engineer with the Jet Propulsion Laboratory, California Institute of Technology, in 1958. In 1964 he joined the faculty at the University of California, Los Angeles, where he became Professor of Engineering and later, Associate Dean. Dr. Likins received his Ph.D. in engineering mechanics from Stanford in 1965. In 1976 he became Professor and Dean of Columbia University, serving until 1980, when he became Provost of the University.

THOMAS E. LOVEJOY

Thomas E. Lovejoy, of Virginia, is the Assistant Secretary for External Affairs, The Smithsonian Institution. His previous experience includes service as a research assistant at the University of Pennsylvania, 1971-74, after receiving his Ph.D. in biology from Yale University in 1971; as Executive Assistant to the Science Director and as Assistant to the Vice President for Resources and Planning of the Academy of Natural Sciences, 1972-73; as the Vice President for Science of the World Wildlife Fund-U.S., 1973-87; and as Executive Vice President, 1985-89.

Dr. Lovejoy is President of the Society for Conservation Biology.

WALTER E. MASSEY

Walter E. Massey, of Illinois, has been the Vice President of the University of Chicago for Research and for Argonne National Laboratory since 1984. He has also been Professor of Physics at the University since 1979.

Dr. Massey previously served as a physics instructor at Morehouse College, 1958-59; and after receiving his Ph.D. in physics from Washington University in 1966, as a staff physicist with the Argonne National Laboratory until 1968; as Assistant Professor of Physics, University of Illinois, Urbana, 1968-70; Associate Professor of Physics and Dean of the College, Brown University, 1975-79. He is Vice President, and President-elect, of the American Physical Society and is the Past President and Chairman of the American Association for the Advancement of Science.

JOHN P. MCTAGUE

John P. McTague, of Michigan, is Vice President-Research, Ford Motor Company, and has served in that position since 1986.

In 1983 Dr. McTague was appointed Deputy Director of the Office of Science and Technology Policy, becoming Acting Science Advisor to the President and Acting Director of OSTP in 1986. Prior to that, he was Chairman of the National Synchrotron Light Source Department, Brookhaven National Laboratory, 1982-83. He was Professor of Chemistry and a member of the Institute of Geophysics and Planetary Physics, University of California, Los Angeles, 1970-82. Dr. McTague began his professional career as a member of the Technical Staff, North American Aviation Science Center, on receiving his Ph.D. in physical chemistry from Boston University, and remained there until 1970. He is U.S. Chairman of the U.S. Japan Joint High Level Advisory Panel on Cooperation in Research and Development in Science and Technology.

DANIEL NATHANS

Nobel Laureate Nathans, of Maryland, is Professor of Molecular Biology and Genetics at The Johns Hopkins University Medical School and Senior Investigator of the Howard Hughes Medical Institute. He has been on the faculty of The Johns Hopkins University Medical School since 1962.

After receiving his Medical Degree from Washington University in 1954, he served as Medical Resident at the Columbia-Presbyterian Medical Center in New York, 1955, 1957-59; as Clinical Associate at the National Cancer Institute, 1955-57, and Guest Investigator in biochemistry at the Rockefeller University, 1959-62.

Dr. Nathans received the Nobel Prize in Physiology or Medicine in 1978 for his research with enzymes that cut DNA into specific pieces, one of the basic tools of genetic engineering.

DAVID PACKARD

David Packard, of California, has been Chairman of the Board of the Hewlett-Packard Co. since 1972. Mr. Packard received his B.A. and B.S.E.E. degrees from Stanford University in 1934 and 1939, respectively.

His professional experience includes service as an engineer with the Vacuum Tube Engineering Department, GE Co., 1936-38; co-founder and partner, the Hewlett-Packard Co., 1939-47; President, 1947-64; and Chairman and Chief Executive Officer, 1964-69. Prior to his present position, Mr. Packard served as U.S. Deputy Secretary of Defense from 1969-71.

Mr. Packard received the Vannevar Bush Award of the National Science Board in 1987 and the President's National Medal of Technology and the Presidential Medal of Freedom in 1988.

HAROLD T. SHAPIRO

Harold T. Shapiro, of New Jersey, has been President of Princeton University since 1988.

Dr. Shapiro's previous academic experience has been with the University of Michigan, after receiving his Ph.D. in economics from Princeton in 1964, first as an Assistant Professor of Economics. His career progressed from Associate Professor, 1967-70; Professor, 1970-76; Chairman of the Department of Economics, 1974-77; Professor of Economics and Public Policy, 1977; Vice President for Academic Affairs, 1977-79.

Dr. Shapiro was President of the University of Michigan from 1980 until 1987. He has served as a member of many industrial, governmental and academic boards and commissions.

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THE WHITE HOUSE

Office of the Press Secretary
(Knoxville, Tennessee)

NOTICE TO THE PRESS

February 2, 1990

The President will host the first meeting of the President's Council of Advisers on Science and Technology Policy (PCAST) at Camp David on Saturday, February 3 from 10:30 a.m. to 1:30 p.m. The meeting will provide an opportunity for discussion of science and technology issues of national importance, future PCAST agenda items, and how the Council can most effectively advise the President.

PCAST was established January 19, 1990 by Executive Order 12700 to provide advice to the President on all subjects involving science and technology, and to serve as a mechanism for providing private sector input. The Council will bring together a cross-section of the Nation's scientific and technical minds from industry, academia and non-profit organizations to focus on major science and technology issues facing the country.

The Council will have between 10 and 14 members, appointed by the President. Dr. Allan Bromley, Assistant to the President for Science and Technology, will chair the Council.

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THE WHITE HOUSE

Office of the Press Secretary

For Immediate Release February 2, 1990

SCIENCE AND TECHNOLOGY ACCOMPLISHMENTS
AND INITIATIVES OF THE BUSH ADMINISTRATION

FACT SHEET

The President announced today the appointment of the members 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 a key to increased economic competitiveness 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. The three broad areas of activity are summarized below:

I. Strengthening Federal Science and Technology Policy

II. Enhancing Federal Research and Development Activities

III. Encouraging Increased Private Sector Research and Development Investment

I. Strengthening Federal Science and Technology Policy

- 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 monitors and coordinates the implementation of space policy among the civil, national security and commercial space sectors.

- o 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. A new Working Group will coordinate and review Administration policy and regulations, and will focus on enhancing applied research and on streamlining risk-based regulation of new biotechnology products to ensure safety and promote competitive economic development.

- 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 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 FY 1991 budget proposes $3.3 million for OSTP, double the FY 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 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 the White House. Accordingly, the President's FY 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

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

- o Civilian R&D will increase by 12 percent, and 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 FY 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 FY 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 FY 1991, a 30 percent increase over FY 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 those fields, particularly those in traditionally under-represented groups.

- Department of Education. -- The Department will continue to build on its strong relationships with State educational entities. The FY 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. In addition, five million is requested for the new National Science Scholars program to recognize outstanding high school students by providing fellowship support for them to study in the fields of mathematics and science in college. The Department will also launch an initiative under its Upward Bound program to provide academic assistance and encouragement to help disadvantaged students pursue study in mathematics and science.

- National Aeronautics and Space Administration (NASA). -- NASA will allocate $51 million in FY 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 FY 1991, a 47 percent increase, for educational activities including support for graduate and undergraduate students and 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 billion in budget authority, a more than 14 percent increase, for the National Science Foundation in FY 1991. This will continue progress toward doubling the NSF budget by FY 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 FY 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 President will also continue the Academic Research Facilities modernization program begun by NSF in FY 1990. Continuing the program will increase management experience and permit evaluation of its 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 the U.S. presence on the Antarctic continent. The FY 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 are assured.

D. Understanding and Exploring Space

The President is committed to a continuing, active and exciting American presence in space -- indeed, to America's leadership in space science and exploration. Overall, the FY 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 FY 1989.

- o Space Shuttle. -- The current fleet of three Space Shuttles are the world's most versatile launch vehicles. In FY 1989, the Space Shuttle fleet completed four successful flights. The Space Shuttle Columbia recently accomplished the spectacular retrieval of the Long Duration Exposure Facility. The FY 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 FY 1989, the program underwent a reevaluation that has resulted in a more achievable program and funding profile. The FY 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 will begin with the first step in the FY 1991 budget towards this new goal -- nearly $1.3 billion, an increase of 47 percent -- to support robotic science missions and to develop the pacing and innovative technologies that will be needed. Of particular interest is the continued commitment of the Administration to

the National Aerospace Plane (NASP) program. In FY 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 FY 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 mission 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, multi-agency 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 FY 1991 budget proposes over $1 billion for this effort, an increase of 57 percent.

- o Mission to Planet Earth (MTPE). -- On July 20, the President also 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 FY 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, an analysis of Earth 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 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 FY 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

- o 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 a 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 FY 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 FY 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.

- o High Energy and Nuclear Physics. -- The President supports a robust program of research in the areas 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 FY 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

- o Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS). -- The Administration remains committed to making continued progress against HIV and 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 FY 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 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. Over the past year, important advances have already been made, such as the identification of the gene that accounts for a large proportion of all cystic fibrosis cases. The FY 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 unprecedented 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 FY 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 have led to innovative approaches that will enhance our ability to produce food, while addressing concerns of safety, nutrition and the environment. The FY 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 genome of important crop plants. Like the Human Genome Initiative, this effort will create 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.

- o Solar/Renewables and Energy Conservation R&D. -- The President 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 FY 1991 budget provides an increase of 8 percent in funding for conservation, solar and other renewable energy technology R&D.

- o 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 President proposed four new tax initiatives, including a 10 percent credit for new tertiary enhanced recovery projects. In addition, the FY 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

- o National Institute of Standards and Technology (NIST). -- The FY 1991 budget proposes $198 million for NIST, a 21 percent increase over the 1990 enacted level, and includes substantial increases for core NIST research programs such as robotics, lightwave technology, quality chemical measurements, and advanced semiconductor measurement. NIST research programs form the basis for the development of the measurements and standards on which U.S. industries depend. The FY 1991 budget also includes increased funding for improvements to NIST facilities. In addition, the budget includes funding for two programs to encourage the development and transfer to the private sector of a wide range of advanced technologies.

  -- Manufacturing Technology Centers. -- The budget proposes to continue funding for these centers, requesting $5 million in FY 1991. This 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 budget requests $10 million in FY 1991, the 1990 funding level, for this program. The ATP will provide seed money to industry-led consortia doing generic, pre-competitive research into promising technologies.

- o Magnetic Levitation Transportation. -- The FY 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) 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 President supports a strong technology base to develop options for future weapons systems and to guard against technological surprise by adversaries. The FY 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 President. The FY 1991 budget requests $4.5 billion for SDI, an increase of $0.9 billion over 1990. The SDI program is developing options for 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 President is proposing the Family Savings Account to stimulate increased savings that provide the resources needed for investments in the future. In addition, the President is proposing to lower the tax on capital gains in order to promote increased entrepreneurial activity and investment.

- Research and Experimentation Tax Credit. -- The President 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.

- Encouraging R&D by Transnational Companies. -- The President 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 President 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.

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THE WHITE HOUSE

Office of the Press Secretary

For Immediate Release February 2, 1990

SCIENCE AND TECHNOLOGY ACCOMPLISHMENTS
AND INITIATIVES OF THE BUSH ADMINISTRATION

FACT SHEET

The President announced today the appointment of the members 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 a key to increased economic competitiveness 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. The three broad areas of activity are summarized below:

I. Strengthening Federal Science and Technology Policy

II. Enhancing Federal Research and Development Activities

III. Encouraging Increased Private Sector Research and Development Investment

I. Strengthening Federal Science and Technology Policy

- 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 monitors and coordinates the implementation of space policy among the civil, national security and commercial space sectors.

- o 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. A new Working Group will coordinate and review Administration policy and regulations, and will focus on enhancing applied research and on streamlining risk-based regulation of new biotechnology products to ensure safety and promote competitive economic development.

- 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 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 FY 1991 budget proposes $3.3 million for OSTP, double the FY 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 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 the White House. Accordingly, the President's FY 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

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

- o Civilian R&D will increase by 12 percent, and 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 FY 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 FY 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 FY 1991, a 30 percent increase over FY 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 those fields, particularly those in traditionally under-represented groups.

- Department of Education. -- The Department will continue to build on its strong relationships with State educational entities. The FY 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. In addition, five million is requested for the new National Science Scholars program to recognize outstanding high school students by providing fellowship support for them to study in the fields of mathematics and science in college. The Department will also launch an initiative under its Upward Bound program to provide academic assistance and encouragement to help disadvantaged students pursue study in mathematics and science.

- National Aeronautics and Space Administration (NASA). -- NASA will allocate $51 million in FY 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 FY 1991, a 47 percent increase, for educational activities including support for graduate and undergraduate students and 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 billion in budget authority, a more than 14 percent increase, for the National Science Foundation in FY 1991. This will continue progress toward doubling the NSF budget by FY 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 FY 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 President will also continue the Academic Research Facilities modernization program begun by NSF in FY 1990. Continuing the program will increase management experience and permit evaluation of its 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 the U.S. presence on the Antarctic continent. The FY 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 are assured.

D. Understanding and Exploring Space

The President is committed to a continuing, active and exciting American presence in space -- indeed, to America's leadership in space science and exploration. Overall, the FY 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 FY 1989.

- o Space Shuttle. -- The current fleet of three Space Shuttles are the world's most versatile launch vehicles. In FY 1989, the Space Shuttle fleet completed four successful flights. The Space Shuttle Columbia recently accomplished the spectacular retrieval of the Long Duration Exposure Facility. The FY 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 FY 1989, the program underwent a reevaluation that has resulted in a more achievable program and funding profile. The FY 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 will begin with the first step in the FY 1991 budget towards this new goal -- nearly $1.3 billion, an increase of 47 percent -- to support robotic science missions and to develop the pacing and innovative technologies that will be needed. Of particular interest is the continued commitment of the Administration to

the National Aerospace Plane (NASP) program. In FY 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 FY 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 mission 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, multi-agency 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 FY 1991 budget proposes over $1 billion for this effort, an increase of 57 percent.

- o Mission to Planet Earth (MTPE). -- On July 20, the President also 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 FY 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, an analysis of Earth 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 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 FY 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

- o 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 a 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 FY 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 FY 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.

- o High Energy and Nuclear Physics. -- The President supports a robust program of research in the areas 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 FY 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

- o Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS). -- The Administration remains committed to making continued progress against HIV and 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 FY 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 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. Over the past year, important advances have already been made, such as the identification of the gene that accounts for a large proportion of all cystic fibrosis cases. The FY 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 unprecedented 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 FY 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 have led to innovative approaches that will enhance our ability to produce food, while addressing concerns of safety, nutrition and the environment. The FY 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 genome of important crop plants. Like the Human Genome Initiative, this effort will create 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.

- o Solar/Renewables and Energy Conservation R&D. -- The President 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 FY 1991 budget provides an increase of 8 percent in funding for conservation, solar and other renewable energy technology R&D.

- o 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 President proposed four new tax initiatives, including a 10 percent credit for new tertiary enhanced recovery projects. In addition, the FY 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

- o National Institute of Standards and Technology (NIST). -- The FY 1991 budget proposes $198 million for NIST, a 21 percent increase over the 1990 enacted level, and includes substantial increases for core NIST research programs such as robotics, lightwave technology, quality chemical measurements, and advanced semiconductor measurement. NIST research programs form the basis for the development of the measurements and standards on which U.S. industries depend. The FY 1991 budget also includes increased funding for improvements to NIST facilities. In addition, the budget includes funding for two programs to encourage the development and transfer to the private sector of a wide range of advanced technologies.

  -- Manufacturing Technology Centers. -- The budget proposes to continue funding for these centers, requesting $5 million in FY 1991. This 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 budget requests $10 million in FY 1991, the 1990 funding level, for this program. The ATP will provide seed money to industry-led consortia doing generic, pre-competitive research into promising technologies.

- o Magnetic Levitation Transportation. -- The FY 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) 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 President supports a strong technology base to develop options for future weapons systems and to guard against technological surprise by adversaries. The FY 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 President. The FY 1991 budget requests $4.5 billion for SDI, an increase of $0.9 billion over 1990. The SDI program is developing options for 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.

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THE WHITE HOUSE

Office of the Press Secretary

For Immediate Release April 23, 1990

REMARKS BY THE PRESIDENT
TO THE NATIONAL ACADEMY OF SCIENCES

National Academy of Sciences Headquarters Building
Washington, D.C.

2:09 P.M. EDT

THE PRESIDENT: Apologies for being late. To the distinguished members of the National Academy -- all. And to Dr. Press and Dr. Ebert, Dr. Raven, Dr. Gordon, Dr. Blout. Now we start on our side -- Dr. Bromley. (Laughter.) Jim Watkins, a member of our Cabinet. Admiral Truly, ladies and gentlemen: it really is an honor to be with you today.

We stand at a very interesting time. And the advice and council of this academy has been really crucial to American presidents for well over a century. And I'm proud to be the latest to come over here to say thank you. We also stand at a moment of wondrous prosperity. But our wealth goes far beyond the merely material. Ours is an intellectual prosperity, unprecedented in history. For that and the health and security it affords this nation and the world, gratitude is owed to the men and women who have committed their minds and lives to science.

Those devoted to such work -- its patient searching, its passionate struggles -- have engaged themselves in mankind's most exalted mission and the mind's manifest destiny: the search for understanding. That's what it all boils down to.

President Lincoln established this great institution in the dark hours of our nation's greatest crisis -- which testifies to the enduring importance of scientific knowledge. In the years that followed, your academy has responded to urgent national needs in times of war and peace.

When this magnificent building was dedicated, Calvin Coolidge predicted "a new day in scientific research. A new sun is rising," he said. He was right. The awesome scientific advances of this century, many of which you've brought about, bring us ever closer to the understanding that's required of the universe, its origins, and our own. And science has told us a stranger and more wondrous story than myth might ever have written for us.

Fourscore and 10 or 20 billion years ago, the theory goes, it all began -- with a universe of energy and mass unimaginably hot and compressed, containing everything that would become what we now see in the heavens. And then, science tells us, in one incomprehensively powerful instant, energy and matter of every kind exploded in every direction. Or as a layman might explain it, somebody hit that cosmic baseball right out of the park. (Laughter.)

But while the pace of cosmic change may have begin with blinding speed and slowed down since, the pace of our scientific evolution has been rapidly accelerating. Growing in intensity like a series of chain reactions in a critical mass of highly-trained American grey matter -- touching off scientific and technical revolutions in every direction.

Today, I wanted to come over here to outline the role that this administration is playing to advance those revolutions. Because as the pace of science accelerates, I believe that government must keep pace -- and will keep pace.

MORE

First, we've moved to better integrate science and technology into the policy process. We've created an interagency working group that will more closely link science and technology -- link their considerations with the policy-making process of the Economic and Domestic Policy Councils.

My Assistant for Science and Technology, Dr. Bromley, chairs this working group and participates in those councils, advising them on matters related to science and technology, as well as serving on the National Space Council.

And we're also committed to greater cross-fertilization with talent from the private sector, on issues ranging from pure research to manufacturing performance. So this year we created a President's Council of Advisors on Science and Technology -- experts whose guidance I value and depend on. I've already had two meetings with that group, myself. We'll also be looking for counsel from this academy's new manufacturing forum, just announced this month.

We want to advance America's tradition of innovation, and we intend to get the biggest bang for the federal buck. And this administration has also taken steps to reinvigorate the Federal Coordinating Council for Science, Engineering and Technology, in order to assure that the federal investments in R&D programs are closely integrated across these agency boundaries.

In January, we sent a budget to Congres that includes a record $71 billion for research and development; an investment in a stronger economy, a more secure nation and, indeed, a brighter future. Our administration is committed to investing in the future; it's evident in the policies we're creating and the budget we're calling for, with everything from a 24-percent increase for NASA, to our support of a major agricultural research initiative.

To improve the international competitiveness of American industry and our overall standard of living, we've called for a permanent extension of the research and experimentation tax credit. And we're working to lower the cost of capital and clear away regulatory burdens so that industry can make the kinds of investment that the future demands.

Along with the applied, market-driven knowledge so crucial to this country's competitive future, let me reaffirm two other priorities:

First -- and I'm going to keep talking about this one -- math and science education. We understand that only with a new generation of scientists and engineers will your work and America's preeminence be assured. And so we're engaged in a broad initiative of reform and restructuring in cooperation with the states. It's an effort that began with our first-ever education summit with the nation's governors last fall. And our goal is to make American students first in the world in science and math achievement by the end of this century, and to convince more women and minorities to study science.

We're providing a number of new incentives for students, like the National Science Scholars Program that I've proposed. We're opening the doors of federal laboratories, facilities, and agencies to students and teachers. Our budget increases funding by 26 percent to over $1 billion for science, math, and engineering education, through the Departments of Education, Energy, Interior and others, as well as the National Science Foundation and NASA.

And today, I ask our industrial and business communities to create new alliances for education, mobilizing more of this nation's great technical resources for the sake of the future. We are committed to ensuring that America has the brainpower to remain at the forefront.

A second priority of this administration is basic

research -- the historical wellspring of this nation's well-being. Science must be able to continue seeking answers to our most fundamental questions.

For such reasons our budget calls for increasing funding for the U.S. Global Change Research Program by 57 percent, to over $1 billion. And earlier this year, I reiterated my commitment to double the National Science Foundation budget by 1993. Today, I want to call on Congress - put our money where our future is. Put an increased National Science Foundation budget back on track.

Today, science and technology are assuming a broader and more interrelated role in human life than ever before. And they're becoming forces for historical change.

Satellites already help us study the Earth's natural systems and assess environmental threats. And the mission to Planet Earth will further our work of global stewardship.

But this past year, in the Revolution of '89, we've also seen communication satellites, along with video cameras and VCRs and FAX machines, becoming a potent force for peace -- both a product of science and a source of conscience -- bringing the actions of nations before the eyes of the world.

Pictures from Poland and South Africa, scenes on the Berlin Wall -- the eye of technology has proved more powerful than chisels for breaking down barriers, etching the idea of freedom on the psyche of humanity, and setting off a wondrous, hopeful, political chain reaction worldwide.

It's no accident that many of the individuals at the center of today's worldwide political revolutions share a vision of the future based on personal freedom, openness, and freedom of inquiry. These values are shared by our political system and by science alike. Science, like any field of endeavor, relies on freedom of inquiry. And one of the hallmarks of that freedom is objectivity.

Now more than ever -- on issues ranging from climate change to AIDS research, to genetic engineering, to food additives -- government relies on the impartial perspective of science for guidance. And as the frontiers of knowledge are increasingly distant from the understanding of the many, it is ever more important that we can turn to the few for sound, straightforward advice.

The National Academy of Sciences is renowned for objectivity and immunity to partisan pressures. Your impartial guidance has been invaluable to American presidents and to the American people for well over a century. So I am confident that the members of this body, the most distinguished scientists in America, will continue the tradition that has been the Academy's hallmark.

On this I know we agree, because so many of our technical and scientific achievemens have been the products of independent minds. And if the Earth-moving events of 1989 reminded us of anything at all, it's that complex bureaucracies and centralized planning don't work well in the governance of societies. We will not try to impose them on science.

Just as entrepreneurs and small businesses fuel the growth of the American economy, the backbone of American science is its brilliant array of individual investigators spread across the nation.

Among so many, think of Chester Carlson, who invented the photocopy machine in a little room over a Long Island pub. Or Barbara McClintock, working alone, who made monumental discoveries in genetics nearly 50 years ago that the world began to understand only in the last decade.

Look, of course, I can't claim to comprehend how science

does its work. Like many, my scientific understanding has been influenced by those Gary Larson cartoons. (Laughter.) Like the one where, after detailed calculations, Einstein discovers that time is actually money.

I'm not here as an expert, but as a believer. And one of the best things government can do to support the magnificent creativity and energy of the American technical community is to locate individual scientists with talent, furnish them with adequate resources and state-of-the-art instrumentation -- through agencies like our marvelous National Institutes of Health, the National Science Foundation, and then the Departments of Defense and Energy and others -- to help these investigators make progress.

But there are also scientific challenges that, because of their unprecedented scope and importance, demand unusual support and international cooperation. Already, the European Space Agency, Japan, and Canada are making hardware contributions valued at more than $7 billion for Space Station Freedom, a key component of our Space Exploration Initiative. Combined with our total investment of about $19 billion, this will be the largest international R&D project ever undertaken.

We're exploring new ways to encourage international cooperation on the big science projects, like mapping the human genome, global change research, and the superconducting super collider -- a technological giant that will recreate the fireball of our origins and allow us to study forms of matter that haven't existed since the birth of the universe.

There's a vote coming up in Congress this week on that super collider, so I'd like to call on the members to support that project, as well as our NASA budget. Only by doing so will we keep America on the leading edge of advancing human knowledge and pushing the limits of space exploration.

Tomorrow morning, the space shuttle is scheduled to lift into the heavens the most sophisticated celestial object that mankind has ever built -- the Hubble Telescope -- with the power to see the ends of the universe and back to the birth of time. I understand it's half a billion times more sensitive than the human eye. You talk about the vision thing -- try on the Hubble Telescope for size. (Laughter.)

But on the southwest grounds of this great academy rests a bronze memorial to a scientist who helped define mankind's understanding of time and space, of matter and energy. Among the engravings on that memorial are words of wonder -- about the "joy and amazement," Einstein felt, "at the beauty and grandeur of this world of which man can just form a faint notion." Your work, the work of science, daily brings that beauty and grandeur into sharper focus.

I'm blessed to be President at this fascinating time in the history of the world, in the history of our country. And as President, I can assure you of this: my administration is committed to supporting you as you pursue the knowledge that illuminates the world. Knowledge that will surely, ceaselessly continue to bring benefit to all mankind.

Thank you very much for what you do, and God bless each and every one of you. Thank you.

END 2:28 P.M. EDT

THE WHITE HOUSE

Office of the Press Secretary

For Immediate Release November 13, 1990

REMARKS BY THE PRESIDENT
AT PRESENTATION OF
NATIONAL MEDALS OF SCIENCE AND NATIONAL MEDALS OF TECHNOLOGY

The East Room

2:01 P.M. EST

THE PRESIDENT: Welcome everybody. Thank you all. Please be seated and delighted to see you here. Pleased to see Secretary Mosbacher, our Secretary of Commerce; Secretary Watkins, Secretary of Energy. And, of course ,Dr. Bromley; Admiral Truly, right here in front, of NASA. Mike -- Governor Castle, good to see you, sir. And we especially want to greet our honored guests, this extraordinary gathering of scientific and technological genius. Welcome to the White House and welcome to the presentation of the 1990 National Medals of Science and the National Medals of Technology.

The timing of these awards is fortuitous. A year ago this week, Barbara and I awarded medals to some of the artistic giants of our time: Alfred Eisenstaedt and Dizzy Gillespie and John Updike, among others. And with all that assembled talent, guess what led the evening news. The Rose Garden presentation of the National Turkey. (Laughter.) So you're in luck. (Laughter.) This year the turkey doesn't arrive until Thursday. (Laughter.)

And this gathering marks a proud moment for me, just as it was when this year's Nobel Prizes were announced, and it turned out that eight of the nine winners in science and economics were born in the United States of America. It is, indeed, a tribute to America's frontier spirit and to our nation's steadfast resolve and sense of the future. For when it comes to leadership in science and technology, best in America means best in the world.

America's tradition of excellence has long been nurtured by a tradition of free inquiry aimed at the simple goal of better understanding ourselves and the world. In the 1945 report that led to the founding of the N.S.F., the National Science Foundation, Vannevar Bush -- no relation -- wrote that, "As long as scientists are free to pursue the truth wherever it may lead, there will be a flow of new scientific knowledge to those who can apply it to practical problems."

And so it is today. More and more, nearly every product from electronics to agriculture incorporates the latest in technology. And more and more, our nation depends on basic scientific research to spur economic growth, longer and healthier lives, a more secure world and, indeed, a safer environment.

Today, our government must help carry that research forward and contribute to the development of generic technologies that build on basic discoveries. If America is to maintain and strengthen our competitive position, we must continue not only to create new technologies, but learn to more effectively translate those technologies into commercial products. In this way, we can help leverage the R&D of the private sector, helping whole industries advance in an increasingly competitive global market.

The budget highlights our administration's commitment to

science and technology. We won double-digit increases for both NASA and the N.S.F. and expanded funds to investigate global climate change. We remain committed to doing even more, doubling the N.S.F. budget over five years and extending the tax credit for R&E -- research and experimentation. And we're going to keep raising America's sights. Space Station Freedom will give us a permanent presence in Earth orbit and the Space Exploration Initiative will take us to the Moon and Mars and beyond -- back to space, back to the future, and this time, back to stay.

Thirty years from now, when the Nobel Prizes are announced, I want America to be well represented. And 30 years from now, when the Medals of Science and of Technology are bestowed, I want to see America graced by a group as accomplished as that here today.

Many of today's honorees serve as prime examples of how we can effectively translate basic science into commerical technology. I think of Millie Dresselhaus, arguably the most important and prominent woman physicist and engineer of her generation, whose hard work helped to revolutionize semiconductors. Or Allan Cormack whose pioneering efforts earned him a Nobel Prize and made CAT scan a household word. And scholars as diverse as Boston's Baruj Benacerraf or Seattle's Donnall Thomas -- another Nobel laureate whose contributions to immunology may lead to new answers in our battle against cancer and AIDS. Scientists like you have, indeed, helped America to understand that AIDS is a disease, not a disgrace. And scientists like you have helped America to appreciate our responsibility to those who are living with HIV and AIDS. And they deserve our compassion, they deserve our care, and they deserve more than a chance -- they deserve a cure.

Another legacy of these prestigious medals and the work they honor must be the cultivation of excellence in science and math in classrooms across America. The National Science Scholars program we proposed soon after taking office has now been enacted and will encourage budding scholars of today to become the scientists of tomorrow. Guiding our efforts is an ambitious but critical goal for this decade: By the year 2000, U.S. students will be first in the world in science and math.

This week is Education Week, and its theme is "Educating Everyone Takes Everyone." A fitting motto for the challenges that lie ahead. If we are truly to remain a world leader in science and technology, then we must achieve a renaissance of quality in our schools and we must tap the talent, the energy, and the commitment of all our families, businesses, and universities.

The people we honor today are American trailblazers, real-life pioneers who pressed the very limits of their fields. You have distinguished not only yourselves, but also your nation. And that's why America continues to need, and want, and appreciate your creativity, your genius and your diversity.

Thank you. Congratulations to all. And God bless the United States. Thank you for coming. (Applause.)

(The awards are presented.)

END 2:10 P.M. EST

THE WHITE HOUSE

Office of the Press Secretary

For Immediate Release September 16, 1991

REMARKS BY THE PRESIDENT
DURING PRESENTATION OF NATIONAL MEDAL OF SCIENCE
AND NATIONAL MEDAL OF TECHNOLOGY

The Rose Garden

10:30 A.M. EDT

THE PRESIDENT: Thank you. Please be seated, and let me welcome the dignitaries -- that's almost everybody. I don't know who is excluded, but -- (laughter) -- first, Secretary Mosbacher and Secretary Lujan here -- Bob over my shoulder -- Allan Bromley, my Science Advisor; Henson Moore, I believe is to be here, of Energy; and, of course, Rock Schnabel of Commerce; Walter Massey, the Director of the National Science Foundation. And then finally and perhaps most important today, our honorees and their friends and families. It's my pleasure to welcome all of you to this steamy Rose Garden. (Laughter.)

And with us today are five Nobel Laureates, leading engineers of the Informaton Age, authors of some of this century's world-changing discoveries and inventions. Men and women whose quantum leaps of learning compress generations of knowledge within a single lifetime of achievement. From the first moments of creation to the frontiers of the solar system and now, with Voyager, beyond: your knowledge spans the broad canvas of human endeavor.

Some of you are not only experts in your field, you invented your field. Your quests and questions produced new disciplines, new knowledge, new ways of looking at our world.

And today, your nation recognizes your monumental accomplishments, honors the differences you have made: advancing human understanding, improving the human condition, helping mankind conquer ignorance and illness, helping this nation compete and prosper.

Today's award winners range in age from the Pegasus Team -- a group of precocious 40-something scientists and one 37-year-old -- who designed and built the world's first private space rocket to Admiral Grace Hopper, born in 1906, who pioneered the revolution that put personal computers on the desks of millions of Americans -- and dragged even this President into the computer age. (Laughter.)

I was asked for a report. It's been almost six months since my first computer lesson, and I'm making progress. I make the same mistakes, but I do it five times faster. It's marvelous. (Laughter.)

The men and women we honor exemplify not simply the life of the mind, but the spirit of adventure and risk that accompanies the quest for advancement.

Take Stephen Bechtel, whose vision helped a city spring from the Saudi desert, helped turn the Arctic waters of James Bay into a source of energy for millions of North Americans, and who's now helping Kuwait rise up from the ashes of war.

Consider Colonel Stapp, John Paul Stapp, expert on the human impact of G-forces stress. When his experiments became too

dangerous to impose on others, Colonel Stapp became his own subject. And as a former Naval aviator, I can hardly believe he's withstood 40 Gs: That's the same as going from 632 miles per hour to a dead stop in 1.4 seconds. Colonel Stapp put himself on the line and made flying safer for everyone from passengers on commuter shuttles to the astronauts now orbiting the Earth on Discovery.

From the work of a single individual come benefits that can banish suffering and prolong life for many millions of people. Consider the career of Gertrude Elion, Nobel Prize-winning biochemist. Her life's work spans the quest to defeat Leukemia and Malaria to today's battle against AIDs and other immune system disorders.

Together, your efforts transformed our world. And yet, as a nation, our honor for all you've done falls short if we fail to sustain your forward march. This administration has proposed what progress demands: record funding levels for research and development, with funds channeled to the individual investigator and small research teams that so often redefine state-of-the-art. To advance technology, we've focused funds on the areas of energy and aeronautics, biotechnology and advanced materials, high performance computing and communications.

To advance science and engineering research, we've urged Congress to approve an 18-percent increase in funding for the National Science Foundation, keeping us on track with our commitment to double spending on that vital research arm by the year 1994. Our commitment to science and technology proves beyond doubt we will not shortchange the future.

In the words of Astronomer Edwin Powell Hubble: "Equipped with his five senses, man explores the universe around him, and calls the adventure science." Well, science and technology hold open the hope of infinite possibility -- of answers that eluded Einstein, of a new world free from fear and want. And that same shining future -- the new world of possibility -- exists within every child.

In the end, progress of enlightenment comes down to education, and what are we doing to cultivate the children sitting today in classrooms around the country -- the generation we'll ask to provide solutions to the challenges of a new century, answers to questions that haven't even yet been asked.

Unless we act immediately, the next generation may not be equipped to follow in your footsteps. All of you know our national education goals and the strategy that we call America 2000 -- our challenge to everyone with a stake in our schools to literally reinvent American education. Well, right now, in some studies of math and science aptitude, U.S. students rank dead last amongst the industrialized nations. And that one statistic alone should shake us out of our complacency and show us the scope of the challenge that we face.

If we're going to be first in the world in math and science by 2000, there's not a moment to waste. Because we're serious, next year's budget targets $661 million for precollege math and science education -- a one-year increase of 28 percent.

And today, I salute every one of you who has taken the time to share your wisdom in the classroom. I mentioned earlier that we have five Nobel laureates with us today. Let me recognize another medal-winner for a singular distinction: Elvin Kabat, who's had the satisfaction of seeing one of his students go on to win a Nobel.

We must preserve the vital connection between teaching and research. That's the idea behind the Commerce Department's

Technology Heroes Program -- to turn Medal of Technology winners into role models for our kids. And that's why, today, I am pleased to announce the establishment of the Presidential Faculty Fellows Program -- to provide 5-year grants totaling $500,000 to as many as each of 30 young faculty members each year. These grants will support young scholars in their path-breaking work in science and technology and their teaching in the classroom. Perhaps years from now, some of those Presidential Faculty Fellows will have their own day here in the Rose Garden.

In honoring each of you, this nation honors the boundless horizons of the human mind, the soaring spirit of inquiry, the special genius of the architects who fashion today's fantastic idea into tomorrow's usable tool. Your work stands as its own reward; so let me simply add your nation's thanks.

Once again, welcome to the White House. Congratulations on your well-deserved honors. Now, with the help of Dr. Massey and Secretary Mosbacher and Dr. Allan Bromley, we will present the awards.

Thank you all very much. (Applause.)

(The awards are presented.)

THE PRESIDENT: Well done to the presenter. I guess that concludes it, doesn't it?

Thank you all and, again, my congratulations. I think that concludes the ceremony. And the person that's in charge of the weather, please meet me inside. (Laughter.) Thank you all very much. (Applause.)

END 10:40 A.M. EDT

THE WHITE HOUSE

Office of the Press Secretary

For Immediate Release December 9, 1991

REMARKS BY THE PRESIDENT
IN SIGNING CEREMONY
FOR THE HIGH PERFORMANCE COMPUTING ACT OF 1991

The Roosevelt Room

1:31 P.M. EST

THE PRESIDENT: Let me just thank you all for coming today. And I'm pleased to sign into law the High Performance Computing Act of 1991. This will implement the far-reaching initiatives on information technologies proposed to Congress in my Fiscal Year 1992 budget earlier this year.

I'd like to thank Director Darman; my science advisor Dr. Bromley; Secretary Watkins and Secretary Mosbacher; Chairman Boskin and Dick Truly -- Administrator Truly, Roger Porter, Director Massey, who are with us today. And I'd like, also, to thank Secretaries Cheney and Alexander who couldn't be with us today. And Bill Reilly also missing, but all of them playing an instrumental part in all of this. And then all of the other members of the administration that helped develop this initiative and secure enactment of this historic bill.

The development of high performance computing and communications technology offers the potential to transform radically the way in which all Americans will work, learn and communicate in the future. It holds the promise of changing society as much as the other great inventions of the 20th century, including the telephone, air travel and radio and TV.

This program will help researchers meet the grand challenges in science -- to unlock the secrets of DNA, to forecast severe weather events and to discover new superconducting materials.

It is no surprise that America holds the lead in high performance information technology. Our greatest technological strides have been made possible by the unique qualities of American society: freedom, innovation, entrepreneurial spirit, a combination found nowhere else in the world. And this program will sustain and extend that leadership position.

The High Performance Computing Initiative is part of an overall strategy, advanced by this administration to enhance our competitiveness. My $76-billion R&D budget proposal for this year included increased investment in both basic research and in additional key areas of applied research, such as material science, advance manufacturing, biotechnology and energy-related R&D.

In addition to these critical investments in R&D, we've been working to prepare America to compete in the next century by opening up foreign markets to U.S. export through a new GATT round and a North American Free Trade Agreement; proposing tax policies, such as making permanent that R&D tax credit, and reducing taxes on capital gains to promote long-term investment, and preparing our work force to compete through sharp increases in funding for math and science education and through our America 2000 broad reform initiative.

The initiative involves eight federal agencies, all of which would contribute to development of this new technology, and we

share in its benefits. Private industry will work closely with federal agencies and labs in the planning, funding and management of this initiative to ensure that the fruits of this research program will be brought into the educational and commercial marketplaces just as soon as possible.

The High Performance Computing Initiative is an excellent example of the philosophy of this administration: to invest in the future, to create new jobs and new opportunities for sustained economic growth. It is also an excellent example of how government, industry and academia can work together to develop new and important technologies.

And so, once again, welcome. And with that, it gives me great pleasure now to sign this legislation which will benefit Americans today and on into the next century.

(The document is signed.)

END 1:35 P.M. EST