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Series: Speech File Draft Files
Subseries: Chron File, 1989-1993

OA/ID Number: 13528
Folder ID Number: 13528-005

Folder Title:
National Academy of Sciences, 4/23/90 [OA 4729] [2]

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OSTP PROPOSED VERSION

4/20/90

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PRESIDENTIAL ADDRESS: NATIONAL ACADEMY OF SCIENCES
WASHINGTON, D.C.
MONDAY, APRIL 23, 1990
2:00 P.M.

Thank you, Frank [Press]. Distinguished members of the National Academy, Dr. Press, Dr. Bromley, ladies and gentlemen: It's an honor to be with you today. The advice and counsel of this Academy has been crucial to American Presidents for well over a century. I'm proud to be the latest to thank you.

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DRAFT

We 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.

SAME

Those devoted to such work -- its patient searching, its passionate struggles, its stunning successes, and, yes, its occasional failures -- have engaged themselves in mankind's most exalted mission: the search for understanding.

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President Abraham Lincoln established this great institution in the dark hours of our nation's greatest crisis. And in the times ^{THAT} ~~we~~ ^{ED} follow your Academy has responded to urgent national

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needs in war and in peace -- vivid testimony to the enduring importance of scientific knowledge and to your dedication.

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 understanding 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.

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It has told us about a universe 10 to 20 billion years old that originated in a quantity of mass no larger than a baseball. It has told us about a single molecule, the ribbon of DNA, that carries the genetic code of life. Science has made it possible to travel beyond the Earth's atmosphere, and to unlock the secrets of matter, and to cure diseases that once terrified mankind. In the words of Louis Pasteur, science has become the search that illuminates the world."

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Like most Americans, I don't claim to understand all of these things. But I know what they mean in terms of intellectual excellence, national prestige, and the contribution to human knowledge. They mean the difference between leading and being left behind in a great human adventure.

I want to outline the role this Administration is committed to in fulfilling the advance of science. Because as the great scientist Albert Einstein said, I believe that government must keep up --

First, we've moved to better integrate science and technology into the policy process. During my campaign I promised to make my science advisor an assistant to the President, and I've done that. Allan Bromley serves on the Economic Policy Council, the Domestic Policy Council, and the National Space Council, and he works closely with the National Security Council and the Competitiveness Council on matters involving science and technology. He chairs a working group on science and technology and another that is looking specifically at the complex subject of global change for the economic and domestic policy councils. I have also, for the first time, nominated, and the Senate has confirmed, all four of the Associate Directors called for in the legislation that established the Office of Science and Technology Policy.

I promised to create a President's Council of Advisors on Science and Technology, and in February we held our first meeting up at Camp David, with another meeting here in Washington last month. I'm committed to greater cross-fertilization with the private sector, on issues ranging from pure research to manufacturing performance. PCAST will help provide that advice, as will your own Academy. For example, we'll be looking to the Academy's new Manufacturing Forum, just established this month, for ways to turn around the competitive declines that have affected key U.S. industries.

We're also working to better integrate our science and technology efforts across the spectrum -- to get the biggest bang

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for the federal buck. We're reinvigorating the Federal Coordinating Council for Science, Engineering, and Technology, which goes by the rather appropriate name of FCCSET ["fix-it"]. This administration is going to pull together and coordinate federal programs in such areas as science and mathematics education, computing, and high technology so that America remains at the forefront of science and technology.

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The second major initiative this Administration is taking involves the budget. In January we sent a budget to Congress that includes a record \$71 billion for research and development, and we intend to increase that funding in the years ahead. Investing in science and technology is one of the best investments we can make in our future. It's ^{also} an investment in a stronger economy, a more secure nation, a better future for everyone.

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Within that budget, we're increasing funding for basic research -- the historical wellspring of this nation's well-being. Science must be able to continue seeking answers to our most fundamental questions. Earlier this year I proposed to double the National Science Foundation budget. Today I call on Congress: Put our money where our future is. Put the National Science Foundation budget back on track.

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 like, well, like a thousand points of enlightenment.

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, and through agencies like the National Institutes of Health, the National Science Foundation, the Department of Defense, and others, furnish them with the equivalent of venture capital. But there are also scientific challenges that, because of their unprecedented scope and importance, demand unusual support.

So we maintain a balanced commitment to projects like Space Station Freedom. And ^{TO} the new Supercollider -- so critical to retaining our scientific talent -- that will re-create the unimaginable fireball of our origins in miniature, allowing us to study matter that hasn't existed since the birth of the universe.

The budget proposes to increase funding for the U.S. Global Change Research Program by 57 percent -- to over \$1 billion -- so that we better understand the complex dynamics of the global environment that we hold in trust for future generations. It increases funding to map and sequence the human genome, which will make it possible to treat incurable diseases and understand more about how living things develop. And it extends federal support of biotechnology, which could become one of the 21st century's biggest industries.

The budget proposes several initiatives that could improve the international competitiveness of American industry and our overall standard of living. That's the third area I wanted to discuss. We're proposing steps, such as developing advanced

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technologies and making the research and experimentation tax credit permanent, that have both public and private benefits. We're also working to lower the cost of capital and clear away regulatory burdens so that industry can make the investments in the future that this country needs.

Regarding technology, this administration is committed to working with industry to develop the generic, precompetitive technologies that support both economic competitiveness and our national security. These technologies do not give an advantage to any one company, but they help whole industries and economic sectors advance in the global marketplace. We need to find ways that American industry can better translate new ideas and technologies into marketable products. Many of these same technologies also support our national security, by giving us the technological edge that will be essential in a rapidly changing world.

Finally, I want to point out that none of the things I've been discussing will occur if this country does not produce the new generation of scientists and engineers needed to carry on your work, as well as to operate an increasingly technical society.

As a result, my administration is engaged in a broad effort of reform and restructuring in cooperation with the states that began with our first-ever Education Summit with the nation's governors last fall. Our goal is to make American students first

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in the world in science and mathematics achievement by the end of this century.

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There are many things that must be done to achieve this goal. We must provide students with new incentives to study science and engineering, such as the National Science Scholars Program that I have proposed. We must convince more women and minorities to study science. The budget proposes increasing federal funding for science, mathematics, and engineering education in five federal agencies by 26 percent, to a total of over \$1 billion.

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We must also work together -- the federal government and the scientific community -- to improve science, mathematics, and engineering education. Today, I call on all Federal laboratories, facilities, and agencies to open their doors to students and teachers -- and get involved with education at the local level. And 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.

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Education is important for another reason. We all know that science and technology have become more and more intertwined with our daily lives. But today science and technology are assuming an even broader role -- they are becoming forces for historical change. Think of how VCR's, video cameras, and even fax machines have become 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.

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

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It is 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 are values shared by our political system and by science alike.

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They are also that values that have fueled this country's great economic expansion and now promise to bring equal prosperity to nations that are throwing off the shackles of central planning. We have always been a nation of tinkerers and inventors, and from our small laboratories and workshops have come the discoveries that have changed the world. Think of Chester Carlson, who invented the Xerox machine in a little room behind a beauty parlor. Or of Barbara McClintock, working alone, who made monumental discoveries in genetics 40 years ago that the world began to understand only in the last decade. Or, internationally, of the two physicists, working in secret because their firm wouldn't approve it, who discovered high temperature superconductivity.

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And just this month -- while one group of scientists pulled strands of DNA from a 17-million-year-old magnolia leaf buried at the bottom of an ancient lake in northern Utah -- another group in San Jose managed to see and manipulate single atoms under a

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new scanning microscope -- bringing us a step closer to the creation of man-made molecules, new generations of tailored materials with undreamed-of properties, and computers with inconceivable power.

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Even as individual scientists continue to make breathtaking discoveries, some science and technology has grown larger than any one person, or even any one nation. Some scientific challenges, because of their unprecedented scope, and because they produce knowledge that benefits all mankind, demand international cooperation. Already, the European Space Agency, Japan, and Canada are making hardware contributions valued at more than \$7 billion for Space Station Freedom. Combined with the total U.S. investment of about \$16 billion, this will be the largest international R&D project ever undertaken. We are exploring new ways to encourage international cooperation on other big science projects, like the Superconducting Super Collider, mapping the human genome, and global change research.

International cooperation has also been a big part of one of the most exciting scientific projects of our time. Tomorrow morning the Space Shuttle is scheduled to lift the Hubble space telescope into orbit -- the most sophisticated celestial object that mankind has ever built, with the power to see to the ends of the universe, and back to the birth of time. Some have compared the views we'll get from the space telescope with the first views Galileo had of the heavens when he raised his homemade telescope toward the sky.

On the southwest grounds of this great Academy, surrounded by a representation of the cosmos, rests a bronze memorial to a scientist who helped redefine 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 form just a faint notion." Your work, the work of science, daily brings that beauty and grandeur into sharper focus.

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Einstein wrote something else that I think is important. In a letter to a friend, he wrote that "The pursuit of scientific truth, detached from the practical interests of everyday life, ought to be treated as sacred by every government. . . ." Einstein was right, and my administration is committed to supporting you as you pursue the knowledge that, surely, ceaselessly, will enlighten and amaze us.

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Thank you. And God bless you.

THE WHITE HOUSE

WASHINGTON

April 20, 1990

MEMORANDUM FOR CHRISS WINSTON

FROM: ROGER B. PORTER *RBP*

SUBJECT: Presidential Remarks: National Academy of
Sciences

The draft is well written and highlights valuable investments we are making in our nation's future. We have one comment from a policy standpoint. Our suggestions are noted at the bottom of page three on the attached draft.

WHITE HOUSE STAFFING MEMORANDUM

DATE: 04/19/90 ACTION/CONCURRENCE/COMMENT DUE BY: 2:00p.m. 04/20

SUBJECT: PRESIDENTIAL REMARKS: NATIONAL ACADEMY OF SCIENCES
(04/19 3:15p.m. draft)

	ACTION FYI			ACTION	FYI
VICE PRESIDENT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	MCCLURE	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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REMARKS:

Please provide any comments/recommendations directly to Chriss Winston by 2:00 p.m. on Friday 04/20, with a copy to my office. Thanks.

RESPONSE:

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

(Lange/Cawley)
April 19, 1990
3:15 P.M.
[SCI.DOC]

PRESIDENTIAL ADDRESS: NATIONAL ACADEMY OF SCIENCES
WASHINGTON, D.C.
MONDAY, APRIL 23, 1990
2:00 P.M.

Thank you, Frank [Press]. Distinguished members of the National Academy, Dr. Press, Dr. Bromley, ladies and gentlemen: It's an honor to be with you today. The advice and counsel of this Academy has been crucial to American Presidents for well over a century. I'm proud to be the latest to thank you.

We 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 exalted mission, and the mind's manifest destiny: the search for understanding.

President Abraham Lincoln established this great institution in the dark hours of our nation's greatest crisis -- which testifies to the enduring importance of scientific knowledge. And when this magnificent building was finally 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 understanding 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 ten or twenty billion years ago, it all began. With a quantity of energy and mass unimaginably hot and dense, about the size of a baseball, containing everything that would become the universe, they say. And then, in one incomprehensibly powerful instant, energy and matter of every kind exploded in at least four dimensions. Or in a layman's terms, somebody hit that cosmic baseball right out of the park.

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

Today, I want to outline the role this Administration is playing to fuel those revolutions. Because as the pace of science accelerates, I believe that government must keep pace -- and will keep pace -- with science.

First, we've moved to better integrate science and technology into the policy process. My assistant for Science and Technology, Dr. Allan Bromley, is an active member of the Economic Policy Council, and chairs a White House Working Group

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.

The second priority I'd reaffirm 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. But here, some vigilance is needed. Earlier this year, I proposed to double the National Science Foundation budget. Today, I want to call on Congress: Put our money where our future is. Put the National Science Foundation budget back on track.

Without strong science we are blind: unable to grasp the real parameters of the present, or real potential of the future. But with the past as prologue, we know that the investments we make in science are some of mankind's most promising.

Satellites already help us study the earth's natural systems and assess environmental threats. And combined with video cameras they've become 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, 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.

Molecular biology, already responsible for agricultural advances that help feed the world, is tackling the challenge and promise of mapping the genome [GEE-nome] -- breaking the code of human life that might allow us to isolate and conquer such diseases as A.I.D.S., and cancer.

And just this month -- while one group of scientists pulled strands of D.N.A. from a 17 million-year-old magnolia leaf buried at the bottom of an ancient lake in northern Utah -- another group in San Jose managed to see and manipulate single atoms under a new scanning microscope -- bringing us a step closer to the creation of man-made molecules, new generations of tailored materials with undreamed-of properties, and computers with inconceivable power.

[[Of course, I can't claim to comprehend all of this. Like many, I've gain my scientific understanding from those Gary Larson cartoons. Like the one where, after detailed calculations, Einstein discovers that Time is actually Money.]]

While this administration is convinced that science is a priority investment -- and we're committed to keeping pace with science, as partner and catalyst -- we will not attempt to direct the course of science, any more than we would dictate the work of art, music, or literature.

Now more than ever -- on issues ranging from climate change, to A.I.D.S. research, to genetic engineering, to food additives -- we rely on the objective 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 straightforward advice.

The National Academy of Sciences is renowned for objectivity and immunity to partisan pressures. So it is essential that the members of this body -- the most distinguished scientists in America -- preserve the objectivity that has been the Academy's hallmark.

On this I know we agree -- because so many of our technical and scientific achievements have been the products of independent minds. And if the earth-moving events of 1989 reminded us of anything, 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, well, like a thousand points of enlightenment.

Among so many, think of two physicists who worked in secret because their firm wouldn't approve it, and discovered low-temperature superconductivity. Or Chester Carlson, who invented the Xerox machine in a little room behind a beauty parlor. Or Barbara McClintock, working alone, who made monumental discoveries in genetics 40 years ago that the world began to understand only in the last decade.

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, and through agencies like N.I.H., N.S.F., and others, furnish them with the equivalent of venture capital. But there are also scientific challenges that, because of their unprecedented scope, demand unusual support.

So we maintain a balanced commitment to projects like Space Station Freedom. And the new Supercollider -- so critical to retaining our scientific talent -- that will re-create the unimaginable fireball of our origins in miniature, allowing us to study matter that hasn't existed since the birth of the universe.

Leading-edge technologies often help us find what we aren't even looking for -- whether it's breaking the genetic code of life, or getting a new look at the most ancient forms of light.

Our space program is a leading example -- as is the Hubble telescope -- the most sophisticated celestial object mankind has ever tried to lift into the heavens, with the power to see to 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. Talk about the vision thing...]]

On the southwest grounds of this great Academy rests a bronze memorial to a scientist who helped redefine 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.

Still, if Nature were a goddess, she would be a clever and imaginative one, with an endlessly amusing habit of resting just beyond anticipation... but not quite beyond the reach of imagination.

We count on you to ask the questions that confound us -- and to struggle, that solutions might not manage forever to evade us. Because for those whose hearts are as open as their minds, the answers will surely, ceaselessly, enlighten and amaze us.

Thank you. And God bless you.

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REMARKS:

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RESPONSE:

90 MAR 20 P 3:42

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

(Lange/Cawley)
April 19, 1990
3:15 P.M.
[SCI.DOC]

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He was right. The awesome scientific advances of this century, many of which you've brought about, bring us ever closer to understanding 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 ten or twenty billion years ago, it all began. With a quantity of energy and mass unimaginably hot and dense, about the size of a baseball, containing everything that would become the universe, they say. And then, in one incomprehensibly powerful instant, energy and matter of every kind exploded in at least four dimensions. Or in a layman's terms, somebody hit that cosmic baseball right out of the park.

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

Today, I want to outline the role this Administration is playing to fuel those revolutions. Because as the pace of science accelerates, I believe that **government must keep pace -- and will keep pace -- with science.**

First, we've moved to better integrate science and technology into the policy process. My assistant for Science and Technology, Dr. Allan Bromley, is an active member of the Economic ^{and Domestic} Policy Council, and ^{has recently been appointed to} chairs a White House Working Group.

*
 ↓ (see Steve Danjansky's note to you,)
 -next page-

THE WHITE HOUSE
WASHINGTON

Date: 4-20-90

TO: CHRIS WINSTON

FROM: **STEPHEN I. DANZANSKY**
Deputy Assistant to the President
and Director of Cabinet Affairs

Per our conversation, these are the changes in the National Academy of Science speech that Allan Bromley and I had agreed would be incorporated into a Presidential speech. Jim Cicconi had suggested such a vehicle to settle another problem, and I feel certain he would not object to this formulation.

The changes I have made to the draft more accurately reflect the bureaucratic reality.

Thanks for your help on this.

cc: Jim Cicconi

Chris - these changes are reflected in your master copy w/ all comments.
Manley - Holly W.

He was right. The awesome scientific advances of this century, many of which you've brought about, bring us ever closer to understanding 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.

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*presents science and technology advice and
policy options to me through both*

that ~~advises~~ the Domestic ^{and Economic} Policy Council ~~on~~ And we're already working to better integrate our science and technology efforts across the spectrum -- to get the "biggest bang" out of those big bucks.

But beyond the Federal role, we're 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 Science and Technology Advisors -- experts whose guidance has already been invaluable. We'll also be looking for counsel from this Academy's new Manufacturing Forum, just established this month.

We're committed to advancing America's tradition of innovation -- so our '91 budget called for a substantial increase in civilian research and development, and a permanent extension of the research and experimentation tax credit. But along with the applied, market-driven knowledge so crucial to this country's competitive future, let me reaffirm two priorities.

First, **math and science education** -- where we're engaged in a broad effort of reform and restructuring in cooperation with the states that began with our first-ever Education Summit with the nation's governors last fall. Our goal is to make American students first in the world in science and math achievement by the end of this century.

Today, I call on all Federal laboratories, facilities, and agencies to open their doors to students and teachers -- and get involved with education at the local level. And I ask our

that ~~Advises~~ the Domestic ^{and Economic} Policy Councils, ^{to me} And we're already ^{through both} working to better integrate our science and technology efforts across the spectrum -- to get the "biggest bang" out of those big bucks.

But beyond the Federal role, we're 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 Science and Technology Advisors -- experts whose guidance has already been invaluable. We'll also be looking for counsel from this Academy's new Manufacturing Forum, just established this month.

We're committed to advancing America's tradition of innovation -- so our '91 budget called for a substantial increase in civilian research and development, and a permanent extension of the research and experimentation tax credit. But along with the applied, market-driven knowledge so crucial to this country's competitive future, let me reaffirm two priorities.

First, **math and science education** -- where we're engaged in a broad effort of reform and restructuring in cooperation with the states that began with our first-ever Education Summit with the nation's governors last fall. Our goal is to make American students first in the world in science and math achievement by the end of this century.

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See insert (next page)
DPC, feels strongly
about this and does
Energy. Please call us

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.

The second priority I'd reaffirm 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. But here, some vigilance is needed. Earlier this year, I proposed to double the National Science Foundation budget. **Today, I want to call on Congress: Put our money where our future is. Put the National Science Foundation budget back on track.**

Without strong science we are blind: unable to grasp the real parameters of the present, or real potential of the future. But with the past as prologue, we know that **the investments we make in science are some of mankind's most promising.**

Satellites already help us study the earth's natural systems and assess environmental threats. And combined with video cameras they've become 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, 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.**

See Bruffy
Comments
#3

See Energy comments #4

Molecular biology, already responsible for agricultural advances that help feed the world, is tackling the challenge and promise of mapping the genome [GEE-nome] -- breaking the code of human life that might allow us to isolate and conquer such diseases as A.I.D.S., and cancer.

See Energy comments #5

And just this month -- while one group of scientists pulled strands of D.N.A. from a 17 million-year-old magnolia leaf buried at the bottom of an ancient lake in northern Utah -- another group in San Jose managed to see and manipulate single atoms under a new scanning microscope -- bringing us a step closer to the creation of man-made molecules, new generations of tailored materials with undreamed-of properties, and computers with inconceivable power.

[[Of course, I can't claim to comprehend all of this. Like many, I've gain my scientific understanding from those Gary Larson cartoons. Like the one where, after detailed calculations, Einstein discovers that Time is actually Money.

DO Education: Humorous yet the "nerd" image of scientists and other technical people.

See Energy comments #6

While this administration is convinced that science is a priority investment -- and we're committed to keeping pace with science, as partner and catalyst -- we will not attempt to direct the course of science, any more than we would dictate the work of art, music, or literature.

Now more than ever -- on issues ranging from climate change, to A.I.D.S. research, to genetic engineering, to food additives -- we rely on the objective 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 straightforward advice.

The National Academy of Sciences is **renowned** for objectivity and immunity to partisan pressures. So it is essential that the members of this body -- the most distinguished scientists in America -- preserve the objectivity that has been the Academy's hallmark.

On this I know we agree -- because so many of our technical and scientific achievements have been the products of independent minds. And if the earth-moving events of 1989 reminded us of anything, 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, well, like a thousand points of enlightenment.

Among so many, think of two physicists who worked in secret because their firm wouldn't approve it, and discovered ~~low~~ ^{high} temperature superconductivity. Or Chester Carlson, who invented the Xerox machine in a little room behind a beauty parlor. Or Barbara McClintock, working alone, who made monumental discoveries in genetics 40 years ago that the world began to understand only in the last decade.

One of the **best** things government can do to support the magnificent creativity and energy of the American technical

See ENERGY
Comments
#7

community is to locate individual scientists with talent, and through agencies like N.I.H., N.S.F., and others, furnish them with the equivalent of venture capital. But there are also scientific challenges that, because of their unprecedented scope, demand unusual support.

So we maintain a balanced commitment to projects like Space Station Freedom. And the new Supercollider -- so critical to retaining our scientific talent -- that will re-create the unimaginable fireball of our origins in miniature, allowing us to study matter that hasn't existed since the birth of the universe.

Leading-edge technologies often help us find what we aren't even looking for -- whether it's breaking the genetic code of life, or getting a new look at the most ancient forms of light.

Our space program is a leading example -- as is the Hubble telescope -- the most sophisticated celestial object mankind has ever tried to lift into the heavens, with the power to see to 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. Talk about the vision thing...]]

On the southwest grounds of this great Academy rests a bronze memorial to a scientist who helped redefine 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,

See Energy
Comments
#10

see Energy comment #8

see Energy comments #9

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We count on you to ask the questions that confound us -- and to struggle, that solutions might not manage forever to evade us. Because for those whose hearts are as open as their minds, the answers will surely, ceaselessly, enlighten and amaze us.

Thank you. And God bless you.

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SPECIAL INSTRUCTIONS/REMARKS:

Sending this per request from your office -- remarks for Monday, National Academy of Sciences.

Will call when ready for del!

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CLASSIFICATION

(Lange/Cawley)
April 20, 1990
9:30 P.M.
[SCI.DOC]

PRESIDENTIAL ADDRESS: NATIONAL ACADEMY OF SCIENCES
WASHINGTON, D.C.
MONDAY, APRIL 23, 1990
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Distinguished members of the National Academy, Dr. Press, Dr. Ebert, Dr. Raven, Dr. Gordon, Dr. Blout, Dr. Bromley, ladies and gentlemen: It's an honor to be with you today. The advice and counsel of this Academy has been crucial to American Presidents for well over a century. I'm proud to be the latest to thank you.

We 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.

President Abraham 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 understanding 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 ten or twenty 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 incomprehensibly 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.]]

But while the pace of cosmic change may have begun with blinding speed and slowed down since, the pace of our scientific evolution has been accelerating rapidly. 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 want to outline the role 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.

First, we've moved to better integrate science and technology into the policy process. We have created ~~a White~~ ^{an interagency} ~~House~~ Working Group that will more closely link science and technology considerations ~~into~~ ^{with} the policy-making process of the Economic and Domestic Policy Councils.

My Assistant for Science and Technology, Dr. Allan Bromley, ~~is also an active participant in~~ ^{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~~ ^{who report directly to me and} whose guidance I value and depend on. We'll also be looking for counsel from this Academy's new Manufacturing Forum, just established this month.

We want to advance America's tradition of innovation -- and we intend to get the biggest bang ^[raise] for the Federal buck. ~~So~~ ^{As of} In January, we sent a budget to Congress that includes a record \$71 billion for research and development -- an investment in a stronger economy, a more secure nation, and a brighter future.

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

This Administration has also taken steps to reorganize the Fed Council for Science Engineering and Technology in order to assure that the federal investments in R+D programs are closely integrated across agency boundaries.

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of capital and clear away regulatory burdens, so that industry can make the kinds of investments 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, **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. So we're engaged in a broad initiative of reform and restructuring, in cooperation with the states. It is an effort that began with our first-ever Education Summit with the nation's governors last fall. 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 I've proposed. We're opening the doors of Federal laboratories, facilities, and agencies to students and teachers. Our budget increases funding to **over one billion dollars** for science, math, and engineering education -- through the Departments of Education, Energy, Interior and others, as well as the National Science Foundation and NASA. ~~★~~ We are committed to ensuring that **America has the brainpower to remain at the forefront**.

A second priority of this administration is **basic research**.

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-- the historical wellspring of this nation's well-being.

Science must be able to continue seeking answers to our most fundamental questions.

It's also an investment in a stronger economy a more secure nation, a better future for everyone

SEE P. 3, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

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~~That's one~~ reason our budget calls for increasing funding

for the U.S. Global Change Research Program by 57 percent -- to over one billion dollars. 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. They are 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 have also seen communications satellites, along with video cameras, VCR's 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 A.I.D.S. 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 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 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 achievements have been the products of independent minds. And if the earth-moving events of 1989 reminded us of anything, 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 behind a beauty parlor. 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.

[[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. Like the one where, after detailed calculations, Einstein discovers that Time is actually Money.]]

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, and furnish them with adequate resources and state-of-the-art instrumentation -- through agencies like the National Institutes of Health, the National Science Foundation, 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 seven billion dollars for **Space Station Freedom**. Combined with our total investment of about 16 billion dollars, this will be the largest international R & D project ever undertaken.

We're exploring new ways to encourage international cooperation on other big science projects -- like mapping the human genome [GEE-nome], 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 fully fund 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 -- with the power to see to 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. Talk about the vision thing...]]

On the southwest grounds of this great Academy rests a bronze memorial to a scientist who helped redefine mankind's understanding of time and space, of matter and energy. Among the engravings on that memorial are words of wonder -- about the "joy

9

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.

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. God bless you. And God bless this great Academy.

#

OFFICE OF MANAGEMENT AND BUDGET

FAX NUMBER 395-4817

DATE: 4/23/90

TELECOPIER COVER SHEET

Please deliver the following pages to:

NAME: Carolynn Cawley

AGENCY: WHO

FROM: Joe Hezin OMB

PHONE NUMBER: 395-3404

Total Number of Pages (including cover page): 9

Additional Messages:

Multiple horizontal lines for writing additional messages.

+AXED 10

GRADY 1:55 pm 4/20

(Lange/Cawley)
April 19, 1990
3:15 P.M.
[SCI.DOC]

PRESIDENTIAL ADDRESS: NATIONAL ACADEMY OF SCIENCES
WASHINGTON, D.C.
MONDAY, APRIL 23, 1990
2:00 P.M.

Thank you, Frank [Press]. Distinguished members of the National Academy, Dr. Press, Dr. Bromley, ladies and gentlemen: It's an honor to be with you today. The advice and counsel of this Academy has been crucial to American Presidents for well over a century. I'm proud to be the latest to thank you.

We 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 exalted mission, and the mind's manifest destiny: the search for understanding.

President Abraham Lincoln established this great institution in the dark hours of our nation's greatest crisis -- which testifies to the enduring importance of scientific knowledge. And when this magnificent building was finally 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 understanding 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 ten or twenty billion years ago, it all began. With a quantity of energy and mass unimaginably hot and dense, about the size of a baseball, containing everything that would become the universe, they say. And then, in one incomprehensibly powerful instant, energy and matter of every kind exploded in at least four dimensions. Or in a layman's terms, somebody hit that cosmic baseball right out of the park.

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

Today, I want to outline the role this Administration is playing to fuel those revolutions. Because as the pace of science accelerates, I believe that government must keep pace -- and will keep pace -- with science.

First, we've moved to better integrate science and technology into the policy process. My assistant for Science and Technology, Dr. Allan Bromley, is an active member of the Economic Policy Council, and chairs a White House Working Group

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* * *

9/23 OMB COMMENTS

(Lange/Cawley)
April 20, 1990
9:30 P.M.
[SCI.DOC]

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First, we've moved to better integrate science and technology into the policy process. We have created an ^{Interagency} ~~White House Working Group~~ that will more closely link science and technology considerations ^{with} ~~into~~ the policy-making process of the Economic and Domestic Policy Councils.

My Assistant for Science and Technology, Dr. Allan Bromley, is also an active participant 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. We'll also be looking for counsel from this Academy's new Manufacturing Forum, just established this month.

We want to advance America's tradition of innovation -- and we intend to get the biggest bang for the Federal buck. So in January, we sent a budget to Congress that includes a **record \$71 billion for research and development** -- an investment in a stronger economy, a more secure nation, and a brighter future.

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

Our Ad is committed to investing in the future and it is evident in our policies to budget that means everything from the 24% increase for NASA to our support of ^{type mission} Ad research initiative.

of capital and clear away regulatory burdens, so that industry can make the kinds of investments 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, **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. So we're engaged in a broad initiative of reform and restructuring, in cooperation with the states. It is an effort that began with our first-ever Education Summit with the nation's governors last fall. 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 I've proposed. We're opening the doors of Federal laboratories, facilities, and agencies to students and teachers. Our budget increases funding to **over one billion dollars** for science, math, and engineering education -- ^{26% increase} through the Departments of Education, Energy, Interior and others, as well as the National Science Foundation and NASA. 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.

That's one reason our budget calls for increasing funding for the U.S. Global Change Research Program by 57 percent -- to over one billion dollars. 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. They are 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 have also seen communications satellites, along with video cameras, VCR's 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 A.I.D.S. 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 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 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 achievements have been the products of independent minds. And if the earth-moving events of 1989 reminded us of anything, 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 behind a beauty parlor. 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.

[[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. Like the one where, after detailed calculations, Einstein discovers that Time is actually Money.]]

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, and furnish them with adequate resources and state-of-the-art instrumentation -- through agencies like the National Institutes of Health, the National Science Foundation, 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 seven billion dollars for **Space Station Freedom**. Combined with our total investment of about ⁹~~16~~ billion dollars, this will be the largest international R & D project ever undertaken. ✓

We're exploring new ways to encourage international cooperation on other big science projects -- like mapping the human genome [GEE-nome], 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}~~fully fund~~ 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 -- with the power to see to the ends of the universe, and back to the birth of time. ^{the Hubble Telescope} [[I understand it's half a billion times more sensitive than the human eye. Talk about the vision thing...]]

On the southwest grounds of this great Academy rests a bronze memorial to a scientist who helped redefine 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.

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. God bless you. And God bless this great Academy.

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THE WHITE HOUSE
WASHINGTON

April 20, 1990

MEMORANDUM FOR CHRISS WINSTON

FROM: D. ALLAN BROMLEY *DB*

SUBJECT: PRESIDENTIAL REMARKS AT NAS -- APRIL 23, 1990

Attached are recommended modifications to your document number 134261 -- draft of Presidential Remarks: National Academy of Sciences.

As drafted, we don't think the remarks take full advantage of the opportunity presented. Other than in his budget submissions, this is the first public opportunity for the President to take a broad-gauged approach to articulating his views on science and technology policy.

This is a sophisticated audience -- including those in the scientific and engineering communities throughout the country who will be listening to and reading the President's remarks with great care. It is an attentive audience of about five and one-half million people.

We think more advantage should be realized from the President's significant achievements in S&T policy in little more than a year in office. This is an audience that wants the President to succeed -- and while there may well be some differences, they are generally supportive and appreciative of what he has done.

In my January 5, 1990 memorandum to Jim Cicconi, I highlighted the importance of this address. His note to Joe Hagin said "the attached from Allan Bromley appears to have some real potential."

Chriss, let's make it so!

Attachment

16:21
MAR 20 1990

Really appreciate your help
DB

CALL BILL WELLS

RE QUESTIONS X6272

OSTP MODIFICATIONS

1

PRESIDENTIAL ADDRESS: NATIONAL ACADEMY OF SCIENCES
WASHINGTON, D.C.
MONDAY, APRIL 23, 1990
2:00 P.M.

Thank you, Frank [Press]. Distinguished members of the National Academy, Dr. Press, Dr. Bromley, ladies and gentlemen: It's an honor to be with you today. The advice and counsel of this Academy has been crucial to American Presidents for well over a century. I'm proud to be the latest to thank you.

We 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, its stunning successes, and, yes, its occasional failures -- have engaged themselves in mankind's most exalted mission: the search for understanding.

President Abraham Lincoln established this great institution in the dark hours of our nation's greatest crisis. And in the times to follow your Academy has responded to urgent national

needs in war and in peace -- vivid testimony to the enduring importance of scientific knowledge and to your dedication.

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 understanding 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.

It has told us about a universe 10 to 20 billion years old that originated in a quantity of mass no larger than a baseball. It has told us about a single molecule, the ribbon of DNA, that carries the genetic code of life. Science has made it possible to travel beyond the Earth's atmosphere, and to unlock the secrets of matter, and to cure diseases that once terrorized mankind. In the words of Louis Pasteur, science has become the "torch that illuminates the world."

Like most Americans, I don't claim to understand all of these things. But I know what they mean in terms of intellectual excitement, and national prestige, and the contribution to human knowledge. They mean the difference between leading and being left behind in a great human adventure.

Today, I want to outline the role this Administration is playing to fuel the advance of science. Because as the pace of science accelerates, I believe that **government must keep pace -- and will keep pace.**

First, we've moved to better integrate science and technology into the policy process. During my campaign I promised to make my science advisor an assistant to the President, and I've done that. Allan Bromley serves on the Economic Policy Council, the Domestic Policy Council, and the National Space Council, and he works closely with the National Security Council and the Competitiveness Council on matters involving science and technology. He chairs a working group on science and technology and another that is looking specifically at the complex subject of global change for the economic and domestic policy councils. I have also, for the first time, nominated, and the Senate has confirmed, all four of the Associate Directors called for in the legislation that established the Office of Science and Technology Policy.

I promised to create a President's Council of Advisors on Science and Technology, and in February we held our first meeting up at Camp David, with another meeting here in Washington last month. I'm committed to greater cross-fertilization with the private sector, on issues ranging from pure research to manufacturing performance. PCAST will help provide that advice, as will your own Academy. For example, we'll be looking to the Academy's new Manufacturing Forum, just established this month, for ways to turn around the competitive declines that have affected key U.S. industries.

We're also working to better integrate our science and technology efforts across the spectrum -- to get the biggest bang

for the federal buck. We're reinvigorating the Federal Coordinating Council for Science, Engineering, and Technology, which goes by the rather appropriate name of FCCSET ["fix-it"]. This administration is going to pull together and coordinate federal programs in such areas as science and mathematics education, computing, and high technology so that America remains at the forefront of science and technology.

The second major initiative this Administration is taking involves the budget. In January we sent a budget to Congress that includes a record \$71 billion for research and development, and we intend to increase that funding in the years ahead. Investing in science and technology is one of the best investments we can make in our future. It's an investment in a stronger economy, a more secure nation, a better future for everyone.

Within that budget, we're increasing funding for basic research -- the historical wellspring of this nation's well-being. Science must be able to continue seeking answers to our most fundamental questions. Earlier this year I proposed to double the National Science Foundation budget. **Today I call on Congress: Put our money where our future is. Put the National Science Foundation budget back on track.**

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 like, well, like a thousand points of enlightenment.

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, and through agencies like the National Institutes of Health, the National Science Foundation, the Department of Defense, and others, furnish them with the equivalent of venture capital. But there are **also** scientific challenges that, because of their unprecedented scope and importance, demand unusual support.

So we maintain a balanced commitment to projects like Space Station Freedom. And the new Supercollider -- so critical to retaining our scientific talent -- that will re-create the unimaginable fireball of our origins in miniature, allowing us to study matter that hasn't existed since the birth of the universe.

The budget proposes to increase funding for the U.S. Global Change Research Program by 57 percent -- to over \$1 billion -- so that we better understand the complex dynamics of the global environment that we hold in trust for future generations. It increases funding to map and sequence the human genome, which will make it possible to treat incurable diseases and understand more about how living things develop. And it extends federal support of biotechnology, which could become one of the 21st century's biggest industries.

The budget proposes several initiatives that could improve the international competitiveness of American industry and our overall standard of living. That's the third area I wanted to discuss. We're proposing steps, such as developing advanced

technologies and making the research and experimentation tax credit permanent, that have both public and private benefits. We're also working to lower the cost of capital and clear away regulatory burdens so that industry can make the investments in the future that this country needs.

Regarding technology, this administration is committed to working with industry to develop the generic, precompetitive technologies that support both economic competitiveness and our national security. These technologies do not give an advantage to any one company, but they help whole industries and economic sectors advance in the global marketplace. We need to find ways that American industry can better translate new ideas and technologies into marketable products. Many of these same technologies also support our national security, by giving us the technological edge that will be essential in a rapidly changing world.

Finally, I want to point out that none of the things I've been discussing will occur if this country does not produce the new generation of scientists and engineers needed to carry on your work, as well as to operate an increasingly technical society.

As a result, my administration is engaged in a broad effort of reform and restructuring in cooperation with the states that began with our first-ever Education Summit with the nation's governors last fall. Our goal is to make American students first

in the world in science and mathematics achievement by the end of this century.

There are many things that must be done to achieve this goal. We must provide students with new incentives to study science and engineering, such as the National Science Scholars Program that I have proposed. We must convince more women and minorities to study science. The budget proposes increasing federal funding for science, mathematics, and engineering education in five federal agencies by 26 percent, to a total of over \$1 billion.

We must also work together -- the federal government and the scientific community -- to improve science, mathematics, and engineering education. Today, I call on all Federal laboratories, facilities, and agencies to open their doors to students and teachers -- and get involved with education at the local level. And 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.

Education is important for another reason. We all know that science and technology have become more and more intertwined with our daily lives. But today science and technology are assuming an even broader role -- they are becoming forces for historical change. Think of how VCR's, video cameras, and even fax machines have become 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, scenes on the Berlin Wall... the eye of technology has proved more powerful than chisels for breaking down barriers -- and setting off a wondrous, hopeful, **political** chain reaction, worldwide.

It is 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 are values shared by our political system and by science alike.

They are also that values that have fueled this country's great economic expansion and now promise to bring equal prosperity to nations that are throwing off the shackles of central planning. We have always been a nation of tinkerers and inventors, and from our small laboratories and workshops have come the discoveries that have changed the world. Think of Chester Carlson, who invented the Xerox machine in a little room behind a beauty parlor. Or of Barbara McClintock, working alone, who made monumental discoveries in genetics 40 years ago that the world began to understand only in the last decade. Or, internationally, of the two physicists, working in secret because their firm wouldn't approve it, who discovered high temperature superconductivity.

And just this month -- while one group of scientists pulled strands of DNA from a 17-million-year-old magnolia leaf buried at the bottom of an ancient lake in northern Utah -- another group in San Jose managed to see and manipulate single **atoms** under a

new scanning microscope -- bringing us a step closer to the creation of man-made molecules, new generations of tailored materials with undreamed-of properties, and computers with inconceivable power.

Even as individual scientists continue to make breathtaking discoveries, some science and technology has grown larger than any one person, or even any one nation. Some scientific challenges, because of their unprecedented scope, and because they produce knowledge that benefits all mankind, demand international cooperation. Already, the European Space Agency, Japan, and Canada are making hardware contributions valued at more than \$7 billion for Space Station Freedom. Combined with the total U.S. investment of about \$16 billion, this will be the largest international R&D project ever undertaken. We are exploring new ways to encourage international cooperation on other big science projects, like the Superconducting Super Collider, mapping the human genome, and global change research.

International cooperation has also been a big part of one of the most exciting scientific projects of our time. Tomorrow morning the Space Shuttle is scheduled to lift the Hubble space telescope into orbit -- the most sophisticated celestial object that mankind has ever built, with the power to see to the ends of the universe, and back to the birth of time. Some have compared the views we'll get from the space telescope with the first views Galileo had of the heavens when he raised his homemade telescope toward the sky.

On the southwest grounds of this great Academy, surrounded by a representation of the cosmos, rests a bronze memorial to a scientist who helped redefine 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 form just a faint notion." Your work, the work of science, daily brings that beauty and grandeur into sharper focus.

Einstein wrote something else that I think is important. In a letter to a friend, he wrote that "The pursuit of scientific truth, detached from the practical interests of everyday life, ought to be treated as sacred by every government. . . ." Einstein was right, and my administration is committed to supporting you as you pursue the knowledge that, surely, ceaselessly, will enlighten and amaze us.

Thank you. And God bless you.

WHITE HOUSE STAFFING MEMORANDUM

DATE: 04/19/90 ACTION/CONCURRENCE/COMMENT DUE BY: 2:00p.m. 04/20

SUBJECT: PRESIDENTIAL REMARKS: NATIONAL ACADEMY OF SCIENCES
(04/19 3:15p.m. draft)

	ACTION FYI			ACTION FYI	
VICE PRESIDENT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	MCCLURE	<input checked="" type="checkbox"/>	<input type="checkbox"/>
SUNUNU	<input type="checkbox"/>	<input checked="" type="checkbox"/>	NEWMAN	<input type="checkbox"/>	<input type="checkbox"/>
SCOWCROFT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	PORTER	<input checked="" type="checkbox"/>	<input type="checkbox"/>
DARMAN	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ROGICH	<input checked="" type="checkbox"/>	<input type="checkbox"/>
BATES	<input checked="" type="checkbox"/>	<input type="checkbox"/>	UNTERMAYER	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CARD	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ROGERS	<input type="checkbox"/>	<input checked="" type="checkbox"/>
CICCONI	<input type="checkbox"/>	<input checked="" type="checkbox"/>	PINKERTON	<input checked="" type="checkbox"/>	<input type="checkbox"/>
DEMAREST	<input checked="" type="checkbox"/>	<input type="checkbox"/>	WINSTON	<input type="checkbox"/>	<input checked="" type="checkbox"/>
FITZWATER	<input type="checkbox"/>	<input checked="" type="checkbox"/>	BROMLEY	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GRAY	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
HAGIN	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>

REMARKS:

Please provide any comments/recommendations directly to Chriss Winston by 2:00 p.m. on Friday 04/20, with a copy to my office. Thanks.

RESPONSE: *see comments*

50 MAR 20 P2:27

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

(Lange/Cawley)
April 19, 1990
3:15 P.M.
[SCI.DOC]

PRESIDENTIAL ADDRESS: NATIONAL ACADEMY OF SCIENCES
WASHINGTON, D.C.
MONDAY, APRIL 23, 1990
2:00 P.M.

Thank you, Frank [Press]. Distinguished members of the National Academy, Dr. Press, Dr. Bromley, ladies and gentlemen: It's an honor to be with you today. The advice and counsel of this Academy has been crucial to American Presidents for well over a century. I'm proud to be the latest to thank you.

We 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 exalted mission, and the mind's manifest destiny: the search for understanding.

President Abraham Lincoln established this great institution in the dark hours of our nation's greatest crisis -- which testifies to the enduring importance of scientific knowledge. And when this magnificent building was finally 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 understanding 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 ten or twenty billion years ago, it all began. With a quantity of energy and mass unimaginably hot and dense, about the size of a baseball, containing everything that would become the universe, they say. And then, in one incomprehensibly powerful instant, energy and matter of every kind exploded in at least four dimensions. Or in a layman's terms, somebody hit that cosmic baseball right out of the park.

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

Today, I want to outline the role this Administration is playing to fuel those revolutions. Because as the pace of science accelerates, I believe that **government must keep pace -- and will keep pace -- with science.**

First, we've moved to better integrate science and technology into the policy process. My assistant for Science and Technology, Dr. Allan Bromley, is an active member of the Economic Policy Council, and chairs a White House Working Group

that advises the Domestic Policy Council. And we're already working to better integrate our science and technology efforts across the spectrum -- to get the "biggest bang" out of those big bucks.

But beyond the Federal role, we're 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 Science and Technology Advisors -- experts whose guidance has already been invaluable. We'll also be looking for counsel from this Academy's new Manufacturing Forum, just established this month.

We're committed to advancing America's tradition of innovation -- so our '91 budget called for a substantial increase in civilian research and development, and a permanent extension of the research and experimentation tax credit. But along with the applied, market-driven knowledge so crucial to this country's competitive future, let me reaffirm two priorities.

First, **math and science education** -- where we're engaged in a broad effort of reform and restructuring in cooperation with the states that began with our first-ever Education Summit with the nation's governors last fall. Our goal is to make American students first in the world in science and math achievement by the end of this century.

Today, I call on all Federal laboratories, facilities, and agencies to open their doors to students and teachers -- and get involved with education at the local level. And 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.

The second priority I'd reaffirm 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. But here, some vigilance is needed. Earlier this year, I ^{reiterated my commitment} proposed to double the National Science Foundation budget. ^{by 1993.} Today, I want to call on Congress: Put our money where our future is. Put the ^{doubling of the} National Science Foundation budget back on track.

Without strong science we are blind: unable to grasp the real parameters of the present, or real potential of the future. But with the past as prologue, we know that **the investments we make in science are some of mankind's most promising.**

Satellites already help us study the earth's natural systems and assess environmental threats. And combined with video cameras they've become 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, 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.**

Grady
H844

Molecular biology, already responsible for agricultural advances that help feed the world, is tackling the challenge and promise of mapping the genome [GEE-nome] -- breaking the code of human life that might allow us to isolate and conquer such diseases as A.I.D.S., and cancer.

And just this month -- while one group of scientists pulled strands of D.N.A. from a 17 million-year-old magnolia leaf buried at the bottom of an ancient lake in northern Utah -- another group in San Jose managed to see and manipulate single **atoms** under a new scanning microscope -- bringing us a step closer to the creation of man-made molecules, new generations of tailored materials with undreamed-of properties, and computers with ~~un~~ inconceivable power.

[[Of course, I can't claim to comprehend all of this. Like many, I've gain^{ed} my scientific understanding from those Gary Larson cartoons. Like the one where, after detailed calculations, Einstein discovers that Time is actually Money.]]

While this administration is convinced that science is a priority investment -- and we're **committed** to keeping pace with science, as partner and catalyst -- we will not attempt to direct the course of science, any more than we would dictate the work of art, music, or literature.

Now more than ever -- on issues ranging from climate change, to A.I.D.S. research, to genetic engineering, to food additives -- we rely on the objective 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 straightforward advice.

The National Academy of Sciences is renowned for objectivity and immunity to partisan pressures. So it is essential that the members of this body -- the most distinguished scientists in America -- preserve the objectivity that has been the Academy's hallmark.

On this I know we agree -- because so many of our technical and scientific achievements have been the products of independent minds. And if the earth-moving events of 1989 reminded us of anything, 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, well, like a thousand points of enlightenment.

Among so many, think of two physicists who worked in secret because their firm wouldn't approve it, and discovered low- temperature superconductivity. Or Chester Carlson, who invented the Xerox machine in a little room behind a beauty parlor. Or Barbara McClintock, working alone, who made monumental discoveries in genetics 40 years ago that the world began to understand only in the last decade.

One of the best things government can do to support the magnificent creativity and energy of the American technical

If this is the work of Bednorz & Müller at IBM (Zurich) it's high T_c

Grady 4/8/84

high

through merit-based competition

community is to locate individual scientists with talent, and ~~through agencies~~ through agencies like N.I.H., N.S.F., and others, furnish them with the equivalent of venture capital. But there are also scientific challenges that, because of their unprecedented scope, demand unusual support.

So we maintain a balanced commitment to projects like Space Station Freedom. And the new Supercollider -- so critical to retaining our scientific talent -- that will re-create the unimaginable fireball of our origins in miniature, allowing us to study matter that hasn't existed since the birth of the universe.

Leading-edge technologies often help us find what we aren't even looking for -- whether it's breaking the genetic code of life, or getting a new look at the most ancient forms of light.

Our space program is a leading example -- as is the Hubble telescope -- the most sophisticated celestial object mankind has ever tried to lift into the heavens, with the power to see to 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. Talk about the vision thing...]]

On the southwest grounds of this great Academy rests a bronze memorial to a scientist who helped redefine 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.

Still, if Nature were a goddess, she would be a clever and imaginative one, with an endlessly amusing habit of resting just beyond anticipation... but not quite beyond the reach of imagination.

We count on you to ask the questions that confound us -- and to struggle, that solutions might not manage forever to evade us. Because for those whose hearts are as open as their minds, the answers will surely, ceaselessly, enlighten and amaze us.

Thank you. And God bless you.

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WHITE HOUSE STAFFING MEMORANDUM

DATE: 04/19/90 ACTION/CONCURRENCE/COMMENT DUE BY: 2:00p.m. 04/20

SUBJECT: PRESIDENTIAL REMARKS: NATIONAL ACADEMY OF SCIENCES
(04/19 3:15p.m. draft)

	ACTION FYI			ACTION FYI	
VICE PRESIDENT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	MCCLURE	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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REMARKS:

Please provide any comments/recommendations directly to Chriss Winston by 2:00 p.m. on Friday 04/20, with a copy to my office. Thanks.

RESPONSE:

See
~~into~~
Please see comments

4/20/90

90 MAR 20 P 3: 44

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

(Lange/Cawley)
April 19, 1990
3:15 P.M.
[SCI.DOC]

PRESIDENTIAL ADDRESS: NATIONAL ACADEMY OF SCIENCES
WASHINGTON, D.C.
MONDAY, APRIL 23, 1990
2:00 P.M.

Thank you, Frank [Press]. Distinguished members of the National Academy, Dr. Press, Dr. Bromley, ladies and gentlemen: It's an honor to be with you today. The advice and counsel of this Academy has been crucial to American Presidents for well over a century. I'm proud to be the latest to thank you.

We 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 exalted mission, and the mind's manifest destiny: the search for understanding.

President Abraham Lincoln established this great institution in the dark hours of our nation's greatest crisis -- which testifies to the enduring importance of scientific knowledge. And when this magnificent building was finally 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 understanding 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 ten or twenty billion years ago, it all began. With a quantity of energy and mass unimaginably hot and dense, about the size of a baseball, containing everything that would become the universe, they say. And then, in one incomprehensibly powerful instant, energy and matter of every kind exploded in at least four dimensions. Or in a layman's terms, somebody hit that cosmic baseball right out of the park.

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

Today, I want to outline the role this Administration is playing to fuel those revolutions. Because as the pace of science accelerates, I believe that **government must keep pace -- and will keep pace -- with science.**

First, we've moved to better integrate science and technology into the policy process. My assistant for Science and Technology, Dr. Allan Bromley, is an active member of the Economic Policy Council, and chairs a White House Working Group

that advises the Domestic Policy Council. And we're already working to better integrate our science and technology efforts across the spectrum -- to get the "biggest bang" out of those big bucks.

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So this year we created a President's Council of Science and Technology Advisors -- experts whose guidance has already been invaluable. We'll also be looking for counsel from this Academy's new Manufacturing Forum, just established this month.

We're committed to advancing America's tradition of innovation -- so our '91 budget called for a substantial increase in civilian research and development, and a permanent extension of the research and experimentation tax credit. But along with the applied, market-driven knowledge so crucial to this country's competitive future, let me reaffirm two priorities.

First, **math and science education** -- where we're engaged in a broad effort of reform and restructuring in cooperation with the states that began with our first-ever Education Summit with the nation's governors last fall. Our goal is to make American students first in the world in science and math achievement by the end of this century.

Today, I call on all Federal laboratories, facilities, and agencies to open their doors to students and teachers -- and get involved with education at the local level. And 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.

The second priority I'd reaffirm 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. But here, some vigilance is needed. Earlier this year, I proposed to double the National Science Foundation budget. **Today, I want to call on Congress: Put our money where our future is. Put the National Science Foundation budget back on track.**

Without strong science we are blind: unable to grasp the real parameters of the present, or real potential of the future. But with the past as prologue, we know that **the investments we make in science are some of mankind's most promising.**

Satellites already help us study the earth's natural systems and assess environmental threats. And combined with video cameras they've become 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, 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.**

Molecular biology, already responsible for agricultural advances that help feed the world, is tackling the challenge and promise of mapping the genome [GEE-nome] -- breaking the code of human life that might allow us to isolate and conquer such diseases as A.I.D.S., and cancer.

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While this administration is convinced that science is a priority investment -- and we're committed to keeping pace with science, as partner and catalyst -- we will not attempt to direct the course of science, any more than we would dictate the work of art, music, or literature.

Now more than ever -- on issues ranging from climate change, to A.I.D.S. research, to genetic engineering, to food additives -- we rely on the objective perspective of science for guidance. And as the frontiers of knowledge are increasingly distant from

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The National Academy of Sciences is renowned for objectivity and immunity to partisan pressures. So it is essential that the members of this body -- the most distinguished scientists in America -- preserve the objectivity that has been the Academy's hallmark.

On this I know we agree -- because so many of our technical and scientific achievements have been the products of independent minds. And if the earth-moving events of 1989 reminded us of anything, 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, well, like a thousand points of enlightenment.

Among so many, think of two physicists who worked in secret because their firm wouldn't approve it, and discovered low-temperature superconductivity. Or Chester Carlson, who invented the Xerox machine in a little room behind a beauty parlor. Or Barbara McClintock, working alone, who made monumental discoveries in genetics 40 years ago that the world began to understand only in the last decade.

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community is to locate individual scientists with talent, and through agencies like N.I.H., N.S.F., and others, furnish them with the equivalent of venture capital. But there are **also** scientific challenges that, because of their unprecedented scope, demand unusual support.

So we maintain a balanced commitment to projects like Space Station Freedom. And the new Supercollider -- so critical to retaining our scientific talent -- that will re-create the unimaginable fireball of our origins in miniature, allowing us to study matter that hasn't existed since the birth of the universe.

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Thank you. And God bless you.

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DATE: 04/19/90 ACTION/CONCURRENCE/COMMENT DUE BY: 2:00p.m. 04/20

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(04/19 3:15p.m. draft)

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RESPONSE:

OK Bruce Zimm for Sig Rogich

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

(Lange/Cawley)
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[SCI.DOC]

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#

NTL ACADEMY OF SCIENCES

THE WHITE HOUSE
WASHINGTON



CARDLYN'S CHANGES:

1.) p. 1, #1:

- Dr. Press will not be introducing POTUS. There is no introduction.
- More acknowledgements to come today to insert.

2.) p. 2, #5:

- capitalize "Assistant for Science & Tech ---"

3.) p. 3, #2:

- the correct name is "the President's Council of Advisors on Science & Technology"
- They have met twice but have not forwarded any guidance, ∴ we should say "we look forward to their guidance".

They have identified 6 areas for study & have assigned panels to work on them. They will be beginning to work the week of the speech.

4.) p. 6, #4:

Barbara McClintock -

"discoveries in genetics nearly 50 yrs. ago."

WHITE HOUSE STAFFING MEMORANDUM

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RESPONSE:

attached.
Chase
20 Apr 90

90 MAR 20 PM 12:23

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

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*bits as a
is a full member of
my senior staff*

OMB COMMENTS ON OSTP REVISION

1

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President Abraham Lincoln established this great institution in the dark hours of our nation's greatest crisis. And in the times ~~that follow~~ ^{THAT FOLLOW} your Academy has responded to urgent national

2

needs in war and in peace -- vivid testimony to the enduring importance of scientific knowledge and to your dedication.

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 understanding 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.

It has told us about a universe 10 to 20 billion years old that originated in a quantity of mass no larger than a baseball. It has told us about a single molecule, the ribbon of DNA, that carries the genetic code of life. Science has made it possible to travel beyond the Earth's atmosphere, and to unlock the secrets of matter, and to cure diseases that once terrorized mankind. In the words of Louis Pasteur, science has become the "torch that illuminates the world."

Like most Americans, I don't claim to understand all of these things. But I know what they mean in terms of intellectual excitement, and national prestige, and the contribution to human knowledge. They mean the difference between leading and being left behind in a great human adventure.

Today, I want to outline the role this Administration is playing to fuel the advance of science. Because as the pace of science accelerates, I believe that government must keep pace -- and will keep pace.

3

First, we've moved to better integrate science and technology into the policy process. During my campaign I promised to make my science advisor an assistant to the President, and I've done that. Allan Bromley serves on the Economic Policy Council, the Domestic Policy Council, and the National Space Council, and he works closely with the National Security Council and the Competitiveness Council on matters involving science and technology. He chairs a working group on science and technology and another that is looking specifically at the complex subject of global change for the economic and domestic policy councils. I have also, for the first time, nominated, and the Senate has confirmed, all four of the Associate Directors called for in the legislation that established the Office of Science and Technology Policy.

I promised to create a President's Council of Advisors on Science and Technology, and in February we held our first meeting up at Camp David, with another meeting here in Washington last month. I'm committed to greater cross-fertilization with the private sector, on issues ranging from pure research to manufacturing performance. PCAST will help provide that advice, as will your own Academy. For example, we'll be looking to the Academy's new Manufacturing Forum, just established this month, for ways to turn around the competitive declines that have affected key U.S. industries.

We're also working to better integrate our science and technology efforts across the spectrum -- to get the biggest bang

for the federal buck. We're reinvigorating the Federal Coordinating Council for Science, Engineering, and Technology, which goes by the rather appropriate name of FCCSET ["fix-it"]. This administration is ~~going to pull together and coordinate~~ ^{committed to improving the} ~~of~~ ^{global change,} federal programs in such areas as science and mathematics education, computing, and ~~high~~ ^{high} technology so that America remains at the forefront of science and technology.

The second major initiative this Administration is taking involves the budget. In January we sent a budget to Congress that includes a record \$71 billion for research and development, and we intend to increase that funding in the years ahead.

NOTE:
60% of 71B
IS DEFENSE,
AND DEFENSE
CUTS COULD
FORESHADOW
INCREASES
IN
CIVILIAN
R&D

Investing in science and technology is one of the best investments we can make in our future. It's an investment in a stronger economy, a more secure nation, a better future for everyone.

Within that budget, we're increasing funding for basic research -- the historical wellspring of this nation's well-being. Science must be able to continue seeking answers to our most fundamental questions. Earlier this year I ~~proposed to~~ double the National Science Foundation budget. Today I call on Congress: Put our money where our future is. Put the National Science Foundation budget back on track.

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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 like, well, like a thousand points of enlightenment.

THE WHITE HOUSE
WASHINGTON

April 20, 1990

MEMORANDUM FOR CHRISS WINSTON
DEPUTY ASSISTANT TO THE PRESIDENT
FOR COMMUNICATIONS

FROM: JEFFREY R. HOLMSTEAD *JRH*
ASSISTANT COUNSEL TO THE PRESIDENT

SUBJECT: National Academy of Sciences

Attached are the comments of Counsel's Office on the presidential remarks referenced above.

Thank you for the opportunity to review this matter.

Attachment

cc: James W. Cicconi
Assistant to the President and
Deputy to the Chief of Staff

90 MAR 20 PM 4: 24

WHITE HOUSE STAFFING MEMORANDUM

DATE: 04/19/90 ACTION/CONCURRENCE/COMMENT DUE BY: 2:00p.m. 04/20

SUBJECT: PRESIDENTIAL REMARKS: NATIONAL ACADEMY OF SCIENCES
(04/19 3:15p.m. draft)

	ACTION FYI			ACTION FYI	
VICE PRESIDENT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	MCCLURE	<input checked="" type="checkbox"/>	<input type="checkbox"/>
SUNUNU	<input type="checkbox"/>	<input checked="" type="checkbox"/>	NEWMAN	<input type="checkbox"/>	<input type="checkbox"/>
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CARD	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ROGERS	<input type="checkbox"/>	<input checked="" type="checkbox"/>
CICCONI	<input type="checkbox"/>	<input checked="" type="checkbox"/>	PINKERTON	<input checked="" type="checkbox"/>	<input type="checkbox"/>
DEMAREST	<input checked="" type="checkbox"/>	<input type="checkbox"/>	WINSTON	<input type="checkbox"/>	<input checked="" type="checkbox"/>
FITZWATER	<input type="checkbox"/>	<input checked="" type="checkbox"/>	BROMLEY	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GRAY	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
HAGIN	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>

REMARKS:

Please provide any comments/recommendations directly to Chriss Winston by 2:00 p.m. on Friday 04/20, with a copy to my office. Thanks.

RESPONSE:

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

(Lange/Cawley)
April 19, 1990
3:15 P.M.
[SCI.DOC]

PRESIDENTIAL ADDRESS: NATIONAL ACADEMY OF SCIENCES
WASHINGTON, D.C.
MONDAY, APRIL 23, 1990
2:00 P.M.

Thank you, Frank [Press]. Distinguished members of the National Academy, Dr. Press, Dr. Bromley, ladies and gentlemen: It's an honor to be with you today. The advice and counsel of this Academy has been crucial to American Presidents for well over a century. I'm proud to be the latest to thank you.

We 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 exalted mission, and the mind's manifest destiny: the search for understanding.

President Abraham Lincoln established this great institution in the dark hours of our nation's greatest crisis -- which testifies to the enduring importance of scientific knowledge. And when this magnificent building was finally 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 understanding 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.

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Fourscore and ten or twenty billion years ago, it all began. With a quantity of energy and mass unimaginably hot and dense, about the size of a baseball, containing everything that would become the universe, they say. And then, in one incomprehensibly powerful instant, energy and matter of every kind exploded in at least four dimensions. Or in a layman's terms, somebody hit that cosmic baseball right out of the park.

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

Today, I want to outline the role this Administration is playing to fuel those revolutions. Because as the pace of science accelerates, I believe that **government must keep pace -- and will keep pace -- with science.**

First, we've moved to better integrate science and technology into the policy process. My assistant for Science and Technology, Dr. Allan Bromley, is an active member of the Economic Policy Council, and chairs a White House Working Group

that advises the Domestic Policy Council. And we're already working to better integrate our science and technology efforts across the spectrum -- to get the "biggest bang" out of those big bucks.

But beyond the Federal role, we're 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 Science and Technology Advisors -- experts whose guidance has already been invaluable. We'll also be looking for counsel from this Academy's new Manufacturing Forum, just established this month.

We're committed to advancing America's tradition of innovation -- so our '91 budget called for a substantial increase in civilian research and development, and a permanent extension of the research and experimentation tax credit. But along with the applied, market-driven knowledge so crucial to this country's competitive future, let me reaffirm two priorities.

First, **math and science education** where we're engaged in a broad effort of reform and restructuring in cooperation with the states ^(- an effort) that began with our first-ever Education Summit with the nation's governors last fall. Our goal is to make American students first in the world in science and math achievement by the end of this century.

Today, I call on all Federal laboratories, facilities, and agencies to open their doors to students and teachers -- and get involved with education at the local level. And 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.

The second priority I'd reaffirm 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. But here, some vigilance is needed. Earlier this year, I proposed to double the National Science Foundation budget. Today, I want to call on Congress: **Put our money where our future is. Put the National Science Foundation budget back on track.**

Without strong science we are blind: unable to grasp the real parameters of the present, or real potential of the future. But with the past as prologue, we know that **the investments we make in science are some of mankind's most promising.**

Satellites already help us study the earth's natural systems and assess environmental threats. And combined with video cameras they've become 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, 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.**

Molecular biology, already responsible for agricultural advances that help feed the world, is tackling the challenge and promise of mapping the genome [GEE-nome] -- breaking the code of human life that might allow us to isolate and conquer such diseases as A.I.D.S., and cancer.

And just this month -- while one group of scientists pulled strands of D.N.A. from a 17 million-year-old magnolia leaf buried at the bottom of an ancient lake in northern Utah -- another group in San Jose managed to see and manipulate single atoms under a new scanning microscope -- bringing us a step closer to the creation of man-made molecules, new generations of tailored materials with undreamed-of properties, and computers with inconceivable power.

[[Of course, I can't claim to comprehend all of this. Like many, I've gain my scientific understanding from those Gary Larson cartoons. Like the one where, after detailed calculations, Einstein discovers that Time is actually Money.]]

While this administration is convinced that science is a priority investment -- and we're committed to keeping pace with science, as partner and catalyst -- we will not attempt to direct the course of science, any more than we would dictate the work of art, music, or literature.

Now more than ever -- on issues ranging from climate change, to A.I.D.S. research, to genetic engineering, to food additives -- we rely on the objective 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 straightforward advice.

The National Academy of Sciences is **renowned** for objectivity and immunity to partisan pressures. So it is essential that the members of this body -- the most distinguished scientists in America -- preserve the objectivity that has been the Academy's hallmark.

On this I know we agree -- because so many of our technical and scientific achievements have been the products of independent minds. And if the earth-moving events of 1989 reminded us of anything, 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, well, like a thousand points of enlightenment.

Among so many, think of two physicists who worked in secret because their firm wouldn't approve it, and discovered low-temperature superconductivity. Or Chester Carlson, who invented the Xerox machine in a little room behind a beauty parlor. Or Barbara McClintock, working alone, who made monumental discoveries in genetics 40 years ago that the world began to understand only in the last decade.

One of the **best** things government can do to support the magnificent creativity and energy of the American technical

photo copy

community is to locate individual scientists with talent, and through agencies like N.I.H., N.S.F., and others, furnish them with the equivalent of venture capital. But there are also scientific challenges that, because of their unprecedented scope, demand unusual support.

So we maintain a balanced commitment to projects like Space Station Freedom. And the new Supercollider -- so critical to retaining our scientific talent -- that will re-create the unimaginable fireball of our origins in miniature, allowing us to study matter that hasn't existed since the birth of the universe.

Leading-edge technologies often help us find what we aren't even looking for -- whether it's breaking the genetic code of life, or getting a new look at the most ancient forms of light.

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Thank you. And God bless you.

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(Lange/Cawley)
April 19, 1990
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Thank you. And God bless you.

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**TRANSFER SHEET
BUSH PRESIDENTIAL MATERIALS PROJECT**

COLLECTION Bush Presidential Records--
Office of Speechwriting--
Speech File - Drafts

ACC.NO: 93-01

The following material was withdrawn from this segment of the collection and transferred to the _____AUDIOVISUAL COLLECTION
_____BOOK COLLECTION _____MUSEUM COLLECTION
OTHER (SPECIFY: computer_____)

DESCRIPTION: one computer diskette

<p>SERIES Office of Speechwriting Speech File - Drafts</p>	<p>BOX NO. 55</p>
<p>FILE FOLDER TITLE: National Academy of Sciences 4/23/90 [OA 4729] [2]</p>	
<p>TRANSFERRED BY: JGP</p>	<p>DATE OF TRANSFER: 4/19/96</p>
<p>RECEIVED BY: <i>Walter J. Ford</i></p>	<p>DATE RECEIVED 4/19/96</p>

See comments from OMB

(Lange/Cawley)
April 20, 1990
9:30 P.M.
[SCI.DOC]

1990 APR 20 PM 11:04
PRESIDENTIAL ADDRESS: NATIONAL ACADEMY OF SCIENCES
WASHINGTON, D.C.
MONDAY, APRIL 23, 1990
2:00 P.M.

Distinguished members of the National Academy, Dr. Press, Dr. Ebert, Dr. Raven, Dr. Gordon, Dr. Blout, Dr. Bromley, ladies and gentlemen: It's an honor to be with you today. The advice and counsel of this Academy has been crucial to American Presidents for well over a century. I'm proud to be the latest to thank you.

We 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.

President Abraham 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.

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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 understanding 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 ten or twenty 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 incomprehensibly 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.]]

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Today, I want to outline the role 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.

First, we've moved to better integrate science and technology into the policy process. We have created a White House Working Group that will more closely link science and technology considerations into the policy-making process of the Economic and Domestic Policy Councils.

My Assistant for Science and Technology, Dr. Allan Bromley, is also an active participant 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. We'll also be looking for counsel from this Academy's new Manufacturing Forum, just established this month.

We want to advance America's tradition of innovation -- and we intend to get the biggest bang for the Federal buck. So in January, we sent a budget to Congress that includes a record \$71 billion for research and development -- an investment in a stronger economy, a more secure nation, and a brighter future.

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

This Administration is committed to investing in the future -- that means everything from recommending a 24% increase for NASA to supporting the Agricultural Research Initiative developed by this Academy.

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of capital and clear away regulatory burdens, so that industry can make the kinds of investments the future demands.

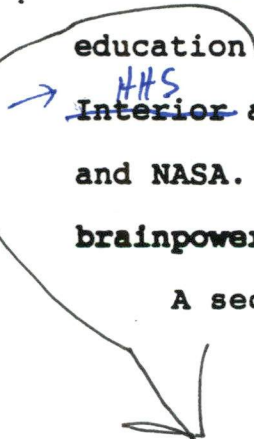
Along with the applied, market-driven knowledge so crucial to this country's competitive future, let me reaffirm two other priorities:

First, **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. So we're engaged in a broad initiative of reform and restructuring, in cooperation with the states. It is an effort that began with our first-ever Education Summit with the nation's governors last fall. 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.

~~Handwritten scribble~~

We're providing a number of new incentives for students, like the National Science Scholars program I've proposed. We're opening the doors of Federal laboratories, facilities, and agencies to students and teachers. Our budget increases funding to **over one billion dollars** for science, math, and engineering education -- through the Departments of Education, Energy, ^{HHS}~~Interior~~ and others, as well as the National Science Foundation and NASA. We are committed to ensuring that **America has the brainpower to remain at the forefront**.

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A second priority of this administration is **basic research**

-- a 26% increase --



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

That's one reason our budget calls for increasing funding for the U.S. Global Change Research Program by 57 percent -- to over one billion dollars. 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. They are 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 have also seen communications satellites, along with video cameras, VCR's 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 A.I.D.S. 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 straightforward advice.

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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, and furnish them with adequate resources and state-of-the-art instrumentation -- through agencies like the National Institutes of Health, the National Science Foundation, 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

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valued at more than seven billion dollars for **Space Station Freedom**. Combined with our total investment of about ~~25~~ billion dollars, this will be the largest international R & D project ever undertaken.

We're exploring new ways to encourage international cooperation on other big science projects -- like mapping the human genome [GEE-nome], 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.

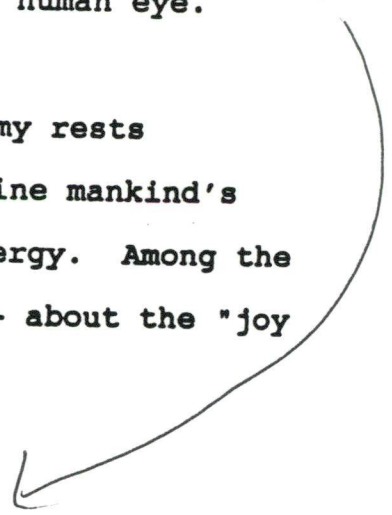
There's a vote coming up in Congress this week on that Super Collider -- so I'd like to call on the members to ^{support} fully fund that project, as well as our NASA budget. Only by doing so will we keep America on the leading edge of advancing human knowledge, and pushing the limits of space exploration.

Tomorrow morning, the Space Shuttle is scheduled to lift into the heavens the most sophisticated celestial object that mankind has ever built -- with the power to see to 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. Talk about the vision thing...]]

On the southwest grounds of this great Academy rests a bronze memorial to a scientist who helped redefine mankind's understanding of time and space, of matter and energy. Among the engravings on that memorial are words of wonder -- about the "joy

Shady
x 4844

-- the Hubble Spac.
Telescope



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.

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. God bless you. And God bless this great Academy.

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- NASA