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# SMITHSONIAN INSTITUTION

Fiscal Year 1992

Justification of Estimates of Appropriations  
To the Office of Management and Budget



ADMINISTRATIVELY CONFIDENTIAL

(Information not to be released until after the President's

Budget is submitted to the Congress in January 1991.)

September 1990



SMITHSONIAN INSTITUTION

FISCAL YEAR 1992

Justification of Estimates of Appropriations

To the Office of Management and Budget

# SMITHSONIAN INSTITUTION

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- National Museum of African Art••
- National Museum of American Art••
- Renwick Gallery••
- National Museum of Natural History/ National Museum of Man••
- Museum Support Center••
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- Smithsonian Astrophysical Observatory
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- Smithsonian National Associate Program
- Office of Congressional Liaison
- Office of International Relations
- Office of Special Events
- Office of Telecommunications
- Smithsonian Institution Press
- Smithsonian Magazine
- Air and Space Magazine
- Smithsonian Resident Associate Program

• Secretary's Management Committee  
 •• The assistant secretaries for research and museums collaborate in the oversight of scholarly and presentational activities in these bureaus and offices

SMITHSONIAN INSTITUTION

FISCAL YEAR 1992 ESTIMATES OF APPROPRIATIONS

TABLE OF CONTENTS

	Page
ORGANIZATION OF THE SMITHSONIAN INSTITUTION	
INTRODUCTION.....	1
NONAPPROPRIATED SOURCES OF FUNDING.....	13
SALARIES AND EXPENSES	
Uncontrollable Increases.....	15
<u>Research</u>	
Office of the Assistant Secretary.....	27
Smithsonian Astrophysical Observatory.....	35
Smithsonian Tropical Research Institute.....	42
Smithsonian Environmental Research Center.....	50
National Zoological Park.....	54
Smithsonian Institution Archives.....	60
Smithsonian Institution Libraries.....	63
International Environmental Science Program.....	70
Major Scientific Instrumentation.....	73
<u>Museums</u>	
Office of the Assistant Secretary.....	81
National Museum of Natural History/Museum of Man.....	86
National Air and Space Museum.....	98
National Museum of American History.....	104
National Museum of the American Indian.....	114
National Museum of American Art.....	122
National Portrait Gallery.....	129
Hirshhorn Museum and Sculpture Garden.....	136
Arthur M. Sackler Gallery/Freer Gallery of Art.....	141
Archives of American Art.....	149
Cooper-Hewitt Museum.....	153
National Museum of African Art.....	161
Anacostia Museum.....	165
Conservation Analytical Laboratory.....	169
Office of Exhibits Central.....	174
Smithsonian Institution Traveling Exhibition Service.....	178
Museum Support Center.....	182

Public Service

Office of the Assistant Secretary.....	193
Smithsonian Institution Press.....	203
Office of Folklife Programs.....	207
Academic and Educational Programs.....	212

<u>International Center</u> .....	219
-----------------------------------	-----

<u>Administration</u> .....	229
-----------------------------	-----

Facilities Services

Office of Design and Construction.....	245
Office of Protection Services.....	249
Office of Plant Services.....	256

## FACILITIES PLANNING, RENOVATION, RESTORATION, AND CONSTRUCTION

Construction and Improvements, National Zoological Park.....	265
--	-----

Repair and Restoration of Buildings.....	271
--Major Capital Renewal.....	272
--Repairs, Restoration, and Code Compliance.....	275
--Detail of FY 1992 Request by Building.....	280

Construction.....	285
--National Air and Space Museum Extension.....	285
--General Post Office Building Renovation.....	287
--National Museum of the American Indian.....	289
--Natural History East Court Building.....	291
--Smithsonian Tropical Research Institute.....	293
--Suitland Collections Research Center.....	294
--Construction Planning.....	295
--Minor Construction, Alterations, and Modifications.....	295

## APPENDIX

Columbus Quincentenary.....	303
Special Foreign Currency Program.....	306





SMITHSONIAN INSTITUTION  
FY 1992 BUDGET REQUEST  
(\$000's)

<u>APPROPRIATION</u> <u>ACCOUNT</u>	<u>FY 1991</u> <u>BASE</u>	<u>FY 1992</u> <u>REQUEST</u>
Salaries and Expenses	\$256,174	\$322,636
Repair and Restoration	28,656	35,000
Construction	16,189	83,450
Zoo Construction	<u>6,671</u>	<u>20,050</u>
TOTAL	\$307,690	\$461,136

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INTRODUCTION

Visitors to the Smithsonian are consistently impressed by its numerous buildings, its well-maintained gardens, its exhibit halls, its theaters and lecture halls, and its public cafeterias, including the Wright Place in the National Air and Space Museum. The Institution's managers constantly maintain, renovate, improve, and replace these facilities to stem the ravages of time and heavy use. Moreover, the Institution recognizes its responsibility to reinvest not only in the infrastructure of bricks and mortar but also in the infrastructure of programs conducted within these buildings, halls, and theaters.

In FY 1992, the Smithsonian plans to continue a multi-year program of reinvestment in its foundations to obtain greater future yields in the increase and diffusion of knowledge among the American people and the peoples of the world.

FY 1992 BUDGET PRIORITIES

The Smithsonian Institution's request for all operating and capital budget accounts in FY 1992 totals \$461.1 million, or \$153.4 million over the FY 1991 base. Of this amount, \$143.7 million represents resources that the Institution needs to reinforce its programmatic, operational, and facilities infrastructure--an investment in the foundation that will prepare the Institution to move into the 21st century; only \$9.7 million represents resources for new program initiatives and services.

SALARIES AND EXPENSES:

The Salaries and Expenses (S&E) request of \$322.6 million and 5,045 workyears represents an increase of \$51.9 million (net of redirections) over the OMB planning target. As in the formulation of the FY 1991 budget, the Institution's various program and operating infrastructure requirements were the central theme in its deliberations for FY 1991 and represent \$36.7 million of the requested increase. In addition, the Institution has selected several principal themes for new program initiatives--Education, Global Change Research, and Cultural Pluralism--as exceptions, each responding to a clear national and public imperative. These initiatives represent \$9.7 million of the requested increase, including \$4.4 million related to the National Museum of the American Indian. Of the total FY 1992 S&E budget, the Institution requests that \$38.3 million remain available until expended. These funds support the instrumentation program; collections

acquisition; Museum Support Center equipment and move; exhibition reinstallation; and the National Museum of the American Indian and the repatriation program.

STEWARDSHIP OF THE PUBLIC TRUST:

Review of the resource requirements necessary to carry out the public trust and to achieve the Institution's goals makes it evident to Smithsonian management that the majority of these requirements do not represent new or expanded service levels. Instead, most of these requirements constitute a growing backlog of resource deficiencies that have reached critical proportions. These deficiencies jeopardize the Institution's ability to manage the National Collections it holds in trust for the American people and its ability to increase knowledge and understanding among future generations. Last year, during the FY 1991 budget deliberations, the Institution grouped like deficiencies throughout various Smithsonian bureaus and offices into several broad categories in an effort to portray the magnitude of these deficiencies. This year the Institution continues its efforts to reduce this backlog. The table below provides a summary of the \$36.7 million and 296 workyears the Institution is requesting for various infrastructure requirements in FY 1992 and shows the remaining need the Institution intends to address in future budget years. Following the table is a category-by-category explanation of the importance of addressing these catch-up requirements.

RESOURCES REQUESTED FOR FY 1992 FOR INFRASTRUCTURE  
 COMPARED TO THE UNFUNDED BACKLOG OF REQUIREMENTS

Infrastructure Bundle	FY 1992 Requested Increases		Unfunded Requirements Backlog	
	FTE	\$000	FTE	\$000
Conservation of Library and Archival Collections	1	485	77	5,378
Reinstallation of Permanent Exhibit Halls	14	2,605	9	2,442
Library and Collections Acquisition	0	250	1	2,664
Collections Management	61	7,754	3	1,584
Human Resource Management	7	376	1	99
Clerical Support Staff	26	755	34	1,496
Specialized & Technical Staff and Support Costs	57	3,196	110	6,738
Major Scientific Instrumentation	5	2,700	Not Applicable	
Laboratory and Scientific Equipment (Non-computing)	0	1,300	0	1,115
Computers (Hardware)	4	3,186	7	3,582
Information Systems	18	4,553	34	4,057
Management Controls/Audit Deficiencies	21	1,534	12	1,080
Space Deficiencies	5	2,029	5	1,760
Facilities Maintenance Deficiencies	46	3,088	56	2,801
Health and Safety of Staff and Visitors	11	988	4	558
Security of Facilities and Collections	20	1,922	124	5,299
Total	296	\$36,721	477	\$40,653

Conservation of Library and Archival Collections - The Smithsonian's archives and libraries--books, documents, films, photographs, and recordings--are national resources. Their words and images are fuel to generate energy in the powerhouse of knowledge and understanding. Some are renewable; many unique ones are not. All are fragile; all

deteriorate with use. Conservation and sustained investment are essential to maintain them. Replaceable items must be replaced; unique ones must be preserved. If the Smithsonian does not replace and preserve these items, it only hastens their deterioration, destruction, and depletion. Deferred investment simply intensifies a growing national debt of future replacement and renewal costs. Conservation is not a one-time need; it represents an essential sustained capital investment. Each year that the investment is not up to optimum levels accelerates cumulative deterioration, increases total cost and total loss, and makes it ever more difficult to recover these collections. The Institution is requesting 1 workyear and \$485,000 to begin to address the large backlog of work in needed conservation of library and archival materials.

Reinstallation of Permanent Exhibit Halls - The Smithsonian receives visitors from all over the world who come to be enlightened, educated, and inspired. The Smithsonian is the "National" museum and, as such, has a public responsibility to reflect current concerns and perceptions of the Nation and the world.

After years of good service, "permanent" exhibitions become obsolete, both in their interpretive or presentation strategies and in their interest to the public. Many of the Institution's exhibitions have long outlived the timeliness and accuracy of their content, and funding for upgrading or replacement has not been available. Moreover, few Smithsonian museums have had the funding to incorporate new exhibition techniques, such as laser discs and computers, that increase understanding among a museum-going constituency increasingly experienced in these methods and expecting their use. These new technologies also enable museums to explain exhibits in less space by reducing the area devoted to lengthy descriptive labels.

In order to revitalize exhibits that are now decades old and to increase the accuracy of their content, the Smithsonian is seeking an increase of 14 workyears and \$2.6 million in FY 1992. This amount will allow S&E funding for an extended program of phased replacement of the oldest exhibit halls. These funds will guarantee that the information and presentation of Smithsonian exhibits reflect contemporary interests and achievements.

Library and Collections Acquisition - Modern researchers are dependent on the availability of published results from colleagues. The most utilized and timely source of such information is scholarly journals. The more than 40,000 journals in the sciences reflect the incredible degree of specialization in the scientific fields alone. Thus, an active scholar in a scientific discipline (e.g., molecular biology) can no longer simply read one or two of the scores of specialized journals available. To scientists and scholars, immediate access to the full range of scholarly literature is as important as research equipment.

The relative weakness of the dollar against foreign currencies has resulted in the escalation of subscription costs for many of the foreign journals upon which Smithsonian scientists and scholars rely. The Institution has in recent years attempted to maintain its current level of service by cancelling some of the lesser-used journals, taking advantage of interlibrary loans, and utilizing private document delivery services. Although the Institution has vigorously pursued these options, journals dealing with such pivotal international issues as global change and molecular genetics are not a regular part of the Institution's journal base. Hence, the Institution needs additional resources to ensure that its scholars have regular access to information in those fields in which advances are occurring. The Smithsonian Institution Libraries manages the collection of periodicals for the entire Smithsonian community and for various related agencies

represented within the Institution, including the United States Geological Survey, Fish and Wildlife Service, Department of Agriculture, and National Oceanic and Atmospheric Administration. Without access to scholarly journals, Smithsonian staff cannot conduct research in critical areas of national interest ranging from global warming to embryo transfer and space research.

The Institution is requesting \$250,000 to begin to address the deficiencies in library acquisitions.

Collections Management - The Smithsonian is not the "Nation's attic" as much as it is the "Nation's treasure chest." The care of collections is a sacred responsibility to the American public now and for future generations. With proper care, the National Collections can continue to offer future scholars valuable opportunities for study that cannot be envisioned today.

However, collections care is technical, tedious, and never complete, for the standards of care continuously increase as the museum profession learns more about the composition of objects and the effects of environment. The Institution has spent considerable sums to improve the registration, storage, restoration, and conservation care of objects and is proud of demonstration projects such as the Collections Information System (CIS) and the Museum Support Center. Despite advances such as these, responsibility for the care of collections escalates as they grow and age. Research on new preservation techniques and related advancements and automation make collections care an increasingly complex and expensive endeavor.

For FY 1992, the Institution is requesting an increase of 39 workyears and \$6.1 million in S&E no-year funding to continue the equipping of and move of collections to the Museum Support Center and 22 workyears and \$1.7 million in support of collections management efforts of the Institution's museums as well as the National Zoological Park, the Conservation Analytical Laboratory and the Smithsonian Libraries. To fulfill public responsibilities to the "Nation's treasures," the Smithsonian must maintain a program of adequate care for the collections entrusted to it.

Human Resource Management - In its May 1989 report, Improving Personnel Operations and Policies, the National Academy of Public Administration (NAPA) urged that, for the Smithsonian Institution's long-term organizational health, its personnel office be transformed from a "procedures and process" operation to an organization that provides leadership in managing the Institution's human resources. To that end, the Academy recommended that the Office of Human Resource Management (formerly the Office of Personnel Administration) be responsible for human resource planning and budgeting, personnel policy development and administration, management and supervisory training, oversight, and related information systems. The Academy went on to reaffirm that with these responsibilities come greater effectiveness and accountability.

To achieve prerequisite efficiency and effectiveness, the report made many recommendations pertaining to day-to-day operations. In addition, the Academy pointed out that the ratio of employees served to personnel staff was well above the ratio recommended by the President's Council on Management Improvement. This finding confirmed the general perception both within and outside the personnel office that it is understaffed.

The Institution began to address the recommendations in the NAPA and other reports on the Institution's human resource management infrastructure in the FY 1991 budget request. To continue these efforts, the Institution seeks additional resources of 7 workyears and \$376,000 in the FY 1992 budget.

Clerical Support Staff - Over the past years, growth of public demands and programs at the Institution has resulted in a deficiency in clerical support. Productivity in many programs would increase measurably if additional clerical support were available to scientists, curators, and other museum specialists. The shortage of clerical support slows the Institution's progress in addressing critical programmatic imperatives such as global environmental change research and cultural diversity.

The shortage in clerical support is most evident at the Smithsonian Tropical Research Institute (STRI). As the Institute expands its biological research in forest dynamics and canopy biology, scientists will require additional clerical support so they can focus on research rather than spend time on clerical tasks. At the same time, shortages in clerical support exist throughout the Institution. Other bureaus reporting shortages include the Joseph Henry Papers, Smithsonian Environmental Research Center, National Science Resources Center, Office of International Relations, Office of Congressional Liaison, and other administrative and support areas. For FY 1992, the Institution requests 26 workyears and \$755,000 to begin to eliminate its clerical support deficiency.

Specialized and Technical Staff and Support Costs - Among the Institution's major areas of concern over the past decade has been the closing of selective gaps in its research programs through the recruitment of new professional staff. A related objective has been to provide an adequate level of technical assistance to members of the professional staff so they can be more efficient and productive in the advancement of scholarship and public programming. For too long, many of the highly trained staff within the Institution have had to perform functions best suited to technicians, functions that divert them from their primary responsibilities. In addition to dealing with these deficiencies in existing programs, the Institution must also address the need to staff newly constructed or recently renovated facilities. The teaming of scholars with a proficient technical support staff is essential for the Institution to meet the many challenges facing the Nation in the next few years. The Institution requests an increase of 57 workyears and \$3.2 million for programs needing technical staff and support.

Major Scientific Instrumentation - A portion of the Institution's request for additional funding for research will enable the Smithsonian Astrophysical Observatory (SAO) to continue two important projects involving the development of new and the reconfiguration of existing instrumentation. The Smithsonian request for FY 1992 includes an increase of \$2.7 million for these two projects. The construction of the submillimeter telescope array will allow SAO scientists to study more effectively the formation of stars and planetary systems and the puzzling processes taking place in the cores of galaxies and quasars. The conversion of the Multiple Mirror Telescope (MMT) to a telescope with a single 6.5-meter diameter mirror will enable SAO to gather data on objects much fainter than is currently possible and to study more than twice as much of the universe.

Laboratory and Scientific Equipment - The Smithsonian is not exempt from the difficulties faced by other research institutions in overhauling an obsolete research infrastructure. The availability of up-to-date research equipment is a basic necessity for scholars to remain competitive with their peers worldwide. In this respect, one significant difference between the Institution and universities is its inability to obtain

National Science Foundation funding for this purpose. Thus direct Federal funding is essential. Failure to obtain necessary equipment will seriously impair the Institution's ability to meet crucial objectives in global environmental research. In the end, new facilities and talented scholars will be left without the opportunity to make full use of their skills.

In recent years, the Institution has placed major emphasis on improving its research facilities. It is not sufficient, however, to provide scholars with new or renovated space without also supplying them with the attendant tools of their trade: research equipment. All the Institution's research bureaus and research support offices have equipment acquisition and replacement plans detailing their requirements over the next decade. It is clear that, in an era in which research equipment has become increasingly sophisticated and is rapidly superseded by technological advances, much of the Institution's equipment inventory is obsolete. The Institution has systematically begun to rebuild the critical infrastructure requirements of laboratory and scientific equipment in selected areas.

The Institution must also acquire equipment for the new Barro Colorado Island laboratory, where existing equipment is more than 20 years old. The National Zoological Park requires equipment to take advantage of the rapid advances in the biomedical field for the study and care of endangered species. The Conservation Analytical Laboratory requires resources to replace equipment purchased or obtained more than a decade ago, some under excess property guidelines. For FY 992 the Institution requests \$1.3 million for these and other research bureaus to address the systematic replacement of laboratory and scientific equipment.

Computers - The computer is an indispensable tool for the production and dissemination of research. Scholars increasingly use computers to communicate through networks that provide bibliographic information, store research data, and prepare, or even publish, manuscripts. Due to limited resources, the Smithsonian has been unable to realize fully the potential of computer technology for increasing efficiency and productivity in the scholarly realm. The Institution now seeks to purchase, install, and create effective computer networks for its scholars. The Institution will seek to replace and upgrade computers, software, and networks for bureaus already using computer technology. The Institution must also implement a computer acquisition program for small bureaus that lack even rudimentary computing equipment. The Institution requests 4 workyears and \$3.2 million for these needs and central computer support.

Information Systems - In early 1989, the Office of Information Resource Management held an Institution-wide planning symposium to assess the state of Information Resource Management (IRM) in the Institution and to initiate an ongoing process for IRM planning and development. Through formal presentations, discussion groups, and critiques, users and providers of information services gained a comprehensive overview of information handling and services. In the course of discussion, attendees identified an urgent need to focus IRM efforts on the solution of the most pressing systems development and service delivery requirements, including systems for the management of museum specimens and objects and bibliographic and archival materials. It also became clear that the resources available for information-related services are inadequate to provide the up-to-date technologies, systems, and communications necessary for the conduct of Institutional activities.

In the short term, the Institution must allocate resources to meet three objectives:

- to allow access to collections management, research, public service, and administrative information;
- to develop, design, implement, and maintain computer systems;
- to define how information technologies can be used to meet established goals.

The unique role of the Smithsonian in education and research is in jeopardy. Its accessibility as a resource to researchers worldwide and its public status are diminishing. Increasingly complex research, education, and business demands for information exceed the capabilities of the Institution's existing technologies. To reclaim its position as a leader in research, education, and collections and to remain accountable as a public trust, the Smithsonian must have the resources to utilize appropriate advanced information technologies. The Institution is requesting Federal funding of 18 workyears and \$4.6 million to address its most pressing needs for information systems.

Management Controls/Audit Deficiencies - The Smithsonian maintains a strong program of audit and review of its financial affairs and access to and control of the National Collections. Although not a department of agency of the executive branch, the Smithsonian recognizes and observes the intent of the Federal Managers' Financial Integrity Act. (FMFIA). Towards that end, the Smithsonian's Office of Inspector General (OIG) performs financial and program audits on a regular cycle. To supplement the OIG's review of internal controls an outside certified public accounting firm performs an annual financial audit and the General Accounting Office and other agencies perform special audits from time to time. In addition, the Smithsonian's Management Analysis Office conducts Internal management review studies on an as needed basis.

These reviews and audits identify deficiencies in internal controls, policies, and procedures; in compliance with internal and external requirements; and in meeting the needs of the public. Additionally, they identify areas where efficiency improvements are possible. By implementing the recommendations from these audits and reviews, the Smithsonian improves internal controls; limits the potential for waste, fraud, and abuse; and becomes more effective in meeting public needs and more efficient in carrying out its programs. Implementing recommendations to eliminate such deficiencies represents an investment with an expected and important return. For FY 1992, the Institution is requesting 21 workyears and \$1.5 million to eliminate its most critical audit deficiencies.

Space Deficiencies - Historically, the Institution has housed administrative and other central support functions in museum buildings on the Mall. With the growth of collections, research, and public programs, however, space in museums has gradually become very limited. Increasingly, the Institution has relied on leased space (in buildings convenient to Mall activity) to house administrative functions. There are two primary centers of off-Mall support: L'Enfant Plaza for administrative functions and the Service Center on North Capitol Street for light industrial, warehouse, and technical support.

The Institution presently leases 105,000 square feet of space at L'Enfant Plaza for accounting, personnel, publications, design and construction, and procurement and contracting functions. The Institution uses both Federal and Trust resources to pay for the rental space in direct proportion to the number of Civil Service and Trust employees

in each office. The Institution anticipates additional need for leased space as buildings on the Mall must accommodate growth in public programs.

The Institution's Service Center on North Capitol Street contains about 165,000 square feet of space. However, the Institution needs a Service Center of approximately 350,000 square feet to house all related activities in one place and to free space on the Mall for public programs. The Institution is examining options for a lease-purchase agreement on a suitable facility. In FY 1992, the Institution requires 5 workyears and \$2.0 million to administer and pay the costs of additional leased space for its current programs.

Facilities Maintenance Deficiencies - The Smithsonian owns, operates, repairs, and maintains more than five million square feet of space in more than 200 buildings. These buildings range in age from new to more than 140 years old, and many appear on the registers of historic landmarks. Many are, in fact, among the most precious "artifacts" the Smithsonian holds in trust for the Nation. The Smithsonian must operate and maintain these buildings to ensure the continued functioning of its many diverse programmatic activities and to preserve them for use by future generations.

The Institution has identified a backlog of essential maintenance and repair projects last estimated at \$229 million. By increasing staff and equipment for facilities maintenance, the Institution will slow the rate of deterioration of its buildings and thus slow the rate at which new repairs add to the backlog. Additional staff for facilities maintenance will also ensure timely completion of the Repair and Restoration of Buildings projects. Custodial staff will improve the cleanliness of the interiors, and gardeners will maintain the grounds around the buildings in the manner appropriate for important and highly visible public buildings in the Nation's Capital. Support staff for the Education Center in the Quadrangle will ensure maximum utilization of this important resource for public programs. An increase of 46 workyears and \$3.1 million is contained in this budget request to begin to address the large backlog of facilities maintenance requirements.

Health and Safety of Staff and Visitors - The Institution is concerned about the health and safety of its staff and visitors. In recent years, Congress has allocated resources for a solid foundation for an environmental management and safety program. Staff members are now available to assess environmental and safety hazards of the physical plant and to identify necessary changes to buildings or work practices. The Institution needs resources, however, to carry out these changes, particularly at the bureau level. Staff of the Office of Environmental Management and Safety is developing programs required by law or regulation to inform and protect employees who work with dangerous chemicals or are exposed to hazardous conditions and to identify fire or safety risks in the workplace and public areas of Smithsonian buildings. Additional resources will allow coordination of these efforts at the bureau level and ensure that the laboratories and offices throughout the Institution carry out the safety programs.

An occupational health program is also in place, but the Institution needs additional resources to meet statutory obligations to staff. Presently the Smithsonian is unable to meet several mandatory requirements for health monitoring of all employees exposed to hazardous materials or working under extreme physical conditions. Additional funds will increase the number of physical examinations and streamline the medical records essential to such a program to make them more useful in a number of contexts. The Smithsonian has established programs in wellness and substance abuse, but these programs will also require increased support. Additional resources will make counseling services available to more employees whose personal problems are interfering with their well-being and job

performance. Without these resources, the Institution will fail to meet the government standard for occupational health care for its more than 5,000 employees. The Institution requests an additional 11 workyears and \$988,000 annually to address health and safety deficiencies.

Security of Facilities and Collections - The Smithsonian has more than 136 million items in its collections, on display in exhibitions, or in storage. In addition to the very high intrinsic value of objects such as gems and coins, most of the objects are irreplaceable examples of human experience and achievement as well as global development and change. The collections are stored within the museum buildings on the Mall, at specially designed storage facilities in Suitland, Maryland, and in some leased warehouses in Washington, D.C., Virginia, and elsewhere around the United States. In addition, the Institution has research facilities in a number of remote locations in Panama and Arizona. Security in Smithsonian facilities consists of a complex combination of alarm systems throughout the buildings and physical surveillance by guards at entrances and in public galleries.

In the past several years, serious erosion of base resources to support the security program has undermined the Institution's ability to provide adequate protection for its collections and facilities. The political situation in Panama has also diverted Mall-based security resources to protect the Smithsonian Tropical Research Institute staff and properties. In recent years staffing shortages have caused the periodic closing of exhibit galleries when guards were not available for full coverage. This solution interferes with the public's enjoyment of the exhibitions and activities presented at the various museums and with achievement of the Smithsonian's mission to increase and diffuse knowledge. The alternative is a reduction in security coverage, which places the collections and public property at an unacceptable level of risk of loss or irreparable damage. The Office of Protection Services must hire additional guards for galleries, entrances and exits, and grounds and must replace or maintain communications and security systems vital to the effectiveness of the security force. The Institution is seeking an increase in base funding for security of 20 workyears and \$1.9 million in FY 1992.

#### INITIATIVES IN RESPONSE TO NATIONAL IMPERATIVES:

Global Change Research - During the past several years, countless studies and testimony have been presented before Congress and scientific groups concerning the effects of natural and human activities on the global environment. Rapidly evolving changes in the global environment have captured the attention of scientists, policy makers, and citizens around the world:

- the increase of atmospheric greenhouse gases such as carbon dioxide, methane, and the chlorofluorocarbons;
- the expected consequent changes in global climate and sea level;
- a global depletion of stratospheric ozone, and the observed Antarctic "ozone hole";
- widespread desertification and reduction in the diversity of plant and animal species;
- extensive damage to mid-latitude forests;

-- acidification of lakes and soils in many regions.

At the least, these changes have far-reaching and potentially disruptive implications for the world's natural resources. In the worst case, the changes collectively threaten the life-support system of the earth. The problem of global environmental change is crucial and urgent.

The Smithsonian Institution is ideally positioned to undertake important research initiatives in the field of global change by building upon its current programs. With more than 150 scientists in a variety of biological and physical science disciplines (coupled with its stewardship over large, protected areas in both the tropical and temperate zone), the Institution can undertake comparative studies to assist in understanding the complexities of this global problem.

For more than 20 years, the Institution's International Environmental Science Program has been monitoring both biological and physical processes, and it currently possesses an incomparable set of data for both tropical and temperate sites. The proposed enhancements to this program, in conjunction with proposed research initiatives at both the Smithsonian Tropical Research Institute (STRI) and the Smithsonian Environmental Research Center (SERC) will exploit and build upon the unique data already in the possession of the Institution.

In addition to studies dealing with biological and physical processes, the National Museum of Natural History (NMNH) will expand ongoing research on biological diversity in tropical Latin America to additional rain forest sites. NMNH will emphasize multi-disciplinary study of organisms and their reaction to broad processes of global change. Recent studies have conclusively determined that, without an integrated and multi-disciplinary approach to this issue, scientists will be unable to find adequate solutions for arresting environmental degradation.

The information that the Institution will generate as the result of proposed initiatives in global change research will be broadly available to policy makers and members of the scientific community. These scientific findings are also certain to form the basis for exhibitions in the National Museum of Natural History, the National Air and Space Museum, and other venues for public programming. The Institution's proven ability in sustaining long-term research at permanent sites is a crucial function that distinguishes the Smithsonian from Federal organizations and most universities involved in such research.

For FY 1992, the Institution is requesting 12 workyears and \$1.5 million to undertake various research inquiries to assist in understanding the phenomenon of global environmental change.

Cultural Pluralism - The demographics of the United States are changing, and the pluralism of our country is more evident. What has been the dominant cultural group will no longer be the majority in our work force and our schools. This change and the exciting self-pride that minority groups are exerting calls for new responses on the part of the Smithsonian to be more sensitive in its public programs, hiring practices, training opportunities, exhibition presentations, and collections acquisition. As a national institution, the Smithsonian must assume a viewpoint that is deliberately inclusive in all respects.

The Institution must create exhibitions and programs that rethink the relationship between the indigenous peoples and the New World conquerors. The Columbus Quincentenary Program provides this opportunity. It will celebrate the accomplishments of minority people and make known to others the richness of their history. The Smithsonian must assist in training minority people who wish to enter the Smithsonian's professional work force and increase the number of trained minority people in the museum profession at large. The Institution must be sensitive to the wishes of the Native-American communities for their human remains. It must continue to plan for the new National Museum of the American Indian and make it a reality, particularly through preparing Native-American staff to assume positions of professional leadership within the new museum. In addition to these efforts, the Smithsonian must make sure that its programs and exhibitions welcome all peoples.

For FY 1992, the Institution is requesting 90 workyears and \$6.8 million to undertake various initiatives that will broaden the cultural diversity of its public programs. The Smithsonian is working on many fronts to reflect with accuracy and enthusiasm the new and forgotten realities of neighbors, immigrants, and indigenous peoples.

Education - Global change and other contemporary concerns present numerous opportunities for the Smithsonian to implement its mission to increase and diffuse knowledge. Doing so places many new public demands and challenges on the Smithsonian. The Institution is committed to enhancing its exhibitions, education, and other programs to provide the public with meaningful and comprehensive interpretations of these issues. Besides improving its educational programs the Institution is broadening the outreach of those programs through exhibitions and other educational activities that will increase participation by including culturally diverse communities, minorities, handicapped persons, and senior citizens. These efforts reflect new program initiatives that respond to these national imperatives and embody the recommendation of an internal staff committee, appointed by the Secretary in the fall of 1989, to place greater emphasis on education.

Nearly 30 million visitors of all ages, cultures, and countries, crowd the Mall and other buildings for the opportunity to see and gain knowledge from the Institution's varied exhibitions, lecture series, and film festivals. The Institution will enhance its educational programs to provide activities for underrepresented groups such as the African-American, Native-American, Hispanic, and Asian communities. The Smithsonian will develop educational materials to introduce the public and students to Asian art and culture using objects from the Sackler collections that explore crosscutting aspects of Asian art and culture. The Institution will complete the fabrication and installation of the opening exhibit of the National Museum of the American Indian at the Old Custom House which will serve local and national audiences much larger than ever before in the collection's history.

In order to address the concerns of national science literacy, the Institution must further develop programs to improve the teaching of science and mathematics in the nation's school systems. By working with the local educational systems to develop curriculum materials and programs for teachers and students, the Smithsonian will build stronger relationships with the community and encourage an early interest in the sciences.

Scientific research on the Institution's collections and the publication of scientific findings are fundamental to its educational mission. Scholars and other researchers benefit from Smithsonian scholarly publications. To serve the broadest possible audience, the Institution must continue to disseminate its findings through journals, national and international meetings and seminars, and public education activities.

For FY 1992, the Institution is requesting 17 workyears and \$1.4 million to strengthen its educational departments and programs in order to serve broad and diverse public audiences and to provide life-long and informal learning experiences in and beyond the classroom environment. As a unique educational institution, it must endeavor to adopt model educational strategies and techniques for informal, formal, and alternative education activities.

FACILITIES:

Construction - The Smithsonian's request for the Construction program for FY 1992 totals \$83.5 million. This amount is \$56.2 million over the OMB planning target of \$27.3 million. Within the request is \$6.5 million for minor construction, alterations, and modifications to existing buildings to meet the changing requirements of current programs, and \$1.5 million to conduct detailed planning for future construction projects.

The remaining \$75.5 million is for planning, design, or construction for a number of pressing projects on the immediate horizon. Within this amount is: \$39.8 million related to the National Museum of the American Indian; \$23.5 million for the Natural History Building East Court "in-fill" project; \$8.0 million for the Air and Space Museum Extension; \$1.7 million for the General Post Office Building; \$2.0 million for a maintenance facility at the Smithsonian Tropical Research Institute; and \$0.5 million for the Suitland Collections Research Center. This list of projects represents the Institution's most pressing new space requirements taken from a ten-year construction plan designed to address systematically a variety of space and program deficiencies.

Construction and Improvements, National Zoological Park - The request for the construction program at the National Zoological Park for FY 1992 is \$20.0 million. This request is \$13.1 million above the OMB planning figure. The request includes \$2.8 million to fund the highest priority repair and improvements projects at the Rock Creek Park site and Front Royal, Virginia. The remaining \$17.2 million includes \$14.3 million to continue the implementation of the Rock Creek Master Plan and \$2.9 million for the Front Royal Development Plan. Rock Creek projects include the Amazonia Gallery; Aquatic Trail; Hall of Humankind; Grassland and Forest Exhibits; Loop Trail Graphics; and Olmsted Walk Landscaping. Front Royal projects are a Maintenance Facility and a Multi-purpose Animal Facility.

Repair and Restoration of Buildings - The Smithsonian is requesting \$35.0 million for the Repair and Restoration account as contained in the OMB planning allowance. This requested increase in Repair and Restoration of Buildings account for FY 1992 brings the Institution to the projected optimal annual level. The Institution must continue to eliminate the substantial backlog of deferred maintenance and repairs in its various facilities and protect the integrity of its physical infrastructure. Within the requested amount is \$13.7 million for the Major Capital Renewal program and \$21.3 million for Repair, Restoration, and Code Compliance projects.

## NONAPPROPRIATED SOURCES OF FUNDING

In addition to support provided by Federal appropriations, the Institution receives nonappropriated funds to expand and enrich its programs. The Institution presents nonappropriated fund activities (Trust funds) along with the Federal budget request to provide an overview of all uses of funds for each Smithsonian bureau. The estimates for Trust funds are subject to the uncertainty of donations, grants and contracts, fluctuations in visitor attendance, and the volatility of the economy, the last of which directly affects restaurant, mail order and shop revenues, Associates' memberships, and other auxiliary activities. The Institution's gross operating revenue, less the expenses of the auxiliary activities, represents the net operating revenue available for programmatic and other worthwhile purposes.

The FY 1991 Trust budget comprises approximately 28 percent of net operating revenues. These revenues include grants and contracts received from government agencies. The Smithsonian expects grants and contracts will total nearly \$32 million in FY 1991. The Institution anticipates gross Trust fund revenues, excluding government grants and contracts, will be approximately \$253 million in FY 1991. However, the Institution projects net income will be in the \$65 million to \$66 million range (which includes \$23 million for restricted purposes).

The Trust funds include unrestricted funds, restricted funds, and government grants and contracts, and the Institution applies them in the following manner:

### Unrestricted Funds

General - The sources of general unrestricted funds are investment income; unrestricted endowment income; net proceeds from the museum shops, mail order division, and food service concessions; sales of Smithsonian books, records, and other products based on designs and objects in the collections; the Resident Associate and National Associate Programs (including the Smithsonian and Air and Space magazines); and overhead recovery on grants and contracts the Smithsonian receives and from internal administrative fees charged to other Trust-funded activities. Overhead recovery is the principal source of Trust support for central management and administrative service units of the Institution, such as legal counsel, accounting, personnel, procurement, and budget. General funds also support various activities, such as the Visitor Information and Associates' Reception Center, the Cooper-Hewitt Museum, Smithsonian Tropical Research Institute, Office of Telecommunications, Office of Folklife Programs, Office of Membership and Development, and a variety of Institutional and bureau-based programs. The Board of Regents approves these allotments.

Special Purpose - These funds arise from revenue-producing activities operated by various bureaus and offices and transfers of General funds. The two largest of these activities are the Theater and Spacearium operations of the National Air and Space Museum. Special Purpose funds also include: miscellaneous revenues from the sale of posters, exhibit brochures, and publications; tuition reimbursement from universities; the museums' share of sales in the restaurant and museum shops; membership and admission fees; exhibit rental income; and investment income from current fund balances.

In FY 1979, the Board of Regents approved the annual transfer of General funds to Special Purpose funds for certain programs previously financed through Federal appropriations. These include the Institution's various fellowship programs (FY 1991 allotments of \$3 million). The Institution also uses Special Purpose funds to make awards under its Collections Acquisition, Scholarly Studies, and Educational Outreach Program.

The FY 1991 budget includes a total of \$5.22 million for these awards. However, as a result of lower than anticipated revenues in FY 1989 and FY 1990, the Institution may need to reduce the FY 1991 funding level.

In FY 1991, \$1.9 million is available to purchase exceptional objects important to the collections. The Institution also has designated \$2.75 million for innovative scholarly research projects which by definition or because of their schedule do not fit within the Federal budget process. These include multi-disciplinary research projects initiated by the Institution's research staff, sometimes in collaboration with scholars from other institutions. Often the work is of an interdisciplinary nature and is conducted at more than one bureau. The Institution has allocated the remaining \$550,000 of the \$5.22 million available for this program to conduct a wide range of educational outreach programs of benefit to the public, with special focus on diverse cultural audiences.

In FY 1985, the Board of Regents approved an annual Trust fund allocation for the Special Exhibition Fund (SEF). Although the Institution has generally met the cost of exhibition programs with Federal funds, supplements--including donations from individuals, foundations, and corporations--are increasingly necessary. The Special Exhibition Fund, with \$3.6 million in FY 1991, will provide additional funds for temporary or permanent exhibitions proposed by Smithsonian bureaus that, regardless of scale, are outstanding in terms of their educational value to the public. The Fund gives special consideration to exhibitions that approach content in imaginative ways; that allow bureaus to explore new or expand current interpretive or exhibition techniques; that are worthy but, by their nature, unlikely to attract private funds; and that are likely to reach previously underserved audiences.

#### Restricted Funds

Restricted Trust funds include gifts, grants, and endowments from individuals, foundations, organizations, and corporations that specify the use of the donation or bequest. Generally, these funds provide support for a particular exhibit or research project. The Freer endowment is the largest restricted endowment in the Institution. Under the terms of the original gift and bequest, this fund is strictly limited to uses benefiting the Freer Gallery of Art.

#### Government Grants and Contracts

Various government agencies and departments provide grants and contracts for special projects that only the Smithsonian can conduct because of its expertise in a particular area of science, history, art, or education and because of its ability to respond quickly to certain needs.





FY 1992 UNCONTROLLABLE INCREASES

The Smithsonian Institution seeks funds to pay costs that are beyond its control. These costs result from established practices in regulating wages, higher rental costs, and the effects of inflation and other factors. The Institution requests \$21,508,000 for the following uncontrollable costs:

Salary and Related Costs	
--Annualization of FY 1991 Legislated Pay Raise	\$ 4,300,000
--FY 1992 Legislated Pay Raise	2,400,000
--Senior Executive Pay Raise	1,800,000
--Within Grade Step Increases	775,000
--One Additional Workday	675,000
--Personnel Payroll System	120,000
--Payroll Base Deficiencies	395,000
--Workers' Compensation	<u>(66,000)</u>
Total, Salary and Related Costs	\$10,399,000
Utilities, Communications, and Postage	\$ 860,000
Rental Space	\$ 110,000
Smithsonian Astrophysical Observatory Rent	\$ 115,000
Administrative Space	\$ 1,000,000
Disaster Preparedness	\$ 200,000
Inflation	\$ 2,702,000
Health Insurance	\$ 3,100,000
Museum Support Center	\$ <u>3,022,000</u>
Grand Total, Uncontrollable Increases	<u>\$21,508,000</u>

SALARY AND RELATED COSTS - The Institution requests a net amount of \$10,399,000 for the projected higher salary and benefits costs in FY 1992 for FY 1991 staff. The Smithsonian has calculated costs required to provide annualized funding for the FY 1991 general pay raise in FY 1992 (\$4,300,000), 50 percent funding for the FY 1992 general pay raise (\$2,400,000), the senior executive pay raise (\$1,800,000), and anticipated within-grade increases (\$775,000) based on workyears authorized by the Office of Management and Budget (OMB) for each of the bureaus and offices. In FY 1992, the Institution also requires funds to cover costs attributable to one additional paid day (\$675,000), increased operating costs for the Personnel Payroll System (\$120,000), and payroll base deficiencies within several Smithsonian offices (\$395,000). These increases are offset by a decrease in workers' compensation costs (<\$66,000>).

Annualization of FY 1991 Pay Raise - The Smithsonian has included an amount of \$4,300,000 in its FY 1992 estimates to annualize the costs of the anticipated January 1991 pay raise. The FY 1991 budget now pending before the Congress contains 50 percent of the FY 1991 costs of this pay raise.

FY 1992 Legislated Pay Raise - The Smithsonian has requested an amount of \$2,400,000 to fund 50 percent of the FY 1992 pay raise for three-quarters of the year. Funds to annualize this pay raise will be included in the Institution's FY 1993 budget request.

Senior Executive Pay Raise - Legislation is currently before the Congress to authorize the establishment of a Smithsonian Institution Senior Service. The management of this service will be as consistent as practicable with the provisions of law relating the Senior Executive Service and will allow pay for senior administrative and professional research staff to be comparable to that paid in the Executive Branch. This new Senior Service is essential to the recruitment and retention of highly qualified staff. The Smithsonian has included an amount of \$1,800,000 in its FY 1992 request to cover the annualized cost of the anticipated senior executive pay raise to occur in January 1991.

Within-Grade Step Increases - The Smithsonian seeks \$775,000 in FY 1992 for within-grade step increases. For General Schedule employees, these increases are required by Section 5335 of Title 5, United States Code. Wage employees are covered by law and prevailing rates. Increases include the part-year costs of new actions scheduled to occur in the budget year as well as the costs of annualizing FY 1991 step increases.

One Additional Workday - The Institution has base funding for employee compensation for a 261-day workyear. FY 1992, however, contains 262 workdays, requiring additional funding of \$675,000 to cover employee salary and benefit costs.

Personnel Payroll System - The Institution uses the computer services of the U.S. Department of Agriculture's National Finance Center to support personnel management and payroll production. With base Federal funds of \$593,000, the Smithsonian requires an increase of \$120,000 for the Federal share of processing the payroll and personnel data and related communication services for current staff and anticipated new positions.

Payroll Base Deficiencies - The Institution requests \$395,000 to address various geographic pay increases; legislated upgrades for guards residing in New York City, Zoo Police at the National Zoological Park, and nurses; and existing payroll-related base deficiencies. Geographic pay increases for employees in the cities of Los Angeles, New York, and San Francisco will require \$169,000 in additional funding as follows: the Cooper-Hewitt Museum (\$80,000); the National Museum of the American Indian (\$79,000); and the Archives of American Art (\$10,000). Legislated pay upgrades for guards located in New York City, Zoo Police in Washington, D.C., and for nurses will require \$199,000 in additional funding as follows: \$113,000 for Smithsonian guards located in New York City, \$64,000 for the National Zoological Park Police, and \$22,000 for Smithsonian nurses. The Institution requests \$27,000 to restore base operating funds to a current services level for the Office of Planning and Budget (\$21,000) and the Management Analysis Office (\$6,000). These funds will remedy base erosion resulting from staff promotions, pay increases, filling vacancies at higher grades to attract the best candidates, and small operating budgets.

Workers' Compensation - The Smithsonian seeks to return a total of \$66,000 as specified in the provisions of Section 8147(b) of Title 5, United States Code, as amended on April 21, 1976, by Public Law 94-273. This law provides for payments to be made to employees for injuries and to their families in cases where work accidents result in employee death. These payments are determined and made by the U.S. Department of Labor's Employment Standards Administration, which subsequently bills agencies for costs incurred for their employees. The Institution's emphasis on the Accident Safety Program

administered by the Office of Environmental Management and Safety (OEMS), providing employee training in safety awareness and promoting the identification and elimination of potential hazards in the workplace, has resulted in the decrease in related employee compensation costs. The FY 1992 bill for the Institution's Federal portion, \$1,067,000, covers the actual expenses incurred for the period July 1, 1989, through June 30, 1990. With an amount of \$1,133,000 in its base for workers' compensation, the Institution relinquishes the excess \$66,000.

UTILITIES, COMMUNICATIONS, AND POSTAGE - An FY 1991 Federal base of \$20,057,000 and anticipated reimbursements of \$600,000 (\$20,657,000) are available to fund the costs of electricity, steam, gas, fuel oil, water, sewer, communications, and postage for nearly all Institution facilities. The Smithsonian needs an increase of \$860,000 in FY 1992 to cover anticipated costs.

The Smithsonian's projections of future utilities costs consider a variety of factors. These include:

- comparative data on actual energy consumption in previous years for each facility;
- adjustments for normal weather conditions for this geographic region based on information provided by the National Weather Service;
- actual and projected rates charged by utility companies;
- actual and projected reimbursements for utility costs from concessions, museum shops, and the Friends of the National Zoo;
- modifications to work and public spaces within facilities;
- continued energy conservation efforts in all Smithsonian buildings;
- improvements installed to heating, ventilating, and air conditioning systems and components throughout the physical plant;
- the design of new facilities; and
- projected increases in consumption caused by expanded use of computers and other equipment throughout the Institution.

The following table shows the costs and base funds available to cover the components of the Utilities account from FY 1990 to FY 1992.

ANALYSIS OF UTILITIES AND COMMUNICATIONS COSTS  
FY 1990 - FY 1992

	<u>FY 1990</u> <u>ESTIMATE</u>	<u>FY 1991</u> <u>ESTIMATE</u>	<u>FY 1992</u> <u>ESTIMATE</u>
<u>ELECTRICITY</u>			
<u>Use</u> - Millions of KWH	115.4	118.3	119.7
<u>Unit Cost</u> - Avg. per KWH	.059	.060	.061
<u>Cost</u> - \$000's	\$6,772	\$7,100	\$7,300
FY 1992 Estimated Cost			\$7,300
FY 1991 Base			<u>\$7,100</u> <sup>1</sup>
Base Shortage, Electricity			\$ 200
 <u>STEAM</u>			
<u>Use</u> - Millions of Pounds	217.2	225.8	225.8
<u>Unit Cost</u> - Avg. per 1,000 lbs.	15.50	15.50	15.50
<u>Cost</u> - \$000's	\$3,366	\$3,500	\$3,500
FY 1992 Estimated Cost			\$3,500
FY 1991 Base			<u>\$3,500</u>
Base Surplus, Steam			\$ 0
 <u>GAS</u>			
<u>Use</u> - Millions of Cubic Ft.	1.179	1.186	1.186
<u>Unit Cost</u> - Avg. per Cubic Ft.	.7236	.7588	.7588
<u>Cost</u> - \$000's	\$853	\$900	\$900
FY 1992 Estimated Cost			\$ 900
FY 1991 Base			\$ <u>900</u>
Base Surplus, Gas			\$ 0
 <u>FUEL OIL/WATER</u>			
<u>Cost</u> - \$000's	\$269	\$300	\$300
FY 1992 Estimated Cost			\$300
FY 1991 Base			<u>\$250</u>
Base Shortage Fuel Oil/Water			\$ 50
 <u>D.C. GOVT. WATER/SEWER</u>			
<u>Cost</u> - \$000's	\$2,057	\$2,588	\$2,567
FY 1992 Estimated Cost			\$2,567
FY 1991 Base			<u>\$2,742</u>
Base Surplus, D.C. Water/Sewer			\$ 175

COMMUNICATIONS

<u>Cost</u> - \$000's	\$4,125	\$4,300	\$4,600
FY 1992 Estimated Cost			\$4,600
FY 1991 Base			<u>\$4,065</u>
Base Shortage, Communications			\$ 535

POSTAGE

<u>Cost</u> - \$000's	\$2,072	\$2,150	\$2,350
FY 1992 Estimated Cost			\$2,350
FY 1991 Base			<u>\$2,100</u>
Base Shortage, Postage			\$ 250

<u>TOTALS</u>	FY 1992 Estimated Cost	\$21,517
	FY 1991 Base	\$20,657 <sup>1</sup>
	FY 1992 Requested Increase	\$ 860

ELECTRICITY - The major component of the Utilities account is electricity. The FY 1992 estimate of electrical consumption reflects an increase in consumption associated with full operation of new facilities in Panama, full occupancy of all pods at the Museum Support Center (MSC), the reopening of the newly remodeled and larger Freer Gallery of Art, and general increases associated with major automation efforts under way in all Smithsonian facilities and upgrading of exhibit halls in the museums of Natural History and American History. The FY 1992 rate estimate includes a FY 1990 approved 1 percent rate increase for all Maryland facilities and an anticipated 2.3 percent average rate increase, which PEPCO filed with the Public Service Commission of the District of Columbia on September 1, 1989. This increase will most likely be approved sometime during FY 1991. As a result of these increases, the FY 1991 base, plus anticipated reimbursements in FY 1992, are insufficient to cover the anticipated electricity costs for FY 1992. An increase of \$200,000 is requested.

STEAM - The FY 1992 estimate reflects an estimated increase in consumption over FY 1990 associated with a return to more normal winter weather patterns. Consumption for FY 1990, especially during the period of January - March 1990, was atypical for the Washington, D.C., area, with temperatures reaching in the 80° - 90° F. range. The current FY 1991 base is adequate to cover the increased costs associated with this anticipated consumption increase.

GAS - The FY 1991 and FY 1992 estimates reflect a modest consumption increase associated with the planned full occupancy of the pods at the Museum Support Center. In addition, the estimates reflect a 5 percent rate increase that the Washington Gas Light Company has filed with the Public Service Commission of the District of Columbia and that is expected to be approved during FY 1991. Despite the expected increase in consumption and rates, the current FY 1991 base is adequate to cover the anticipated increased costs.

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<sup>1</sup>Reflects FY 1991 Federal base plus anticipated reimbursements in FY 1992 of \$600,000.

FUEL OIL/WATER - The FY 1992 estimate reflects consumption increases in water usage at both the Museum Support Center, associated with the anticipated full occupancy of all pods, and at the National Zoological Park facilities at Front Royal, Virginia. As a result of the consumption increases, an additional \$50,000 is necessary to cover the anticipated costs for fuel oil and water in FY 1992.

D.C. GOVT. WATER/SEWER - The FY 1991 and FY 1992 estimates are based entirely on cost estimates provided by the D.C. government. The D.C. government estimates are based upon usage data for FY 1988 and FY 1989. The FY 1990 cost figure represents three-quarter year costs, since the first quarter cost was paid through the D.C. Federal appropriation process. As a result of the cost estimates provided, a base surplus of \$175,000 is available in FY 1992 to offset expected shortages in other Utilities accounts.

COMMUNICATIONS - The FY 1992 estimate is based upon the usage costs associated with the FTS 2000 system, and the annualization of costs associated with the data communications link between the Smithsonian Tropical Research Institute and Smithsonian computers in Washington. The Institution requires additional funds due to annualization of the costs associated with the new voice communication system at the Freer Gallery of Art and upgrades due to the extensive rehabilitation of the Arts and Industries Building. The increase is also necessary due to data communications services for access to Institutional information systems such as the Accounting and Payroll/Personnel systems, the Institution's electronic mail system and the Library system. As a result of the cumulative effect of these actions, an additional \$535,000 is necessary to cover anticipated costs for communications in FY 1992.

POSTAGE - The FY 1992 estimate is based upon an expected rate increase by the United States Postal Service for all classes of mail in or by FY 1992. As a result of this expected action, an additional \$250,000 is necessary to cover anticipated postage costs in FY 1992.

ENERGY CONSERVATION - The Institution continues to monitor and limit all forms of energy consumption. An automated energy management system reduces peak energy demand by selectively shutting down equipment when necessary. This system, when fully installed, will monitor equipment in all buildings for fluctuations or malfunctions and alert staff to inspect for problems. Ongoing efforts also include:

- continuing the phased program of performing comprehensive building energy audits;
- renovating heating, ventilating, air conditioning, plumbing, and electrical systems;
- reducing lighting levels in work and nonpublic areas;
- installing more efficient lighting fixtures;
- operating heating and air conditioning systems at the minimum level necessary to prevent damage to the collections;
- curtailing electrical consumption during nonpublic hours;
- increasing attention to energy conservation when determining space use, modifying space, and designing new facilities.

Through the use of the Facilities Management computer system, the Smithsonian will eventually gain closer control over building lighting systems. The system conserves electricity by turning lights on and off as use fluctuates. Automated lighting controls are now in place at the Air and Space Building, the American History Building, the Natural History Building, and the Quadrangle Complex. The Smithsonian plans to install such a system in the American Art and Portrait Gallery Building in FY 1991/FY 1992 and in later years in other major buildings.

RENTAL SPACE - For FY 1992, the central rental account, included in the line-item for the Office of Plant Services, requires \$110,000 for uncontrollable expenses. The FY 1991 base includes redirection to the rental account of \$53,000 from the National Museum of the American Indian for office space at L'Enfant Plaza for planning and coordination teams and \$155,000 for new administrative space. The FY 1992 base includes redirection to the rental account of \$46,000 requested in FY 1991 for space renovations. This account provides for the Federal portion of the rental expenses for program and administrative activities located at L'Enfant Plaza, the Smithsonian Institution Services Center at 1111 North Capitol Street, the research bureaus of the Archives of American Art in New York City and Boston, Massachusetts, and storage at the Fullerton Industrial Park in Springfield, Virginia. The amounts below reflect projected costs for rental space at these sites:

FEDERAL RENTAL PROGRAM ADMINISTERED BY THE OFFICE OF PLANT SERVICES

FY 1990 - FY 1992

(\$000's)

	FY 1990		FY 1991		FY 1992	
	<u>Estimated Cost</u>		<u>Estimated Cost</u>		<u>Estimated Cost</u>	
	<u>Federal</u>	<u>Trust</u>	<u>Federal</u>	<u>Trust</u>	<u>Federal</u>	<u>Trust</u>
L'Enfant Plaza	\$1,640	\$1,259	\$1,902	\$1,407	\$1,917	\$1,548
North Capitol Street	1,073	121	1,134	136	1,159	148
Archives of American Art:						
- New York	133	--	160	--	265	--
- Boston	10	--	15	--	15	--
Fullerton	<u>261</u>	<u>--</u>	<u>298</u>	<u>--</u>	<u>309</u>	<u>--</u>
Total Costs	\$3,117	\$1,380	\$3,509	\$1,543	\$3,665	\$1,696
Base	3,036		3,509		3,555	
Surplus/(Deficit)	(81)		--		(110)	

The FY 1992 estimate for Federal rental costs for L'Enfant Plaza reflects annual cost increases specified in the lease agreement and takes into account the offsetting Trust-fund contribution for shared administrative activities and office space occupied by the specific auxiliary activities on the Mall.

The projected rental expense for space at 1111 North Capitol Street includes the annual cost increase specified in the current lease, with the allocation policy on administrative and programmatic space also governing the Federal/Trust apportionment of costs for this location.

The projected rental expense for the Archives of American Art represents funding requirements for the spaces occupied in New York and Boston. The increase for the New York office reflects an adjustment in the rental rate.

Finally, the projected rental expense for Fullerton reflects the continuing cost of storage space approved for the Smithsonian Institution Archives in FY 1989 and the National Museum of American History in FY 1990.

For FY 1992, the projected Federal share of the central rental account is \$3,665,000. The Institution's Federal base is \$3,555,000 in FY 1991. Therefore, the Smithsonian requires an additional amount of \$110,000 to defray space rental costs at these locations in FY 1992.

SMITHSONIAN ASTROPHYSICAL OBSERVATORY RENT - For FY 1992, the Smithsonian Astrophysical Observatory (SAO) seeks \$115,000 to cover uncontrollable rent increases for the two primary facilities in Cambridge, Massachusetts, 60 Garden Street and 160 Concord Avenue.

60 Garden Street Property - For FY 1992, SAO seeks \$100,000 to cover the impact of rent increases for the 60 Garden Street facility. SAO leases approximately 90,000 square feet of space from Harvard College Observatory (HCO). Rent is negotiated annually and is dependant on the actual costs of operating and maintaining the buildings during the previous year, plus or minus any carryover of costs from the prior year.

For FY 1990, HCO has been directed by the assistant dean for facilities of the Faculty of Arts & Sciences to raise the level of maintenance on its buildings and to increase its contribution to the Maintenance Reserve Fund to a prescribed level adequate to properly maintain the buildings in future years. As a result of this directive, HCO plans to spend approximately \$175,000 in FY 1991 for unbudgeted repairs (not included in the negotiated lease costs per square foot) to its older buildings to restore acceptable levels according to University standards. In addition, HCO provided \$200,000, also unbudgeted, to the Maintenance Reserve for the buildings. As these expenses were unknown at the time of submission for the FY 1991 budget request, SAO did not provide for them in its estimate of FY 1991 lease costs. Thus, this deficit of SAO rent income to HCO in FY 1991 of \$375,000 will carry over to the FY 1992 lease. Further, FY 1992 upgrading and maintenance expenses are expected to increase by about \$100,000. SAO occupies approximately 70 percent of the HCO buildings, with the Federal share of SAO's rental costs being about 30 percent, the impact of the carry over deficit added to increased FY 1992 operating and maintenance costs on SAO's FY 1992 lease with HCO, will result in an uncontrollable increase of \$100,000.

160 Concord Avenue Property - SAO's lease at 160 Concord Avenue expires in November 1990. SAO has negotiated a renewal to the lease for the five-year period beginning December 1, 1990. The increase in the lease covering the period December 1990 to September 1991 is allocable to FY 1991 and was included in the FY 1991 budget submission. The cost to annualize the increase in the lease for October and November 1991 allocable to the Federal budget for FY 1992 amounts to \$15,000.

ADMINISTRATIVE SPACE - The Smithsonian seeks \$1,000,000 for FY 1992 to secure administrative facilities to replace the current warehouse located at 1111 North Capitol Street. Two factors prompt the need to acquire a replacement for the North Capitol Street facility. The current lease expires in fall 1992, and the building owners plan to sell

the property. Second, a thorough review of space requirements indicated that the Smithsonian now requires a service center of approximately 350,000 square feet to situate all related activities in one location, freeing space on the Mall for public programs. Such activities would include warehouse; shipping and receiving; craft and light manufacturing shops (now located in the Natural History Building); printing and binding shops; library and archival holdings; training classrooms; motor pool and vehicle maintenance; and a computer facility.

To meet these requirements, the Institution issued a Solicitation for Offers for an Administrative Service Center in March 1990. The Institution received and evaluated offers during FY 1990. Proposals range over a variety of options including lease, lease purchase, and outright purchase with variations on the principal approaches. Discussions with OMB and Congress will be necessary to decide on a course of action once the Smithsonian has assessed all proposals on their technical and financial merits. Although a relocation to a new facility is not anticipated before FY 1993, the Institution requests \$1,000,000 in FY 1992 to purchase storage and other equipment to prepare materials to be relocated to the new building.

DISASTER PREPAREDNESS - The Institution seeks an amount of \$200,000 for FY 1992 to implement a disaster preparedness program for all facilities within the Smithsonian. In addition, the development of a pan-Institutional plan to reduce the risk of loss of life, facilities, collections, and interruption of operations is also desired to facilitate the areas of emphasis of the Smithsonian.

The breakdown of the request is as follows:

Cost of emergency response trailer and initial supplies	\$ 75,000
Revision of computer system	100,000
Miscellaneous (training, exercises, educational materials, etc.)	<u>25,000</u>
Total	\$200,000

At present, the Institution has no comprehensive disaster preparedness program to safeguard the research, collections, staff, and facilities under its care. Preliminary development of the disaster preparedness program is currently under way. Implementation of the program among the Smithsonian organizations requires funding for training, computer applications, and initial supplies. Pursuit of this program has placed the Institution in a leadership position in the field of disaster preparedness within the museum community. The knowledge derived from this exercise will benefit both national and international organizations entrusted with the collection of cultural artifacts.

INFLATION - Inflation continues to reduce the Institution's purchasing power for equipment, supplies, and other services. Uncertain economic growth and employment levels will lead to increased costs for supplies and services the Institution requires on a regular basis. Increased service charges for supplies purchased through the General Services Administration and its contract vendors compound the external inflationary erosion of the Institution's established base. The following are examples of supplies and services affected by recent trends in inflation.

Exhibitions - Inflationary increases for construction materials, equipment, and supplies place a strain on the base resources needed to maintain an active exhibition program. The table below illustrates cost increases for items used extensively in exhibit preparation.

Exhibition Materials

Item	FY 1989 Cost	FY 1990 Cost	Percentage Increase
White latex paint, gallon	\$16.50	\$18.63	13%
Plexiglas, clear GM, 1"x4'x8'	84.16	99.20	18%
Plywood:			
AC, .5"x4'x8'	17.41	26.72	53%
Birch, .5"x4'x8'	29.90	32.50	8%
Masking tape	1.25	1.50	20%
Chromate paint, gallon	26.80	33.60	25%
10 A transformer	131.00	179.95	37%
A/V equipment:			
Audio tape 226	6.23	9.24	48%
Loop cart machine	1,700.00	1,955.00	15%
RR51 audio cable	1.49	1.99	33%
JLG lift	4,250.00	6,470.00	52%
Paper, 24"x500' roll	108.00	133.95	24%

Collections Management - Comprehensive collections management programs necessary for the preservation of the objects at the Institution are not immune to inflationary effects. The table below illustrates the effects of inflation on items for preservation.

Collections Management Equipment and Supplies

Item	FY 1989 Cost	FY 1990 Cost	Percentage Increase
Mylar sheets, 11"x14"	\$ 17.18	\$ 20.00	16%
Document box, #12510	2.35	3.00	28%
Computer diskettes, 3.5" bx 10	36.49	51.25	40%
Cerebellum slide	2.80	3.90	39%
CPN (negative)	124.69	202.50	63%
LeParfait, 3-liter jar (case)	16.50	18.75	14%
Alcohol (drum)	173.25	222.75	29%
Noxfish, 5 gal.	134.25	186.00	39%
Insect pins	25.27	29.44	17%
Cabinet, standard insect-drawer	650.00	750.00	15%
CP297B (developer)	22.61	31.64	40%
Film, LPF 4, 8"x10"	48.60	54.65	12%

Research - The Smithsonian's strength as a research institution is bolstered by the quality of its research support operations. The Institution's researchers depend on research tools, the latest technology in equipment and scientific instruments, books, and research journals. Access to up-to-date information published in specialized journals is the lifeblood of research at the Smithsonian. Cost increases of 49 percent in journal subscriptions since 1986 have drastically reduced the Libraries' ability to supply researchers with the information they need. The average journal subscription for SIL rose from \$107 in 1985 to \$160 in 1989, and costs are still rising. Without recovering the impact of inflation against buying power, the Smithsonian will inevitably lose credibility as a research facility due to less than adequate support services. The table below

illustrates examples of increases for research-related items for museums and the National Zoological Park.

Research Equipment and Supplies

Item	FY 1989 Cost	FY 1990 Cost	Percentage Increase
Millitech frequency multiplier	\$8,500.00	\$9,800.00	15%
4-Chloro-1 naphthol, pkg/100	50.40	86.25	71%
Powder free gloves, PVC, 1000	16.25	24.00	40%
Spatula	4.00	6.00	50%
Microspatula	7.00	8.77	25%
Dialysis tubing, 50 ft.	94.80	115.00	21%
Stainless steel beaker	17.00	23.67	39%
Glassware draining rack	190.00	276.00	45%
Replacement filters, 5 microns	3.65	5.00	37%
Flathead electrode	156.00	195.00	25%
Stirring platform	69.00	99.00	43%
Test tubes, 13x100 mm case 10/pk	122.40	144.00	17%
Pocket anemometer	115.00	135.00	17%
O-Oxygen solution, 16 oz bottle	5.50	11.95	85%
<u>Anthropologie. Int'l Journal for the Science of Man</u>	25.45	50.78	99%
<u>American Chemical Society Journal</u>	369.00	645.75	75%
Illuminator bulbs, intralux 5000	8.20	10.47	28%
Nitrogen (cyl)	11.05	21.48	94%
Liquid nitrogen, refill/tank	63.80	74.16	16%
Laundry service for lab coats (ea.)	.75	.90	20%

Facilities Management and Administration - All programs at the Smithsonian are affected by the services provided by facilities management and administrative offices. These offices are responsible for the maintenance and protection of the Institution's facilities, collections, visitors, and staff. Maintenance of the facilities requires regular purchase of custodial supplies and equipment in addition to services, all of which are subject to price increases. Information resource management is most efficient with regular upgrades and maintenance of hardware and software as well as staff training on new systems. The anticipated increase in supplies and services related to information resource management are expected to increase approximately 9 percent, a rate that has held for the past three years. Examples of facilities management supplies and services subject to inflation are identified below:

Administrative and Buildings Maintenance Supplies and Contracts

Item	FY 1989 Cost	FY 1990 Cost	Percentage Increase
Hazardous waste removal-NMNH	\$13,600.00	\$27,000.00	99%
Trash service - NMNH	52,000.00	57,200.00	10%
Cintas (uniforms)	6,542.00	7,442.00	14%
AB & B pest control	400.00	450.00	13%
Pritronix (BMSG)	1,541.00	1,842.00	20%
Yellow fever vaccine, 5 units	90.48	104.05	15%
Refill oxygen cylinder, D size	10.47	15.95	52%
Immunization alert	550.00	700.00	27%
Copier rental	17,820.00	20,240.00	14%
Plastic bags, 55 gal/100	20.20	28.66	41%
Toilet paper	31.50	44.34	41%
Glass cleaner, scene	20.80	22.78	9%
LMC liquid shampoo, 32 gal.	5.52	6.49	17%
Xerox copier supplies/dry ink	195.00	225.00	15%

For FY 1992, the Institution seeks \$2,702,000 to help offset the base erosion resulting from inflation. This amount represents 3 percent of the Institution's Federal budget for FY 1991, excluding personnel, utilities, rent, and Museum Support Center equipment and move costs.

The impact of inflation is equivalent to a significant reduction each year to the base resources of all Smithsonian organizational units. As a consequence, inflation affects scientific, research, educational and public programs, and the care and conservation of the Institution's collections.

HEALTH INSURANCE - For FY 1992, the Institution requests an amount of \$3,100,000 to cover the rising cost of health insurance for employees. The Smithsonian's FY 1990 base is \$5,452,000, with no increase included in the FY 1991 budget. Actual insurance rates for FY 1990 rose 13.3 percent (\$725,000), while FY 1991 estimates of 20 percent (\$1,235,000) and projected FY 1992 increases of 20 percent (\$1,140,000 for 3/4 of the year) are indicated for the future. The total of these three increases represents the \$3,100,000 request from uncontrollable increases in health insurance.

MUSEUM SUPPORT CENTER - For FY 1992, the Smithsonian requests an amount of \$3,022,000 pertaining to a vendor judgement relating to the purchase of equipment for the Museum Support Center facilities.

RESEARCH



OFFICE OF THE ASSISTANT SECRETARY FOR RESEARCH

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	36	1,586	6	612	-	2,104	-	281	-	79
FY 1991 Estimate	36	1,647	6	612	-	2,193	-	677	2	258
FY 1992 Estimate	39	2,259	6	612	-	2,207	-	625	2	249

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The Office of the Assistant Secretary for Research (OASR) seeks to facilitate, strengthen, and plan for the Smithsonian Institution's worldwide research efforts and research support activities. The Office develops policies and fosters an environment conducive to the creation and dissemination of high-quality, original scholarship; promotes research as an essential endeavor that contributes to knowledge and creates a heightened appreciation of the relevance of ideas in modern society; seeks to build an excellent research staff that reflects the Nation's diverse cultural heritage and the Institution's scholarly strengths; and fosters effective linkages between scholarship and other Institutional efforts, especially public programs and global change initiatives. Also included in this line-item are the Joseph Henry Papers, the Office of American Studies, and the Office of Fellowships and Grants.

The Joseph Henry Papers researches and publishes the manuscripts of Joseph Henry, first Secretary of the Smithsonian and a leading 19th-century American physicist. The Office of American Studies conducts a graduate program in American material culture, incorporating course work at the Smithsonian. The Office of Fellowships and Grants manages and administers the Institution's programs of research grants, fellowships, and other scholarly appointments.

For FY 1992, the Office of the Assistant Secretary for Research requests an increase of 2 workyears and \$160,000 to provide a diving safety officer and support for the diving program (2 workyears and \$90,000); and support for the carbon dating program (\$70,000). The Joseph Henry Papers requests an increase of \$40,000 for restoration, conservation, and preservation of the Alexander Graham Bell-Joseph Henry Library collection (\$10,000); programmatic development (\$10,000); and automation (\$20,000). The Office of Fellowships and Grants requests a fellowship/internship coordinator (1 workyear and \$48,000); printing and distribution of a guide to research opportunities (\$14,000); rental space (\$50,000); and a research resources program (\$300,000).

PROGRAM:

I. Office of Assistant Secretary for Research - With base funding of 20 workyears and \$905,000, the Office of the Assistant Secretary for Research, in concert with the Secretary and other appropriate management staff, supervises the research activities of the Institution. The Office is responsible for enhancing the Institution's scholarly environment and productivity by initiating cyclical outside evaluations of scholarly activities; fostering regular reviews of individual scholars' performance; providing increased research opportunities through internal competitive funds; creating and coordinating central programs that support individual and group research efforts; broadening the base of funding for research through both Federal and private funds; assessing programmatic effectiveness and making recommendations for curtailing selected activities; deepening and selectively expanding the Institution's activities in areas of high Institutional priority; and establishing joint programs, appointments, and cooperative efforts with other scholarly institutions, including the Nation's universities. This Office is also responsible for tracking external research trends and ensuring that they are appropriately coordinated with current Smithsonian activities. OASR serves as the major Institutional liaison for research centers in the United States and abroad. The Office oversees and coordinates scientific diving activities that support collection and study of underwater subjects and environments by a variety of Smithsonian research bureaus. In addition, the Office strives to improve the dissemination of the Institution's research findings to the general public and to specialized audiences.

II. Joseph Henry Papers - With base funding of 5 workyears and \$247,000, the Joseph Henry Papers (JHP) conducts interpretive historical research on the life and times of Joseph Henry, a pioneer American physicist and the first Secretary of the Smithsonian Institution; supports internal and external scholarly research on 19th-century American science through the development of data bases and the management of collections; and maintains the Alexander Graham Bell-Joseph Henry Library. The Henry Papers is a source of unpublished and little-known letters and papers, collected from 30 foreign countries and 328 depositories in the United States. The documents and commentary provided by the editors give insight into the history of science, the institutional and social structure of the scientific community in the 19th century, and the history of the Smithsonian Institution.

The Joseph Henry Papers will publish the sixth volume of the Henry Papers, detailing Henry's work at the College of New Jersey (now Princeton University) and including his extensive experimentation in electricity and magnetism. A selection of 300 manuscripts from the 3,720 available for publication in volume 7, the first of the "Smithsonian Years," will focus on Henry's efforts to establish the Smithsonian Institution as a center for the support of original research. For the Joseph Henry Papers, publication objectives are a 15-volume letterpress series, an indexed 90,000-item microform edition, and special publications for a more general audience.

III. Office of American Studies - With base funding of 2 workyears and \$115,000, the Office of American Studies (OAMerS) sponsors a graduate program in American material culture in cooperation with various universities located in the Washington, D.C., area and in other cities. The director of the program and cooperating scholars teach three or four seminars a year to graduate students in American studies or American history departments of affiliated universities for academic credit. Through the program, both scholars and students pursue American studies using the unique resources of experts, objects, manuscripts, and books available in various bureaus of the Smithsonian and

disseminate the knowledge acquired during course study and research performed at the Smithsonian. In addition, the Office fosters research on American studies within the Institution and elsewhere.

IV. Office of Fellowships and Grants - With base funding of 9 workyears and \$380,000, the Office of Fellowships and Grants (OFG) manages the Institution's centralized fellowship and internship programs, all other stipend appointments, and other programs that support research.

These research programs enable students and scholars from throughout the world to visit the Institution and use its varied resources. The number of awards has grown tremendously over the past six years. OFG receives more than 1,500 applications and administers approximately 900 appointments and 75 grants. In FY 1990, OFG awarded 99 predoctoral and postdoctoral fellowships through the Institution-wide program. Twenty-nine of these recipients were foreign students and scholars from 17 countries. In addition, Federal and Trust funds allocated to the bureaus supported 188 short- and long-term awards. Under the Short-Term Visitor Program, 141 persons representing 32 countries came to the Institution. The Office also administered internship stipend awards for 180 students in FY 1990.

The Office administers programs to increase minority participation in Smithsonian research activities and disciplines. Thirty-three students joined ongoing research and museum studies in the Minority Internship Program, and one student received an appointment under the Cooperative Education Program. The Native-American Awards Program appointed 23 Native-American students and scholars to work on Native-American resources and activities at the Institution. Under the Faculty Fellowship Program, two minority faculty members received awards to conduct research in residence.

Several programs provide scholarly support to Smithsonian professional staff. From the competitive Scholarly Studies Program, 45 research proposals received grants. Some of these awards involved collaborative studies with scholars from other institutions.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, the Office of the Assistant Secretary for Research requests an increase of 2 workyears and \$160,000 to provide a diving safety officer and support for the diving program (2 workyears and \$90,000); and support for the carbon dating program (\$70,000). The Joseph Henry Papers requests an increase of \$40,000 for restoration, conservation, and preservation of the Alexander Graham Bell-Joseph Henry Library collection (\$10,000); programmatic development (\$10,000); and automation (\$20,000). The Office of Fellowships and Grants requests a fellowship/internship coordinator (1 workyear and \$48,000); printing and distribution of a guide to research opportunities (\$14,000); rental space (\$50,000); and a research resources program (\$300,000).

I. Office of the Assistant Secretary for Research:

Diving Safety Officer and Diving Program Support (2 workyears and \$90,000) - Smithsonian scientific diving research projects have increased steadily over the last five years. More than 120 Smithsonian scholars currently use SCUBA as an integral tool in underwater research. In addition to this large number of Smithsonian employees requiring scientific diving skills, more than 100 visiting researchers dive annually under Smithsonian Institution auspices in support of collaborative research activities. The U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) published guidelines for scientific diving on January 9, 1985 (29CFR Part 1910, Federal Register,

vol. 50, no. 6: 1046-50). Adherence to these guidelines allows scientific diving programs to avail themselves of the exemption from commercial diving regulations. Essential elements of a scientific diving program are an appointed diving officer and a Diving Control Board that "consists of a majority of active scientific divers and has autonomous and absolute authority over the scientific diving program's operations." An internal Smithsonian management analysis of May 1989 reconfirmed the immediate need to hire a full-time scientific diving officer and to allocate additional support funds to ensure adherence to OSHA guidelines and the accepted standard of practice of the scientific diving community.

The scientific diving officer will monitor compliance with Smithsonian scientific diving policies, regulations, and procedures and ensure reciprocity agreements with nationally recognized scientific diving institutions. In coordination with the Smithsonian Diving Control Board, the scientific diving officer will train and certify divers, approve dive plans and operations, inspect dive sites, develop emergency evacuation plans, and administer the program.

To comply with OSHA guidelines, the Office of the Assistant Secretary for Research requests \$90,000 to support a full-time scientific diving officer and a secretary (2 workyears and \$57,000). This increase will also provide support funds (\$33,000) for the diving program, including equipment, supplies, and travel to the various research sites throughout the globe.

The positions of a scientific diving officer and a secretary ensure the safety of Smithsonian diving scientists and coordinate diving activities among all bureaus of the Smithsonian, the Nation's largest civilian scientific diving program.

Carbon Dating (\$70,000) - Accurate dating of the age of objects is significant to Smithsonian research in such areas as anthropology, geology, and paleontology. These analyses are critical to working out the chronology and time scale involved in addressing various theoretical and historical questions. For example, radiocarbon dates from sites on the islands of Oahu and Hawaii will help to determine whether there was variation in the timing of extinction of the native Hawaiian birds on different islands. In addition, the dating of bones from remote sites on the island of Maui will test the hypothesis that such areas harbored relict populations of birds that survived prehistoric human impacts only to become extinct during the past 100-200 years.

In FY 1987, following the closing of its internal laboratory, the Institution established a competitive fund to procure carbon dating. Smithsonian bureaus and offices needing carbon dating services submit proposals that OASR reviews for scholarly merit and cost effectiveness. From this fund, the Institution contracts services from commercial firms. These services produce valuable data for a range of projects.

The requested funds (\$70,000) will help meet the increased demands for dating of material as an integral part of the various research programs. They will enable the Smithsonian to continue to play a leading role in many disciplines such as anthropology and material science.

At present, the Institution has deferred or scaled back many important dating projects due to lack of funds. The proposed request will allow for the most important of these projects to proceed.

## II. Joseph Henry Papers:

Restoration, Conservation, and Preservation of the Alexander Graham Bell-Joseph Henry Library Collection (\$10,000) - The Henry Papers staff and outside scholars concerned with developments in 19th-century American science use the Alexander Graham Bell-Joseph Henry Library collection in their research. The staff works to maintain a balance between use and preservation of the collections. Many of the books in the Library suffer from broken spines, frayed bindings, brittle paper, and loose pages. These conditions limit the handling of these rare volumes. The restoration, conservation, and preservation of the Bell-Henry Library will allow staff and scholars greater access to this important collection. When the Library is less fragile and in a stable environment, the Henry Papers will strengthen its services to students, interns, scholars, and the general public. The staff will also improve bibliographic control and publish a catalogue of the holdings.

The Henry Papers began its restoration, conservation, and preservation program by removing the Bell-Henry Library from exposure to sunlight, daily traffic, and fluorescent lighting. Variations in temperature and humidity are, however, causing the volumes to continue to deteriorate. In addition, limited knowledge among Henry Papers staff of such topics as disbanding techniques, historical endband construction, and deacidification processes requires consultation with experts. Without additional funding, the Henry Papers will be unable to continue its restoration, conservation, and preservation program.

The Henry Papers will use these funds (\$10,000) to contract with book conservators to conduct a volume-by-volume examination of the physical condition of the Bell-Henry Library. These experts will identify the damage, evaluate the feasibility of restoring items, consider the appropriateness of transferring texts to microform, and discuss environmental conditions. The conclusions will provide clear priorities for future resource allocations and budget requests.

The restoration, conservation, and preservation of books is a priority to preserve information for future generations. The collections of the Bell-Henry Library offer scholars a unique insight into the history of science and technology and the heritage of the Smithsonian, and they need to be properly cared for and preserved.

Programmatic Development (\$10,000) - The Henry Papers must reactivate its international search for Henry and Henry-related documents in archival and manuscript collections. Henry Papers staff conducted the most recent large-scale search and acquisition in 1972; since that time, other important collections and materials have surfaced. In FY 1990, JHP conducted a preliminary survey of the leading repositories in Europe and the United States and identified 30 collections that require a systematic search by a Henry Papers staff member. These collections include newly acquired or processed materials relating to Joseph Henry, his life, and his times.

With the requested funds (\$10,000), the Henry Papers staff will visit repositories in five European and 24 American cities and photocopy and/or microfilm documents that will expand the collections of the Henry Papers.

The papers of these leading European and American scientists will continue to illuminate Henry's international eminence as a physicist. The collections of political figures will serve to document Henry's political role as head of the Smithsonian and a leader of the American scientific community.

Automation (\$20,000) - The Henry Papers must replace five computers to ensure effective access to its newly developed finding aids and data bases. Access to centralized, computer-based material will provide research services to staff, scholars, fellows, interns, and the general public.

The Henry Papers uses automation and computer integration to edit and control the manuscripts of the selected letterpress editions, provide access to its collections, and conduct administrative activities. Efficient access and use of the data requires state-of-the-art computer equipment.

The Henry Papers requests \$12,000 to purchase five computers and \$5,000 to upgrade software. The remainder of the funds (\$3,000) will secure staff training and repair and maintenance of other computer equipment within the office.

### III. Office of Fellowships and Grants:

Fellowship/Internship Coordinator (1 workyear and \$48,000) - The Office of Fellowships and Grants strives to maintain and enhance the Smithsonian's overall scholarly environment. To accomplish this goal, OFG must develop new programs to match the growing research opportunities at the Institution.

OFG staff presently have to concentrate on administrative details associated with the almost tenfold growth in awards over the last five years. Staff members have had little time for enhancement of programs. OFG requests a fellowship/internship coordinator (1 workyear and \$48,000) to enhance the activities of the office and provide support for visiting students and scholars. With the requested position, OFG will develop and coordinate, more fully, new fellowship and internship programs and establish joint programs and seminars with colleges and universities, graduate training programs, minority summer institutes, and other related initiatives.

With this increase, OFG will keep pace with the expansion of research at the Smithsonian.

Printing and Distribution of a Guide to Research Opportunities (\$14,000) - To distribute information about scholarly programs at the Smithsonian, OFG publishes the Smithsonian Opportunities for Research and Study (SORS). SORS describes the Smithsonian museums, research facilities, and other support offices and lists the research staff and their specialties. This much-used publication is the only comprehensive guide to the Institution's programs and offerings. OFG distributes it throughout the United States and abroad in response to inquiries about educational opportunities at the Institution.

As fellowship and internship programs at the Institution have expanded, demand for this publication has increased. The requested funds (\$14,000) will cover the increased costs of printing and distributing SORS that have come with program expansion.

Space Deficiency (\$50,000) - OFG requires additional space to conduct its work. At present, valuable program material is stored inadequately and inefficiently.

An increase of \$50,000 will allow OFG to rent additional space. This space will give OFG room to maintain active fellowship, grant, and program files. It will include additional working and storage space for coordinating application materials during several

competitive program review cycles. OFG will also set up an orientation/reception area for fellows, students, and other visiting scholars.

With this increase, OFG will maintain office efficiency and be able to conduct its work in an appropriate professional environment.

Research Resources Program (\$300,000) - The Smithsonian's archives and libraries--books, documents, films, photographs, and recordings--are National resources. Some are renewable, but many unique ones are not. All are fragile, and all deteriorate with use. Conservation and sustained investment are essential to maintain them. To defer conservation and preservation only hastens deterioration, destruction, and depletion of research resources.

The requested increase (\$300,000) will establish a phased, competitive program for the preservation of documentary research resources. The program will establish a peer review process linked to national professional expertise and concerns outside the Smithsonian. This process will evaluate proposals from Smithsonian bureaus and offices to identify, organize, and preserve significant whole collections of Smithsonian documentary research resources to make them more widely available to the scholarly community and lay public.

The Smithsonian is committed to preserving the legacy of the diverse American culture. The Research Resources Program will permit the Institution to start preserving these important collections for future generations.

#### NONAPPROPRIATED SOURCES OF FUNDING:

##### I. Office of Assistant Secretary for Research:

Unrestricted General and Special Purpose Funds - Annual allotments provide these funds that support the salary, benefits, and expenses of the Assistant Secretary for Research. An allotment also supports three important international foundations that operate field research stations used by Smithsonian staff members as well as others in the world scientific community. The Smithsonian also provides support for the exchange of scholars and scientific information between the Smithsonian and scientific organizations in other nations. A Special Purpose Fund supports cooperative agreements between the Smithsonian and the Nation's universities. The Research Opportunities Fund supports unanticipated general research for Smithsonian scholars.

##### II. Joseph Henry Papers:

Unrestricted General and Special Purpose Funds - Funds are available from the Smithsonian's Research Opportunities Fund to support research projects.

Restricted Funds: The Smith College Tuition Fund defrays travel and auxiliary support costs for staff, interns, and volunteers, as well as stationery and supplies. Support from the National Academy of Sciences pays for incidental programmatic items not otherwise funded, including journal subscriptions and additions to the Henry Papers research collections. A grant from the Ida Hornstein Reingold Memorial Fund supports the scholarly activities of the Joseph Henry Papers.

### III. Office of American Studies:

Unrestricted General and Special Purpose Funds - OAmerS receives tuition reimbursement from cooperating universities, principally George Washington University and the University of Maryland, whose graduate students take courses offered by the Office of American Studies. The tuition reimbursement refunds the Smithsonian Institution for the use of its facilities by the students participating in Smithsonian classes and, in addition, provides honoraria and reimbursement for the services of outside experts participating in the program.

### IV. Office of Fellowships and Grants:

Unrestricted General and Special Purpose Funds - These funds are primarily for the Institution-wide fellowship programs. Shorter visits by scholars and students also receive support. A program allotment supports a part of the administrative expenses of the Office of Fellowships and Grants. The Regents Fellowship Program continues to bring distinguished visiting scholars to the Institution.

In addition, Special Purpose Funds provide for minority internships and faculty fellowships, minority students pursuing graduate degrees under the Education Fellowship Program, and the Native-American Awards Program. The Scholarly Studies Program encourages research by Smithsonian staff in the sciences, arts, and humanities.

SMITHSONIAN ASTROPHYSICAL OBSERVATORY

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	110	10,991	48	3,866	35	4,563	-	40	106	22,990
FY 1991 Estimate	125	12,532	48	5,348	51	4,610	-	147	141	35,468
FY 1992 Estimate	145	14,415	56	5,620	51	4,423	-	100	155	39,181

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The Smithsonian Astrophysical Observatory (SAO) conducts research in astronomy and astrophysics to increase knowledge and understanding of the universe, its origin, and its contents, and to communicate this information through publications, teaching, and public presentations. SAO conducts research in diverse fields that include the formation, current structure, and evolution of planets, the Sun, stars, galaxies, clusters of galaxies, quasars, and the large-scale structure of the universe, as well as laboratory astrophysics, atmospheric physics, and geophysics. SAO research has a major impact in the worldwide scientific community and has helped the United States maintain world leadership in astrophysical research. SAO coordinates its varied scientific program with the Harvard College Observatory, and together the two observatories form the Center for Astrophysics in Cambridge, Massachusetts. In addition, SAO operates the Oak Ridge Observatory in Massachusetts and the Fred Lawrence Whipple Observatory in Arizona, the latter the site of the Multiple Mirror Telescope, a joint project with the University of Arizona.

For FY 1992, SAO requests an increase of 15 workyears and \$1,562,000 for scientific and technical staff and support (7 workyears and \$402,000); laboratory and scientific equipment (\$300,000); computer replacement and improvement (\$250,000); expansion of education programs (1 workyear and \$125,000); additional clerical support (7 workyears and \$223,000); and furnishings, facilities maintenance, health and safety, and public information programs at the Whipple Observatory (\$147,000). The justification for an increase in rent costs totalling \$115,000 appears in the Uncontrollable Increases section of this budget.

The Institution also requests no-year funding in the Major Scientific Instrumentation line-item for the nonpersonnel support to continue the construction of the submillimeter wavelength telescope array and the conversion of the Multiple Mirror Telescope to an instrument with a single mirror, 6.5 meters in diameter. In addition, the FY 1992 request for SAO includes an increase of 5 workyears and \$321,000 for personnel costs and rent associated with the submillimeter array. Since this increase is related to the Major

Scientific Instrumentation request, the justification for these positions appears in the Major Scientific Instrumentation section of the budget.

PROGRAM - Together with the Harvard College Observatory, SAO forms the Center for Astrophysics (CfA), which is organized by divisions representing the diverse investigations of the joint scientific staff: atomic and molecular physics, high-energy astrophysics, optical and infrared astronomy, planetary sciences, radio and geoastronomy, solar and stellar physics, and theoretical astrophysics.

Data-gathering facilities include the Fred Lawrence Whipple Observatory in Arizona, site of the Multiple Mirror Telescope operated jointly with the University of Arizona, the Oak Ridge Observatory in Massachusetts, the George R. Agassiz Radio Astronomy Station in Texas, and a millimeter-wave radio astronomy facility at the CfA headquarters in Cambridge, Massachusetts. In addition, SAO scientists have access to ground-based facilities elsewhere and conduct satellite, rocket, and balloon experiments.

Research Highlights - The variety and depth of SAO research are typified by the following selected results from the past year:

- The largest, single coherent structure ever seen in nature--a "great wall" of galaxies stretching more than a half-billion lightyears over space--was identified by two SAO astronomers as part of their long-term project to construct a three-dimensional map of the universe.
- Two other SAO scientists, using a Caltech telescope, discovered hot water--at about 2000°C--in star-forming regions of our galaxy. SAO's submillimeter array of telescopes, when completed, will be an ideal instrument for high-resolution study of such hot water to understand how stars, like our Sun, are born. Such investigations are not possible with existing telescopes.
- Radar images, obtained by SAO scientists and their colleagues, of a small, Earth-approaching asteroid appear to be the result of a collision of two separate objects, each about one-half mile in diameter. The images, the first to show such a "dumbbell" shape, were obtained with the 1,000-foot-diameter radar telescope in Arecibo, Puerto Rico, when this asteroid passed within four million miles of Earth.
- A Delta rocket carrying the joint FRG-UK-US Roentgensatellit, better known as ROSAT, soared into space at 5:48 p.m. EDT, June 1, 1990, from Cape Canaveral, Florida. The largest X-ray telescope ever flown, ROSAT is equipped with a High Resolution Imager (HRI) built by SAO to provide the clearest pictures yet made of cosmic X-ray sources. ROSAT will first map the X-ray emission of the entire sky and then make a detailed study of selected objects, with a sensitivity several times greater than was achieved with the Einstein (HEAO-2) Observatory launched in 1978 and designed in part by SAO scientists. SAO will also operate one of two U.S. data analysis centers for ROSAT.

As SAO enters its second century, significant advances were made in its major initiatives for the future: the submillimeter wavelength telescope array and the conversion of the Multiple Mirror Telescope (MMT) to a single mirror telescope 6.5 meters in diameter.

SAO completed five design studies in cooperation with private industry to identify the best approach to the manufacture and construction of the antennas for the submillimeter wavelength telescope array. SAO also completed a study of the correlator design, as well as an extensive study of the techniques for calibration of the array. Furthermore, the SAO receiver laboratory completed the construction and testing of the first prototype receiver to operate at a frequency of 230 GHz.

At the Whipple Observatory, conversion of the MMT continued apace. SAO selected a consulting engineering firm and completed the conceptual design for the building modifications, optical support structure, and primary mirror cell. The University of Arizona's Mirror Laboratory enlarged the casting furnace to allow the 6.5-meter mirror to be cast. The Mirror Laboratory is also polishing a 1.8-meter diameter mirror to develop the techniques it will use on the 6.5-meter diameter mirror, which is scheduled to be cast in FY 1991.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, SAO requests an increase of 15 workyears and \$1,562,000 for scientific and technical staff and support (7 workyears and \$402,000); laboratory and scientific equipment (\$300,000); computer replacement and improvement (\$250,000); expansion of education programs (1 workyear and \$125,000); additional clerical support (7 workyears and \$223,000); and furnishings, facilities maintenance, health and safety, and public information programs at the Whipple Observatory (\$147,000). The justification for an increase in rent costs totalling \$115,000 appears in the Uncontrollable Increases section of this budget.

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Scientific and Technical Staff and Support (7 workyears and \$402,000) - Unique among the physical sciences, astronomy deals with phenomena that can only be studied indirectly and at long distance. Astronomy's real "laboratories" are stars and galaxies billions of miles away. Usually the only physical evidence available to researchers is the faint radiation that has traveled across vast spaces and has been changed, altered, and distorted by dust, gas, and other particles and fields along the way. To capture this feeble light and, more importantly, to interpret its enigmatic messages, SAO requires talented and dedicated professionals trained in the special technical and scientific skills of modern astronomy and astrophysics.

Theorists, especially, are needed to explain the complex physical processes that might produce observed phenomena as well as to suggest new lines of investigation and new types of data needed to expand the understanding of the universe. Of course, imaginative research also requires scientists with the expertise to exploit advanced technology's full potential, particularly in specialized fields such as X-ray astronomy. Simply increasing SAO's ability to gather clues from space is not an end in itself. Data must be processed, sorted, and organized into easily accessible catalogues and computer banks so researchers everywhere may share the information.

To achieve these goals, SAO requests the hire of a senior theorist to complement its strong observational program (1 workyear and \$68,000) and a senior X-ray scientist with expertise in handling large amounts of data from satellite surveys such as ROSAT and Einstein (1 workyear and \$79,000). SAO also requires: an X-ray astronomer specializing in the study of clusters of galaxies, an optical specialist to build instruments for the converted MMT (the nonpersonnel costs of this position and its justification are listed under the Major Scientific Instrumentation section of this budget), an optical astronomer to help develop and maintain a worldwide network of inexpensive robot telescopes serving both professionals and students, an observer to operate a new 1.2-meter telescope at the Whipple Observatory and to conduct a digital survey of the sky, and a data aide who will construct high-resolution images of water masers in distant galaxies drawn from thousands of radio observations (5 workyears and \$212,000), \$21,000 for rent costs, and \$22,000 for other objects expenses for all new positions.

Despite extraordinary advances in automated operations and robotic instruments, talented, dedicated investigators remain the true strength of SAO's research program. The incredible amounts of raw data now available to SAO scientists still require organization and interpretation as well as efficient and rapid distribution worldwide, tasks that can only be done by people. Most important, perhaps, is SAO's potential for understanding those basic astrophysical processes, such as magnetic activity on other Sun-like stars and energy generation in galaxy systems, with possible application to problems on Earth--a potential that can only be realized with additional staff.

Laboratory and Scientific Equipment (\$300,000) - A revolution is sweeping over modern astronomy. New electronic detectors for telescopic observations, sensitive to various wavelengths of light and directly linked to video displays and computer data banks, have had an impact on the field comparable to the introduction of photography in the last century. As a pioneer in the development and application of these detectors as well as other new technologies, SAO has been both a bellwether agency for other government laboratories and a prime training ground for young scientists. To maintain its leadership role, SAO urgently needs to upgrade and replace old, often obsolete, laboratory equipment with new generation versions capable of advancing the frontiers of astronomy.

For example, two-dimensional infrared detectors capable of recording the otherwise invisible birth of stars deep within dust-clogged interstellar clouds are now available and could significantly enhance telescopes already in use at SAO as well as the new 1.2-meter diameter reflector scheduled for installation in fall 1990. Similarly, SAO's search for planets around other suns, already producing tantalizing results, could be advanced by linking a modest-sized telescope via fiber optics to a special spectrograph equipped with a "scrambler" and "slicer" that help distinguish the faint light of a tiny orbiting body from the bright glow of its parent star. Other detectors currently available would allow a fivefold improvement in sensitivity over instruments currently in use at the Whipple Observatory. An innovative two-element optical-infrared interferometer also being built at the Whipple Observatory has the potential of providing image detail comparable to a single telescope 50 meters in diameter if equipment for gathering, collating, and combining the separate images can be obtained. In addition, hopelessly antiquated laboratory equipment must be replaced if basic physical studies of the Sun and the Earth's atmosphere are to advance knowledge significantly in these areas.

To achieve these research goals, SAO requests \$300,000 to purchase arrays of infrared detectors to map star-forming regions (\$100,000), an echelle spectrograph to search for extrasolar planets (\$140,000), a replacement spectrograph for galaxy surveys at the Whipple

Observatory (\$20,000), control and calibration hardware for the optical-infrared interferometer (\$30,000), and the replacement of vacuum pumps for laboratory experiments in plasma physics (\$10,000).

As the experience of the Hubble Space Telescope has so painfully shown, the rising costs--and risks--of space operations make it imperative that ground-based facilities such as those operated by the SAO be enhanced and expanded as soon as possible. For a fraction of the cost of one space satellite, SAO can achieve comparable observational capabilities, thus maintaining both its leadership in modern astronomy and its valuable contributions to the Nation's research program.

Computer Replacement and Improvement (\$250,000) - As early as the late-1950s, SAO scientists were applying computer techniques to once intractable problems such as modeling the atmospheres of stars and defining the exact size and shape of the Earth. Today, when a single data set used to create high-definition images can number more than six billion bytes, the need for powerful computers is even greater. Improved detectors, automated remote operations, robot telescopes, orbiting space observatories, and the use of interferometers and combined arrays for radio astronomy have produced a quantum leap in the amount of data demanding reduction, analysis, and interpretation. Literally awash in information, astronomy has become increasingly dependent on computers for organizing, correlating, and understanding newly acquired clues from the cosmos. To maintain pre-eminence in this field, and to attract young, bright, computer-sophisticated astronomy graduates to its staff, SAO must continually update its data-processing capabilities.

SAO radio astronomers studying fine detail on distant objects, such as the flow of material around newly formed stars and the energetic jets of material streaming from the cores of galaxies, must manipulate enormous amounts of data to transform received radio waves into images. Similarly, theorists can only describe the structure and nature of many large-scale astrophysical systems through the repetitive numerical simulations on supercomputers. Even relatively small optical telescopes have been made so much more efficient by new electronic detectors that the typically 20-fold increase in data simply swamps older on-line computers.

SAO requests \$250,000 to improve its computer capabilities by the addition of an image-processing system dedicated to radio astronomy (\$48,000), the acquisition of a networked workstation that will provide near-supercomputer capability for theoretical research (\$69,000), the replacement of an inadequate computer linked to the 1.5-meter telescope at the Whipple Observatory (\$45,000), and the upgrading of an existing local area network (LAN) with increased memory and faster drives to provide support for all computer operations and to encourage the sharing of common data files (\$88,000).

In early 1990, the General Accounting Office rated several government centers on their ability to respond to the potential data-handling crisis created by the National Aeronautics and Space Administration's proposed series of "great observatories." SAO was only one of two such centers to receive a passing grade, with the others deemed woefully inadequate to cope with the coming data flood. To maintain its scientific reputation as well as to continue its service to both individual researchers and national programs, SAO must upgrade and modernize its computer equipment.

Expansion of Education Programs (1 workyear and \$125,000) - Perhaps because of its close association with a major university, SAO has always had a deep commitment to education. Even before national concerns about the lack of "science literacy" among young

Americans were widespread, SAO began developing a program to use examples based on astronomy to improve the teaching of science and mathematics at the high school level. These innovative materials emphasize low-cost student activities based on "high-tech" demonstrations and devices, such as a hand-held spectrograph (costing less than a dollar), that allow students to understand the physics of light.

SAO now plans to develop similar classroom materials for use at lower grade levels and to train elementary and junior high teachers in their use. Video presentations will be vital components of this training program, particularly in assisting graduates of SAO workshops to organize instruction sessions for other teachers in their home regions.

SAO requests funds to hire an education specialist (1 workyear and \$68,000) to develop new high-tech, low-cost materials and to acquire the supplies and equipment (\$57,000) to produce both these materials and the training videos. SAO's educational program provides a model for how basic research centers can make direct and significant contributions to improving science literacy throughout the United States.

Additional Clerical Support (7 workyears and \$223,000) - SAO has an extremely high ratio of research to support staff: 80 percent of SAO's Federal personnel are scientific and technical, only 20 percent are management, administrative, and clerical. This situation exists despite the fact that SAO provides its own fiscal, contract, publication, personnel, and travel functions in Cambridge.

The low ratio of support to research staff results in an inefficient environment in which scientists and engineers often must perform functions better carried out by administrative and clerical personnel. In addition, several support activities also require clerical staff.

SAO requests to redress this imbalance by hiring secretaries for the Planetary Science and the Radio and Geoastronomy Divisions; clerks for the Central Engineering, Computational, Contracts and Procurement, and Controller's departments; and a personnel specialist (7 workyears and \$202,000); and rent costs at \$21,000.

By freeing research staff from routine administrative and clerical tasks, as well as improving the quality of its support services, SAO can make more rapid and effective responses to the host of scientific opportunities certain to follow the introduction of new astronomical instruments on the ground and in space.

Furnishings, Facilities Maintenance, Health and Safety, and Public Information Programs at the Whipple Observatory (\$147,000) - The Whipple Observatory in Arizona is SAO's primary installation for ground-based observational astronomy and the site of the Multiple Mirror Telescope. Already considered by scientists as one of the world's premier research facilities, the Whipple Observatory will become a major attraction for the general public when a new base camp and visitors center opens at the base of Mt. Hopkins within the Coronado National Forest.

As a national facility, the Whipple Observatory annually hosts scores of scientists from around the world who require technical assistance and administrative support from the base camp while using the mountaintop instruments. The new Visitors Center is expected to attract 20,000 public visitors annually, including students, amateur astronomers, and users of the nearby trails and camping areas.

To develop a facility that meets the needs of this diverse clientele, SAO requests funds for acquiring necessary furniture and accessories for offices, warehouse, and visitors center (\$90,000); for contracting maintenance services (\$20,000); for upgrading the FM radio system vital to support, safety, and security of users and visitors (\$22,000); and for developing educational and informational displays (\$15,000).

The Whipple Observatory, symbol of SAO's leadership in astronomy as well as of the Institution's presence in the southwestern United States, needs such basic infrastructure support to adequately serve scientific users and public visitors.

NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - Unrestricted general funds come primarily from overhead charged on contracts and grants. These funds are used to support administrative positions and some other administrative costs of SAO. Special purpose funds come primarily from two sources: external users of SAO's Computer Center and the Institution's Trust funds, with the latter providing by far the larger share. The former may be used for research and computer-related purchases in future years. Trust funds provide direct support for some research as well as for the Fellowship and Visiting Scientist programs, the largest uses of special purpose funds.

Restricted Funds - Restricted funds consist of specific endowments as well as gifts from individuals, foundations, or corporations earmarked for particular research purposes.

Government Grants and Contracts - SAO receives the majority of its funds through government agency contracts and grants for research in its particular areas of expertise and experience. This research is often carried out in cooperation with both governmental and academic institutions in the United States and abroad.

SMITHSONIAN TROPICAL RESEARCH INSTITUTE

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	131	5,910	3	222	1	355	-	-	-	1,020
FY 1991 Estimate	142	6,457	3	222	2	406	-	1,044	-	859
FY 1992 Estimate	168	8,253	3	222	2	401	-	2,045	-	365

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The Smithsonian Tropical Research Institute (STRI) is the Nation's premier center for basic research on the ecology, behavior, and evolution of tropical organisms. Headquartered in Panama, STRI staff conduct scientific investigations throughout the New and Old World tropics. STRI resident and visiting scientists perform research relating to global change in the areas of ecological systems and dynamics, earth system history, biogeochemical dynamics, and human interactions. The Institute publishes the results of its basic research and applies a subset to carefully selected conservation and resource management problems. These applications seek viable alternatives to traditional agricultural and forestry practices that contribute to the massive deforestation of the world's tropical forests. The terms of the Panama Canal Treaties of 1977 designate STRI as the custodian of the Barro Colorado Nature Monument, a 12,000-acre tropical nature preserve located in the Panama Canal. The preserve consists of Barro Colorado Island (BCI) and five adjacent mainland peninsulas. Other STRI facilities include a cloud forest station, a research vessel, marine laboratories on the Atlantic and Pacific oceans, a research library, and a modern laboratory and conference center and administrative headquarters in Panama City.

For FY 1992, the Smithsonian Tropical Research Institute requests 26 workyears and \$1,796,000 for global change research (8 workyears and \$444,000); staffing and equipment of new marine laboratories (7 workyears and \$788,000); the preservation and security of research areas and reserves (9 workyears and \$349,000); and central research support (2 workyears and \$215,000).

PROGRAM - The Smithsonian Tropical Research Institute performs four major functions in fulfilling its mission in tropical biology:

- conducts fundamental research on the ecology, evolution, and behavior of plants and animals, including humankind;
- provides major facilities and logistical support for the international scientific community to study both terrestrial and marine tropical biology;

- supports environmental education and conservation and management of tropical ecosystems;
- protects and manages the Barro Colorado Nature Monument under a treaty-assigned responsibility.

A compelling need exists for improved understanding and conservation of tropical ecosystems. Conversion of tropical forest to scrub and grassland can affect regional and even global climatic patterns. It may adversely affect the North American environment. Extinction of species eliminates potential sources of medically and commercially important natural products. STRI's basic research provides the essential scientific base for the effective management and conservation of these resources.

Among STRI's primary assets are the trust placed in the Institute by the host country and a long history of collaboration with Panamanian scientists and students. The continuing cooperation of the Republic of Panama facilitated the work at STRI of resident scientific staff and more than 250 visiting researchers representing 24 nations during 1989. The present government of Panama has demonstrated its commitment to a democratic process and has taken concrete steps to ensure the preservation of its rich tropical environment.

The study of tropical environments is vital to understanding biological diversity and global change. This understanding requires a basic comprehension of the history of tropical communities, the organisms that live in the tropics, and the interactions among them.

Biodiversity - The study of the behavior of specific species forms essential links in understanding the origins of biological diversity. For example, field studies at STRI have led to new insights about social competition, the effects of which range from the exaggerated displays of animals like the peacock to fearsome weapons like the antlers of male deer. Social competition can also cause different members of a species to take up different special tasks that ease the competition and suit their individual talents, analogous to the "careers" of humans. Work by one STRI scientist has shown that these various social traits can evolve into key differences among species. This research, which began as a detailed study of wasp behavior, may end up helping to explain the origins of biological diversity, especially the spectacular variety of organisms in the tropics.

Molecular Evolution - The recently established molecular evolution laboratories permit STRI scientists to increase understanding of how new species are formed, how genetic variation is maintained in a species, and how different populations of the same species vary genetically. One study of fossil bryozoans has shown that their evolution is not always gradual but can proceed in fits and starts. This finding will influence understanding of how species have responded to past global change. Another study applying molecular techniques has shown that a species of marine isopod found in both the Atlantic and Pacific oceans has so many genetic differences that scientists can tell the beach from which an individual has come by assaying its proteins. Such studies help explain how new species form and how present levels of species diversity came to be.

Plant Physiology - Studies in plant physiology are showing how tropical plants respond to changing climatic conditions. For example, scientists grew tropical forest and crop species under atmospheric conditions similar to those projected for 50 to 75 years from now. The changes in physiological processes under these conditions varied greatly from

one species to another. Knowledge of this variability is crucial to long-term planning for tropical agriculture and tropical forest management and conservation.

International Forest Dynamics Project - The influence of climate and other physical factors on the diversity, structure, and dynamics of tropical forests is poorly understood. The Forest Dynamics Project, begun in 1980, follows the growth, survivorship, and reproduction of more than 200,000 trees and shrubs, constituting more than 300 species, in a 120-acre plot on Barro Colorado Island. Comparable plots have been set up in Malaysia and India, and other countries have expressed an interest in joining the project. Among the expected results is the identification of fast-growing native species that are suitable for plantation forests.

Canopy Access System - The tropical forest canopy is an extraordinarily rich habitat that is poorly understood because access has been difficult. STRI plans to solve the access problem by erecting modified tower construction cranes in the forest. Scientists will use instrumented gondolas to study parts of the canopy that until now were out of reach. With funding obtained in FY 1990, STRI has erected a small crane to serve as a prototype access system. In addition to providing valuable design and engineering data for the planned permanent system, the prototype is permitting STRI scientists to begin in situ studies of plant physiology and biological diversity in this critical part of the forest.

Agroforestry Systems as an Alternative to Deforestation - To check tropical deforestation, scientists must develop sustainable farming methods that do not destroy the forest. STRI has set up a pilot project in the Panama Canal watershed that combines planting of fast-growing leguminous trees, shade-tolerant food crops, and fodder plants used to raise goats in confined pens. The goats provide milk, meat, and cheese for food or cash sale as well as manure for fertilizer. This system represents a vast improvement over traditional slash-and-burn farming in terms of sustainability and environmental impact, diet quality, and cash income. STRI is planning to expand this pilot project to explore economies of scale and to test new trees and crop species.

Fellowships, Conservation, and Environmental Education - One of STRI's major efforts centers on the development of young scientists. In 1990, approximately 62 students from 12 nations participated in academic programs at STRI. With the opening of the new Earl S. Tupper Research and Conference Center in late 1989, the staff also prepared a bilingual photographic exhibit entitled "Parting the Green Curtain," which highlights the history of tropical biology. This exhibit will tour Latin American science museums and university centers as part of STRI's effort to focus public attention on issues important to biology, conservation, and global change.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, the Smithsonian Tropical Research Institute requests 26 workyears and \$1,796,000 for global change research (8 workyears and \$444,000); staffing and equipment of new marine laboratories (7 workyears and \$788,000); the preservation and security of research areas and reserves (9 workyears and \$349,000); and central research support (2 workyears and \$215,000).

Global Change Research (8 workyears and \$444,000) - The study of tropical habitats is vital to understanding global change. These habitats contain most of the world's species of animals and plants, many of which have important, though mostly untapped, potential as sources of medicine and food. The great forests play a major role in regional and probably global climate systems, and coral reefs protect large areas of coastline from

erosion. The destruction of tropical forests proceeds at an unprecedented rate. This destruction will have global consequences through effects on atmospheric water cycles, production of greenhouse gases, and siltation of coastal marine habitats and other pathways.

Tests of models of global change rely on retrospective analysis of past environmental and biological conditions as much as on monitoring current processes. STRI's most pressing need for FY 1992 in this initiative is for an additional paleoecologist (1 workyear and \$81,000), who will use such records as ocean and lake sediments, terrestrial deposits, pollen records, and tree rings to establish past rates and patterns of marine, biotic, and environmental change.

STRI will use part of the requested funding to hire three research assistants to support the work of the paleoecologist and other scientists currently studying global change (3 workyears and \$81,000). Requested funds will also provide basic equipment, travel, and support for the global change program (\$140,000). In addition, the project requires a scientific computer specialist (1 workyear and \$40,000) to procure, install, and maintain scientific computers and provide expert advice to staff. Computer support dedicated to scientific needs is essential to most areas of research, but STRI currently has no scientific computer specialist. Given the additional scientists approved for FY 1990 and requested for FY 1991 and FY 1992 for the global change program, STRI also needs a financial assistant and procurement officer (2 workyears and \$45,000). These two support positions are essential to maintain accountability of funds and procure necessary goods and services.

The achievement of better understanding of tropical ecosystems in the face of rapid destruction requires a joining of effort and continuous exchange of information among scientists and other groups with an affinity of purpose. One way STRI has pursued that interchange is by involving the STRI Development Office located in Washington, D.C. The experience has demonstrated that the job requires the full-time attention of one person. This request includes the addition of an administrative officer/biologist (1 workyear and \$57,000) to operate in the STRI office in Washington, D.C. The biologist will represent STRI at scientific meetings and public forums dealing with global change, tropical biology, and conservation efforts. The person will also provide a means for disseminating information to the general public and give STRI a more direct link by which to acquire information related to its programs.

Given the urgency of the issues and the crucial role of the tropics and the Isthmus of Panama, STRI intends to implement its plan to expand its research program in the area of global change. The expansion is augmenting key areas where more expertise is needed. STRI's permanent base in the tropics, location in Panama, stewardship over protected research areas, and multi-faceted approach to tropical research for more than 60 years make it uniquely suited for such a venture.

Staffing and Equipment of New Marine Laboratories (7 workyears and \$788,000) - STRI's varied programs in the marine sciences include the global change paleoecology initiative, long-term physical and biological monitoring under the environmental sciences program, the study of oil spill effects on tropical reefs and mangrove communities, and other research programs of STRI's marine staff and visitors. All these programs have the common goal of increasing scientific understanding of marine organisms, populations, and communities in the neotropics. The research is essential to the advancement of tropical marine biology

and will form a critical knowledge base that present and future generations can use to develop a rational basis for the management and conservation of this key natural resource.

In order to continue these vital initiatives, STRI plans to equip and hire personnel to operate a new research vessel that will function as a floating laboratory. The planned completion of the construction of this floating laboratory is mid-FY 1992. As a mobile, sophisticated, and versatile research facility, the vessel will provide the support necessary to develop a comprehensive understanding of the communities and ecosystems in the rapidly developing tropical Eastern Pacific and Caribbean regions.

STRI's research station in the Atlantic islands of San Blas lacks adequate laboratory facilities, living space, and areas to support SCUBA diving and maintain live organisms for experimentation. However, a planned, new facility on a more remote island will provide continuous electrical power, air-conditioning in the laboratory capable of supporting both routine and specialized research, a running seawater system, dockage for small boats and the research vessel, and expanded living space providing more adequate facilities and opportunities for applied research.

STRI seeks funds for FY 1992 to administer the new replacement research vessel. A marine engineer, a first mate, and an oiler/deckhand will augment the existing positions of a captain and one deckhand. In addition, an electronics technician and a supply/material expediter will provide important shore support to permit efficient management of the vessel and maximize the time the vessel operates at sea. Also, STRI requests \$304,000 for equipment and operating expenses for the vessel. For FY 1992, 2.5 workyears and \$84,000 will fund the five positions for one-half year. STRI will seek funds for annualized costs in FY 1993.

In order to adequately manage the new facility in San Blas, expected to be completed in mid-FY 1992, STRI requests 1.5 workyears and \$63,000 for a scientist/laboratory manager, a maintenance mechanic, and a launch operator. STRI requests \$187,000 for essential scientific and office equipment for this facility and \$33,000 for basic laboratory operating expenses. The estimated annual rental contract cost for the new laboratory will be approximately \$48,000. This cost will include the rental of the island where the laboratory will be located and the necessary surrounding reef areas. STRI seeks 3 workyears and \$69,000 to hire a biological technician, a secretary/typist, and a procurement/supply officer to meet the increased administrative and facilities support requirements of its marine programs.

The staff of STRI's marine programs annually publishes 40-60 original research papers. The addition of essential support to STRI's administrative staff and to its new laboratories will increase productivity, thereby increasing the scope, depth, and efficiency of research support STRI can offer its staff and visiting scholars. STRI's goal is to allow for planned expansion and to provide research and educational opportunities and capabilities unique in the Caribbean and Eastern Pacific regions.

Preservation and Security of Research Areas and Reserves (9 workyears and \$349,000) - The accelerating environmental crisis in the tropics requires that the Smithsonian and STRI strengthen efforts to preserve research areas and reserves. Particularly important are the physical protection of the Barro Colorado Nature Monument (BCNM) and the reserve areas of Culebra-Naos to ensure the safety of researchers working there and to prevent poaching.

Biologists have studied the Barro Colorado Nature Monument for more than 65 years. It was first designated a biological reserve in 1923, and since then has become one of the world's best-known tracts of tropical forest. The negotiators of the Panama Canal Treaties of 1977 designated Barro Colorado Island and the adjacent mainland peninsulas as a nature monument under the terms of the 1940 Western Hemisphere Convention for the Protection of Natural Areas and Wildlife Preservation, and they appointed STRI as the legal custodian for both the United States and Panama. The present economic pressures affecting Panama have, however, resulted in an increase in the number of poaching incidents on BCNM. STRI must double its vigilance to preserve this world-renowned research reserve.

Under the 1977 treaty, STRI was also assigned custodianship of the area surrounding the Naos Marine Laboratories, including Culebra Point. This area contains the most accessible protected intertidal zone on the Pacific coast of Panama. Under the previous government in Panama, the Defense Forces in the area provided physical protection. With the disestablishment of the Panama Defense Forces, STRI must provide the necessary protection to ensure preservation of this research area.

STRI requests funds to expand the physical protection of these reserve areas by adding to the game warden force charged with patrolling the BCNM and the Naos-Culebra reserves (8 workyears and \$160,000), providing them with necessary equipment and training (\$79,000), improving the radio communications system (\$65,000), and adding an additional base of operating expenses (\$25,000) and a clerk-typist for administrative support (1 workyear and \$20,000).

The additional game wardens will allow two new 24-hour patrols to enhance the existing 13-person force. The requested equipment includes two field vehicles, field gear, boats, outboard motors, and firearms. The requested radio improvement funds will establish a second frequency for communications and distribute portable radios to the expanding group of researchers frequently out in the field in remote areas. The clerk-typist will provide much needed administrative support for the entire game warden force and facilitate coordination of the physical protection of the widely dispersed research stations and reserves.

Basic research in tropical biology requires access to relatively undisturbed forest and marine environments in order to help expand understanding of tropical nature and its role in the biosphere. Established reserves must be protected to ensure the safety of researchers and the continued availability of field sites for research.

Central Research Support (2 workyears and \$215,000) - STRI seeks to strengthen its research efforts with technical support by establishing staffed programs in property management and safety. The property management and safety programs will result in more efficient and safer utilization of resources.

The cost of scientific equipment replacement has risen dramatically in recent years. As a result, STRI has increased efforts to improve utilization and management of existing equipment. Because STRI facilities are physically dispersed, the task of inventorying and coordinating the utilization of equipment is difficult. A recent internal audit review concluded that STRI should employ a person to oversee this function. STRI requests a property manager (1 workyear and \$40,000) to oversee the inventorying and management of equipment at its various facilities. Such a program will permit more efficient use of equipment.

The ever more complex research programs and expansion of the STRI work force necessitate the establishment of a comprehensive safety program to protect the welfare of employees and the interests of the Smithsonian Institution and the U.S. Government. Safety programs designed to prevent accidents are necessary and cost-effective. STRI requests a safety officer (1 workyear and \$40,000) to establish and administer programs for fire protection, safe storage and disposal of chemicals and hazardous waste, and employee training. To handle this responsibility, STRI requests \$35,000 for an operating budget for the safety program, including the purchase of testing equipment and the establishment of a continuous safety training program.

In addition to administering an accident safety program in FY 1992, the safety officer will manage STRI's hazardous waste disposal program. Modern laboratory techniques often employ hazardous chemicals, including radioactive materials, that require special handling. Since there are no hazardous waste disposal facilities in the Republic of Panama, STRI must ship its hazardous waste to the United States and dispose it according to applicable state and Environmental Protection Agency regulations. STRI is requesting \$100,000 for FY 1992 to initiate a program of disposing hazardous waste. The program's safety officer will manage this effort which will necessitate identifying container contents; initiating prudent disposal measures; keeping a current inventory of hazardous waste at each facility; and maintaining the proper collection, identification, storage, disposal, and maintenance of records for all hazardous waste accumulated at each facility at STRI.

The two components of this request, a property management program and a safety and hazardous waste disposal program, together will permit safer and more efficient utilization of resources. STRI's pursuit of research will be vastly improved by this additional support.

#### NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - These funds derive from a variety of sources, including receipts and collections from users of Barro Colorado Nature Monument facilities (20 U.S.C. 79b (d)) and annual allotments. Such funds support, in part, the salaries and related costs of the fellowship program, the senior sabbatical program, insurance, supplies, and a long-term collaborative research program with the Forest Research Institute in Malaysia. Funds also support a short-term fellowship program in tropical biology; visiting scientists and students; field research; seminars and lectures; and environmental, conservation, and educational activities in Panama. Funds are also available from the Institution's Scholarly Studies and Research Opportunities funds to support research at STRI.

Restricted Funds - These funds are in the form of restricted endowments that specify the use of the donation or bequest and gifts and grants from individuals, foundations, organizations, or corporations for specific purposes. These funds advance scientific research related to the biological, ecological, and behavioral processes that serve as a basis of tropical ecosystems; research related to geophysical events; publication and distribution of research results; and studies related to endangered tropical environments.

Continuing support from the Exxon Corporation provides short-term tropical biology fellowships and assistance to 30 students from developing Latin American countries. In FY 1990, STRI received \$250,000 from the Andrew W. Mellon Foundation to finance botanical research. That same year STRI received a gift of \$800,000 from Glenn Tupper to fund

construction of a new library wing and \$290,000 for the purchase of scientific equipment for the plant physiology program.

Government Grants and Contracts - Beginning in FY 1987, the Minerals Management Service of the Department of the Interior awarded STRI a contract of more than \$4 million to fund a five-year study of the catastrophic oil spill at the Galeta field station. This study is scheduled to terminate in March 1992.

SMITHSONIAN ENVIRONMENTAL RESEARCH CENTER

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	37	1,837	2	100	-	98	-	22	-	390
FY 1991 Estimate	39	2,071	2	100	-	90	-	-	-	545
FY 1992 Estimate	48	2,917	2	100	-	90	-	-	-	290

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The Smithsonian Environmental Research Center (SERC), occupying 2,600 acres of the Rhode River tidal river system in Edgewater, Maryland, performs basic scientific research on coastal land/water systems. The interdisciplinary staff, visiting scientists, and students study the effect of land use, air quality, and weather variations on the movement of nutrients, eroded soil, and other materials through the system; the dynamics of plant and animal populations; and the overall health of the system. SERC also conducts public education and outreach activities for audiences of varied ages and cultural diversity. The research staff uses long-term observations, controlled experiments, and models to address a wide variety of ecological questions, particularly those relevant to the Chesapeake Bay region. SERC is part of a network of United States and international sites, conducting ecological research relevant to their geographic regions.

For FY 1992, SERC requests 9 workyears and \$846,000 to correct infrastructure deficiencies to protect the Rhode River site (5 workyears and \$137,000) and increase capabilities to conduct global change research (4 workyears and \$709,000).

PROGRAM - SERC research aims to understand how coastal land/water environmental systems function. The research staff addresses a wide variety of ecological questions while conducting a long-term interdisciplinary study of a tidal subestuary of the Chesapeake Bay (Rhode River) and its watershed. This watershed contains a mosaic of upland and floodplain forests, marshlands, cropland, pastures, abandoned fields, and residential areas typical of the mid-Atlantic Coastal Plain. The Center has studied the effects of herbicides on plants in Chesapeake Bay, the effects of acid rain on deciduous forest and bay fish reproduction, the role of riparian forests in alleviating agricultural pollution, and the effects of increasing concentrations of atmospheric carbon dioxide on natural communities.

Research - As a part of the Smithsonian's global change research effort, in FY 1990 SERC initiated new studies of the dynamics of atmospheric and forest canopy interactions in a deciduous hardwood forest. An instrumented research tower at a carefully characterized research site measures vertical profiles of gases such as carbon dioxide,

water vapor, and sulfur dioxide, as well as the rate of mixing between the air contained within the forest and the atmosphere above the forest. Staff mapped and measured all trees more than one inch in diameter within one acre of the tower and measured the length of fetch and roughness of the forest canopy in each direction to document conditions for valid atmospheric exchange measurements. Studies determined that the leaves of the understory were more numerous but had less surface area than those of the canopy and that leaf area, mass, and number of the tulip poplar, the dominant species, were bimodally distributed with height.

SERC also studied the effect of salinity in the brackish tidal marshes in the headwaters of the Rhode River that are dominated by the narrow-leaved cattail. Seasonal and interannual differences in salinity, produced by variations in the volume and timing of precipitation, have large effects on the productivity of these plants. Long-term measurements of salinity and cattail productivity made at three sites along the tidal axis of the upper Rhode River showed that mean salinity during the critical spring and summer period had tenfold interannual differences. Shoot density, height, and biomass were all reduced when salinity was higher, and the above-ground standing crop varied fourfold between years.

Studies of blue crab behavior progressed through the application of ultrasonic biotelemetry to measure jaw muscle activity in free-ranging crabs. The staff designed and successfully tested small battery-powered transmitters in the Rhode River. These transmitters track crabs and record when they are ingesting food. Individual crabs tracked continuously for 96 hours moved up to two miles and fed an average of 15 times, each feeding session comprising 15 to 2,750 bites. Studies have also showed that both movement and feeding were unrelated to time of day or night or tide stage and that molting crabs selected shallow, marsh-lined tidal creek banks for molting.

Through support from the Department of Energy, studies continue on how the Chesapeake Bay tidal marshes respond to increased atmospheric concentrations of carbon dioxide. Results of testings may indicate whether plants will respond and reduce the rate of increase of carbon dioxide, by storing carbon, when atmospheric levels of carbon dioxide reach about 700 parts per million sometime in the 21st century. Previous SERC studies of marsh plant communities exposed continuously for two years to increased carbon dioxide concentrations showed that plants become much more productive. New results demonstrate that most of this increased production will be stored below ground. For the sedge, *Scirpus olneyi*, the increase in below-ground storage was 83 percent. No change was found, however, for the grass, *Spartina patens*. Thus it seems likely that some, but not all, plant communities experiencing increased concentrations of carbon dioxide will be more productive and will store enough carbon in soils and below-ground structures to slow the rate of increase in atmospheric carbon dioxide.

Educational Activities - SERC provides a broad range of educational activities, including teacher-led field trips, self-guided nature trails, and guided tours. Groups of students and the general public observe firsthand a variety of natural habitats. A work/learn intern program enables students from all over the world to work with scientists and educational staff, both in the field and in the laboratory. Predoctoral, postdoctoral, and sabbatical programs for professionals enable visitors to carry out collaborative or independent research. SERC disseminates the results of its research through scientific journals, national and international meetings and seminars, the training of scientists, and public education activities.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, SERC requests an increase of 9 workyears and \$846,000 to correct infrastructure deficiencies to protect the Rhode River site (5 workyears and \$137,000) and increase capabilities to conduct global change research (4 workyears and \$709,000).

Infrastructure Deficiencies (5 workyears and \$137,000) - The SERC facility has expanded in recent years to enable the Institution to conduct critically needed environmental research and education in the Chesapeake Bay region as well as serve as a regionally important site for global change ecological research. It is vital that the facility be adequately staffed for the protection of visitors and staff and upkeep of property and resources.

The SERC facility includes approximately 2,600 acres of land with 15 miles of shoreline and 12 miles of property lines. In addition to the main buildings, SERC has a boat dock, a wet laboratory, and several small remote laboratories that contain expensive equipment and valuable experiments. The waterfront location near the two large metropolitan areas of Washington and Baltimore brings large numbers of people to the area, especially on weekends. One workyear and \$27,000 requested for FY 1992 will fund a security guard to supplement the two security positions currently at SERC and increase protection of the facility from vandals and poachers.

SERC's maintenance staff of eight presently does not include a grounds keeper or a plumber. SERC requires a grounds keeper to maintain its 2,600 acres for research and educational uses. In the past SERC has relied upon the Office of Plant Services for plumbing repair, but the facility now requires a plumber on site. The facility also requires an additional custodian to attend to its approximately 42,000 square feet of building space. Seriously understaffed for facilities maintenance, SERC seeks 3 workyears and \$81,000 for a grounds keeper, a plumber, and a custodian.

The SERC administrative and facilities maintenance staff are presently inadequate to operate the SERC program efficiently and safely. The staff must receive guests; handle the telephone switchboard; place purchase orders; process accounts payable, travel papers, and personnel actions; and provide clerical services for a work force of approximately 80 resident students, scientists, educational staff, and support people. One workyear and \$29,000 for FY 1992 will support one secretary for this understaffed administrative function.

The Institution has the responsibility of caring for the National Collections and must protect its environmental assets and natural resources as well. Protection and care of SERC's facilities, staff, public, and natural resources, which form the basis for research on the Chesapeake Bay region, are vital.

Global Change Research (4 workyears and \$709,000) - Research at SERC includes comparative studies throughout the Chesapeake Bay area and the placing of results within a regional context. Studies focus on the ecosystem dynamics of the Rhode River, its watershed and airshed. The Long-Term Ecosystem-Research Network has selected SERC as one of 25 sites suitable for intensive ecologically oriented global change research in the United States and its territories. To assure the future protection of the SERC facility, the Institution proposes to acquire about 500 more acres of the lower watershed and approximately 3,000 acres of the upper watershed. Acquisition of this land will protect SERC's value as a national ecological research site and preserve its heritage. SERC already receives substantial extramural global change grant support and expects this

support to increase steadily. Research efforts will build on a history within SERC of ultraviolet radiation monitoring and research on nutrient cycling, landscape level transport of nutrients, and the geochemical effects of acid rain.

Since the 1960s, the Smithsonian has purchased and protected about 2,600 acres of the Rhode River tidal river system, including the waterfront areas. Rapidly intensified development now threatens the rural character of the upper parts of the drainage basin, currently forested or farmed. SERC plans to use a combination of outright purchases, easements, and protective covenants to protect a series of key land parcels on the upper watershed from urbanization.

The initial request of \$500,000 of base funds for FY 1992 will provide the necessary funding to protect and purchase watershed land on a cost-matching basis with private funds. The estimated development cost of these properties is approximately \$35 million. However, through the proposed collective process of purchase, easements, donations, and protective covenants, SERC estimates the cost at \$8 - \$12 million.

In addition to the property purchase, the global change research program requires four additional staff scientists in the areas of photobiology and environmental chemistry to conduct research on the effects of elevated ultraviolet radiation and climatic change. The FY 1992 request of \$209,000 will fund four workyears for a photobiology staff scientist, an environmental chemistry staff scientist, a physical science technician, and a data management technician and will provide related support to supplement the existing physical/chemical staff specialist assigned to this program.

SERC is the only long-term ecological research site in the Chesapeake Bay region with the potential to meet U.S. Global Change Research Program needs. If undeveloped lands on the upper watershed become urbanized, the site's use for global change research will be seriously impaired. These proposed actions for FY 1992 will begin to effectively protect the future research and educational potentials of a unique and valuable research territory. Proposed funding will also provide sufficient permanent scientific staff to conduct a well-balanced, interdisciplinary global change research program representative of the Chesapeake Bay region.

#### NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - These funds, provided by allotments, support special events, work/learn and fellowship programs, and the salary costs of a docent coordinator and a public program director.

Government Grants and Contracts - Various Federal and State agencies supply funds for special projects conducted at SERC that use the expertise of the staff and the unique physical site characteristics. Four grants from the Chesapeake Research Consortium support research on ecosystem dynamics and community ecology; a grant from the U.S. Department of Energy advances the study of greenhouse gases on tidal marshes; and a grant from the Maryland Department of the Environment supports studies of the role of riparian vegetation in nutrient dynamics.

NATIONAL ZOOLOGICAL PARK

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	349	14,569	1	134	3	661	1	243	-	182
FY 1991 Estimate	354	15,391	1	134	4	802	-	583	-	484
FY 1992 Estimate	364	16,313	1	144	4	829	-	681	-	330

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - Since 1889, the primary mission of the National Zoological Park (NZP) has been "the advancement of science and the instruction and recreation of the people." The Zoo's living collection, open to the public, occupies 163 acres at Rock Creek Park in Washington, D.C. The Zoo also maintains the Conservation and Research Center, a major conservation, animal breeding, and research facility on 3,150 acres in Front Royal, Virginia. Through programs in education, research, conservation, and animal health, NZP serves the public and specialized audiences and promotes understanding of animal adaptations and evolution and the interaction of wildlife with the environment. Because of world environmental crises and the need to keep people informed, the National Zoo endeavors to represent the whole of life on earth, both plant and animal. To this end the Zoo is transforming the animals-only zoological park into a biological park. This holistic approach will combine living exhibits of plants and animals with museum-type exhibits of skeletons and fossils. The BioPark will educate visitors and will stimulate a concern for the future of life in all its forms.

For FY 1992, the National Zoological Park requests an increase of 10 workyears and \$922,000 for Wildlife Conservation Programs (1 workyear and \$75,000), an Endocrine Research Laboratory (2 workyears and \$125,000), an equipment upgrade and replacement program (\$325,000), and infrastructure support for current programs (7 workyears and \$333,000). Also, an increase of \$64,000 justified in the Uncontrollable Increases section of this budget will support NZP's payroll base deficiency related to changes to the Zoo police pay-scale.

PROGRAM - The major programs of the National Zoological Park are public education through living exhibits, animal conservation and propagation, and research. The current program emphasis will transform the animal-only zoological park into a biological park that will highlight the relationships of animals and plants in a holistic approach.

Living Exhibits - The new BioPark emphasis means breaking down traditional divisions in biological exhibition between plants and animals, aquatic and terrestrial life, vertebrates and invertebrates, and even between science and art. Exhibit remodeling,

renovation, and construction at NZP result in a new emphasis on education about the living world. NZP goes beyond habitat exhibits that recreate natural environments to make the wonders of biology, such as intricate and beautiful adaptations for survival, accessible to all the typical visitors. In FY 1990, the Zoo opened the renovated Elephant House as the Hall of Giant Mammals. Sunlight, plants, and redesigned animal barriers provide a brighter view of rhinos, hippos, elephants, and giraffes. A coral reef tank opened as the first exhibit in the new Australian Pavilion.

At its Rock Creek site, the Zoo cares for more than 6,200 animals, comprising about 500 species, and approximately 1,400 plant species. At the Conservation and Research Center, the Zoo maintains more than 500 animals representing 52 species whose status in the wild is precarious. In the first nine months of FY 1990, the Zoo experienced more than 100 births and hatchings. Among these were the small-clawed otter, serval, bongo, boat-billed heron, king vulture, Micronesian kingfisher, green tree python, green and black arrow poison frog, pygmy hippopotamus, and cusimanse. Significant additions to the Zoo's exhibit collection during FY 1990 included the Sumatran orangutan, chambered nautilus, rainbow boas, Darwin's rhea, and white-fronted marmoset.

Animal Management - Medical care and research programs are vital to the mission of the Zoo. In March 1990, the Zoo's 20-year-old Hospital and Research Building reopened as a state-of-the-art Research Facility. This facility, coupled with the two veterinary hospitals, serves to keep the National Zoo as a leader in the zoological community.

New biotechniques establish the breeding cycle of the endangered Eld's deer, Pere David's deer, and Przewalski's horse. Refined methods for diagnosing pregnancy and gestation in these species will enhance species recovery plans. By understanding the breeding cycle of female black-footed ferrets, zoo physiologists can decide exactly when to introduce males to females for mating. This information has resulted in a considerable increase in the colony at Front Royal and the captive population as a whole.

New laboratory techniques for in vitro (test-tube) fertilization are useful in reproduction of rare and endangered species. Researchers at NZP have joined forces with scientists from two other U.S. zoos to achieve a major milestone in the fight to save endangered species. The birth in the spring of 1990 of the world's first tiger cubs from in vitro fertilization dramatically highlights the prospect of reproductive physiologists playing an ever more crucial role in saving animals from extinction.

Animal Conservation - Current research projects at the Conservation and Research Center at Front Royal include studies of black-footed ferrets and Przewalski's horses. The breeding of these endangered ferrets has been especially encouraging. The Zoo hopes to participate in the reintroduction of captive-bred ferrets to the wild in 1991 and is now developing reintroduction strategies following techniques developed using the Siberian polecat as a research surrogate. FY 1989 saw a major step forward in the rescue program for the Guam rail, a species that since 1985 has been maintained only in captivity. In cooperation with the Government of Guam, the Commonwealth of the Northern Marianas, the U.S. Fish and Wildlife Service, the University of Tennessee, and 12 mainland zoos, the Zoo is now reintroducing 30 captive-bred rails to the island of Rota.

Zoo staff continue to present courses in conservation management. Recent renovations to living quarters at the Conservation and Research Center helped accommodate participants from Peru, Brazil, Ecuador, Bolivia, Guatemala, Mexico, Tanzania, Kenya, Liberia, Thailand, Indonesia, and the Philippines. The staff also conducted training courses in the Far East

and Latin America and gave a workshop in microcomputer data management and analysis in India.

Research - The Zoo's research initiatives include the ecological, demographic, and genetic assessment of wild and captive animal populations. The research also includes comparative studies of mating systems in birds and mammals, influences on individual reproductive success, and the behavioral and physiological bases of growth and reproduction in vertebrate species. The reintroduction of the golden lion tamarin to the forests of Brazil would not have been possible without sophisticated and painstaking research on the social and family life of tamarins. This success also depended on advances in nutrition, metabolism, and genetics.

One research effort has provided definitive evidence that local habitat degradation can have geographically far-reaching, and possibly global, effects on animal populations. Tropical deforestation in Mexico is measurably depressing populations of forest-dwelling migratory bird species in their tropical winter ranges, and thus in summer ranges in North America. Observations demonstrate a marked decline in the North American populations of such once-common species as the woodthrush, redstart, and red-eyed vireo.

Public Education and Information - As the Zoo begins its second hundred years, it continues to inform and educate the large and diverse audience it serves through a wide range of creative programs, exhibits, and materials. In spring 1990, dinosaurs came alive on stage at the Zoo in a one-person show entitled "Dinosaurs, Dinosaurs . . . A Mesozoic Musical." The 40-minute show for the family sent the audience on a 140 million-year journey through the age of dinosaurs. The show incorporated a variety of innovative musical styles, props, characters, sound effects, and techniques of interactive theater in an effort to inform the audience. Also in the spring, the Zoo hosted the Northeastern Regional Meeting of the American Association of Zoological Parks and Aquariums. Curators, educators, keepers and directors discussed topics of interest to the zoological community, including the future of zoos and aquariums, public perceptions of zoos, the animal rights movement, the biology and care of tree kangaroos, fund raising, development of animal exhibits, and education at zoos and aquariums reaching wider audiences.

Reflecting the emphasis of a BioPark, the Zoo developed a new "wayfinding" system, including a revised map brochure for the visitor and a brochure for disabled visitors. The Zoo offers classes in conservation, animal behavior, and exotic animal medicine as well as public symposia on timely scientific topics. Numerous programs for school children from prekindergarten through high school are among the educational activities, as well as learning experiences for families. Through these programs, and through news and feature stories, publications, and other activities, the Zoo continues to focus public attention on issues important to biology, wildlife, and conservation.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, the National Zoological Park requests an increase of 10 workyears and \$858,000 for Wildlife Conservation Programs (1 workyear and \$75,000), an Endocrine Research Laboratory (2 workyears and \$125,000), an equipment upgrade and replacement program (\$325,000), and infrastructure support for current programs (7 workyears and \$333,000).

Wildlife Conservation Programs (1 workyear and \$75,000) - The National Zoo has a long-term commitment to the conservation of wildlife. During the 1992-96 planning period, the Zoo will strengthen its programs in this area by improving and expanding physical facilities for animal breeding and research and expanding the ongoing international

training courses in wildlife conservation and management. The Zoo will increase program effectiveness by integrating international collaborative linkages between NZP, other Smithsonian bureaus, nongovernmental organizations, and government agencies in the United States and developing countries.

For FY 1992, the Zoo requests funding to hire a conservation training officer (1 workyear and \$48,000) to support the Wildlife Conservation and Management Training Program and serve as an instructor to work with developing countries. The additional \$27,000 will allow NZP to fund needed equipment, supplies, and travel in direct support of the program.

Through these multifaceted, collaborative programs, the Zoo will continue to play an important role in assisting developing countries to plan and implement conservation initiatives. These programs allow the National Zoo to strengthen international ties and actively promote wildlife and environmental research and conservation in threatened tropical regions.

Endocrine Research Laboratory (2 workyears and \$125,000) - The current global biodiversity crisis mandates that research institutions direct additional efforts toward the fundamental science of endangered species, most of which have never been studied empirically. Reproductive processes are the cornerstone of species survival and sustained genetic diversity. Species maintained under controlled conditions at the National Zoological Park are ideal for the study of reproduction and genetics. Unfortunately, basic information about reproduction is limited or nonexistent for most wildlife species. The formalization of an Endocrine Research Laboratory will facilitate the National Zoo's ongoing efforts in this area.

For FY 1992, funding will provide an endocrinologist (1 workyear and \$68,000) and a biological technician (1 workyear and \$34,000) to coordinate this valuable program. The additional \$23,000 will allow the Zoo to purchase equipment and general supplies for the laboratory. The program will have three functions: fundamental research aimed at understanding reproductive processes in diverse wildlife species; identification of the reproductive status of captive and free-living populations and diagnosis and reduction of infertility; application of endocrine monitoring to facilitate the effectiveness of advanced reproductive technologies, including artificial insemination using fresh or frozen germ plasm, embryo transfer, and in vitro fertilization.

The Endocrine Research Laboratory will respond to current concerns about global biodiversity by providing unique approaches to the mysteries of why some wildlife species thrive and others do not. Such information is vital to our abilities to propagate and genetically manage rare species in captivity and in the wild. Because few such laboratories exist worldwide and because these novel techniques permit the development of theories relevant to basic biological processes, support for an Endocrine Research Laboratory will help to understand species survival and genetic diversity.

Equipment Upgrade and Replacement Program (\$325,000) - The Zoo is a leading international center for animal exhibition, biological and veterinary research, conservation, and public education. To advance these programs, the Zoo must renew and increase its infrastructure equipment base.

The Zoo's annual inventory of scientific and research equipment reveals that much equipment is more than 10 years old. This equipment is often obsolete because of age and recent technological advancements. The productivity of the staff has decreased as a

consequence. NZP requires additional funds to ensure a regular, cyclical replacement plan for important pieces of Zoo equipment.

The requested funding will permit the National Zoo to purchase such equipment as centrifuges, X-ray machines, freezers and refrigerators for storage of tissue, blood and gene lines, water distillation plants, scintillation counters, audio and video recorders, and scales and balances.

With the completion of the newly renovated Research Facility, the construction of two new veterinary hospitals, and expansion of the conservation programs at Front Royal, the Zoo needs an increased base for the purchase of replacement equipment. The requested funding for FY 1992 will ensure that NZP staff have equipment crucial to monitor and maintain the health of the live collection and to support ongoing research needs.

Infrastructure Support for Current Programs (7 workyears and \$333,000) - The Zoo continues to construct new facilities in accordance with the NZP Master Plan. This energetic construction program coupled with the conversion from an animals-only zoological park to a biological park has left the Zoo with base deficiencies in a number of critical areas. The modern facilities resulting from the Master Plan and the programs the Zoo has scheduled will require the support of staff and funds necessary to operate the facilities.

In FY 1992, the Zoo will open the new Amazonia Exhibit. This facility and other newly renovated aquatic facilities require a high degree of water filtration and mechanical support systems. The Amazonia Exhibit alone will require filtering 100,000 gallons of water per hour, plus an air-cooled chiller unit with 100-ton capacity that will need constant attention. In order to maintain these new facilities, the Zoo requests funding for two water-quality specialists (2 workyears and \$68,000), one utility system repairer (1 workyear and \$34,000), and an increase of \$31,000 in base funding for supplies and chemicals to support the mechanical systems.

The balance of this program request will support the conversion to a BioPark. In FY 1989, Congress appropriated four new positions to begin the conversion process. The additional four positions sought for FY 1992 will continue the transformation. The FY 1992 request will fund two animal keeper/museum technicians (2 workyears and \$50,000) and two tropical gardeners (2 workyears and \$62,000). The additional \$88,000 will establish a funding base for the purchase of animals (\$25,000), aquatic and tropical plants (\$20,000), new exhibit materials (\$20,000), and equipment (\$10,000) and will fund travel in support of the Zoo's exhibit acquisitions program (\$13,000).

The Zoo's transformation from the traditional zoological park to its planned biological park requires an additional investment of financial support. The requested funding will allow the National Zoo to more accurately reflect the unity of life on earth.

NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - These funds come from a variety of sources, including allotments and fees for services and general use of the facilities by Trust-fund units or outside organizations. The Zoo uses these funds to support and maintain its facilities, purchase plants and animals for the collection, support multi-year fellowship programs, purchase scientific and research equipment, and support the salary and travel costs of the director.

Restricted Funds - Gifts and foundation grants continue to support training programs, research projects, and the acquisition of animals for exhibit purposes. In FY 1989 and again in FY 1990, the Zoo received outside funding to support the training of zoo professionals from developing nations in wildlife management, conservation, and zoo management. Since its creation in 1986, the New Opportunities in Animal Health Science Center has continued to receive financial support for its programs in biomedical research.

Government Grants and Contracts - The National Zoo receives direct and indirect support from various government agencies and departments to support specific research projects. Zoo researchers in collaboration with investigators from the National Cancer Institute have studied the effects of genetic monomorphism on reproductive performance, endocrine status, and animal health. The research staff received financial support from the National Institutes of Health to study in vitro fertilization in domestic and nondomestic cat species. In association with the U.S. Department of Agriculture, the Zoo is expanding research efforts in the area of sperm and embryo preservation, genetic engineering, and artificial breeding of domestic animals. The Zoo's medical staff is investigating the characteristics of a new primate hepatitis virus with a grant it received from the U.S. Department of Health and Human Services.

SMITHSONIAN INSTITUTION ARCHIVES

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
			General		Special					
	FTE*	Amount	FTP**	Amount	FTP**	Amount	FTP**	Amount	FTP**	Amount
FY 1990 Estimate	15	613	6	215	-	-	-	-	-	-
FY 1991 Estimate	15	639	6	215	-	-	-	-	-	-
FY 1992 Estimate	22	938	6	215	-	-	-	-	-	-

\* FTE = Full-time equivalent  
 \*\*FTP = Full-time permanent

ABSTRACT - The Smithsonian Institution Archives (SIA) is the official repository of Smithsonian Institution records and related historical documentation. SIA is the Institution's means of assuring systematic, comprehensive historical accountability of its national public trust. SIA supports Smithsonian research, management, and planning; serves other scholarly research and public inquiry; and provides advice to archival research programs in and outside the Institution. As the Smithsonian grows, ages, and diversifies, SIA accommodates, preserves, and manages a constantly increasing volume and an ever-changing technological variety of Institutional records and other pertinent historical documentation.

Located in the Arts and Industries Building, the facility is convenient to principal users. A records center on North Capitol Street holds inactive records awaiting disposition. Remote storage for records that exceed central storage limits is located in leased space in Springfield, Virginia. Modification of an existing building at the Conservation and Research Center, Front Royal, Virginia, is under way for security storage of documents.

For FY 1992, SIA requests 7 workyears and \$299,000 for archival staff support (6 workyears and \$270,000) and clerical support (1 workyear and \$29,000).

PROGRAM - The Smithsonian Institution Archives surveys and schedules official records and scholarly research files for retention and disposal; conducts oral history interviews; accessions, preserves, processes, and catalogues records for future research; provides research and reference service to users of the records; and gives professional advice to other archives. Specific accomplishments in FY 1989 included:

Surveys and Scheduling - SIA established a records disposition schedule for records of the Archives of American Art.

Accessions, Processing and Preservation - SIA accessioned records from 55 Smithsonian offices, ten professional societies, 22 research scholars, and four oral history interviews. The staff reopened the records center after a three-year moratorium due to lack of storage space and took custody of 230 cubic feet of inactive records pending scheduled disposal. Staff also replaced 2,500 nitrate negatives with safety film copies and used Trust funds to conserve, rehouse, and photograph 1,500 early architectural drawings of historic Smithsonian buildings. SIA produced a guide to records of directors of the National Zoological Park (NZP) for the NZP centennial and published (through Smithsonian Institution Press) the first volume (National Museum of American History) of a projected multi-volume series of finders guides to Smithsonian photographic collections.

Research and Reference Service - Scholars and other users did biographical research on former Smithsonian secretaries; architectural and engineering records for current engineering, repair and construction projects; use of imagery in the newly redesigned Visitor's Center in the Castle; and American Indian tribal catalogues.

Professional Advice and Outreach - Two dozen archivists, museum professionals, and librarians, including the director of the Shanghai Municipal Archives, visited SIA for briefings and instruction in the management of museum archives. SIA staff members served on numerous workshops as faculty for training and developing skills and techniques in archives management and oral history. For the past three years SIA participated with other Smithsonian bureaus in a Sloan Foundation-funded project that probed the potentials and limitations of video history inquiry and recording.

Statistical Summary of SIA Activity

	<u>FY 1988</u>	<u>FY 1989</u>	<u>FY 1990*</u>
Total Holdings at Year-end (cubic feet)	14,393	15,288	16,100
Accessions Added (cubic feet)	1,070	895	812
Reference Inquiries	1,610	1,424	996
Items Provided to Researchers	6,148	5,625	5,454
Pages of Copy Provided to Researchers	28,431	16,134	28,042

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\* FY 1990 figures estimated as of June 30, 1990.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, SIA requests 7 workyears and \$299,000 for archival staff and support (6 workyears and \$270,000) and clerical support (1 workyear and \$29,000).

Archival Staff and Support (6 workyears and \$270,000) - The requested funds will allow the Archives to continue the present level of services for textual records produced by two decades of Smithsonian expansion. SIA seeks funds to maintain historical information and reliable documentary evidence for public trust accountability and research services to scholars and the American public.

This increase will cover salaries, benefits, supplies, and equipment for three archivists and three archives technicians. In addition, these funds will furnish archival-standard shelving and cabinets for architectural drawings.

As the Smithsonian Institution becomes a larger and more diverse resource for the Nation, the Archives must grow accordingly. This request will begin to enable SIA to deliver archival services of quantity and quality, keeping pace with the growth of the Institution.

Clerical Support (1 workyear and \$29,000) - Over the past years, growth of public demands at the Archives has resulted in a clerical support deficiency. The shortage of clerical assistance slows SIA's progress in addressing the Institution's voluminous accessions. These accessions have become administratively more complex as well as technically more sophisticated.

Clerical support is requested for SIA's public reference services. These funds will provide salary, benefits and support costs for a clerk-typist. This position will assist with SIA's correspondence, record keeping, and information filing.

The Smithsonian Institution Archives must meet its ever-growing archival demands. For too long, many of the Institution's scholars and other management staff have had to perform functions best suited to technicians and clerical staff, diverting them from their primary pursuit. The addition of a clerk-typist will significantly improve SIA's service to the public.

#### NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - Provided by annual allotments, these funds cover the salaries, benefits, and support costs of an archivist and an archives technician. They also support a temporary archives specialist, three program assistants, and support costs for a survey and publication of guides to photographic collections of the Smithsonian Institution. In FY 1989 and FY 1990 the Smithsonian awarded SIA competitive grants to conserve 19th- and early 20th-century architectural drawings of historic Smithsonian buildings.

SMITHSONIAN INSTITUTION LIBRARIES

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
			General		Special					
	FTE*	Amount	FTP**	Amount	FTP**	Amount	FTP**	Amount	FTP**	Amount
FY 1990 Estimate	106	5,377	11	417	-	2	-	13	-	-
FY 1991 Estimate	107	5,571	11	417	-	2	-	-	-	-
FY 1992 Estimate	112	7,750	12	575	-	1	-	-	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The Smithsonian Institution Libraries (SIL) supports the mission of the Institution "for the increase and diffusion of knowledge" by providing information in all forms to Smithsonian scholars, staff, and others with research needs. The Libraries accomplishes this service by building, organizing, managing, housing, and preserving collections; by providing reference services and consultation; by employing all appropriate technologies for finding and disseminating information; and by contributing to and drawing from national data bases. The Libraries participates in local, national, and international networks and cooperative activities that promote the sharing of information, access to recorded knowledge and the advancement of scholarly communication.

For FY 1992, the Smithsonian Institution Libraries requests 5 workyears and \$2,179,000 for acquisition of journals (\$250,000), justification of which is found in the Uncontrollable Increases section; brittle books preservation (\$100,000); a general reference librarian (1 workyear and \$40,000); cataloguing arrearage (1 workyear and \$100,000); serials control and conversion (\$150,000); and a collections assessment program (1 workyear and \$39,000). In addition, SIL seeks 2 workyears and \$1,500,000 to replace the Smithsonian Institution Bibliographic Information System (SIBIS). This increase is justified under the Office of Information Resource Management in the Administration section.

PROGRAM - The Smithsonian Institution Libraries provides research services, collections acquisitions and management, and outreach programs to support multidisciplinary research at the Smithsonian Institution. SIL's collections number more than 1,079,000 volumes, including 15,000 serial titles and 35,000 rare books. The collections define and describe the artifacts, specimens, and other objects in the Smithsonian museum complex. By centralizing acquisitions and cataloguing, preservation and conservation, administrative services, and interdisciplinary reference/information services, SIL gains operational and cost efficiencies. The SIL staff uses electronic technology for most internal library operations and for resource sharing and communication with other libraries. The Smithsonian Institution Bibliographic Information System provides bibliographic access to

collections through an on-line catalogue. SIL also uses SIBIS for acquisitions, cataloguing, and increasingly for circulation and inventory control. As SIL fully implements new functions of the current system, deficiencies become apparent. Beginning in FY 1992 SIL, in conjunction with the Office of Information Resource Management, will implement a multiyear replacement of SIBIS. The new system will reside on a new mainframe computer, using new software to accommodate the expanded growth and demands placed on the current system.

In FY 1990, the Libraries automated its circulation records in the Air and Space Museum Branch Library, the Anthropology Section of the Natural History Museum Branch Library, the Museum Reference Center, and the Office of Horticulture Branch Library. Eight SIL locations are now using the automated circulation system.

Research Services - SIL provides daily, direct support to researchers in 14 branch libraries, including Central Reference and Loan Services. All branches offer subject and information-science expertise to provide users with the information they request. The staff searches on-line data bases and participates in national bibliographic networks to find and retrieve requested items and information. In FY 1990, SIL added the EPIC service, a product of the Online Computer Library Center (OCLC). EPIC gives access to the OCLC data base by subject and key word searches to expand researchers' ability to answer specific inquiries and create comprehensive bibliographies. SIL contracts with commercial document delivery services to provide hard-to-find and highly specialized materials. The Libraries answered 61,000 reference questions, borrowed 9,500 books or articles from, and loaned 4,800 items to outside libraries. The number of items circulated both inside and outside the system was 48,400.

SIL prepares and distributes bibliographies to Institution staff, the public, and other libraries in the United States and abroad. In FY 1990, the following eight branches produced new titles lists and/or bibliographies: the branches at the National Museum of African Art, the National Air and Space Museum, the National Zoo, the Office of Horticulture, the libraries of the Department of Anthropology in the National Museum of Natural History and the Smithsonian Tropical Research Institute, the Museum Reference Center, and Central Reference and Loan Services.

Collections Acquisition - SIL acquires materials through purchase and through an active gift-and-exchange program with more than 3,900 partners worldwide. In FY 1990, the Libraries purchased the Robert Mussey Collection on varnishes and furniture finishes, which will be used by conservators and historians of decorative arts.

In the past three years, the spiraling costs of serial subscriptions forced SIL to redirect resources to maintain the most crucial current journal and periodical subscriptions. SIL now lacks the resources to place subscriptions for new titles to support new and emerging research emphases.

Collections Management - SIL houses its collections in Smithsonian buildings in Washington, D.C., and other locations, including Edgewater, Maryland; Cambridge, Massachusetts; New York City; and the Republic of Panama. The Libraries controls collections and makes them available to researchers at the Institution and worldwide by systematically describing materials and entering them into the SIBIS on-line catalogue and into OCLC. SIL continued its contracts for commercial cataloguing and for converting manual records to machine-readable data. In FY 1990, SIL catalogued 26,772 items. When SIL completes cataloguing records for older materials on to SIBIS, researchers will for

the first time be able to search the entire collections in all SIL locations on-line. In FY 1990, SIL completed cataloguing collections in the branch libraries in the National Museum of American History, Cooper-Hewitt Museum, National Air and Space Museum, and in the National Museum of Natural History's Anthropology, Botany, and Mollusks locations, and the National Zoo's Branch Library.

Unless they are preserved, 19th- and 20th-century materials, heavily used by researchers, face certain destruction by crumbling caused by high-acid-content paper. As the result of a 1986 study, SIL identified one-third of its holdings as already severely deteriorated. SIL began to preserve collections through its Preservation Department which is responsible for treating the general collections and binding library materials.

The Libraries is currently collaborating with a commercial printer to microfilm publications relating to the International Fairs held between 1834 and 1915. The Books of the Fairs Project completed all filming in FY 1990 and produced the manuscript for an illustrated guide to accompany the microfilm.

In FY 1990, SIL built workrooms at 1111 North Capitol Street to combine and coordinate all preservation activity, including the Binding Unit. The Book Conservation Laboratory, already at 1111 North Capitol Street, repairs and maintains the rare and valuable collections of the Libraries.

Outreach - SIL serves the wider scholarly community and the public through outreach programs including publications, lectures, and exhibitions. An exhibition on "Science and the French Revolutionaries" was part of the Institution's tenth International Symposium, "Les Droits de l'Homme and Scientific Progress," which also included a public lecture. From November 1989 to July 1990, SIL exhibited artifacts and explanations related to "Library Preservation: Problems and Solutions," featuring aspects of the Libraries' preservation and conservation programs. In April 1990, SIL participated in the American Library Association's National Library Week Celebration, "Night of a Thousand Stars," by presenting a lecture on "Black Beauty: From Humane Tract to Children's Classic." SIL's lecture for the Washington Collegium for the Humanities Lecture Series, "The World of the Child," was an illustrated talk "Playful Readings: A History of Children's Movable Books." Concurrently, SIL mounted an exhibition of its collection of pop-up books from the Cooper-Hewitt Branch Library.

The Libraries published Alchemical Death and Resurrection: The Significance of Alchemy in the Age of Newton by B.J.T. Dobbs of Northwestern University, an illustrated lecture based on an Isaac Newton manuscript in the SIL collections and delivered for the 1988 Washington Collegium for the Humanities Lecture Series, "Death and the Afterlife in Art and Literature." With funding from the Special Foreign Currency Program, SIL administers the Science Information Program of translations. Blood-Sucking Mosquitoes of the Sub-Tribe Culisetina was published in February 1990, and 30 additional titles are in various stages of production.

The Smithsonian Information Exchange Service (SIES) helps nonprofit institutions in the United States by sending their preaddressed educational materials to interested foreign institutions, many in Third World countries. In FY 1990, the service mailed 43,244 packages.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, Smithsonian Institution Libraries requests 5 workyears and \$2,179,000 for acquisition of journals (\$250,000), justified in

the Uncontrollable Increases section; brittle books preservation (\$100,000); a general reference librarian (1 workyear and \$40,000); cataloguing arrearage (1 workyear and \$100,000); serials control and conversion (\$150,000); and a collections assessment program (1 workyear and \$39,000). In addition, SIL seeks 2 workyears and \$1,500,000 to replace the Smithsonian Institution Bibliographic Information System. This increase is justified under the Office of Information Resource Management in the Administration section.

Brittle Books Preservation (\$100,000) - A 1986 survey revealed that at least 30 percent of the materials in SIL collections are brittle. Brittle paper, when left alone, literally crumbles to dust. SIL must put its endangered books and journals in stable formats.

Preservation funding will improve a program of continuing work to save the endangered one-third of the Libraries' collections that are crumbling. This rescue of 324,000 brittle books and journals will safeguard these written works for study by the next generation of scholars, especially in the fields of natural history and the history of science and technology. The SIL collections in these fields are world renowned and this will be the first major preservation effort made in the field of natural history.

The staff in the Preservation Unit of the Libraries will identify what preservation procedure is appropriate for endangered items in the collection. Some books will be reprinted on paper that will last for many more generations; some books will be microfilmed; some deteriorated books will be replaced. Professional conservators will preserve the rare and unique books and repair broken bindings. Staff will encapsulate some books and take destructive acid out of the paper in others. Soft-bound books will be put in sturdy, hard-cover bindings. Journals and serials printed with paper covers will be bound together for stability and durability.

The staff will use the requested increase of \$100,000 to purchase replacement copies and supplies needed for in-house preservation procedures. The Libraries will spend some funds on vendor contracts for preservation work, such as microfilming.

With this increase, the specialized collections in the library system of the Nation's national museum complex will be preserved. Unique collections in natural history and the history of science and technology will be available for future generations. The preservation effort will serve as a model for saving the rest of the SIL brittle books collections. Researchers and students at the Smithsonian and throughout the United States will use the rescued books and journals. Their contents define the worth of the priceless objects and specimens in the 12 museums. The information thus saved is a significant part of the Nation's intellectual heritage.

General Reference Librarian (1 workyear and \$40,000) - SIL provides direct support to scholars through a 14-branch system. Services include answering reference questions, finding and securing materials for use, and preparing bibliographies. As librarianship is a profession in demand, staff turnover has increased. In addition to temporary vacancies due to illness and vacations, there are continuing prolonged vacancies while SIL recruits qualified replacements. SIL is forced to redirect staff each time a position becomes vacant and sometimes has to reduce services or close branches. This constant reassignment results in inefficient use of staff, delays in service, and development of backlogs. In this situation, researchers and the public do not have complete access to material or to technologically enhanced service including access to remote data base

services. Many special projects that help researchers have been delayed or dropped because of the lack of qualified professional assistance.

To ensure continued excellence of service to all researchers who use the Libraries, SIL requests a general reference librarian (1 workyear and \$40,000) to conduct special projects directed at improving technologically enhanced reference services and to cover vacancies in SIL branches. The addition of a general reference librarian will result in tangible benefits, including more assured coverage, more searches performed, more frequent consultation with researchers regarding their library needs, more special projects and bibliographies completed, and less strain on an already stretched staff.

The general reference librarian will fill in where there are vacancies. The incumbent will gain insight into the service needs of a number of branches and will therefore, as time permits, be uniquely qualified to undertake projects to improve service, including enhancements made possible by application of new technology.

SIL must ensure that direct service to researchers continues no matter what the circumstances in the job market. The way to do this is by training a librarian to serve in any of the branches. By gaining one position, SIL will be able to provide urgent service relief until an appropriate level of staffing can be reached. Library users will be well served, and Institutional goals will be advanced from improved library service.

Cataloguing Arrearage (1 workyear and \$100,000) - Some 175,000 items in the SIL collections are not catalogued and, therefore, essentially not available to users. When a researcher requests an uncatalogued item and there is no record of it in SIBIS, the SIL staff might request it on interlibrary loan or even arrange to purchase it thus creating inefficiencies and redundancies. Other materials in the backlog may be unique items bought with collection funds, received from one of SIL's exchange partners, or carefully selected from gifts by generous donors. Not having access to what SIL already has makes poor use of resources at a time when acquisitions funds are limited, the staff is thinly spread, and researchers' time is valuable. Congress has in past years appropriated funds to create, on contract, bibliographic records for items in the arrearage. With increased cataloguing costs and at the current rate of spending, it will take 15 more years to catalogue the arrearage. In that time, new items will undoubtedly have been added to the backlog.

With part of this request (\$70,000), SIL will arrange for increased contract work to catalogue approximately 3,500 additional items per year. The cataloguers will not only add records to SIBIS, but also to OCLC, a national on-line bibliographic utility that facilitates resource sharing through interlibrary loan using its extensive data base of catalogued material. Smithsonian researchers will use the records as will researchers in more than 10,000 OCLC-member libraries. A significant part of the backlog project will be cataloguing the unique trade catalogue collection, which is not available in any other library. The catalogue records will also provide an inventory for previously uncontrolled materials. The Libraries will also hire a library technician (1 workyear and \$30,000) who will provide quality control for materials processed under contract.

With increased funding and the addition of a technician, SIL will be in a better position to keep pace with the growth of its collections. SIL will also be able to answer persistent requests for cataloguing support from offices throughout the Institution. SIL owes the Institution's researchers, as well as researchers nationally, access to all library materials in the Smithsonian Institution Libraries. As items in the backlog are

catalogued, Smithsonian library users and researchers across the United States will benefit.

Serials Control and Conversion (\$150,000) - Smithsonian researchers rely on serials as the best source for the latest information on current scientific investigation. This fact, coupled with the dramatic increase in the cost of serials, makes it essential for SIL to make the best possible use of its serial holdings. To do this, SIL needs to put in place an effective system for requesting and receiving serials by gift and exchange.

With this request, SIL will begin to consolidate records for approximately 15,000 serials, both those purchased and those received in the gift-and-exchange program. SIL will convert these records from various manual and semiautomated sources to an electronic data base. The data base will provide inventory control and up-to-date, accurate information for researchers for every serial issue in the SIL collections. Through an improved process for serials acquisition and check-in and improved management and fiscal controls, there will be greater accuracy and better access to SIL serial holdings.

Up-to-date, accurate, and complete records of SIL serials will give researchers more timely access to new serials and reduce the time staff spend to find the needed issue in the SIL collections. SIL will decrease the need to go to other libraries for serial titles it already owns but has difficulty locating because of incomplete records. To get the most out of serials--an expensive and essential research tool--SIL must have an effective serials management system.

Collections Assessment Program (1 workyear and \$39,000) - For the past 140 years the Institution has collected large numbers of books and journals in many subjects, but SIL lacks hard data about the quality of its collections in relation to Smithsonian programs. Many Smithsonian programs--from Panama to the Chesapeake Bay to the Mall in Washington, D.C.--conduct vital research on endangered species and ecosystems. Four geographically scattered SIL branch libraries support this interdisciplinary research. While scientists worldwide recognize many strengths in SIL collections, there are areas that need development. Funding for collections evaluation will enable SIL to conduct a systematic evaluation of its entire natural history collection. This study also will permit coordination of these indispensable research materials.

With the requested funds, SIL will hire temporary staff (1 workyear and \$39,000) to release a senior reference librarian from regular duties. The librarian will design and supervise the assessment procedures.

This project will involve a systematic analysis of the books and journals in four of SIL's branch libraries: at the National Museum of Natural History (the Smithsonian's largest branch library), the National Zoo, the Smithsonian Environmental Research Center on Chesapeake Bay, and the Smithsonian Tropical Research Center in the Republic of Panama. All four bureaus support research in ecosystems, biodiversity, and other interdisciplinary subjects in the natural and, to an extent, the physical sciences. The analysis will provide data to indicate how well SIL collections match current Smithsonian research projects, what new library materials are needed, where collection activities can be reduced, and which fields merit priority for conservation measures. This assessment is part of the National Collections Inventory Project sponsored by the Association of Research Libraries.

The Association of Research Libraries will assist by conducting a training session for staff of all four branches. SIL will sponsor a symposium for Smithsonian scientists working in natural history fields. The scientists will provide guidance about what library reference tools they need for their research. The Research Libraries Group (RLG), Stanford, California, will put the collected information into a national data base of collection evaluation information. SIL will also pay RLG to produce customized reports for SIL.

Natural history researchers in the four branch libraries are increasingly involved in interdisciplinary studies like biodiversity and global change. This funding permits librarians and scientists to take a clear look, together, at what literature is needed for these crucial studies. After the collections assessment, SIL will coordinate its collections development in the four branches with two national libraries--the National Library of Medicine and the National Agricultural Library--and the Library of Congress. Scientists throughout the United States will have access to information about SIL's systematized collections in natural history. The collections assessment will serve as a model for similar analyses of collections in other areas of Smithsonian research.

#### NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - An administrative allotment funds administrative salaries and related support costs including travel, training, and supplies. A program allotment supports such special events as public lectures and seminars.

Restricted Funds - Gifts and grants from individuals, foundations, endowments, organizations, and corporations provide these funds for specific purposes. In FY 1990 and FY 1991, these funds will support the preparation costs for two exhibitions in the SIL exhibition gallery and provide for the purchase of rare volumes in the decorative arts.

INTERNATIONAL ENVIRONMENTAL SCIENCE PROGRAM

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	13	770	-	-	-	-	-	-	-	-
FY 1991 Estimate	15	920	-	-	-	-	-	-	-	-
FY 1992 Estimate	18	1,078	-	-	-	-	-	-	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The International Environmental Science Program (IESP) is a multi-bureau interdisciplinary effort to coordinate the Smithsonian Institution's long-term monitoring and study of unique and significant ecosystems. The goal of the Program is to evaluate and eventually predict the impact of human activities and natural change on selected ecosystems. Research sponsored by IESP occurs at two permanent Smithsonian sites--the Smithsonian Tropical Research Institute (STRI) in Panama and the Smithsonian Environmental Research Center (SERC) in Edgewater, Maryland--and several nonpermanent sites throughout the world.

For FY 1992, IESP requests 3 workyears and \$158,000 for global change research at the Smithsonian Environmental Research Center.

PROGRAM - The International Environmental Science Program sponsors research to meet the urgent need for long-term studies of the world's ecosystems, especially in tropical and subtropical regions where the rapid rate of tropical deforestation, loss of suitable soil, and resulting threat to wildlife are of critical importance to biological diversity and global change. The Program provides funds for teams of scientists to monitor natural variations in specific environments unchanged by humans.

Scientists maintain permanent IESP research sites at the Rhode River Estuary at Edgewater, Maryland, and in the tropical lowland forest of Barro Colorado Island in Panama and the Galeta Reef on the Atlantic side of the Isthmus of Panama. For more than 15 years, scientists have gathered information for a data base on the biological, physical, and chemical components of various ecosystems. Analyses of these data have produced speculations and verifiable hypotheses about long-term patterns in climate and disturbances resulting from human activity.

Research sponsored by IESP also takes place at nonpermanent sites on Aldabra in the Seychelles and in Venezuela, Brazil, Mexico, and the Amazonian regions of Peru and Bolivia. Smithsonian scientists, with support from the host governments, are continuing their efforts at these sites to gather descriptive data.

The following highlights IESP's most significant accomplishments for FY 1990 at the Program's permanent and nonpermanent sites:

Edgewater, Maryland - Sunlight penetration is often the factor that limits the density of algal growth in Chesapeake Bay. Using field data from 1988, researchers developed a mathematical model of spectral attenuation calibrated with depth. Model predictions compared with field measurements taken in 1989 were accurate within about 25 percent, the first time such a model has been successfully tested for the very turbid, highly productive waters of Chesapeake Bay.

Aldabra - Scientists continued surveys of the flora and fauna of this unique atoll in the Indian Ocean. Work on the significant population of giant tortoises progressed with the administration of bone dye to 200 animals in two separate populations as a prelude to population and growth studies over the next five years. This population of giant tortoises is one of the largest in the world and most accessible for study. Studies on polynoid worms yielded one species undescribed in the scientific literature.

Venezuela - A continuing 15-year demographic study of several social groups of the Red Howler monkey helped detect male invasions of social groups and document the details of infanticidal behavior in Red Howlers.

Brazil: Golden Lion Tamarin Project - By April 1990, 29 (40 percent) of 73 reintroduced tamarins remained from those released between 1984 and 1989, and 23 (70 percent) young survived from 33 born. Altogether, there are 55 more tamarins in the wild as a result of the Institution's reintroduction program.

The Poco das Antas Reserve was seriously damaged in early 1990 by a major fire that broke out during an unusually dry wet season. Nearly 25 percent of the Reserve was burned and scientists estimate that forest regeneration was set back up to ten years as a result. The fire will also delay efforts to increase the small population of golden lion tamarins within the Reserve. Scientists initiated several projects to chart the effects of the fire. Findings will contribute to our understanding of how to rehabilitate damaged ecosystems in the tropics.

Neotropical Lowland Research Program - In FY 1990, scientists conducted field and laboratory work in archeology, botany, entomology, herpetology, and ichthyology on the Amazonian and Atlantic forest biota. Results of these investigations provided new information on the composition and distribution of the neotropical biota that is important for the completion of several major publications on conservation planning. Data from the herpetology project documented frog species extinctions that were the focus of a National Academy study and considerable press attention. An article on the project, coauthored by Smithsonian and Brazilian scientists, was published in the scientific journal Biotropica.

Panama - IESP-funded research on Barro Colorado Island (BCI) continues to expand understanding of global change and to develop techniques for agroforestry and reforestation. One major study is examining the importance of seasonal rainfall in the forest. To eliminate the seasonality of rainfall, STRI scientists irrigated two 5-acre plots over each dry season for the past four years. Many species, especially those in the understory, responded with decreased synchronization of growth and reproduction. Thus, changes in local weather patterns may have significant effects on forest plants.

At Galeta, long-term monitoring of reef and mangrove communities continues to provide invaluable background for analyses of the impact of the April 1986 oil spill on these areas. Evidence gathered to date indicates that the effects of oil spills on tropical marine habitats are more severe and long lasting than previously suspected.

Mexico - Research on the Yucatan Peninsula continues to focus on biological responses to severe damage done by Hurricane Gilbert and by fires that occurred during the subsequent dry season. In unburned areas, the forest canopy recovered significantly after 17 months. In contrast, areas that burned suffered very high rates of mortality; recovery will most likely be very slow because the highly organic soils almost completely burned and few seeds and seedlings of tree species survived.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, IESP requests 3 workyears and \$158,000 for global change research at the Smithsonian Environmental Research Center.

Global Change Research at SERC (3 workyears and \$158,000) - The collection of long-term data on the effects of global change on biota of the Chesapeake Bay region is important for improved management of natural resources. Increased support of long-term monitoring programs will enhance the collection and use of these data and complement previously funded programs at the Smithsonian Tropical Research Institute.

Monitoring of biological populations and their controls is performed on the tidal Rhode River, a tributary to Chesapeake Bay and its watershed. The Smithsonian controls or owns much of the site. Less intensive, short-term comparative studies throughout the region place these data in a broader context. To expand the estuarine program, IESP requests 2 workyears and \$101,000 to hire two biological technicians and provide support funding.

Alterations of and intensified land use have extensively fragmented the natural forest habitats of the Chesapeake region. SERC proposes a long-term study of the impacts of forest fragmentation on biota, especially migratory birds. This program will build on past, privately funded short-term research. IESP requests 1 workyear and \$57,000 to hire one biological technician and provide other support for this program.

The SERC Rhode River site has been selected, through national peer competition, as one of 25 members of the Long-Term Ecosystem Research Network. These sites are research centers in the United States with characteristics, facilities, staff, and long-term research results that make them ideal for ecological global change research.

MAJOR SCIENTIFIC INSTRUMENTATION

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	-	2,147	-	-	-	-	-	-	-	-
FY 1991 Estimate	-	5,765	-	-	-	-	-	-	-	-
FY 1992 Estimate	-	8,144	-	-	-	-	-	-	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The development of major scientific instrumentation is vital for Smithsonian scientists to remain at the forefront of their fields. Because of the magnitude of the costs and the time required to fabricate new instruments and reconfigure existing ones, the Institution requests funding for such projects under this line-item rather than under individual bureau line-items. Since these projects will, of necessity, require long-term development and multi-year funding, the Institution also requests that funds in this line-item remain available until expended.

For FY 1992, the Smithsonian requests an increase in this no-year funding line-item of \$2,379,000 to continue the construction of the submillimeter telescope array (\$1,819,000) and the conversion of the Multiple Mirror Telescope (MMT) (\$441,000) and to begin development of new instrumentation for the converted MMT (\$119,000). In addition, the Institution asks for an increase in the funding for personnel costs and rent (5 workyears and \$321,000) associated with the submillimeter telescope array and for a scientist to construct instrumentation for the converted MMT as one-year funding in the Smithsonian Astrophysical Observatory (SAO) line-item. However, the justification for these positions is included here because of their relationship to the Major Scientific Instrumentation request.

PROGRAM - The development of major scientific instrumentation, such as telescopes, requires research and development (R&D) over an extended period of time. Teams of Smithsonian scientists, technicians, and contractors, focused on critical telescope elements such as optics, detectors, receivers, and support structures, are engaged in these R&D efforts. To facilitate the unique extended R&D efforts that are integral to the acquisition of major scientific instrumentation, the Institution established this no-year line-item in the FY 1989 budget.

In the FY 1989 budget, the Smithsonian requested funding under this line-item for two projects for the Smithsonian Astrophysical Observatory:

- the development of an array of submillimeter telescopes;

-- the conversion of the Multiple Mirror Telescope (MMT).

Both these forefront scientific projects involve the fabrication of major new instrumentation that will take a number of years to complete. SAO expects the submillimeter telescope array to be completed by FY 1996. In 1987, SAO estimated that the array would require total funding of \$30 million (1987) for construction on a continental site and about 25 percent more for construction on a site in Hawaii. Annual operating costs are expected to be about 8 percent of the construction costs. Almost all operating personnel will be hired during the design and construction phases of the project. They will participate in the final construction of the instrument and thus will already be included in the SAO base when operations commence.

SAO expects "first light" for the converted MMT by the end of 1994. In 1987, SAO estimated the total cost to the Smithsonian for the conversion would be \$10 million (1987).

Except for the effects of inflation, SAO's current estimates for the costs of these projects are unchanged. In 1990 dollars, these estimates are \$35.1 million for the submillimeter array and \$10.8 million for the converted MMT.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, the Smithsonian requests an increase of \$2,379,000 in this no-year funding line-item to continue the construction of the submillimeter telescope array (\$1,819,000) and the conversion of the Multiple Mirror Telescope (MMT) (\$441,000), and to begin development of new instrumentation for the converted MMT (\$119,000).

Construction of Submillimeter Wavelength Telescope Array (\$1,819,000):

Scientific Justification - The last frontier for ground-based astronomy consists of observing the skies with telescopes sensitive to submillimeter waves, light with wavelengths between those of infrared and radio waves. Only in the past few years has technology advanced sufficiently to allow the construction of telescopes that can observe the universe at submillimeter wavelengths. SAO's efforts to build a submillimeter wavelength telescope array will lead to fundamental contributions to astronomy and astrophysics in several areas:

(1) For studies of star formation, the array will be used to map the structure and motions of the disks that eventually contract into stars. The array offers the prospect of detecting and studying gas falling into very young stars and, thereby, gaining detailed knowledge of how stars are formed. With unprecedented resolution and sensitivity, the array will also provide images of high-velocity gas flows from recently formed stars. These images will elucidate the mechanisms that limit the growth of a star and will help answer a fundamental question: Why is the sun the size it is?

(2) Use of the array will generate new information about galaxies. Detailed maps of the emission from carbon monoxide molecules will provide the first clear view of the spiral structure of galaxies outlined by giant molecular clouds. The array will also allow astrophysicists to study the emission from the dust surrounding young stars in galaxies. Study of these emissions will reveal centers of star formation not visible with optical telescopes. These two new views of galactic structure will expand understanding of the now-mysterious ways that spiral patterns in galaxies originate and sustain themselves.

(3) Because of its high sensitivity, the array will provide accurate measurements of the submillimeter wavelength emission from quasars and active nuclei of galaxies. These measurements will clarify the relationship between these enormously energetic objects and may reveal the source of their energy. These measurements also could be crucial to distinguishing between the mechanisms leading to quasars that emit radio waves and those that do not. An explanation for these mechanisms is one of the most important unsolved enigmas in the quest for understanding the source of energy in quasars.

(4) The array will give new information about the surfaces and atmospheres of planets and other objects in the solar system. Maps of Mercury, Mars, Saturn's rings, and some dozen additional bodies, including asteroids and satellites, will reveal the temperature and structure immediately beneath the surface. This information is needed to understand the nature of the subsurface composition. New data gathered on emission from molecules in the atmospheres of Venus and Saturn's satellite Titan should also provide insight into planetary weather.

(5) Finally, the array is likely to make unexpected discoveries. Only a few telescopes can work at submillimeter wavelengths. The array's ability to discriminate spatially will be at least ten times greater than that of other, single, submillimeter telescopes. If the past is any guide, this unique capability should lead to important serendipitous discoveries.

In 1982, the ten-year plan of the Astronomy Survey Committee of the National Research Council (NRC) recognized the desirability of submillimeter wavelength observations. Several single-antenna telescopes capable of such observations are now under construction or in operation. These telescopes will dramatically advance the field. None of them, however, will be able to discern details finer than about ten seconds of arc. This limitation means that their resolving power will be less than one-tenth of the leading astronomical instruments in other wavelength regions, such as the Very Large Array (VLA) of radio telescopes.

The NRC study also recommended development of advanced spatial interferometers at all wavelengths to improve resolving power. SAO's submillimeter wavelength telescope array will be a premier response to the NRC's recommendation. It will have a resolving power of better than one second of arc, far finer than for any single-antenna submillimeter wavelength telescope and comparable to that of the VLA.

Status and FY 1992 Plans - SAO began its submillimeter program in FY 1987. In that year, SAO hired a submillimeter receiver scientist and started to equip a receiver laboratory. With funding provided in FY 1988 and FY 1989, SAO continued to develop the laboratory and hired a leader to direct the laboratory. In 1988, SAO hired a technical leader to coordinate the design and development of the array subsystems. In 1989, SAO added a project scientist to oversee the design specifications for the array in the light of its scientific goals and a project director to manage the entire array program. In FY 1990, the project added the services of a mechanical engineer to oversee the antenna development and an electronic technician to help with site testing.

Progress since assembling the core team has been substantial. Existing data on atmospheric conditions above Mauna Kea, Hawaii, and Mt. Graham, Arizona, the two sites under consideration for the array, have been analyzed thoroughly, and an extensive report has been completed. Special equipment for the most sophisticated part of the site testing has been designed and constructed. Analysis of the basic terrain at each site is well

under way. Five design studies have been completed in cooperation with private industry to identify the best approach to the manufacture and construction of the antennas. A study of the correlator design was also completed, as was an extensive study of the techniques for calibration of the array. Furthermore, the receiver laboratory completed the construction and testing of the first prototype receiver to operate at a frequency of 230 GHz.

SAO's scientific and technical advisory group for the array, consisting of 14 experts from other institutions in the United States, Europe, and Japan, met for two days at the Observatory in September 1989 to review progress and plans. Their comments at the meeting and their 12-page written report were constructive. Overall, their assessment was positive: "The entire committee is very enthusiastic about the project and impressed with the progress to date."

Early in FY 1991, SAO will publish the results of the design study, including the specifications for the antenna systems that are the most critical, long-lead-time elements of the array. Successful recruitment for the positions provided in the FY 1991 request will allow nearly the full construction team to be assembled, including the advance team that will be responsible for the site preparation. The FY 1991 funding will also allow the Observatory to contract for two of the antennas; with these, testing of all components of the array can be carried out. SAO will also continue the development of higher frequency receivers in the receiver laboratory. The staff will complete site testing early in FY 1991 and select a site shortly thereafter.

For FY 1992, the Institution requests a total of \$5,601,000 for the submillimeter array program in the Major Scientific Instrumentation line-item. Such funding represents an increase of \$1,819,000 over the expected FY 1991 base of \$3,782,000. These funds will be used to continue the construction started in FY 1991 and will be expended as follows:

	(\$ millions)
-- acquire site and complete environmental impact statement.....	\$0.20
-- contract for site and pad design.....	0.25
-- contract for correlator (Phase I).....	0.50
-- purchase computers for telescope operation.....	0.30
-- make prototype intermediate frequency and local oscillator links.....	0.30
-- build 490 GHz prototype receiver.....	0.35
-- build three 230 GHz receivers.....	0.60
-- purchase next three antennas.....	3.10

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Total funds to be expended in FY 1992	\$5.60
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The SAO line-item requests funding for the staff required for the submillimeter telescope array. With the funding increases in its base for FY 1992, SAO will fill five new positions for the project (5 workyears and \$278,000) and provide rent costs of \$43,000. The personnel to be hired and their duty stations are:

- electrical engineer for site, temporarily based in Cambridge;
- mechanical engineer for site, temporarily based in Cambridge;
- programmer for site, temporarily based in Cambridge;
- shipping clerk for site;
- secretary for site.

Project Schedule - SAO will complete the design study early in 1991 and then initiate construction.

The following chart shows the total level of funding (actual for past years and 1990 dollars for present and future years) required for the project from FY 1989 through FY 1996, including allocations already made.

PAST AND PROJECTED FUNDING FOR SUBMILLIMETER TELESCOPE ARRAY  
FY 1989 through FY 1996<sup>1</sup>

	<u>FTE</u>	(\$ millions) <sup>2,3</sup>
FY 1989	3	0.8
FY 1990	6	1.6
FY 1991	18	4.9
FY 1992	23	7.0
FY 1993	28	6.7
FY 1994	28	5.8
FY 1995	34	5.8
FY 1996	34	2.5 <sup>4</sup>
TOTAL	174 <sup>5</sup>	35.1

<sup>1</sup>Assumes construction on continental site

<sup>2</sup>Rounded to the nearest \$100,000

<sup>3</sup>Includes all personnel costs for the project

<sup>4</sup>In addition, \$1.6 million required for approximately six months' operating expenses

<sup>5</sup>Represents the cumulative workyear requirement over the seven-year period

Conclusion - When operational, the SAO submillimeter telescope array will be a major scientific instrument of international stature. The array will be unique in the world in its combination of wavelength coverage and resolving power. It will, therefore, measurably enhance the scientific competitiveness of the United States. With the recent unfortunate delay in acquiring high-resolution space-based observations, the recovery of momentum represented by the construction of technologically advanced, pioneering ground-based instruments such as the submillimeter array is especially timely.

Conversion of the Multiple Mirror Telescope (\$441,000):

In FY 1988, SAO began the process of converting the Multiple Mirror Telescope (MMT) to a telescope with a single 6.5-meter diameter mirror. This conversion will more than double the light-gathering power of the telescope and increase its field of view more than one hundredfold. The converted telescope will allow scientists to observe many objects simultaneously; for certain types of problems, the converted telescope will, therefore, permit more than a hundredfold increase in efficiency of data collection over the MMT.

Scientific Justification - The increased collecting area of the converted telescope will allow astronomers to gather, on objects 2.5 times fainter, data of the same quality

as now obtained. This improvement will allow the use of the converted telescope in many new areas of research, where the extreme faintness of the objects involved precludes the use of the present telescope. Further, the added light-gathering power means that more than twice as much of the universe will be accessible for study than is now possible. SAO has already established itself as a world leader through the discovery and study of the "bubble" structure of the universe. Expanding such studies beyond the MMT's present horizon will be very important to determine if even larger structures exist; if they do, scientists might again have to rethink their understanding of the evolution of the universe.

The expanded capability of the converted telescope also will be especially beneficial for the study of clusters of stars and galaxies. SAO astronomers will be able to complete in a few hours projects that now require many nights on the MMT. For example, SAO scientists will conduct studies of the dynamics of clusters of stars, an area in which SAO scientists have been among the world's leaders. Similarly, the study of clusters of galaxies, hitherto prohibitively demanding of telescope time, will become feasible. Research on these clusters may hold the key to an understanding of the distribution of matter in the universe. This distribution has a fundamental bearing on the evolution of the universe, in particular on how galaxies formed--a question that has baffled scientists for decades.

In addition, the converted telescope will allow measurements of the velocities of gas in very distant galaxies. Astronomers can then compare these velocities, which are often related to the intrinsic brightnesses of the galaxies, to the apparent brightnesses of the galaxies to determine their distances. This technique will allow scientists to determine the rate of expansion of the universe when it was younger. A measurement of this rate is critical for understanding the evolution and ultimate fate of the universe: Will it continue to expand forever, or will it eventually collapse?

The increased collecting area will allow pioneering studies of certain astrophysical phenomena that change too rapidly for astrophysicists to study with today's telescopes. Some of these rapidly changing processes take place in double stars, so close to each other that their surfaces almost touch. Scientists similarly can study phenomena in systems with one star whose core is so dense that not even light can escape from it i.e., a black hole. Such systems give rise to very unusual conditions; their study will be possible with the converted telescope and will allow scientists to gain insights into new physical processes.

These are just a few examples of the scientific justifications for the conversion of the MMT. A conference held at SAO in April 1986 resulted in a 50-page proceedings, which outlines in more detail the various reasons for the conversion.

Status and FY 1992 Plans - With funding provided for the conversion project in FY 1987 through FY 1991:

- SAO ordered, received, and tested the glass required for the casting of the 6.5-meter mirror in the University of Arizona's Mirror Laboratory;
- SAO selected a consulting engineering firm and completed the conceptual design for the building modifications, optical support structure, and primary mirror cell.

As part of its contribution to this joint project, the University of Arizona's Mirror Laboratory enlarged the casting furnace to allow the 6.5-meter mirror to be cast. The Mirror Laboratory is also polishing a 1.8-meter diameter mirror to develop the techniques to be used on the 6.5-meter diameter mirror.

In FY 1991, the 6.5-meter diameter mirror will be cast. SAO will complete the preliminary design of the building, optical support structure, and primary mirror support. SAO will also order the blanks for two secondary mirrors.

For FY 1992, the Institution requests a total of \$2,424,000 to continue the conversion process. This represents an increase of \$441,000 over the FY 1991 level. The main efforts in FY 1992 will be to:

- complete detailed design and begin fabrication of the optics support structure;
- complete detailed design and begin fabrication of the primary mirror cell.

The University of Arizona will begin polishing the 6.5-meter primary mirror.

Project Schedule - SAO expects "first light" for the converted MMT by the end of 1994 at a total cost to the Smithsonian of \$10.8 million (1990). The exact cost of the conversion and the precise contribution of the University of Arizona are still not known, but \$10.8 million is believed to be a reliable upper figure for the Smithsonian Institution's contribution. This total includes amounts allocated in FY 1987 for glass and refractories. The funding provided in FY 1988 was part of the one-year appropriation for SAO. Beginning in FY 1989, the Smithsonian requested and received funding for the MMT conversion as no-year funding in this line-item. The breakdown of funds by year (actual for past years and 1990 dollars for present and future years) is shown in the following chart.

PAST AND PROJECTED FUNDING FOR CONVERSION OF THE  
MULTIPLE MIRROR TELESCOPE  
FY 1987 through FY 1994

	(\$ millions) <sup>1</sup>
FY 1987	0.5
FY 1988	0.5
FY 1989	0.6
FY 1990	0.9
FY 1991	2.0
FY 1992	2.4
FY 1993	2.3
FY 1994	1.6
TOTAL	10.8

<sup>1</sup>Rounded to the nearest \$100,000

Conclusion - The conversion is the most cost-effective way to ensure that Smithsonian astronomers will remain in the forefront of ground-based optical and infrared astronomy through the remainder of the 20th century and beyond.

Instrumentation for the Converted MMT (\$119,000):

The converted MMT will more than double the light-gathering power of the existing telescope and increase its field of view over one hundredfold. The converted telescope will, therefore, allow scientists to observe many objects simultaneously. To achieve the benefits of this greatly enhanced capability, development must begin at once for a dual, multi-object spectrograph matched to the capabilities of the converted telescope.

Scientific Justification - SAO scientists are now leading the world in uncovering the three-dimensional structure of the universe. Recently, they discovered the largest single structure, the "Great Wall" of galaxies, extending hundreds of millions of light years in two dimensions, consistent with the "bubble" structure previously discovered by SAO scientists. This discovery has captured the interest of scientists and laypeople alike, as witnessed, for example, by coverage in Science magazine, Time, Life, the New York Times, the Washington Post, and all the major television networks.

To take the next step out--to discover what larger scale structures exist--requires not only a large telescope with a very wide field of view but a very sophisticated instrument to gather and analyze the light from many distant galaxies at once. The converted MMT will collect two and one-half times as much light as the present MMT and, more important, will be able to view more than 100 times as much of the sky at one time.

The advantages of this increased capability can only be achieved by using a very sophisticated spectrograph in conjunction with the converted telescope. By using "high-tech" optical fibers, this spectrograph will make possible the simultaneous analysis of the light from more than 100 galaxies. This greatly enhanced data rate is necessary if SAO scientists are to make substantial progress in seeking the largest-scale structures in the universe. Such discoveries can only be made once. The large-scale structure of the universe is so fundamental that it will undoubtedly be described in the textbooks of schoolchildren of the future.

The converted MMT should be available for initial operation by the end of 1994. At that time, it should be the world's second largest telescope. To use the converted MMT immediately upon completion to determine the largest-scale structures, SAO must start now to build the needed sophisticated spectrograph and its associated control instruments and software. In the past months, SAO scientists have developed the preliminary design of this instrument, but construction needs to start soon in order to have a reliable instrument available for use by mid-FY 1995. SAO needs an instrumentation scientist to devote full time to overseeing the final design, fabrication, and testing of the multi-object spectrograph and other instruments for the converted MMT. The SAO line-item requests funding for this position.

MUSEUMS



OFFICE OF THE ASSISTANT SECRETARY FOR MUSEUMS

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
			General		Special					
	FTE*	Amount	FTP**	Amount	FTP**	Amount	FTP**	Amount	FTP**	Amount
FY 1990 Estimate	25	1,231	6	499	-	-	1	173	-	-
FY 1991 Estimate	26	1,487	6	519	-	8	-	107	-	-
FY 1992 Estimate	30	1,782	8	582	-	1	-	-	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The Office of the Assistant Secretary for Museums (OASM) offers oversight to 12 museums and six major bureaus. It manages essential museum functions, including collections management, exhibitions, education, public orientation, and operations. OASM acts as a liaison with other museums and public institutions worldwide to fulfill the Smithsonian's obligation as the Nation's museum. This role affords OASM the unique opportunities to coordinate training, exhibitions, and collections. This line-item includes the Office of Museum Programs, which provides training and research services to the museum profession worldwide, and the Office of the Registrar, which develops, oversees, and coordinates Smithsonian collections management policies.

For FY 1992, the Office of the Assistant Secretary for Museums requests an increase of 3 workyears and \$230,000: to provide handicap accessibility for staff and visitors (2 workyears and \$100,000); and to establish a fund for the increased training and professional development of the museum education and exhibition staff (\$50,000); and to fund a program analyst position (1 workyear and \$80,000). The Office of Museum Programs seeks 1 workyear and \$65,000 to train Smithsonian staff (\$15,000) and provide museological research services to the museum community (1 workyear and \$50,000).

PROGRAM - I. Office of the Assistant Secretary for Museums - OASM works closely with museums, educators, and specialized committees to improve programs related to reaching broader audiences; participates in planning new museum initiatives; and encourages the development of new techniques in museum administration and practices for embedding multi-cultural programming within the Smithsonian Institution.

African-American Institutional Study Program - During FY 1990, the Office of the Assistant Secretary for Museums organized and staffed a broadly based committee to advise the Institution on the feasibility of establishing a separate African-American exhibition, collection, and research center. OASM works with a variety of African-American

organizations. This Program explores ways to highlight the collection-building and curatorial needs of African-American studies, including consideration of a dedicated presence within the Smithsonian museums.

The Smithsonian Special Exhibition Fund Program - In 1984, the Board of Regents established a Special Exhibition Fund to support exhibitions resulting from scholarly research in various scientific, humanistic, aesthetic, technical, or interdisciplinary fields represented throughout the Institution. The Fund supplements Federal appropriations which have become increasingly insufficient for permanent and temporary exhibitions. The Program encourages Smithsonian museums and bureaus to experiment with communication to the broadest range of visitors, including the handicapped and people of all ages as well as audiences with diverse educational, economic, ethnic, and social backgrounds.

The Collections Acquisition Program - This program provides Institution-wide funding for bureaus to acquire objects, art collections, and significant archival papers. These acquisitions symbolize diverse cultural perspectives that strengthen the Institution's efforts to exemplify underserved or underrepresented audiences in research and public programs throughout the Smithsonian.

II. Office of Museum Programs (OMP) - The Office of Museum Programs (OMP) serves museums and communities nationally and internationally, providing training courses and reference services in contemporary museum practice. In FY 1990, a new curriculum, faculty, and teaching methods (tested in experimental programs) emphasized cultural patrimony and increased access to more diverse audiences. The national curriculum for FY 1991, with additional courses for Smithsonian staff, will communicate methods of collecting, research, interpretation, design, and management. Regional training programs and internships in museum studies will focus on Native-American issues in museums, archives, libraries, and cultural centers.

OMP redirected staff to provide career outreach and internship placement programs for all Smithsonian museums. The Awards Program, for minority museum professionals, encourages multi-cultural leadership within the museum field.

In addition to workshops and seminars, the Office of Museum Programs coordinates professional resident study at the Smithsonian and international exchanges in museum theory and practice. The Museum Reference Center is a unique library for research and reference in museum studies. The Center responds to thousands of inquiries, serving as a resource for the revised OMP curriculum.

III. Office of the Registrar (OR) - The Office of the Registrar permits diverse audiences access to the National Collections while designing systems to keep the collections safe. The National Collections -- a 24.85 carat sillimanite gemstone, a Henry Moore painting, black-footed ferrets, a Lockheed C-130 transport plane, Ray Bolger's "Wizard of Oz" scarecrow costume -- reflect the diversity of American interests. The Smithsonian displays these interests through more than 135 million artifacts and specimens.

Researchers and the general public gain access to the National Collections through the Collections Information System (CIS). Automation of CIS is a multi-year, interbureau effort organized by OR. This effort identifies appropriate technology, training needs, and resources crucial for effective collections management.

OR designs inventory and internal control procedures to provide accountability for Smithsonian collections. In FY 1989, OR completed the revision of the Institution's primary collections management policy directive, Office Memorandum 808. The Registrar's Council, which includes registration department staff from all Smithsonian museums, offers essential staff training and opportunities for the exchange of information. Working through Smithsonian and external professional organizations, OR teaches museum colleagues the principles and techniques of collections management. As a leading participant in the International Council of Museums Documentation Committee, OR assists in mapping the development of collections automation systems worldwide.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, OASM requests an increase of 3 workyears and \$230,000: to provide handicap accessibility for staff and visitors (2 workyears and \$100,000); and to establish a fund for the increased training and professional development of the museum education and exhibition staff (\$50,000); and to fund a program analyst position (1 workyear and \$80,000). The Office of Museum Programs seeks 1 workyear and \$65,000 to train Smithsonian staff (\$15,000) and provide museological research services to the museum community (1 workyear and \$50,000).

#### I. Office of the Assistant Secretary for Museums

Handicap Accessibility (2 workyears and \$100,000) - The Smithsonian's Office of Inspector General has recommended that the coordination and administration of the Smithsonian's Accessibility Program transfer from the Office of Equal Opportunity to the Office of the Assistant Secretary for Museums. The Office of Inspector General also recommended adding a full-time accessibility program manager. In addition to this position, OASM requests an additional position for an assistant to the program manager.

The manager and assistant will coordinate programs that address deficiencies in the Smithsonian's environment as well as develop and implement Institution-wide policies in the area of physical accessibility, such as building ramps, improving signage for the visually impaired, hiring signers for lectures, and lowering mirrors in handicapped restrooms. In addition to necessary salaries and benefits, the requested funds will furnish and equip an accessible office.

The U.S. Government requires all Federal agencies to have accessibility programs, Public Law 93-112, as amended in 1978. With transfer and expansion of the Smithsonian's Accessibility Program, OASM will assume oversight of museum accessibility requirements in programming, from design and construction of buildings and exhibition spaces to publications. Although an accessibility coordinator now serves each Smithsonian building, many of these individuals are not trained for their responsibilities. Renewed commitment through this central Accessibility Program will enable the Smithsonian to provide better services to visitors and staff alike.

Public Education Program (\$50,000) - The Office of the Assistant Secretary for Museums requests an increase for training and professional development of the education and exhibition staff throughout the Smithsonian museums.

The funds will cover travel for staff to visit exhibitions and attend seminars outside the Institution. The increase will also fund noted professionals to serve as speakers and consultants to the exhibition staff. These speakers will be innovative practitioners in the exhibition field who have produced exhibitions that communicate effectively with a broad range of visitors.

Exhibitions are vehicles for public education. They can and should make complex issues of social concern understandable in ways that encourage public participation. To reach out to a public of diverse cultures, the technical and educational staff developing exhibitions must use the most innovative and experimental thinking in their fields. Their efforts must go beyond merely translating scholarly research into presentations that are often difficult for general audiences to understand.

Through various exhibit strategies, the Smithsonian commits itself to making its public programs accessible to the broadest possible audience. This increase will permit museum educators, exhibition designers, and technicians to gain exposure and training that will result in broader and more understandable exhibitions throughout the Smithsonian.

Program Analyst (1 workyear and \$80,000) - The Office of the Assistant Secretary for Museums provides an important link between the Smithsonian and the national and international museum communities. In a leadership role, OASM often represents the Smithsonian museum community in professional forums, shaping standards of practice in the museum profession.

OASM requests funds to support a program analyst to administer a Museum Career Information Center, coordinating Smithsonian-sponsored conferences on museological concerns with a national and international focus. The program analyst will disseminate information presented at the conferences and educate Smithsonian staff on new approaches and techniques, enabling national and international participation in Smithsonian activities. The Center will provide current information on museum careers and training opportunities at all levels for all disciplines. The Center will inform students, career counselors, museum workers, people considering a career change and minorities and women seeking advancement and upward mobility.

The requested resources will have a profound impact on the future of museum professions by creating a central source, unlike any other in the United States, of comprehensive museum career information.

## II. Office of Museum Programs

Smithsonian Staff Training (\$15,000) - Staff training in museum practice will improve service to diverse audiences. Carefully designed courses will create better collections care, research, exhibitions, and programs for the public.

OMP will use the requested funds to develop and implement two eight-week graduate-level training courses for Smithsonian staff; one course focusing on issues of public interpretation and the other on issues of collections care and management. The requested funds will pay honoraria and travel expenses for faculty experts from around the country and for course supplies.

Museums all across the country are becoming increasingly sophisticated at preserving and interpreting our complex cultural legacy. The visiting public too is more sophisticated, demanding more of American cultural institutions. Bringing knowledge from fields like early childhood development, folklore, media production, and conservation materials to Smithsonian staff can help the Nation's premier cultural institution meet growing expectations.

Museological Research Services (1 workyear and \$50,000) - Through the Museum Reference Center, OMP assists museum professionals in scholarly research on museum topics. These professionals come from across the Nation and overseas as well as from within the Smithsonian. The chief librarian of the Museum Reference Center attempts to provide this research assistance single-handedly in addition to handling extensive responsibilities in collections management and development.

OMP needs a reference librarian to respond directly to the more than 300 phone requests the Museum Reference Center receives each month. This position will research and compile annotated references on such topics as "how to start a museum" and "how to care for culturally sensitive collections" and assist exhibitions, public programs, and collection staff in their research activities. A reference librarian will permit the OMP to address professional and public demand for research services.

#### NONAPPROPRIATED SOURCES OF FUNDING:

I. Office of the Assistant Secretary for Museums: Unrestricted General and Special Purpose Funds - These funds support the salary, benefits, and expenses of the Assistant Secretary. In addition, Special Purpose funds support the Collections Acquisition Program, which facilitates the Smithsonian's purchase of major acquisitions, and the Special Exhibition Fund, which provides partial funding through a competitive process for important and innovative exhibitions throughout the Institution.

Restricted Funds - In FY 1989, the Office of the Assistant Secretary for Museums received a grant of \$150,000 from the Rockefeller Foundation and \$58,000 from the Morris and Gwendolyn Cafritz Foundation. These grants were dedicated to the development of an Experimental Gallery, where new techniques can be tested for presenting information and objects to diverse audiences. In FY 1990, the Pew Foundation awarded \$600,000 to the Office of the Assistant Secretary for Museums to continue development of the Gallery.

II. Office of Museum Programs: Unrestricted General and Special Purpose Funds - The Office of Museum Programs receives an annual allotment that is awarded to minority professionals attending the OMP seminars for travel and subsistence expenses. In addition, OMP has two revolving Trust funds for training and for an audio-visual loan and sales program to accommodate fees and services.

III. Office of the Registrar: Unrestricted General and Special Purpose Funds - The Office of the Registrar receives an annual allotment to fund salary and support costs for the administrator of the Collections Information System.

NATIONAL MUSEUM OF NATURAL HISTORY/MUSEUM OF MAN

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	585	27,505	3	322	3	780	1	2,243	6	735
FY 1991 Estimate	593	29,762	4	378	-	775	-	10,191	18	853
FY 1992 Estimate	624	32,399	4	390	-	1,234	-	6,758	18	848

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The National Museum of Natural History/Museum of Man (NMNH/MOM) houses the world's largest and most valuable assemblage of natural history specimens and human artifacts. It is the largest research organization in the Smithsonian complex. The Museum acquires, preserves, cares for, and studies these collections, and makes them accessible to others. The Museum's scholars conduct research on living and fossil animals and plants, rocks, minerals, and meteorites. These studies help us understand the evolutionary relationships of animals and plants living today and in earlier periods and shed light on the great physical changes that take place on this planet through time. Studies of human biology and culture enrich our knowledge of human cultural and biological adaptation and the history and diversity of human evolution from the early stages to the present. Through its many exhibits, educational programs, and scholarly and popular publications, NMNH/MOM disseminates knowledge about the natural and cultural diversity of the world. Through outreach programs, the Museum is deeply involved in science education.

For FY 1992, NMNH/MOM requests an increase of 31 workyears and \$2,637,000, justified fully in the Explanation of Program Increase section of this narrative.

PROGRAM:

Research - The National Museum of Natural History is by far the largest scientific research institute of the Smithsonian, with more than 200 active research projects throughout the world. The Museum emphasizes research that will contribute to our understanding of global environmental change. Current research initiatives include:

-- Scientists working on the Biological Dynamics of Forest Fragments Project study the changes that occur in Amazonian rain forest ecosystems of Brazil as human development encroaches. With continued foundation support, they are now focusing on innovative forest conservation and regeneration research.

-- Museum anthropologists and paleobiologists involved in the Evolution of Terrestrial Ecosystems Program are conducting ground-breaking studies on the history of global ecological change. Among the goals are discovering the kinds of disruptions ecosystems have experienced throughout the earth's history and whether the present impacts on ecosystems are extraordinary compared with events prior to the origin of humans.

-- Museum anthropologists are excavating a site at Olorgesailie, Kenya, that sheds light on one of the most interesting and least understood periods of human evolution, the mid-Pleistocene. The Museum team is in a vanguard of ecologically focused paleoanthropologists who excavate not just for bones but also to reconstruct the climate and biota of the ancient world in which early hominids lived.

Conferences and Workshops - Museum scientists played a major role in organizing and hosting the Sixth International Conference of the International Council for Archaeozoology, May 21-25, 1990, attended by more than 250 scientists from all over the world. Between June 30 and July 7, 1990, 1,500 scientists, again from all over the world, attended the Fourth International Congress of Systematic and Evolutionary Biology (ICSEB), co-sponsored by NMNH, the Smithsonian Institution, and the University of Maryland. Fourteen Museum scientists presented a public symposium on the history of global change, March 29, 1990. This ongoing work is yielding critically important information on how previous episodes of global warming and cooling, extinction, and deforestation affected life on earth long before human intervention.

Research Publications - The Museum staff annually produces more than 400 publications. One example from 1989-90 is the two-volume Manual of the Flowering Plants of Hawaii, a crucial work because fully one-third of the Hawaiian plants are rare and endangered. The senior author is a Museum botanist. In another example, a Museum geologist, who has studied iron meteorites collected in Antarctica, published a research paper in collaboration with a Danish metallurgist that clarified for the first time the electrochemical mechanism causing iron corrosion. The cold and aridity of the Antarctic climate slow down the process of corrosion and preserve metal meteorites for hundreds of thousands of years, making them ideal for this type of research.

Collections - The Museum contains more than 119 million specimens of plants, animals, fossils, rocks, minerals, and human cultural artifacts, and more than half a million more are added yearly. The collections provide fundamental documentation for the study of humankind and of the flora, fauna, and geology of our planet and outer space.

The Museum is initiating a modernization of its Collections Information System, a multi-year effort to upgrade its information management capabilities for collections and collection-based research. The focus in 1990 is on the development of a common, interdepartmental data structure for information retrieval. With a standard structure, the Museum can begin planning for the integration of image data bases, geographical information systems, optical storage components, and other new modules.

The Museum has developed a detailed repatriation plan in response to the National Museum of the American Indian Act passed by Congress in November 1989, providing for the inventory, identification, and return of Indian human remains and Indian funerary objects.

Exhibitions - Nearly six and one-half million persons visited the Museum in 1989, making it the most heavily visited natural history museum in the world. Highlights of 1990 exhibit activities include:

-- "Life in the Ancient Seas," the first permanent exhibition focusing on prehistoric marine life ever constructed by a major U.S. museum opened to critical acclaim in May. Showcasing more than 2,000 specimens and a spectacular mural (16 x 120 ft.) by noted artist Ely Kish, this exhibition makes it possible for the public to learn about the great diversity of life forms that evolved in the ancient seas.

-- "Dinosaurs Alive and in Color," Dinamation's animated exhibition that has captivated the younger generation in museums around the world, opened at the Museum in April 1990. At the same time, the Museum opened Jim Gary's whimsical "20th-Century Dinosaurs." Gary, an African-American sculptor, uses a welder's torch to transform parts of old automobiles into metallic, brightly colored creatures that resemble prehistoric beasts.

-- The Museum announced a \$6 million fund-raising campaign in January 1990 to support the construction of a new Geology, Gems and Minerals Hall and expects to unveil the new hall in 1995. The Museum's current geology hall is so outdated that, for example, it fails to portray plate tectonics and continental drift, concepts that have revolutionized earth science. An innovative new design will integrate specimens and processes into a single dynamic, educational experience.

Education - Relying heavily on nearly 300 volunteer docents, the Museum's Office of Education (OE) develops programs and instructional materials for schools, Museum visitors, and the general public. Among the special activities in 1990 was a forum on "Shaping a New Environmental Agenda," cosponsored by the Museum to mark the 20th anniversary of Earth Day. Distinguished speakers included Paul Ehrlich of Stanford University, John Holdren of the Resources Institute, and Thomas Lovejoy of the Smithsonian. Another special activity was the Natural Science Institute for Teachers of Minority Students, organized by the Museum and funded by the D.C. School System. Running for three weeks in July 1990, this science program for teachers of grades 4 through 12 featured activities aimed at learning how to "read" natural history objects.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, NMNH requests 31 workyears and \$2,637,000 for Human Ecological History research (3 workyears and \$335,000); Cultural Diversity and Change in Africa research (2 workyears and \$150,000); basic research infrastructure support (6 workyears and \$183,000); Laboratory for Molecular Systematics/Botany Greenhouse staffing (2 workyears and \$100,000); a computer cost center (\$200,000); the Collections Information System (7 workyears and \$400,000); collection storage and supplies (\$100,000); Collection Improvement Fund (\$50,000); the East Court/Master Implementation Plan (5 workyears and \$350,000); the establishment of a Facility and Safety Management Program (2 workyears and \$200,000); permanent exhibit hall renovations (\$360,000); minority recruitment and affirmative action initiatives (2 workyears and \$104,000); and the Wider Audience Outreach Program (2 workyears and \$105,000).

Human Ecological History (3 workyears and \$335,000) - Human modification of world ecosystems intensifies daily. These changes need to be analyzed in historical perspective, for human alteration of ecosystems is not new. In fact, human groups have been manipulating and changing plant and animal communities for thousands of years. Research on these long

histories of expanding human alteration of ecosystems provides the essential developmental context for understanding present-day research on modern ecosystems.

The Human Ecological History research program focuses on the long history of human modification of ecosystems and human responses to changing environments. The objective is to document and understand major turning points in humankind's ability to change the earth's environment, from human origins up through the agricultural revolution and the development of states.

The requested funding will support three positions (3 workyears and \$131,000). A professional archeozoologist and a laboratory specialist will establish a permanent laboratory for analyzing archeological plant and animal remains. An educational specialist will coordinate the development of museum exhibits on human alteration of past environments. Funding will also allow for field research in Africa, China, India, and South America and related shipping (\$55,000), fellowships and internships (\$75,000), field equipment (\$32,000), supplies and services (\$40,000), and collections acquisition (\$2,000).

The program directly addresses the U.S. Global Change Research Program objective of improving our understanding of the physical, biological, and social processes that influence Earth system processes and trends on global and regional scales. It is designed to answer the fundamental questions of how and why humans and human systems influence physical and biological systems and to characterize the relevant processes of change in human systems over the greatest possible periods of time and spatial dimensions.

Cultural Diversity and Change in Africa (2 workyears and \$150,000) - African cultures continuously change and adapt to economic, political, and cultural forces. Africans discard or redesign old cultural forms and create new ones. They construct a mosaic of "tradition" and "modernity" through which they interpret and formulate recipes for managing their world. Researchers on African cultures at NMNH wish to examine the full range of diversity found in the African continent. Researchers will use their findings to evaluate how Africans and their cultures are presented to Americans in such public settings as museum exhibits, scholarly literature, and the media. The systematic and comparative examination of the production of cultural diversity is the core of this project. For the first time American and African researchers will collaborate as full partners in the enterprise of understanding social and cultural change in Africa.

The research program will combine fieldwork in East Africa (primarily Kenya) and in West Africa (primarily Mali). In the future, the project will include southern African and African Diaspora components. Teams of NMNH and African scholars will collaborate in creating a systematic data bank that documents diversity and change in each setting. Teams will examine texts, archival documents, visual resources, and material culture. African and American perspectives will be combined to produce balanced, self-critical accounts of the meaning of diversity and change in Africa. Research teams will employ this same blending of perspectives to evaluate the image of Africa presented to Americans. The project will deposit research materials and findings at the Smithsonian and in the African research sites.

The requested funding supports the hiring of two research assistants (2 workyears and \$68,000) and the establishment of field stations in two African research sites. The request includes funding required to support the cost of research equipment (\$20,000), travel and logistical support to sites in Africa (\$25,000), and field assistance and contracts with African scholars (\$37,000). Future objectives include extensive public programming involving

publications, seminars, and exhibitions for the American public and the Africanist teaching community.

Scholars of cultural change now reject the idea that "modernization" will result in the obliteration of the world's diverse cultures. Americans need to understand that the different ways in which other peoples respond to the changing world will result in the production of new cultural forms, as well as the retention or rejection of older ones. Informed public policy and public awareness of how the rest of the world responds to change depend on research like that of the Cultural Diversity and Change in Africa program, which examines diversity as a continuing process.

Basic Research Infrastructure Support (6 workyears and \$183,000) - NMNH is the largest Smithsonian bureau with a staff dedicated to fundamental scientific research. Major research programs deal with assessing species diversity before the species are irrevocably lost, studying human origins, and investigating the origins of the solar system.

An internal study conducted in 1987 indicated that of all the technical support staff only 49 workyears (less than one-half of a workyear per scientist) were devoted to research support. Few of the Museum's 116 permanent Federal scientists currently have full-time research support, while many have no support at all. Over the past several years, the Museum has attempted to provide at least half-time support as new scientists are hired.

The addition of six research assistants (6 workyears and \$183,000) will support curatorial research efforts both in direct research, as trained biologists and anthropologists, and in collections management. These research assistants will provide at least half-time support for up to 12 scientists presently without such assistance. Their work will lead to improved curation of the National Collections and increased effectiveness of research programs. This minimal level of support for scientific staff will maximize productivity in scholarly research.

The productivity of the Museum's scientists is proportionate to available technical support. This basic infrastructure increase is essential if NMNH/MOM is to continue to play a viable role in today's exciting scientific scene and to be competitive with universities in attracting staff scientists.

Laboratory for Molecular Systematics/Botany Greenhouse Staffing (2 workyears and \$100,000) - NMNH serves as the repository for living plant material critical to studies on plant systematics, ecology, evolution, and biodiversity. The impending extinction of many of the world's plant and animal species in their native habitats dictates the acceleration of biodiversity investigations. Staffing the Laboratory for Molecular Systematics/Botany Greenhouse will enable NMNH's curators to continue to collect and maintain important collections of tropical plants not duplicated by any other Federal or nongovernment institution for the purpose of ex situ conservation.

Currently, plants are grown in four locations: in the greenhouse on the NMNH East Court roof; at the conservatories of the U.S. Botanic Garden (USBG) on the Mall; in the USBG greenhouse range at Poplar Point, Maryland; and in the Louisiana State University greenhouse, where a scientist at the Museum's Laboratory for Molecular Systematics (LMS) works as an adjunct professor. Funds requested from Congress in FY 1991 will build a greenhouse at Suitland, Maryland, to supplement the limited space available in the Natural History Building (NHB), as well as provide a temporary facility during the construction of the East Court Building. Greenhouse facilities at the Museum Support Center complex in Suitland are

important to the studies on plant molecular systematics and evolution conducted by botanists at the new Laboratory for Molecular Systematics. With completion of the new facility in FY 1992, NMNH will require a greenhouse manager and one technician (2 workyears and \$62,000) and equipment, supplies, and other services (\$38,000) necessary for maintaining the plant specimens. The Institution will seek additional workyears in future years to complete staffing requirements.

Laboratory investigations of molecular and morphological systematics are dependent on the availability of living specimens housed in the greenhouse. Through field trips by curators to areas around the world, especially the tropics, living material is brought back to the greenhouse for propagation. The field is unsuitable for conducting the sophisticated experiments now in progress in the Laboratory of Molecular Systematics and the laboratories of the Museum's Department of Botany. The greenhouse will provide the means to undertake these modern investigations. The greenhouse will serve a vital function both as a research facility and conservation repository by enhancing the role that the Natural History Museum plays in biodiversity.

Computer Cost Center (\$200,000) - Increased funding for computer utilization fees will help meet the growing computing needs of the Museum. This support will ensure that scientists can use critical research systems and that data in the Collections Information System are fully accessible. It will also permit the Museum to make full use of central administrative information.

Many of the Museum's scientists and research associates use the central computers for complex computations, since maintenance of large data files is not practical on personal computers. Staff throughout the Museum use central electronic mail networks to communicate with other Institution offices and to send manuscripts, messages, and information quickly to scholars worldwide. Collection managers, researchers, and visiting scholars use the central computers to process information essential to the care and use of the collections. More than 3.5 million collection records currently reside on these computers. The Institution is developing new administrative systems for financial and personnel data on the central mainframe computer, and access to them is critical for the Museum's administrators.

User charges for the Institution's large, central computers exceed \$400,000 annually for NMNH. In addition, user fees will increase substantially in FY 1992 for computers with greater capacity. The FY 1992 request for \$200,000 of base funds will provide partial base support where none exists.

Maintaining full access to the central computers will enable the Museum to continue vital research projects, develop and use systems for collections, improve administrative systems for financial and personnel management, and communicate through worldwide networks.

Collections Information System (7 workyears and \$400,000) - The Museum administers the National Collections and associated data for the benefit of the public and researchers worldwide, averaging more than 300,000 artifact and specimen loans annually. Present NMNH collections provide the largest specimen data base extant for global change studies. The Collections Information System modernization effort will result in a comprehensive data base of information vital to the understanding of biodiversity and global environmental change. The System will also provide an improved specimen transaction management program capable of meeting the increasing number of requests for loans of items from the National Collections.

This request for increase has two parts, data management and automated system development. Both are essential to making the data base accessible to a broad constituency. Funding will enable NMNH to continue the multi-year effort to upgrade the Museum's collections information management capabilities. Specifically, funds will allow development of a system to manage collection transactions such as loans, exchanges, and accessions. The Museum will hire a data base administrator (1 workyear and \$57,000) and contract for systems development (\$181,000). The system will support automated generation of loan invoices and other management documents as required by policy. Most of these activities use manual systems at present. In addition, increased data management support (6 workyears and \$162,000) will enable the Museum to automate the substantial backlog of collection data now in manual form.

Collections of the National Museum of Natural History represent one of the largest, most valuable educational and research resources in the world. Modernization of the Collections Information System will make this resource accessible to a broad scientific community for critical diversity and environmental change studies. At the same time, it will enable the Museum to maintain the necessary level of accountability for the National Collections.

Collections Storage and Supplies (\$100,000) - Increased base support for collections storage equipment and supplies ensures present and future generations of the continuing usefulness of the National Collections for education and research.

With this funding, the Museum will purchase storage equipment for new acquisitions and replace seriously inadequate older equipment. New equipment will help to eliminate pest infestations, dust penetration, overcrowding, and nonsecure conditions for valuable collections. Metal storage cases will replace a portion of the wooden cases now housing vertebrate collections. Recent research has shown wooden cases to have detrimental implications for the conservation of vertebrate skins. In addition, funds will enable the Museum to meet the rising costs of basic supplies such as label paper and preservatives.

The Museum's base funding for storage equipment is \$90,000, and yet annual needs average more than \$300,000. Year-end funding, when available, has provided marginal support for some purchases. However, there is no annual amount set aside to ensure supplies and equipment are sufficient to meet collection growth, maintenance, and security needs.

Physical care of collections, in keeping with professionally accepted standards, is an obligation. Without appropriate storage for new acquisitions and replacement of old and inadequate storage, the collections will deteriorate to the point of no longer being useful for exhibition or research.

Collections Improvement Fund (\$50,000) - Increased Collections Improvement Fund support will enhance the Museum's ability to fulfill its fundamental responsibility of providing care for and access to the National Collections. Both the international research community and the public will benefit from improvement in these areas.

Large portions of the natural history collections are without staff research or conservation expertise. Rather than increasing permanent staff, the Museum established the Collections Improvement Fund in 1989 to provide short-term contractual support for the services of specialists, specifically where no staff expertise exists. In FY 1989 and FY 1990, the fund supported 23 projects that enhanced important collections in six scientific departments. This current request augments that fund.

The Museum will use the requested funding to enhance segments of the NMNH collections that have particularly high research and educational value. Contractors will process and identify collections, upgrade documentation, and improve their physical condition through specialized conservation treatments. Museum staff will cull and deaccession specimens where appropriate.

The Collections Improvement Fund enhances the ability of the Institution to fulfill its trust responsibility to the public. It will provide necessary resources for short-term projects aimed at providing better care for and intellectual access to the National Collections.

East Court/Master Implementation Plan (5 workyears and \$350,000) - This initiative will help bring the NMNH into a position where it can respond to the growing and pressing needs relating to physical plant issues. A number of factors combined to create this need, including the age of the physical plant, which demands ever-increasing attention; the Institution's already successful initiatives to enhance the Office of Design and Construction in its work and the resultant need for NMNH to respond to its programs; the requirement for action in response to the Institution's expanded internal audits program; and the Museum's programmatic initiatives requiring both short- and long-term space planning and changes in the physical plant, such as the establishment of new research laboratories, the incorporation of changing technologies, the renovation of exhibits, and improvements in environments for the collections. The present initiative is a step toward building NMNH's ability to respond to these needs.

The staff required for FY 1992 will perform the following tasks:

- review, from the perspective of the Museum, all documents produced by the architectural firms doing the design of projects to ensure that the Museum's needs are met. Previous experience has shown that architects and engineers, who are often unfamiliar with the Museum's operations, do not consider the many aspects of design that are important to the functioning of the Museum. Special attention to design and construction will decrease the likelihood of damage to the collections during the projects.
- plan the temporary and permanent relocations into the East Court Building as well as the temporary relocations throughout the Natural History Building itself. All of the 1,000 staff in the building and most of the approximately 119 million specimens will have to be moved during these construction projects. Most staff will move at least twice. Careful planning is necessary to ensure that disruption to all research and public programming activities is kept to a minimum. Relocation planning for the mechanical renovation will begin in FY 1991 to keep the project on schedule.
- document in writing the relocation plan and train Project Move staff in its implementation.
- work with the Office of Exhibits staff to prepare proper notification and signage for public areas as they are renovated to ensure that visitors are made aware of closings and alternative access routes through the Museum.

Two project managers, two project specialists, and one assistant (5 workyears and \$236,000) and \$114,000 for travel and support costs for FY 1992 will assist the NMNH in

keeping these projects on schedule. The \$114,000 will support travel (\$5,000), other services (\$30,000), and supplies and equipment needs (\$79,000).

The Museum is badly in need of a renovated physical plant to serve its research and public programming activities. This funding will facilitate the effort to carry out these projects on schedule with the least amount of disruption. It will also ensure that the newly renovated building and the new East Court Building meet the functional needs of the NMNH as it enters its second century.

Facility and Safety Management Program (2 workyears and \$200,000) - The National Museum of Natural History is an active partner with the central Smithsonian Facilities Services units in meeting the physical plant safety needs of the Institution. A portion of the Natural History Building is more than 80 years old. Its age necessitates ever-increasing attention, especially in the current environment in which both the staff and public are far more safety conscious. New Federal and local safety laws and regulations require that the building meet new, more stringent requirements. In recent years, the Smithsonian has been successful in significantly expanding the activities of the central Smithsonian safety office. Corresponding growth in the bureaus, however, has not taken place. NMNH now needs staff and funding to comply with new laws and regulations and the requirements of the Smithsonian's internal audit program.

The Museum houses 231 Federal researchers, research associates, curators emeritus and scientists from other agencies and has 26 open exhibit galleries that serve more than six million visitors each year. The types of research conducted in the Museum require the use of many different chemicals. The Museum estimates the FY 1990 costs for hazardous waste removal will total a minimum of \$27,000, an expenditure for which no base exists. The Museum must purchase supplies and equipment, such as respirators and hazardous chemical storage cabinets, to meet current safety laws. While the Institution requests Repair and Restoration funding to make major repairs, the Museum must bear the cost of minor repairs to the Natural History Building to meet safety laws. The requirement for formal reporting on safety issues has grown exponentially in recent years. The reporting requirement alone is a time-consuming task.

Safety responsibilities have become complex and require staff with technical knowledge and specialized training. Two safety officer positions (2 workyears and \$105,000) will perform this function. Other funding of \$95,000 will provide for travel (\$5,000), contractual services and training (\$35,000), and supplies and equipment (\$55,000). Travel funds will support staff participation in Occupational Safety and Health Administration safety training held in Des Plaines, Illinois, several times each year. Contractual services include the costs of hazardous waste removal.

These resources will help the Museum achieve better environmental protection, occupational health, hazard communication, and safety training that will assist in ensuring the safety of staff, visitors, collections, and other property.

Permanent Exhibit Hall Renovations (\$360,000) - NMNH has 30 permanent exhibit halls comprising more than 200,000 square feet of exhibit space. Seventy percent of these halls are more than 20 years old and present outdated cultural interpretation and scientific information to the public. The Museum holds a commitment to completely re-create its exhibits and become a leader among U.S. and world museums again, while facing the serious challenges of science and multi-cultural education.

An increase of \$360,000 in the Museum's exhibition base will enable NMNH to continue work on "The Fourth Generation of Exhibits: Building for the 21st Century," a long-term renovation plan for its 30 permanent halls. Existing salary and expense resources and repair and restoration limits will not permit timely renovation of major halls. Ideally, renovation should occur at an average rate of one and one-half halls per year, at an estimated mean cost of \$4.0 million per hall. The Museum's current base for permanent exhibitions is \$2.2 million, of which \$1.3 million supports salary costs of exhibits staff. The Museum requests that these funds be provided as a no-year appropriation to allow for the large, multi-year, and multi-fund contracts required for major exhibit hall design and construction. Scheduling for new exhibit construction is, whenever possible, in concert with other Museum repair and restoration projects, major capital renewal, and Museum Support Center move activities.

During FY 1992, this increase will support the continuing development of a new Native Americans Hall, the rebuilding of the Insect Zoo and the reopening of the Marine Mammals Hall balcony. It will also complement the private funds raised to build a new Geology, Gems, and Minerals complex. Research and development for a new Human Origins Hall will also continue.

The ultimate goal is to renovate all the exhibit halls in the Natural History Building. The modernized halls will display to millions of visitors landscapes and seascapes, living and extinct organisms, and the human cultures of the Earth. The Museum strives to complete its hall renovation in order that visitors might better understand the beauties and complexities of our living planet and human impact on it. Science education, preservation of the natural environment, and cross-cultural and interracial respect and understanding are critical issues facing U.S. society over the next decade.

The National Museum of Natural History must be a leader in defining museums' unique educational role in these issues, both for Museum visitors and for the national network of museums that benefit from NMNH's experimental and novel interpretive models. The Museum must lead by example, creating exhibits that apply the most current scholarship and the most engaging educational approaches and technologies to communicate the importance of respecting and preserving the living world and its natural and cultural diversity.

Minority Recruitment and Affirmative Action Initiatives (2 workyears and \$104,000) - During the last five years, the Museum has attracted only ten minority professionals through the standard Smithsonian recruitment process. In assessing the size of its current on-board staff and the resources available to diversify it at all levels, the Museum proposes a three-year pilot project. The goal of the project ties in with the Smithsonian's objectives in minority staff career development, affirmative action, and equal opportunity.

One program manager will pursue recruitment of minorities and women to professional positions throughout the Museum. Through cooperative efforts with NMNH staff and staff in other Smithsonian offices, the manager will contact colleges, universities, and other schools for recruitment purposes, especially traditional minority schools.

This request will fund the program manager (1 workyear and \$48,000) and a program assistant (1 workyear and \$25,000). Support funds (\$31,000) will permit travel and production of promotional material, allow the purchase of start-up computer equipment, and cover stipends for intern appointments.

Staff will work toward the placement of employees into upward-mobility positions and the removal of barriers to employment opportunities for employees of the Museum. With a

committee of advisors, the manager will coordinate and implement programs to encourage minority staff participation in the areas of employee management, training and career development, recruitment, employee recognition, and staff morale.

Wider Audience Outreach Program (2 workyears and \$105,000) - The Wider Audience Outreach Program will encourage participation from communities not previously served by the Museum. It will develop programs and activities for underrepresented local groups such as the African-American, Hispanic, and Asian communities.

Between FY 1992 and FY 1996 the Program will sponsor three different types of activities:

- a regular series of weekend events including hall demonstrations, musical and theatrical performances, mini-festivals, and family activities designed in cooperation with local community advisory boards;
- the production of museum-based instructional materials developed to focus on cultural themes of interest to local communities;
- the creation of a group of professional, experienced museum teachers to work with minority students on culturally relevant topics.

The FY 1992 request includes support for two education specialists: a program manager and an assistant (2 workyears and \$74,000). The Institution will recruit minority staff to implement the initiative. Travel funds (\$9,000) will allow the Office of Education to bring to the Museum minority individuals and groups from around the country to conduct multi-cultural programs for the public. Funds will provide for consultants (\$3,000), the printing of programs and instructional materials and supplies (\$4,000), supplies and materials (\$5,000), and office equipment (\$10,000).

The proposed Program will benefit the local community by providing an opportunity for minority artists, craftspersons, musicians, and performers to put museum exhibitions and collections into context and to show the ways in which objects are made and used and how cultural traditions are maintained and transmitted. Further, the Program will draw community members of all ages. Community leaders and representatives will become actively involved in the program development process fostering community pride and awareness.

NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - The Museum derives funds from a variety of sources, including the Museum's share of net proceeds of the museum shop and food concessions. During FY 1990, allotments provided for the costs of the Museum director, three staff members, events related to new exhibit openings, and the recruitment of candidate members for the Museum's new advisory National Council.

NMNH benefits from the Institution's many awards programs, which support research, education, and exhibit projects. Funding for FY 1990 supported the "Natural History Video Update," production of the Heliconia Guide, the international symposium on "Disease and Demography in the Americas," preparation of materials about Southeast Asia in collaboration with Southeast Asian community leaders, the Summer Science Internship Program, and the public symposium "Earth Day 1990: Shaping a New Environmental Agenda."

Restricted Funds - The Museum receives support for specific programs and projects through endowments, donations, gifts, grants, and contracts from individuals, foundations, and corporations. In combination with the generosity of private individuals, these resources allow for the pursuit of many long- and short-term research projects and exhibits. In 1990 grants were provided by World Wildlife Fund, the Pew Charitable Trusts, and the Andrew W. Mellon Foundation to support the Biological Dynamics of Forest Fragments Project, a study of the ecology of habitat fragmentation in Brazil. Xerox has provided major support for the NMNH Columbus Quincentenary exhibit, "Seeds of Change."

During FY 1990, Museum staff members conducted a variety of projects with restricted funds, such as research in the Bible lands and on the cultures of the Southwest Bantu people of Angola, Botswana, and Namibia; ethnological research among the Canela Indians of Brazil; study of the plate-tectonic origins of western North America; and study of collections of endangered archeological and paleontological materials worldwide.

NMNH/MOM manages the Smithsonian Marine Research Station at Link Port (SMSLP), Fort Pierce, Florida. Hunterdon Endowment funds are dedicated to the basic operating support of this oceanographic research facility for use by Smithsonian visiting scientists as well as numerous visiting investigators, both national and international. Research focuses on the life history, systematics, and ecology of a wide spectrum of plant and animal marine life. Seward Johnson Endowment funds provide for the support of the Johnson-Sea-Link submersible owned by the Harbor Branch Oceanographic Institution (HBOI), the host facility.

NMNH/MOM is proceeding with a fund-raising strategy to support construction of a laboratory and residential facilities that will serve the mission of SMSLP and its research initiatives. The favorable location of SMSLP, along with the signing of a long-term lease agreement between the Smithsonian and HBOI, have made this major step forward possible.

Government Grants and Contracts - These funds are provided by various government agencies and departments for special projects conducted at the Museum to take advantage of its unique scientific expertise and variety of specialty fields. Examples of this type of activity include collections management of biological specimens for the Mineral Management Service's Outer Continental Shelf Environmental Studies contract; the study of neoplasms and related disorders in invertebrates and ectothermic vertebrate animals for the National Cancer Institute; and analysis of polar biological materials and cooperative systematics studies by the Museum's Smithsonian Oceanographic Sorting Center (SOSC) for the National Science Foundation.

NATIONAL AIR AND SPACE MUSEUM

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	227	10,165	3	251	47	4,412	1	1,532	1	250
FY 1991 Estimate	228	10,698	3	249	43	4,182	2	4,937	1	379
FY 1992 Estimate	232	11,588	3	201	43	4,121	2	2,734	1	307

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The National Air and Space Museum (NASM) is an international repository for artifacts and documentation related to the development of aviation, space flight, and space science. Through its exhibitions, research, collections management, and education programs, the Museum serves a wide public and scholarly community interested in the history and technological achievements of aviation and space flight. In addition to its Mall location, NASM maintains a facility for the preservation, restoration, and exhibition of artifacts at the Paul E. Garber Preservation, Restoration, and Storage Facility in Suitland, Maryland. NASM plans to build an extension facility at Dulles International Airport for storage and exhibition of its largest aircraft and spacecraft.

For FY 1992, the National Air and Space Museum requests 4 workyears and \$890,000 for collections management programs (1 workyear and \$245,000); office automation (\$200,000); exhibitions and staff (2 workyears and \$360,000); and education programs and a teacher-in-residence (1 workyear and \$85,000).

PROGRAM - NASM continues to strengthen its role as a national resource for public and scholarly interest in the history of air and space technology. Ongoing programs in historical research, collections management, preservation, and restoration of artifacts are central to the Museum's curatorial efforts. Active scientific research programs, aimed at understanding astrophysics and terrestrial and planetary geology are important endeavors of the Museum. The exhibition program uses state-of-the-art techniques and equipment to convey the excitement of the subject matter to the visitor. NASM devotes considerable attention to education and outreach activities, offering workshops, lectures, films, planetarium presentations, docent-led tours, and written materials to schools and visitors.

Research - Research continues to be the foundation of the Museum's efforts as a primary resource center for the science and technology of aviation, space, and geophysical science. Research by the Museum staff encompasses the history of aeronautics and space science and exploration; contemporary developments in these fields; comparative studies of the Earth and other planets using satellite images and data; and infrared astronomy.

Historic preservation of aircraft and spacecraft and the storage and retrieval of archival and photographic information are two applied research and development programs continuing at the Museum.

The Center for Earth and Planetary Studies is a repository for remote sensing data, allowing researchers access to the collections of images of the planets taken by National Aeronautics and Space Administration (NASA) space probes. Researchers from the Smithsonian and other organizations make extensive use of this facility.

NASM has developed a new generation of free-standing metal mesh reflectors for the Infrared Space Observatory (ISO) using new microelectronic fabrication techniques. These meshes exhibit unparalleled geometric precision with line widths as small as 2.5 microns. Spectrometers on the ISO and elsewhere, equipped with these advanced reflectors, will achieve new levels of sensitivity, making fainter astronomical objects accessible to spectroscopic study at infrared wavelengths.

Exhibitions - In FY 1990 the Museum opened an exhibition commemorating the centennial of Igor Sikorsky's birth; remodeled the "Sea-Air Operations" gallery, with special tribute to the USS Enterprise; and opened a new exhibit centering around the fully restored Grumman Goose. The exchange of a Pershing-II missile for a Soviet SS-20 missile forms the basis of a new exhibit displaying both missiles and commemorating the Intermediate Nuclear Forces Treaty (INF).

In FY 1991, a major World War I gallery will open, emphasizing the first major use of aircraft as weapons of war. This gallery will highlight the grim realities of aerial combat, in contrast to the romanticized myth of "knights of the air." For FY 1992, the Museum is planning an exhibition commemorating the Columbus Quincentenary, entitled "Where Next, Columbus?" This exhibition will examine prospects for discovering other "new worlds" in space during the next 500 years of exploration.

A new IMAX film, Blue Planet, will premiere in early FY 1991, using footage shot by the astronauts on recent shuttle missions and explaining the nature and vulnerability of global environmental systems. The Museum will also co-produce another IMAX film highlighting international achievements in space exploration.

Collections Development - Acquisitions for FY 1990 included two Pershing-II missiles - one that was traded to the Soviet Union for an SS-20 missile. The Museum also received on loan from the Air Force an SR-71. Known as the Blackbird, this is the world's fastest aircraft, able to cruise at three times the speed of sound.

Collections Preservation and Restoration - During FY 1990, NASM continued its restoration of the Enola Gay, the B-29 bomber, treating the rear fuselage and two of the four engines. Work continues on two other aircraft from World War II: the British Hawker-Hurricane and the Japanese Aichi Seran. Restoration specialists refurbished the Hughes Racer for exhibition and restored the World War I Voisin night bomber, several engines, and an FE-8 aircraft for inclusion in the planned gallery on World War I. Restoration of the Enola Gay, the Hawker-Hurricane, and the Aichi Seran will continue through FY 1991 and FY 1992. A major focus of the restoration effort will be the completion of the Enola Gay by 1995.

Publications - NASM published five books in FY 1990: The Space Telescope: A Study of NASA, Science, Technology, and Politics by Robert W. Smith; The First Golden Age of

Rocketry: Congreve and Hale Rockets of the Nineteenth Century by Frank Winter; Space Technology and Planetary Astronomy by Joseph Tatarewicz; U.S. Women in Aviation, 1940 - 1955 by Deborah Douglas; and Japan's World War II Balloon Bomb Attacks on North America by Robert Mikesch. In addition, NASM continues its Smithsonian History of Aviation series with the publication of Visions of a Flying Machine: The Wright Brothers and the Process of Invention by Peter Jakab.

Public Education and Orientation - The Museum's educational programs continue to serve an expanded national and international audience. Outreach initiatives include the City Lights Program, which works with young people aged 14 to 19; Student Tutorial and Recreational Support, comprised of 25 D.C. area schools; and "Say Yes to a Youngster's Future," designed to assist urban communities in establishing family learning centers to meet local needs. The Museum offers workshops, career day programs, and on-site presentations, as well as free reading materials. NASM and the Aero Club of Washington have joined in a summer internship program to assist Washington metropolitan-area youths from many cultures develop an interest in aviation and space flight careers.

A highlight of FY 1990 was the International Conference on Aerospace History, which explored topics such as "Manned vs. Unmanned Flight," "The Aviator and Astronaut as Icon," and "Problems in Writing the History of Technology." A series of lectures and panel discussions on "The Legacy of Strategic Bombing" examined the origins, practices, and consequences of strategic bombing, from its earliest premonitions before World War I through its most intense employment during World War II and its influence on the development of today's strategic nuclear arsenals.

In September 1990, the Museum hosted the Tenth International Planetarium Director's Congress. Planetarium directors from around the world met in Washington and also visited planetaria in New York, Philadelphia, and Richmond.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, the National Air and Space Museum requests 4 workyears and \$890,000 for collections management programs (1 workyear and \$245,000); office automation (\$200,000); exhibitions and staff (2 workyears and \$360,000); and education programs and a teacher-in-residence (1 workyear and \$85,000).

Collections Management Program (1 workyear and \$245,000) - Central to the Museum's collections management program is the physical care of the collections, through both conservation and restoration, so they may be exhibited for future generations. Strengthening the Museum's efforts in this area will increase the number of artifacts receiving preservation, conservation, and restoration care.

The Museum currently has four Bally Boxes (free-standing environmentally controlled storage buildings), all filled to capacity. To meet the Museum's mandate as an international repository for artifacts related to the development of aviation, space flight, and space science, NASM needs an additional Bally Box. With such an increase in controlled storage facilities, the Museum can acquire more space suits, pressure suits, flight clothing, and artifacts necessary for exhibition and research purposes. With additional resources to hire a senior restoration specialist, the Museum can build upon progress already under way in collections management and the physical care of collections. The restoration specialist will complement the Museum's highly skilled restoration staff and train interns from the Embry Riddle Internship Program, in which the Museum plays an active role by identifying and training individuals in a highly specialized field for future employment within the museum community.

The requested increase of \$245,000 will fund the purchase of a Bally Box (\$205,000) and the hiring of a senior restoration specialist (1 workyear and \$40,000).

To provide the public with a wide selection of exhibits and to preserve historically significant artifacts for scholarly research and the education of future generations, the Museum must continue to advance its collections management efforts. Proper storage and professional services will extend preservation, conservation, and restoration efforts to a valuable and growing collection.

Office Automation (\$200,000) - Most of the Museum's office automation equipment is outdated and beginning to fail. NASM staff use personal computers, printers, and related equipment extensively in the full range of Museum functions. Replacing and upgrading equipment throughout the Museum will increase the quality and timeliness of research, exhibition design, and response to public inquiries.

The Museum receives thousands of requests annually for photographs and archival materials. Up-to-date computer equipment will improve the ability of the archives staff to respond to these requests by allowing faster retrieval from a larger data base. Many other Museum staff members also use computers--in research, the writing of exhibit scripts, exhibit design layout, and the preparation of works for publication. Replacing aged and outmoded equipment will ensure the availability of computers for the research and support staff throughout the Museum for years to come.

The Museum will use the requested funds (\$200,000) to initiate a replacement program for personal computers and computer-aided design stations for the exhibits staff.

The Museum serves the public by producing relevant exhibits and published research, providing researchers with access to the vast archival and photographic collections, and responding to individual requests for information. To maintain the current level of quality provided to the public in these areas, the Museum must update and replace computer equipment.

Exhibitions and Staff (2 workyears and \$360,000) - The Museum's long-range exhibition program emphasizes the development of exhibits that will encourage visitors to think critically and to understand social, political, and economic contexts that shaped, and were in turn influenced by, aviation and space technology. Subjects planned for major exhibitions include "Vietnam," "Principles of Flight," and "The Universe."

The first exhibition in the Museum's new rotating gallery will focus on the helicopter in Vietnam. Examining the many roles of vertical flight, in both combat and other situations, this exhibit will explore how this new technology influenced the planning and conduct of the American military effort in Southeast Asia. The "Principles of Flight" exhibition aims to give the visitor a genuine understanding of the basic physical principles that allow aircraft and spacecraft to fly and dictate how form follows function. Through the use of interactive displays and live demonstrations, visitors will discover for themselves the fundamental concepts of flight. A major revision of the "Stars" gallery (working title: "The Universe") will focus on the process of scientific reasoning that supports the current understanding of the origin, evolution, and nature of stars, galaxies, and the universe. Using computer workstations and ancillary technology, the visitor will be able to access and manipulate real scientific data bases to explore the consequences of alternative hypotheses. Augmenting the development of scientific exhibitions such as "Stars" requires a staff scientist to help develop and strengthen the scientific content

of such exhibits. To keep up with the numerous exhibition activities around the Museum, providing rapid updating and changes to labels, an additional typesetter position and equipment are essential.

In addition to a staff scientist for scientific exhibitions (1 workyear and \$55,000), a typesetter (1 workyear and \$27,000), and typesetting equipment (\$20,000), the requested increase will fund the following exhibits: "Vietnam" (\$75,000), "Principles of Flight" (\$158,000), and "Stars" (\$25,000).

These additional resources will dramatically enhance the quality and depth of content of the exhibitions in the Museum. Visitors deserve exhibits that encourage critical thinking and an understanding of the influences that shaped aviation and space technology.

Educational Programs and Teacher-in-Residence (1 workyear and \$85,000) - The Museum is taking a more active role in educating students and visitors. Through on-site science demonstrations and development of curriculum materials in coordination with the D.C. school system, the Museum is expanding its educational role to reach a broader audience with relevant, scientifically based information.

The Museum is currently performing a daily science demonstration in the "Looking at Earth" gallery. Expanding this popular and successful program to include additional demonstrations in various galleries around the Museum several times each day will dramatically increase the opportunity for visitors to participate in the program. In addition to other educational outreach programs, the Museum is proposing a Teacher-in-Residence program in coordination with the D.C. school system. By working with the local educational system to develop curriculum materials and programs for teachers and students, the Museum will build stronger relationships with the community and encourage an early interest in science. Each year a different D.C. teacher will work in residence at the Museum to develop specific grade-related materials for hands-on use in the classroom and in conjunction with planned future visits to the Museum.

The requested increase of \$85,000 will support a science demonstration coordinator (1 workyear and \$40,000) and the purchase of materials (\$5,000), such as glass tubes, balls, plastics, cones, and models, for performing the demonstrations. This funding will also support the yearly stipend (\$40,000) of the D.C. teacher selected to work in residence at the Museum.

It is vital that the United States improve the scientific literacy of its citizenry. The Museum can assist by increasing the number of visitors participating in science demonstrations and developing curriculum materials relevant to the educational needs of the local community.

#### NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - These funds come from a variety of sources, including the Museum's share of net proceeds from the museum shops and restaurants, a share of the net proceeds resulting from bureau activities (such as the theater and planetarium), and small allotments. In addition to meeting expenses of the theater and planetarium, these funds finance fellowships, research chairs, guest lecturers, symposia, and special events. A portion of the proceeds from the theater and planetarium provide support for the production of new IMAX films, including Blue Planet and To the Stars, as well as other planetarium shows and Museum programs. Blue Planet, which will

premiere in late 1990, shows the Earth from space and the effects of both natural and human forces on global environmental systems. The Museum also receives corporate support for these new films. In March 1989, Calling All Stars premiered in the Albert Einstein Planetarium. The show traces efforts to locate life in the universe. The Lindbergh Chair of Aerospace History and the International Fellowship provide continuing support for distinguished scholars to study at the Museum. Other fellowship programs include Guggenheim, Verville, and Martin Marietta internships, which support predoctoral and postdoctoral students, minority students, and distinguished scholars in aviation and space science.

Restricted Funds - Funds provided are in the form of restricted endowments that specify the use of donations or bequests and of gifts and foundation grants by individuals, organizations, or corporations for specific purposes. Examples of these funds are the Ramsey Endowment, for research relating to naval flight history; the Guggenheim Endowment, for lectures and stipends; and the NASM Education Fund. The Sloan Foundation provided grants beginning in FY 1987 for a four-year video history program as well as a workshop, video disc, and curriculum package on aviation history. NASM received numerous corporate donations, both monetary and in-kind, to support the "Beyond the Limits: Flight Enters the Computer Age," "Grumman Goose," "Sikorsky," and "Modern Turbine Engines" exhibitions in FY 1989 and FY 1990. Additional support was received for the Planetarium Director's Congress, Embry Riddle Internship Program, Public Science Demonstrations, Exploring Space Lecture Series, General Electric Aviation Lecture Series, and laboratory equipment in FY 1989 and FY 1990.

Federal Grants and Contracts - Various agencies and departments provide funds for special projects conducted at NASM because of the Museum's expertise in a given area. Continued funding from the National Aeronautics and Space Administration grant program supports research activity in planetary geology by the Museum's Center for Earth and Planetary Studies: specifically, for photogeologic investigation of planetary tectonic features, the structural geology of the Basalt Plains of Washington State, geographic mapping of Mars, and the Planetary Image Facility. In FY 1990, NASA partially funded a new research project to study forest damage in Czechoslovakia due to the effects of air pollution. This is one of the Center's research projects related to the Institution's global change research program. Partial funding from NASA also supported the Space Telescope Historical project, a joint effort of NASM and Johns Hopkins University, and resulted in a book published in October 1989. The Laboratory for Astrophysics has received funding from NASA for continued research in the field of infrared astronomy. The Education Resource Center receives support from NASA and other agencies.

NATIONAL MUSEUM OF AMERICAN HISTORY

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	347	15,218	2	184	9	907	2	2,079	-	-
FY 1991 Estimate	348	16,024	1	131	-	952	2	1,387	-	-
FY 1992 Estimate	372	17,979	1	131	-	931	2	1,394	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The National Museum of American History (NMAH) is an educational institution dedicated to understanding the experiences and aspirations of all the American people. Through collections, research and publications, exhibitions, and an array of public programs including lectures, symposia, concerts, tours, and demonstrations, with special emphasis on musical performance, the Museum preserves and interprets the Nation's heritage for scholarly and general audiences. Its collections of artifacts, numbering in the millions, together with its extensive archival holdings, represent the social, cultural, scientific, and technological development of the United States and constitute one of the most comprehensive history collections in the world, including the National Philatelic and National Numismatic Collections. In all of its endeavors, the Museum makes a special effort to recognize the diverse aspects of American culture and to present that diverse culture to audiences on the Mall and elsewhere in the United States.

For FY 1992, the National Museum of American History requests an increase of 24 workyears and \$1,955,000 to reinforce the Museum's long-range Exhibition Reinstallation Program (3 workyears and \$360,000); provide for full collections management accountability and critical storage space for displaced collections (12 workyears and \$580,000); provide funding for mandatory building management initiatives such as trash recycling and hazardous waste removal (1 workyear and \$100,000); provide adequate staffing for educational outreach to increase the number of visitors (3 workyears and \$150,000); increase programs for African Americans, Hispanic Americans, and American Indians (4 workyears and \$200,000); provide technical and research support to curators (1 workyear and \$40,000); provide additional computer hardware and software for curatorial and research support (\$275,000); provide equipment for the conservation laboratory constructed in FY 1991 (\$50,000); and support programs and exhibits to commemorate the Columbus Quincentenary (\$200,000).

PROGRAM - The National Museum of American History investigates, collects, preserves, interprets, and honors the heritage of the American people through original research, exhibitions, publications, and public programs designed to increase the understanding of American history.

Collections Acquisition - In FY 1990, the Museum received many significant objects through purchases and gifts. Among those collected by the Department of the History of Science and Technology was the Came Collection of Scientific Apparatus, a premier collection of material used by a scientific popularizer in upstate New York in the 1840s and 1850s. The Division of Transportation had two outstanding accessions: the "Sun Racer" donated by Robert Stempel of General Motors, which won the world's first solar-powered auto race; and the 1989 World Champion "Funny Car" dragster donated by owner-driver Bruce Larson. In the Department of Social and Cultural History, NMAH received the inaugural gown worn by First Lady Barbara Bush in 1989; a collection of black land-grant college photographs that document the development and continuing role of these educational institutions; and the Scott Molloy Labor History Collection, one of the largest and most diverse collections in this country of artifacts relating to the history of workers and their organizations.

Collections Management - NMAH designed a Comprehensive Master Plan to address cataloging and registration backlogs. As part of this plan, NMAH has developed a Local Collections Information System (LCIS) that is portable for off-site use and collections moves. NMAH also made significant progress on "Information Architecture," a structured information plan to support a comprehensive data base for collections research and management.

The Department of Conservation completed preparations for construction of a new textiles, costumes, and fragile organics laboratory, scheduled to begin in November 1990. While continuing its normal support to exhibitions and renovation activities, the Department reduced conservation backlogs by rehousing more than 7,700 documents, maps, and World War II posters.

With the rental of additional space in FY 1990, the Museum occupies 36,000 square feet at Fullerton Industrial Park in Springfield, Virginia. This space provides critical support for renovations and reinstallations at NMAH. On the Mall, the Museum completed Phase II of its Master Coordination Plan to renovate the building and reinstall exhibition spaces. This work involved removing and relocating more than 70,000 objects from storage and display. NMAH also completed a new Research Center, which includes a renovated Dibner Library, expanded library storage, and study spaces for Smithsonian Fellows. To make way for the Smithsonian's new Experimental Gallery in the Arts and Industries Building, the south quadrant of the "1876 Centennial Exhibition" closed, and NMAH returned objects to lenders or sent them to off-site storage. The departments of Domestic Life, Textiles, and Medical Sciences are preparing to move objects to the Museum Support Center in fall 1990.

Exhibitions - Seventeen exhibitions opened in FY 1990. A major permanent reinstallation was "The Information Age: People, Information and Technology," the Museum's largest and most interactive exhibition to date. The show depicts how, over the last 150 years, information technology has changed American society--the way Americans live and interact and the social advantages and costs of these changes. Other notable exhibits appealing to diverse audiences included "Go Forth and Serve: Black Land Grant Colleges Entering Their Second Century," a commemorative exhibition focusing on the origins of the Morrill Land Grant Act of 1890; "VSJ-Varrío San Jose: Scenes from Urban Chicano Experience," a documentary photography exhibit of images produced by Miguel Gandert that depicts contemporary Hispanic life in Albuquerque and the villages of northern New Mexico; and "From Parlor to Politics: Women and Reform in America from 1890 to 1925," which examines how the rhetoric and imagery of the feminine gender role were used to foster

women's participation in major social and political restructuring of American society during the Progressive Era.

Highlights for FY 1991 include the temporary exhibition, "Children in American Culture, 1945-1970," which will use characters of the comic strip "Peanuts" to examine the experiences, concerns, and reactions of children living through post-World War II America. The exhibition "After the Revolution: Everyday Life in America, 1780-1800" will reopen after undergoing extensive renovations, including a new Hands-on History Room and performance space, an upgraded introductory theatre, a more inviting entrance, and several reinterpreted sections. In FY 1992, two new permanent exhibitions will open. "First Ladies: The Women and the Image" is the replacement for the former First Ladies Hall. While still presenting the Museum's First Ladies gowns, the exhibit will detail more about the First Ladies themselves and their public lives. In commemoration of the Columbus Quincentenary, the Museum will open a permanent exhibition entitled "American Encounters." Spanning several centuries, the exhibit examines the continuing encounters among Indian, Hispanic, and Anglo-American cultures in New Mexico. It will show the various strategies Indians and Hispanics have devised to preserve the essences of their own cultures as they have been subjected to the demands of increasingly powerful alien cultures.

Research - Significant research and publications accompanied the following exhibitions: "Men and Women: A History of Costume, Gender and Power"; "From Parlor to Politics: Women and Reform in America from 1890 to 1925"; "Go Forth and Serve: Black Land Grant Colleges Entering Their Second Century"; "Workers and Managers: The Crises of Control in American Management"; "A History of Television"; and "Nature Printing." Research also produced the following books of exceptional merit: Greek Revival in America; Orders from France: The Americans and the French in a Revolutionary World; Street Railways and the Growth of Los Angeles; Roosevelt and Churchill: Their Secret Wartime Correspondence; Thomas Jefferson: Statesman of Science; The Bishop's Boys: A Life of Orville and Wilbur Wright; Decorative Arts and Household Furnishings in America 1650-1920: An Annotated Bibliography; and a 12-volume Smithsonian Guide to Historic America. Valuable research continues on Thomas Edison's Menlo Park Laboratory, on subjects relating to a new timekeeping hall, and on the issues surrounding museums and the ethics of underwater treasure hunting.

Public Programs - In FY 1990, the Museum developed and presented a wide variety of activities and publications aimed at enabling NMAH audiences to achieve a better understanding of the Museum's exhibitions and the diversity of cultures they represent. The Museum held two nationally significant conferences, one on African-American dance traditions and one on jazz performance in museums. It produced 20 free jazz concerts as well as programs honoring Martin Luther King, Jr. African-American women in the labor movement, and African-American classical composers. The Museum produced an additional 72 free concerts of American music, a two-day symposium for teachers of American storytelling traditions, and a month-long series of events relating to the work of the American folklorist Cecil Sharp. Educational efforts included expanding the popular Hands-on History Room, a project to be completed in FY 1991, and collaboration with the National Zoo on a project to increase the use of interpreters at both institutions.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, the Museum of American History requests an increase of 24 workyears and \$1,955,000 to reinforce the Museum's long-range Exhibition Reinstallation Program (3 workyears and \$360,000); provide for full collections management accountability and critical storage space for displaced collections (12 workyears and \$580,000); provide funding for mandatory building management initiatives such as trash

recycling and hazardous waste removal (1 workyear and \$100,000); provide adequate staffing for educational outreach to increase the number of visitors (3 workyears and \$150,000); increase programs for African Americans, Hispanic Americans, and American Indians (4 workyears and \$200,000); provide technical and research support to curators (1 workyear and \$40,000); provide additional computer hardware and software for curatorial and research support (\$275,000); provide equipment for the conservation laboratory constructed in FY 1991 (\$50,000); and support programs and exhibits to commemorate the Columbus Quincentenary (\$200,000).

Exhibition Reinstallation Program (3 workyears and \$360,000) - In FY 1982, the Museum of American History initiated a long-term program to reinstall its major permanent exhibitions. This program, which has continued to be the highest priority of the Museum, will allow NMAH to complete the reinterpretation of its permanent exhibit halls. These halls are now 26 years old and occupy roughly two-thirds, or 200,000 square feet, of the Museum's exhibition space. The Museum is simultaneously undergoing extensive, carefully coordinated renovations to the building.

NMAH staff have reinstalled six major exhibition halls since the beginning of the program: "After the Revolution: Everyday Life in America, 1780-1800"; "Engines of Change: The American Industrial Revolution, 1790-1860"; "A More Perfect Union: Japanese Americans and the United States Constitution"; "A Material World"; "The Ceremonial Court"; and "The Information Age: People, Information and Technology." Future reinstallations will include "First Ladies: The Women and the Image," the new First Ladies Hall; "American Encounters," the Museum's commemoration of the Columbus Quincentenary; "Great Expectations: Everyday Life in 19th Century America," which will focus on Native Americans and the westward migration, immigration, and the emergence of an urban, industrial nation; "Science in America"; and "Clocks, Capitalism and Culture," a look at how the concept of time affects daily life.

The Museum needs \$360,000 to manage this program of exhibition reinstallation successfully, especially if it is to minimize disruption to the public and the collections during reinstallation. The request will support one exhibits specialist and two exhibits technicians (3 workyears and \$94,000) to maintain the appearance of exhibit halls affected by nearby construction and provide funds (\$260,000) for design and production of new installations. One major exhibit reinstallation may cost several million dollars, depending on the level of interactive technologies employed, attendant public programming, the level of collections acquisition needed, and other factors. With funding provided, the Museum will continue to disseminate ideas through exhibitions.

Collections Management Accountability and Storage Space (12 workyears and \$580,000) - The Museum safeguards collections for the public trust through safe, accessible storage and basic collections documentation. Documentation begins with simple registration to establish terms of borrowing or ownership. Staff must enter enough information into the computer to locate objects, answer public inquiries, plan exhibitions, and do simple research. The 1979-83 inventory project confirmed the enormous task of forming and maintaining a centralized, adequately documented control file from several different and sometimes inadequate sets of records maintained by the Museum's 21 collecting units. As the Museum took steps to improve management of its collections information, it recognized the need to alleviate a severe space shortage that has existed for several years. NMAH has filled all available storage areas, and asbestos still contaminates some of the buildings at Silver Hill, Maryland. Leased space at the Fullerton Industrial Park in

Springfield, Virginia, will house displaced collections while renovations and reinstallation of major exhibit halls continue at the American History Building.

Since 1983, Museum renovations, asbestos removal, and other competing collections work have prevented rapid progress in reducing continuing backlogs in collections processing and completing a computerized central file. The Museum currently leases 36,000 square feet of storage space out of the 48,000 square feet necessary to house objects safely during the building's renovation, the reinstallation of major exhibitions, the takedown of the "1876 Centennial Exhibition" in the Arts and Industries Building, and the renovation of asbestos-contaminated buildings at Silver Hill. The Museum decided to lease space only after exploring and rejecting other options due to costs, security, or inadequate environmental systems.

In direct response to an auditor's report on collections management at NMAH, the Museum drafted a master plan that spells out schedules and assignments for completing basic documentation. This request supports that plan. With 11 workyears and \$307,000, the Museum will hire six permanent and five term (up to five years) positions to eliminate long-standing backlogs. The permanent positions will respond to areas of greatest need. The term positions will specifically address urgent problems in sensitive collections in NMAH as well as at storage buildings in Silver Hill. Funds provided will support contract personnel (\$60,000) to perform specialized work on two very large and valuable collections: the Jackson Collection in Armed Forces History and the Eckhardt Collection in the National Philatelic Collection. Requested funds will pay rental costs on 12,000 square feet of storage space (\$114,000), purchase storage equipment and supplies (\$65,000), and provide an on-site manager (1 workyear and \$34,000) to supervise access to the storage areas and oversee proper storage conditions and inventory controls. At present, staff at Silver Hill, Maryland, take time away from asbestos removal to make the 50-mile round trip to the Fullerton storage site. The new position will provide greater control at Fullerton, eliminate unnecessary trips, and allow Silver Hill work to proceed at a faster pace.

An increase in storage space and collections-related workyears will lead to greater accountability for and accessibility to NMAH collections and promote the stewardship of the public trust.

Building Management and Safety (1 workyear and \$100,000) - Environmental protection and safety issues are a major concern in the 1990s. The Museum is starting several new programs to conserve building resources and provide training and building-wide inspections to resolve safety and health problems quickly. At the same time, new regulations govern hazardous waste removal, water testing, and waste recycling. These regulatory requirements will approximately double the Museum's building management costs by FY 1992. Providing a safe environment for visitors and staff is mandatory to comply with Federal regulations.

This request will fund the increased cost of contracts for refuse removal and recycling, hazardous waste removal, waste water analysis, and pest control (\$40,000); supplies for recycling, such as special waste receptacles and improved dispensers for paper products (\$20,000); and a safety coordinator (1 workyear and \$40,000) to supervise a comprehensive health and safety program. The safety coordinator will supervise the Museum's safety, asbestos, radiation, hazardous waste, hazard communication, and respiratory protection programs. The incumbent will inspect facilities, train and evaluate staff, and respond to the Museum's annual Safety Evaluation and Technical Review. This position will ensure that staff follow safety and health procedures.

The Museum can provide a safe and environmentally protected facility. New regulations make this imperative, as does concern for the environment and for the welfare of the staff and public.

Educational Outreach (3 workyears and \$150,000) - This request provides staff to supervise the weekend interpretive volunteer programs and a school program specialist to update education programs and evaluate volunteers. The education staff will meet the demand for more interactive interpretation of NMAH exhibits and educational materials relating to exhibit themes.

In the last ten years, the education staff has increased by 1 workyear, while the number of visitors has increased by more than a million. Strengthening the weekend docent program and establishing demonstration and school programs will increase visitor participation in hands-on demonstrations by one-third or more, up from the current 2 percent to 33 percent. With hands-on tours and teacher and student workshops, the Museum will supply unique educational materials and methods not otherwise available to schools.

The Museum will establish a permanent program for educational outreach, create a well-integrated collection of program offerings and materials, and update programs as exhibitions change. The existing weekend docent program will receive its first program manager. The Museum will establish a demonstration program that uses volunteers to move throughout the exhibitions and interpret themes through acting, dialogue, and hands-on experiences. The museum-school program will create ongoing relationships with local and national schools by bringing teachers into the museum for tours and workshops that will help them interpret NMAH exhibits to their students.

Funds will provide a weekend program manager (1 workyear and \$34,000) to supervise the 100 volunteers who interpret permanent exhibitions for the public on weekends and a coordinator for demonstration programs (1 workyear and \$40,000) to develop and supervise the museum-wide program of demonstration carts and to manage ongoing demonstration centers in exhibitions. NMAH also requests a school program coordinator (1 workyear and \$40,000) to develop and maintain in-museum programs for local and national school groups and an additional \$18,000 for supplies.

These educational programs will bring the Museum's exhibitions to life through interactive interpretation of themes, such as cultural contact and conflict, that cannot be communicated through labels alone.

Cultural Pluralism (4 workyears and \$200,000) - NMAH will redress the imbalance of how American society, the Smithsonian, and NMAH have portrayed the lives and culture of diverse ethnic groups. This program will present culturally diverse groups as important contributors to American political and social history. Well-researched public programs, including symposia, performances, lectures, and workshops, will convey this message to the Museum-going public, and outreach materials will go to schools and other outside audiences.

Funding will strengthen three existing activities--the Afro-American Communities Project, the Program in African-American Culture, and the American Indian Program--by providing much-needed research assistants where none now exist. The Museum will actively publicize minority programs taking place at the Museum and will sponsor major conferences annually in African-American, Hispanic-American, and native-American cultures.

A part-time project assistant (1 workyear and \$13,000) for the Afro-American Communities Project will work with the part-time curator to research and compile a unique comprehensive data base about black antebellum communities. NMAH requests an additional \$5,000 for supplies. Research coordinators (2 workyears and \$80,000) for the Program in African-American Culture and the American Indian Program will assist the respective directors in research for symposia, lectures, conferences, and publications and will supervise interns. The request includes \$12,000 for supplies and travel.

A publicist (1 workyear and \$34,000) will work with newspaper, radio, and other media to broadcast information about public programs at the Museum, produce publicity materials, and manage national mailing lists. The request includes an additional \$6,000 for supplies. Finally, the Museum will sponsor major conferences annually in African-American, Hispanic-American, and Native-American cultures (\$50,000).

The Museum's minority programs strive to present a more balanced view of the contributions of culturally diverse peoples. With these programs the Museum becomes more inclusive of all segments of American society and enhances the visitors' sense of participation in the wider cultural heritage of the United States.

Technical and Research Support (1 workyear and \$40,000) - In the last 25 years, the curatorial staff of the Museum has grown without a corresponding increase in technicians and specialists. Increases in collections, public programs, and exhibition production have demanded more time of available staff. The museum will strengthen research in the Divisions of Medical Sciences and Community Life by hiring specialized research assistants to help curators.

NMAH will use the requested position and funding to hire a museum technician (1 workyear and \$27,000) to support the Divisions of Medical Sciences and Community Life (with collections totaling 120,000 and 65,000 items, respectively). The technician will care for, manage and make collections readily available, and answer questions from the public and from scholars about these collections and related topics. NMAH also requests support for travel (\$8,000) in connection with research and for publication costs of research findings (\$5,000) to make up base funding gaps in these areas.

The extent and success of the curatorial divisions' collecting, collections management, public service, research, and educational functions are predicated upon the sustained presence of professional staff and support staff. NMAH will get maximum and efficient use of research curators with adequate support staff who perform essential collections responsibilities. The results are collections readily available to the public, faster response to requests for information, and dissemination of knowledge through research.

Computer Support (\$275,000) - The Museum requires a dedicated computer system and network to serve its collections-based research, accountability, and educational programs. The Museum's ten-year-old computer system provides office automation (word processing, electronic mail, and spreadsheet functions) and data base applications but can no longer support all of these functions in a responsive manner. The movement of collections data to a smaller, less expensive, and easier to use computer environment will provide a higher level of support to the Museum and its public programs.

The Museum is analyzing all functions that pertain to collections management, research, exhibits, and public educational services in order to design a Collections

Information System that will serve those Museum-wide programs. The computer system and network will provide the initial operating capability for the Museum's Collections Information System. With the requested funds (\$275,000), the Museum will purchase a Unix computer, network, and data base management system.

A more efficient computer system that can accommodate the Collections Information System will improve the Museum staff's ability to enter data and retrieve information about the collections. Improved accountability for collections results in easier access to information for exhibitions and research.

Textile Conservation Laboratory Equipment (\$50,000) - By the end of FY 1991, the Museum will complete construction and partial staffing of a new conservation laboratory to treat fragile textiles. The purchase of essential equipment and supplies will make the laboratory operational in FY 1992. The Museum's vast textile and costume collections include the First Ladies gowns, thousands of historic flags and uniforms, political banners, and quilts and other domestic textiles. These articles reflect the cultural diversity and artistic and technological achievements of the American people. These objects are greatly demanded for study by researchers and are among the most popular objects on exhibition.

Funds will provide sophisticated and specialized equipment and supplies with which conservators will document, treat, and properly rehouse the Museum's large and important textile and costume collections. Purchases will include:

- specialized washing table and sink for fragile historic textiles (\$15,000);
- stereobinocular microscope and fiberoptic light source (\$18,000);
- polarizing microscope and accessories for fiber identification (\$8,000);
- 35mm camera, lenses, and lights (\$5,000);
- computer workstation for treatment documentation (\$3,000);
- initial stock of reagents, solvents, and conservation supplies (\$1,000).

Textiles are among the museum objects most susceptible to deterioration. Proper identification, treatment, and rehousing will greatly extend their useful life and make them more accessible for research and exhibition.

Columbus Quincentenary Program (\$200,000) - In 1986, the Museum began a five-year program of public symposia, archeologically based exhibitions, and related publications. The program leads toward the establishment of a major permanent exhibition, "American Encounters," to commemorate the Columbus Quincentenary.

The exhibition will examine the results of Columbus's arrival in the Americas by exploring cultural interactions among Hispanics, native Americans, and Anglo Americans in the Rio Grande Valley of the American Southwest. The exhibit will emphasize the strategies devised by both native Americans and Hispanics to preserve the essences of their own cultures in the face of more dominant cultures. In addition to the exhibition, NMAH will

create a new Program in Hispanic-American Culture that will research and produce publications and public programs on Hispanic cultural development in the United States.

The Museum is proceeding with the design and development of "American Encounters," and has a major effort under way to acquire collections for the exhibition. The additional funds requested for FY 1992 will enable the Quincentenary Program to produce a higher-quality introductory film, collect more objects for the exhibition, install more interactive video disc stations, produce a larger number of taped interviews with representatives of diverse cultures, and add more educational programming to accompany the exhibit.

As 1992 draws near, the Nation will look to the National Museum of American History for a fitting commemoration of the historic landing of Columbus. It is important that this exhibition be of the highest quality. Further, the permanent exhibition and its related public programs will reinforce the Museum's commitment to new audiences, while presenting the American experience more accurately from a multi-cultural perspective.

#### NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - This funding is from various sources, including the Museum's share of museum shop and cafeteria sales, publication royalties, and various annual allotments. In FY 1991, these funds will support the salary and benefit costs for the position of museum director and the Museum's unique chamber music performance and recordings program.

Restricted Funds - The principal sources of income for these funds are individual or corporate gifts and foundation grants provided for specific purposes. In FY 1989 and FY 1990, NMAH received gifts and grants from the following groups to support the ambitious new interactive exhibit, "The Information Age": Ameritech Foundation, AT&T, Bell Atlantic Group, BellSouth Corporation, Computerworld Information Technology Awards Foundation, Hewlett-Packard, NCR Foundation, Nynex Service Company, Pacific Telesis Foundation, Southwestern Bell Telephone, Union Pacific Foundation, and US West.

The Museum also received the following gifts and grants: from the American Chemical Society for an exhibit on "Science in America"; from United Media to support an exhibition on "Children and the Cold War"; from the American Association of Retired Persons for a photography exhibit entitled, "The Seasoned Eye"; from W. J. Usery, American Federation of Labor, Gap Foundation, and numerous union organizations and private individuals to produce an exhibit on the history of American labor entitled "Workers and Managers: The Crisis of Control in American Management"; from Federal Express, Nike, Crain Communications, and Backer Spielvogel Bates, Inc., to support various projects on American advertising; from the Children's Television Workshop to support an exhibit about the television program, "Sesame Street"; from the Foundation for Creative America for an exhibit on patent models; from the Marshall and Marilyn R. Wolf Foundation in support of an exhibition on Duke Ellington; from the AKC Fund, Inc., to endow the music programs at the Museum; from the Andrew International Mellon Foundation to support music programs in the Museum; from the Association of Research Directors to support an exhibit on black land-grant colleges; from the Swedish Tobacco Company to support an exhibit on 19th-century life in America; from the USA Airborne 50th Anniversary Foundation, Inc., for an exhibit entitled "Airborne! The First 50 Years"; and from TAPPI for an exhibition on American papermaking. The Museum also received generous unrestricted gifts from Pepsi Cola, ADAPSO, and American Pharmaceutical Association for the programs of the Museum; and generous gifts

from Les Dames of Los Angeles, Fujisankei, and the Friends of the First Ladies to be used for the restoration of the First Ladies gowns and the reinterpretation and reinstallation of that exhibit.

NATIONAL MUSEUM OF THE AMERICAN INDIAN

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	61	3,946	-	-	-	-	-	-	-	-
FY 1991 Estimate	179	11,618	-	-	-	-	-	-	-	-
FY 1992 Estimate	243	16,118	1	150	-	-	-	-	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The National Museum of the American Indian (NMAI) provides the Smithsonian Institution with a new and significant vehicle of communication with American Indian people and the public through its collections, research, and public programs. NMAI houses a collection exclusively devoted to the history and art of cultures indigenous to the Americas. The Museum plans to offer a full range of programs demonstrating historic and contemporary contributions of American Indian and Native Alaskan cultures. Future facilities will include a building on the Mall east of the National Air and Space Museum; an exhibition and education center in the Old United States Custom House in New York City; and a collection, study, and conservation facility at the Museum Support Center in Suitland, Maryland.

For FY 1992, the National Museum of the American Indian requests an increase of 64 workyears and \$4,874,000 for regional training sites (\$50,000); a Native-American Traveling Exhibition Program (3 workyears and \$138,000); Native-American staff development and training (3 workyears and \$200,000); a National Campaign Office (2 workyears and \$448,000); New York facilities maintenance (7 workyears and \$710,000); facilities project management (2 workyears and \$128,000); security for the New York facilities (15 workyears and \$492,000); the Custom House Program (13 workyears and \$1,480,000); and planning and coordination for the Museum on the Mall (19 workyears and \$1,149,000). In addition, the FY 1992 request reflects an increase of \$79,000 for the cost of regional pay increases for NMAI employees in New York. This justification appears in the Uncontrollable Increases section of this budget. Also, these increases are offset by a reduction of \$374,000 for one-time costs relating to the care and custody of the collections and the national campaign.

PROGRAM - The Museum of the American Indian, Heye Foundation, located in New York City, opened its doors to the public in 1922. The Museum's founder, George Gustav Heye, initiated the collection near the turn of the century as a result of expeditions in this country and in Ecuador, Mexico, the West Indies, the Amazon, and Central America. The collection is one of the world's richest assemblages of artifacts of the indigenous cultures of the Western Hemisphere. Its North American Plains material forms one of the

largest groupings found anywhere. The collection represents the great civilizations of the Inca, Aztec, and Maya, as well as the forest tribes of the Amazon and the Arctic Eskimo. From the American Southwest are masks, dolls, and baskets. The collection includes a photographic archive with more than 80,000 negatives and prints chronicling Indian life.

The Heye Foundation Collection was transferred to the Smithsonian Institution on June 24, 1990, to form the base of the National Museum of the American Indian. The Smithsonian believes the Museum will inspire an exponential increase in Native-American studies and a range of new ideas for exhibitions, research, and insight into historic and contemporary Indian culture.

Federal funding in FY 1991 will allow the Smithsonian to:

- plan for the opening exhibition of the George Gustav Heye Center at the Old United States Custom House in New York;
- continue the development of plans for programs, exhibitions, research, and collections management;
- provide central administrative services;
- provide care and custody of the collection;
- maintain and secure the existing buildings and temporary structures in New York;
- administer fund-raising efforts for the NMAI;
- institute a Native-American staff development and training program;
- provide for the repatriation of Native-American remains and objects and a special review committee to advise the Secretary on these matters.

Funding in FY 1992 and future years will enable the Smithsonian to continue and expand these activities and to construct a museum on the last site on the Mall as well as a collection and research center at Suitland. The Suitland facility will provide a protected environment for collection materials not on display and make them available for research. The collection center will house the collection documentation functions and a resource collection of print materials, together with facilities for conservation treatment.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, the National Museum of the American Indian requests an increase of 64 workyears and \$4,874,000 for regional training sites (\$50,000); a Native-American Traveling Exhibition Program (3 workyears and \$138,000); Native-American staff development and training (3 workyears and \$200,000); a National Campaign Office (2 workyears and \$448,000); New York facilities maintenance (7 workyears and \$710,000); facilities project management (2 workyears and \$128,000); security for the New York facilities (15 workyears and \$492,000); the Custom House Program (13 workyears and \$1,480,000); and planning and coordination for the Museum on the Mall (19 workyears and \$1,149,000). In addition, the FY 1992 request reflects an increase of \$79,000 for the cost of regional pay increases for NMAI employees in New York. This justification appears in the Uncontrollable Increases section of this budget. Also, these increases are offset

by a reduction of \$374,000 for one-time costs relating to the care and custody of the collections and the national campaign.

Regional Training Sites (\$50,000) - Training programs for museum staff working in Native-American communities help ensure the preservation of and access to the cultural patrimony of American Indian people. Through this program, tribal centers, libraries, archives, and museums nationwide participate in a training network. Smithsonian staff and community experts serve as faculty. Community institutions learn new methods and share expertise in working with American Indian communities and collections.

The increase supports two additional training sites in the American Indian Museum Studies network, begun in FY 1991. The Office of Museum Programs (OMP) will develop a curriculum for courses in curatorial research, collection, care, education, and exhibitions. OMP will offer two courses at regional American Indian museums in FY 1992. Each site then serves as an access point to a national instructional network for training at any time.

The requested funds (\$50,000) for the Office of Museum Programs will provide for participant scholarships, faculty training and travel, and instructional materials. Also, the request will provide partial cost of equipment for the communications network, in partnership with each site.

This program strengthens the ability of local American Indian communities to preserve and interpret their cultural heritage. Consequently, the American public--both Indian and not--has greater access to important stories of diverse American ways of life.

Native-American Traveling Exhibition Program (3 workyears and \$138,000) - The development of a traveling exhibition program for the National Museum of the American Indian will ensure that tribal museums and cultural centers, as well as regional museums and educational institutions, will benefit directly from NMAI's collections and program resources.

This initiative calls for an extended period of planning and on-the-job training to develop exhibition prototypes and a viable, traveling exhibition program for and about American Indian groups. The program will respond to diverse technical settings, some of them equipped with museum staff and installation support, others with no personnel or exhibit-ready services. It will include exhibitions that incorporate not only diverse viewpoints and tribal experiences but also direct Indian participation in the planning process and beyond. The program also will address unique conservation, loan agreement, and object-handling needs, since many exhibitions will involve fragile historical artifacts and collections associated with authenticity and repatriation issues.

Each of the three exhibit coordinators (3 workyears and \$83,000), who will join the staff of the Smithsonian Institution Traveling Exhibition Services (SITES), will receive on-the-job training to develop and coordinate jointly three pilot traveling exhibition projects responsive to different constituencies in the field. Funds totaling \$55,000 will provide for printing, supplies and materials and travel. The coordinators will tailor the project to regional museums capable of installing artifact-intensive exhibitions. A second project, targeted to smaller, resource-poor cultural centers and schools, will involve installation-easy formats and access to collections available at the local level. The third project will rely on experimental installations adaptable to outdoor festivals and other nontraditional settings. In developing these projects, the coordinators will work

in tandem with SITES staff to identify advisors and potential audience groups; maps exhibit content, education programming, and installation strategies; develop budgets and fund-raising approaches; oversee competitive bid and design processes; and supervise conservation, lending, insurance, booking, shipping, and exhibit construction procedures.

The intended beneficiaries of the Smithsonian's National Museum of the American Indian extend far beyond Washington, D.C. The Museum's future audiences, whether affiliated with tribal centers, urban-area museums, community organizations, or schools, will expect NMAI to provide expanded program resources adaptable to their own needs and interests. The design of fully operational outreach exhibition services must begin immediately.

Native-American Staff Development and Training (3 workyears and \$200,000) - The National Museum of the American Indian will continue to implement the training initiative begun in FY 1991. This initiative rests on two principal goals. The first goal is the establishment of a staff that approaches collections care, programmatic development, exhibition development, and research with awareness of the historic and contemporary issues, perspectives, and concerns associated with American Indian communities. The second goal is the establishment of fully collaborative training partnerships between the Smithsonian and the American Indian community, including its cultural centers, tribally controlled colleges, and national Indian organizations.

NMAI will identify American Indian persons for three positions to work within the Smithsonian bureaus and program offices. NMAI will award each of these training positions on a competitive basis at entry to mid-level grades. In addition to serving as assistants to senior staff positions not initially occupied by American Indians, the persons holding these training positions will participate in a range of relevant activities, including access to formal professional development courses, workshops, and seminars. While many of these training positions will evolve into the positions currently held by senior staff, some trainees will return to the Indian community, resulting in a greater network of American Indian museum professionals.

The requested 3 workyears and \$200,000 will support:

- salary costs, internships, fellowships, and professional development programs to be established for a broad range of potential participants, including American Indian undergraduate students and graduate students in relevant academic and museum studies fields;
- Native-American faculty from tribally controlled colleges and other institutions;
- community-based museum professionals and community members, particularly those who possess significant knowledge of their tribal history and language and who would benefit from access to the Smithsonian's research resources;
- training programs that will occur within the community as well as on site.

The National Museum of the American Indian Training Program will increase the number of American Indian people in the museum field, in every relevant discipline, at all levels.

National Campaign Office (2 workyears and \$448,000) - The National Museum of the American Indian will establish the National Campaign Office in FY 1991 to plan and implement a national fund-raising campaign to secure the required matching funds from non-

Federal sources as specified by the Federal legislation authorizing the establishment of NMAI. Through the Office of Institutional Initiatives, the NMAI <sup>is seeking</sup> ~~has secured~~ donated office space in nearby Arlington, Virginia, to house the National Campaign staff.

NMAI requests two positions (2 workyears and \$75,000) to supplement NMAI National Campaign staff included in the Institution's FY 1991 Congressional request for the purpose of organizing, coordinating, and directing a membership program. The initial focus of the NMAI membership program will be on prospective donors for construction of the Mall facility. NMAI will seek membership primarily through the use of direct mail techniques. Requested funds also will support contractual services in the areas of prospect research (\$48,000), direct mail design/list acquisition (\$50,000), media placement (\$200,000), and an audio-visual package (\$75,000).

The NMAI membership program will become a permanent component of the Museum's advancement operation. After the NMAI Mall facility is constructed, support from NMAI members will continue to be sought for NMAI programs.

New York Facilities Maintenance (7 workyears and \$710,000) - Effective and efficient building operations and maintenance are essential to preserve the collections of the National Museum of the American Indian and to provide a safe and healthy environment for staff and the visiting public.

The planned opening in FY 1992 of the George Gustav Heye Center in the Old Custom House will more than double the square footage of NMAI space in New York. The Office of Plant Services (OPlantS) will operate the facility 24 hours a day to ensure the constant and correct temperature and humidity required to preserve museum collections on display in the building. OPlantS staff will also perform preventive maintenance and emergency repairs and minor repairs to building components, consistent with its operations at other Smithsonian museums. The requisite skills are not currently available among NMAI employees. The requested resources will enable OPlantS to hire the appropriate staff to ensure continual operation and repair of NMAI space in the building and to cover the estimated utilities costs for the Old Custom House facility and the addition to the Research Branch, located in the Bronx. This addition, to be constructed in FY 1991, will provide essential space to prepare the collections for eventual move to Washington, D.C.

This request will allow OPlantS to add seven positions (7 workyears and \$257,000). Five air conditioning equipment mechanics, including one leader, will provide continuous operation of the heating, ventilating, and air conditioning systems in the building, and two trade and craft mechanics will perform repairs and preventive maintenance on electrical, plumbing, structural, and fire protection systems. The request includes funding to cover estimated utility costs for the Custom House (\$369,000) and additional utilities associated with the expanded Research Branch (\$47,000). The Institution also requires funding to cover a base deficiency in nonsalary categories of expense for operating other NMAI New York facilities (\$37,000). These costs include contract services for maintenance of specialized equipment such as elevators, contract cleaning services, and miscellaneous supplies and materials for cleaning and repairing the buildings.

The requested resources will ensure continuous operation of NMAI facilities and protect the capital investment in plant equipment.

Facilities Project Management (2 workyears and \$128,000) - The development of new facilities to house the National Museum of the American Indian will expand public programs

and research interpreting Native-American culture and experience and will improve space in which to store, study, and conserve the former Heye Foundation Collection.

During FY 1992, the Institution will complete construction at the Old Custom House in New York City, complete design and initiate construction on the Suitland storage facility, and begin design of the Mall museum building. The Institution's FY 1992 construction request contains funding for these projects. The physical separation of the three buildings as well as technical considerations associated with renovation or construction of monumental buildings of national prominence exacerbates the complexity of the projects. Smooth execution of the concurrent tasks requires specialized staff to manage the construction of all three facilities from early planning through occupancy.

The Institution will use funds appropriated in FY 1990 and requested in FY 1991 to hire a facilities project manager, assistant project manager, architect, and engineer. The resources requested for FY 1992 will enable hiring a construction manager (1 workyear and \$68,000) to oversee construction of the Suitland facility and later the Mall museum building. Although the Institution plans to contract for construction management services for both projects, the Institution needs a staff construction manager to oversee and administer these contracts. The Project Management Office also will hire a secretary (1 workyear and \$25,000) to provide general clerical support, including processing and tracking of requisitions, contractor change orders and payments, typing, and filing. Support funds (\$35,000) will provide for travel to the design firm, computer equipment for project tracking and office automation, and miscellaneous services and supplies for office operations.

Adequate project management staff will ensure successful construction of essential facilities for the Museum.

Security for the New York Facilities (15 workyears and \$492,000) - For FY 1992, the National Museum of the American Indian requests funds to hire additional guards to complete the permanent guard force for the George Gustav Heye Center in the Old Custom House and to hire temporary guards to meet security requirements at both the Custom House and Audubon Terrace until the NMAI operation moves to the Custom House. The guard force will reduce the risk of theft, damage, or destruction to the valuable and unique collections of the National Museum of the American Indian.

The Smithsonian expects to take possession of the renovated portion of the Custom House in April 1992 and plans to open an inaugural exhibit in the building later in the year. The guards now assigned to the Audubon Terrace exhibit space will relocate to the Custom House to form the corps of its permanent security force. The funds requested will provide additional guards to complete the permanent security force required for the facility. The security staff will enforce access control, monitor contractors during the period of exhibits installation, and perform other security procedures. In addition to permanent staff, the Institution requests temporary guards to meet security requirements at both the Custom House and Audubon Terrace until the NMAI operation moves to the Custom House late in 1992. The full complement of permanent guards, therefore, will not be available to transfer to the Custom House until that time. OPS will use a portion of the requested resources to provide temporary guards to supplement security requirements at the Custom House during most of FY 1992 and part of FY 1993.

OPS will use the requested funds to hire five permanent and five temporary guards in April 1992, when the Smithsonian takes beneficial occupancy of the Custom House space.

The funds also will allow hiring five temporary guards in mid-1992, to cover public opening of the inaugural exhibition and provide for contract services to support the guard force (\$123,000). Hiring in this manner will result in adequate security coverage of the new facility. Because of the delayed hire dates, the Institution requires only 12 workyears for these positions (12 workyears and \$230,000). The temporary guards will be in place only until the Audubon Terrace facility is vacated.

Protection of the Smithsonian's buildings, exhibits, and visiting public depends on well-functioning fire and security alarms systems. Proper maintenance of the systems will ensure good working order to achieve required performance. The required senior systems specialist will provide advanced technical expertise in the operation of the security systems in NMAI buildings, including the Smithsonian Institution Proprietary Security System (SIPSS). In addition, the specialist will supervise the work of the alarms technician, which the Institution will hire with funding anticipated in FY 1991. The alarms technician will perform daily inspection and maintenance of alarms devices and equipment in NMAI facilities. Both staff members also will service the security systems at other Smithsonian facilities in the New York area.

NMAI requests funding for a senior systems specialist (1 workyear and \$48,000) to supervise and oversee the operation, maintenance, testing, and upgrading of the physical security and fire alarms systems in the New York area. The senior specialist will provide training to the technical staff. Funds totaling \$25,000 requested for FY 1992 will purchase tools, a radio, and other supplies and materials to support operation and maintenance of the physical security systems in the New York City buildings.

The Institution is building an addition to the Research Branch storage facility for preparation of artifacts for eventual move to Washington and/or the Old Customs House. Continual movement of artifacts through the loading dock will increase the risk of theft or damage. The Office of Protection Services will establish a guard post at the loading dock to reduce the threat to security. The additional post will provide the necessary protection for artifacts during the delivery and movement stages in the loading dock area as well as in the working area of the addition to the storage facility. The guard will control staff access and ensure that only authorized individuals enter the area. The requested funds will provide for two guards (2 workyears and \$51,000) necessary to maintain this guard post seven days a week, providing access control and overall protection of artifacts during the moving and preparation stages.

For FY 1992, OPS also requests \$15,000 to cover the cost of periodic staff travel from Washington, D.C., to New York for the installation and inspection of security devices and SIPSS in the New York facilities of NMAI. Travel funding will enable OPS technicians to install alarms, locks, and other security equipment at the Old Custom House and to maintain systems and equipment at the Research Branch of the Museum of the American Indian. Funds will also provide for managers of SIPSS to visit the New York facilities to supervise the operation of the system, make appropriate modifications, or recommend changes. On-site visits will ensure an effective and efficient security monitoring system for the Custom House and other NMAI facilities. The staff will conduct quarterly inspections to detect and correct malfunctions. Travel funds will also provide for the escort, by armed personnel from OPS, of high-value objects transported from New York to Washington, D.C.

Adequate protection services and on-site installation of alarms and locks and management of SIPSS ensures that OPS security standards are met, with no possible

compromise of the system. Security escorts of high-value objects during relocation protect them from theft or loss during shipment.

Custom House Program (13 workyears and \$1,480,000) - The Old Custom House facility of the National Museum of the American Indian, scheduled to open in New York in 1992, will have a well rounded exhibition and education program. This request for support of the programs planned for this facility will ensure that the Custom House Program will demonstrate the aspirations in the new Museum.

A program staff (6 workyears and \$243,000) consisting of an exhibition coordinator, docent/volunteer coordinator, curriculum developer, audio-visual technician, and two clerical positions will support the public activities at the Old Custom House. In addition, seven building management positions will clean and maintain the public and staff areas of the George Gustav Heye Center in the Custom House (7 workyears and \$167,000).

Included in this request are funds to complete the fabrication and installation of the opening exhibition and to support other costs associated with the public programs of the Center, such as printed materials, films and videos, and lectures and demonstrations (\$1,070,000).

This first completed public element of the National Museum of the American Indian will serve local and national audiences much larger than those during its history as the Museum of the American Indian, Heye Foundation. In addition, it will herald the fuller manifestation of the museum on the Mall in Washington. This request will form the ongoing base for exhibition refurbishment, installations of temporary and permanent exhibitions, and public program activities at the Heye Center in future years.

Planning and Coordination (19 workyears and \$1,149,000) - In FY 1992, work will begin on the development of exhibition topics for the National Museum of the American Indian on the Mall. Curators, research assistants, project managers, and a designer will begin the process of research, object identification, and preliminary design. An education coordinator will develop public programs that reflect an awareness of the perspectives and concerns of American Indian communities. An international program coordinator will assure that the indigenous cultures of Mexico and of Central and South America, which are so well represented in the collections, are properly presented in all aspects of the NMAI program. A technology coordinator will assure the most advanced use of technology in all programs planned for both the Suitland research center, the George Gustav Heye Center in New York, and the Mall Museum. In addition, three secretaries and an administrative technician will provide assistance to these departments (19 workyears and \$811,000).

Included in this request are funds for travel, supplies, and equipment to support these activities; rent for additional office space for the positions requested; as well as funds for contract services for Native-American advisors for the national, international, and technology programs and other technical assistance as required (\$338,000).

#### NONAPPROPRIATED SOURCES OF FUNDING:

The Smithsonian has established an allotment to cover the director's salary and support costs, in addition to an unrestricted account to receive donations for the National Museum of the American Indian. Investment income will be available from the permanent endowment of the Heye Foundation, which was included in the property transfer.

NATIONAL MUSEUM OF AMERICAN ART

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
			General		Special					
	FTE*	Amount	FTP**	Amount	FTP**	Amount	FTP**	Amount	FTP**	Amount
FY 1990 Estimate	122	5,581	-	65	-	460	-	383	-	-
FY 1991 Estimate	123	5,817	1	194	-	682	-	1,019	-	-
FY 1992 Estimate	136	6,429	1	216	-	405	-	605	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The National Museum of American Art (NMAA) seeks to represent the finest achievements of American visual artists working in painting, sculpture, the graphic arts, photography, and crafts. The Museum presents diverse art from all regions, traditions, and cultures in America, including folk as well as fine art. NMAA presents major loan exhibitions and related educational programs for public and scholarly audiences. The Museum fosters research nationwide through fellowship and intern programs, and it maintains automated data base inventories as a resource for American art scholars. The scholarly staff publishes new research in books, articles, and catalogues, for the purpose of underscoring the relationship of art and history. The Renwick Gallery, part of the National Museum of American Art, focuses upon American crafts and decorative arts. NMAA also maintains the Barney Studio House, a period home open for tours and interpretive programs.

For FY 1992, the National Museum of American Art requests 12 workyears and \$554,000 to hire additional specialized and technical staff and to enhance training programs (4 workyears and \$115,000); to improve collections management (1 workyear and \$50,000); to reimburse the Institution's information systems cost center (\$67,000); to enhance educational programs (3 workyears and \$150,000); to hire additional clerical support staff (2 workyears and \$62,000); to correct audit deficiencies (1 workyear and \$20,000); and to provide curatorial support for the Painting and Sculpture Department (1 workyear and \$90,000). As a joint request with the National Portrait Gallery, NMAA also requests 2 workyears and \$115,000 for the American Art and Portrait Gallery Building's Office of the Building Manager. The justification for this last request appears in the National Portrait Gallery section.

PROGRAM - The National Museum of American Art explores the contributions of the Nation's artists from the 18th century through the present. Through a multi-faceted program of acquisitions, exhibitions, research, publications, and education, the Museum presents and interprets the Nation's artistic heritage for a broad and diverse public.

Collections - The Museum's collections, numbering over 35,000 objects, highlight paintings, sculpture, graphic art, photography, folk art, and contemporary crafts. A special strength is the collection of African-American art from the 19th century through the present, which was enhanced during FY 1990 by the acquisition of paintings by Lois Mailou Jones, Romare Bearden, Jacob Lawrence, and Frederick Brown. The Museum was especially pleased to acquire Luis Jimenez's Vaquero, a 16-foot-high sculpture of a Mexican bronco buster that stands outside the Museum's entrance. After several years of searching, NMAA acquired a very important painting by early 19th-century Romantic artist Washington Allston, and, through the generosity of the artist's heirs, an important canvas depicting The Trial of Red Jacket, by John Mix Stanley, entered the collection. Wendell Castle's haunting Ghost Clock represents a major addition to the Renwick Gallery's craft collection, while important works by Ernest Trova, Robert Hudson, Masami Teraoka, Luis Tapia, and Aaron Siskind augment the 20th-century collections. In March 1990 the Museum unveiled Singing Head, by Elizabeth Catlett, one of the country's foremost black sculptors, with a reception and gallery talks by the artist.

Exhibitions - Among the 18 exhibitions on view during FY 1990 at the Museum and its Renwick Gallery, several major exhibitions stand out. "Masterworks of Louis Comfort Tiffany" attracted record-breaking crowds to the Renwick Gallery. "The Art of Albert Pinkham Ryder" brought together a major body of work by this 19th-century artist who has been called "America's greatest visionary painter." This exhibition featured a scientific study of the artist's work carried out in collaboration with the Smithsonian's Conservation Analytical Laboratory. Exhibitions featuring collections of Irving Penn's photographs, the Frost Collection of American Abstract Art, and Herbert Waide Hemphill, Jr. Folk Art Collection all introduced recent acquisitions. All these exhibitions will join several others on tour throughout the country following their Washington showings.

Projected exhibitions under development include: "The West as America: 1820-1920," featuring paintings, graphics, and sculpture depicting westward expansion; "American Art at the 1893 World's Columbian Exposition in Chicago," co-organized with the National Portrait Gallery and scheduled to open as part of the Smithsonian's Columbus Quincentenary program; and "Homecoming: William H. Johnson and Afro-America, 1938-1946."

In addition to exhibitions, during FY 1990 the Museum opened a new gallery devoted to African-American art of the 19th and 20th centuries.

Research - The Museum offers extensive reference materials, including data bases, to researchers from a variety of disciplines. The newest of the Museum's unique data bases, the Inventory of American Sculpture, added 5,000 records during FY 1990 and continued to solicit new information on outdoor sculpture throughout the United States through a mailing to 1,000 corporate collectors. Extensive preparation culminated in the transfer of the first of 260,000 records of the Inventory of American Paintings--another of the Museum's unique data bases--into the Smithsonian Institution Bibliographic Information System (SIBIS).

The Museum's Photograph Archives received approximately 10,000 new prints from the Peter A. Juley and Son Collection. With assistance from the Smithsonian Research Resources Program, the Museum began printing images from its Walter Rosenblum Collection, a collection of negatives produced by a free-lance photographer whose clientele included galleries, artists, and collectors in New York City from the post-World War II period through the early 1960s.

Ongoing scholarly research by the professional staff continues to result in publications, exhibitions, and educational programs. Twenty-two research fellows were in residence at NMAA during FY 1990, working on a wide variety of scholarly subjects.

Publications - Smithsonian Studies in American Art, the Museum's scholarly journal, continues to be an important part of its publications program. Co-published quarterly with Oxford University Press, the journal received an Award of Distinction from the American Association of Museums.

Several books recently published or in process are joint ventures with the Smithsonian Institution Press. Highlighted among them are Visual Poetry: The Drawings of Joseph Stella, published in conjunction with an exhibition co-organized with the Amon Carter Museum; Irving Penn Master Images, published in conjunction with an exhibition co-organized with the National Portrait Gallery; Albert Pinkham Ryder, a comprehensive study of the work of this 19th-century artist; Made with Passion: The Hemphill Folk Art Collection in the National Museum of American Art, published in conjunction with a large exhibition of the Museum's holdings from the Hemphill collection, one of the most significant and unusual folk art collections in the United States; and The West as America: Reinterpreting Images of the Frontier, 1820-1920, a large multi-author book published with the assistance of a Getty grant in conjunction with a major exhibition presenting images of westward expansion. All these books will accompany the exhibitions as they travel to several venues throughout the United States.

American Art at the 19th-Century Paris Salons, an important work of scholarship by the Museum's research curator, was co-published with Cambridge University Press with the assistance of a Getty grant.

Education - In FY 1990, the Museum made concerted efforts to increase the cultural diversity of its audiences through public programs, community outreach and collaboration, docent recruitment, and special school programs, such as D.C. Chapter I student multi-visits, career awareness seminars, and tours. The Museum designed programs and tours specifically for the handicapped. Interpretive programs included symposia, lectures, demonstrations, family days, family and teacher workshops, storytelling, tours, performances, concerts, films, and the expansion of gallery label texts. Highlights of activities were symposium in conjunction with the exhibition "The Art of Albert Pinkham Ryder" and "Hindsight and Insights: Scholarship in American Art, 1970-1990," a symposium celebrating the 20th anniversary of the Museum's fellowship program for pre- and post-doctoral scholars.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, the National Museum of American Art requests 12 workyears and \$554,000 to hire additional specialized and technical staff and to enhance training programs (4 workyears and \$115,000); to improve collections management (1 workyear and \$50,000); to reimburse the Institution's information systems cost center (\$67,000); to enhance education programs (3 workyears and \$150,000); to hire additional clerical support staff (2 workyears and \$62,000); to correct audit deficiencies (1 workyear and \$20,000); and to provide curatorial support for the Painting and Sculpture Department (1 workyear and \$90,000). As a joint request with the National Portrait Gallery, NMAA also requests 2 workyears and \$115,000 for the American Art and Portrait Gallery Building's Office of the Building Manager. The justification for this last request appears in the National Portrait Gallery section.

Specialized and Technical Staff and Training Programs (4 workyears and \$115,000) -

To fulfill an essential aspect of the Smithsonian's mandate for public outreach, the Museum has in recent years strengthened its efforts to reach a wider audience--wider in numbers as well as in backgrounds and geographic locations.

Expanding NMAA's specialized and technical support staff will allow the Museum to continue to conceive, prepare, circulate, and publicize the finest possible exhibitions featuring the works of minority artists such as William H. Johnson and other artists of interest to constituencies throughout the United States, as well as selected works from the Museum's collections. The fragile nature of these exhibitions demands that they be subjected to only limited tours, thus eliminating, in most cases, the possibility of circulation by the Smithsonian Institution Traveling Exhibition Service.

The Museum requests funds to hire a museum technician (1 workyear and \$22,000) to handle the many loan agreements, contracts, and financial documents essential to the circulation of exhibitions; an exhibits specialist (1 workyear and \$27,000) to assist the design and production staff with the initial preparation of the exhibitions for their Washington showings; a computer specialist (1 workyear and \$27,000) to develop and maintain various automation applications to allow for more efficient tracking of the financial and touring aspects of the circulating shows at their many venues; and a public affairs specialist (1 workyear and \$34,000) to ensure that publicity for the exhibitions is effective and widely dispersed. An additional request of \$5,000 will support staff training.

The Museum's mandate is to reach the broadest possible audience and to define a contemporary view of the full range of American art. In FY 1990, the Museum is using its exhibition program aggressively to circulate eight exhibitions to 16 locations--a dramatic increase from FY 1984, when it circulated three exhibitions to seven locations. Only through an expanded support staff will NMAA be able to preserve the level of excellence that the Museum's public outreach programs have attained.

Collections Management (1 workyear and \$50,000) - The Museum has added 3,592 objects to its collection since FY 1984. During that period, the registration staff has not increased in size. Furthermore, the Museum loans approximately 1,500 objects from its collections every year to other organizations. As a national museum, NMAA has an obligation to track, maintain, and store its public collection responsibly.

The additional funds will allow the Museum to develop and maintain an automated loan tracking system to monitor objects loaned to other organizations each year and to staff and equip the permanent collection storage area currently under development in the American Art and Portrait Gallery Building's attic through a Smithsonian Repair and Restoration project.

The Museum requests these funds to hire a museum technician (1 workyear and \$27,000) to work with the expanding collection in the attic storage area. Additional funds (\$23,000) will purchase the computer hardware and software, plus necessary training, for the loan tracking system and equipment and materials needed in the attic storage area.

The Museum maintains the Nation's premier collection of American art, documenting the visual heritage of the United States. As its collections continue to expand, more sophisticated collections management techniques are vital to the preservation of these artworks.

Information Systems Cost Center (\$67,000) - The Museum supports various art research data bases on the Institution's Honeywell and IBM mainframe computers. Through these resources, scholars, curators, and visitors to the Museum can get information about the objects in the Museum's collections, locate photographs that document America's art and artists, or trace the history of art objects exhibited prior to 1877. In addition, these data bases provide Museum staff with management tools to track the locations of objects, maintain the slide collections, or locate objects in other Smithsonian collections.

The requested funding will allow the Museum to maintain its existing Honeywell files and to provide on-line access to information on the IBM mainframe computer. With other Smithsonian museums, the Museum will be able to participate in the continued development of Institutional computer systems that provide shared access to information.

The Museum shares the costs of computing by reimbursing the Institution's Office of Information Resource Management. In the last six years, these charges have increased to four times what they were in FY 1984. In the past, the Museum has covered these costs by reprogramming base funds from other critical programs. The requested funds (\$67,000) will pay the Museum's central computing charges.

With more than 500,000 computer entries, the Museum's data base is the largest repository of information on American art in the world. These resources annually provide essential research information to scholars, collectors, and to the public.

Education Programs (3 workyears and \$150,000) - Education programs offer the most effective program opportunities for a public art museum in the 1990s. With increased interest in American art, as shown by higher attendance figures and extensive recent publicity, this is an excellent time to develop a comprehensive education plan.

School children, families, lay adults, and scholars all need targeted programs and Museum staff to conceive and execute educational programs. New technologies are available that the Museum can use to orient visitors, to provide on-site education about the collections, and to take educational programs to sites outside the Museum.

The Museum requests these funds to hire two education specialists (2 workyears and \$74,000) with emphasis on minority viewpoints to ensure diversity in educational perspectives. One specialist will oversee extension programs for lay adult audiences and one will oversee family activities. The Museum also will hire a program assistant (1 workyear and \$27,000) to work with existing professional staff to coordinate school programs and to develop program events as well as short videos and films (\$49,000).

Currently, there are three professional educators dedicated to docent, handicapped, and exhibition-related programs. For support, there is a tour scheduler, a secretary, and a temporary clerical assistant. This skeletal staff is inadequate to meet the needs of the 1990s, when new audiences look to museums for informative programs and educational materials.

Clerical Support Staff (2 workyears and \$62,000) - Since FY 1984, the Museum has expanded its programs dramatically in order to attract the interest of a more diverse cross-section of the population. This expansion has included aggressively seeking out minority acquisitions; striving to increase patron support; organizing new educational programs; enlarging the traveling exhibition program; establishing a scholarly journal

and quickly expanding it to quarterly publication; and hiring additional minority staff through Smithsonian affirmative action initiatives.

While five program areas of the Museum have benefited from this growth, none of these programs has received funding for additional clerical support. With the requested funding, the Museum will provide additional clerical support for these important areas of expansion in order to alleviate the increased burden placed on existing staff.

The Museum requests these funds to hire two clerical/office assistants (2 workyears and \$50,000) to work in the areas in most dire need of support at the time of the FY 1992 appropriation. Additional funds (\$12,000) will cover the cost of additional office equipment and training and the increased use of telephone, fax, overnight mail, and office supplies that is attributable to the program expansion.

The Museum has been very successful at rising to meet the growing expectations of it as a national museum. It has done this through base reprogramming, with essential functions paying the price. As expectations continue to grow, invigorating the weakened state of the Museum's support staff must be a primary consideration.

Audit Deficiencies (1 workyear and \$20,000) - A national museum has the obligation for responsible caretaking of the public collection entrusted to it. In the last several years, the Museum has added more than 3,500 objects to its permanent collection, resulting in a backlog in the processing of artworks not yet accessible for scholars. To maintain the integrity and accessibility of its National Collections, the Museum must exercise responsible caretaking and catalogue all objects in its collections.

Collections management audits by the Smithsonian's Office of Inspector General have consistently emphasized the need to resolve the backlog in collections cataloguing. As NMAA's collections inevitably continue to grow, resolving the backlog will require additional cataloguing staff and resources.

The Museum requests additional funding to hire a full-time cataloguer (1 workyear and \$20,000) to reduce the acquisitions backlog, which will permit the Museum to strengthen the physical care and management of the collections.

Keeping collections records current has been a high priority for the Smithsonian since the 1980 inventory of collections. With the Museum's addition of significant collections of folk art, photography, abstract art, and crafts--in addition to the acquisition of approximately 1,000 paintings, sculptures, and graphic arts each year--the Museum must maintain an efficient level of collections control to meet the needs of the public and the mandates of the Institution.

Curatorial Support for the Painting and Sculpture Department (1 workyear and \$90,000) - NMAA's growing collections, as well as interpretation and reinterpretation of existing collections, demand additional curatorial attention, study, and publication. Recent acquisitions, such as the Herbert Waide Hemphill, Jr. Collection of American Folk Art and several other large collections, open new areas of emphasis within the collection. As the field of American art has grown and interest has increased, the Museum finds itself challenged to keep pace with the care and interpretation of its collections, new acquisitions, and development of accompanying program opportunities.

The requested funding will provide much-needed strength for the Museum's fundamental responsibilities to its collections and exhibitions and provide a broader, multi-cultural approach to collecting and interpreting American art. This increase will provide funding for a recognized expert in 19th-century American art to bolster the programs of the Painting and Sculpture Department. Currently, the Department has one half-time and six full-time positions. This additional position will:

- devote time to the care, maintenance, and study of the rapidly increasing collections;
- identify new opportunities for enhancing the collections;
- develop additional major exhibition programming in the specialty area;
- increase the number of publications and public programs for the general public and scholarly specialists.

NMAA will use this funding to hire one curator (1 workyear and \$90,000). The Museum will provide support funds from within its base.

Curatorial activities at NMAA serve a wide variety of scholars, students, collectors, and a growing number of the general public. It is imperative that those activities keep pace with the rapidly expanding collections.

#### NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - During FY 1990, eight NMAA exhibitions travelled to 16 locations, including Amsterdam and London, through the Museum's Exhibition Sharing Fund. These tours generate income from the participation fees that the Museum charges to borrowing institutions to cover the direct expenses of the tours. The Smithsonian's Collections Acquisition Fund supplemented by the Museum's Deaccession Fund financed the purchase of Hermia and Helena by Washington Allston and numerous other works in FY 1990, helping to supplement Federal acquisition funds. Other unrestricted funds supported intern programs, publications, and photographic services.

Restricted Funds - In FY 1990, the Museum received \$3.8 million as the initial endowment to establish the Luisita L. and Franz H. Denghausen fund for the acquisition, preservation, and exhibition of American art. The Museum expects additional funds upon final settlement of the estate. Generous gifts from the IBM Corporation, USAir, and the Crosby Kemper Foundation made possible the Museum's exhibition of Childe Hassam, the joint exhibition with the National Portrait Gallery of Irving Penn photographs, and the exhibition of George Caleb Bingham drawings, respectively.

NATIONAL PORTRAIT GALLERY

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	89	4,212	-	41	-	73	-	159	-	-
FY 1991 Estimate	89	4,403	-	42	-	61	-	802	-	-
FY 1992 Estimate	94	4,849	-	42	-	76	-	562	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The National Portrait Gallery (NPG) is dedicated to the exhibition and study of portraits of people who have made significant contributions to American history and to the study of the artists who created such portraiture. The Gallery sponsors a variety of scholarly and public activities for audiences interested in American art.

For FY 1992, the National Portrait Gallery requests an increase of 4 workyears and \$389,000 to increase curatorial support staff (2 workyears and \$52,000); to convert Catalog of American Portraits data to Collections Information System catalogue records (1 workyear and \$72,000); to provide computer maintenance and replacement (\$20,000); to reconfigure collections files (1 workyear and \$80,000); and to support the Columbus Quincentenary exhibitions (\$165,000). As a joint request with the National Museum of American Art, NPG also requests 2 workyears and \$115,000 for the American Art and Portrait Gallery Building's Office of the Building Manager.

PROGRAM - The National Portrait Gallery explores the heritage and accomplishments of the American people by collecting, researching, and exhibiting portraits in all media as both historical and artistic documents.

Collections Acquisitions - During FY 1990, approximately 191 acquisitions enhanced NPG's collections, and Time, Inc., transferred an additional 126 Time magazine covers were transferred to the Gallery. Among the most important acquisitions were a 1792 life portrait of Thomas Paine; a self-portrait of Charles Willson Peale; a 1910 poster of Jack Johnson, the first black heavyweight champion; eight pastel portraits by Will Cotton; more than 50 drawings by William Auerbach-Levy; and portraits of Helen Keller and the noted bridge authority Ely Culbertson. The Gallery acquired a rare vintage 1926 portrait of Solomon R. Guggenheim by Lazlo Moholy-Nagy, a previously unknown daguerreotype (ca. 1851) of Henry Clay by Frederick de Bourg Richards of Philadelphia, and a rare Man Ray photograph (ca. 1922) of Gertrude Stein posing for the Jo Davidson portrait sculpture that is one of the icons of the NPG collections.

Collections Management - A Smithsonian grant funded the creation of a computer-generated inventory data base for the Meserve Collection of Mathew Brady negatives, the rehousing of those negatives in archival storage media, and the making of preservation prints and facsimile negatives from the Mathew Brady imperial format glass-plate negatives of Edwin Forrest, which the Edwin Forrest Home for Retired Actors donated to NPG.

Research - The Catalog of American Portraits (CAP) continues to expand its service to researchers of American history and American art history. In addition to several local collections, researchers surveyed and photographed major portrait collections in Missouri for the CAP files. With the aid of a research grant, the CAP survey included significant portraits of or by Hispanic Americans in Puerto Rico and various areas of the mainland United States. The FY 1990 survey added more than 2,000 portrait records, mostly from the southwestern United States, to the CAP computer data base.

The Gallery's Peale Family Papers project continued its work on volume 4 of the selected papers of this famous artistic family and on Charles Willson Peale's autobiography (volume 5). The staff edited a volume of critical essays on Peale's work and continues research for the catalogue raisonne of Rembrandt Peale's work.

Exhibitions - To commemorate the bicentennial of the Federal judiciary system, the Gallery mounted "Portraits of the American Law" during FY 1990. This exhibition featured images of distinguished American jurists from the years of the early Republic to the late twentieth century. Three national law firms provided partial support for the exhibition.

"To Color America: Portraits by Winold Reiss" featured images of various ethnic groups, particularly African Americans and native Americans, by the German-born Winold Reiss. The exhibition proved successful in bringing new audiences to the Gallery. For this exhibition, NPG received support from Burlington Northern Foundation, the Anschutz Foundation, and the Smithsonian Special Exhibition Fund. The Smithsonian Institution Traveling Exhibition Service (SITES) will travel a panel version of this show beginning in 1991.

"Irving Penn Master Images," co-organized with the National Museum of American Art (NMAA) and sponsored by USAir, consisted of 120 master photographs that Penn gave to the two museums. The exhibition will tour nationally, and NPG and NMAA are exploring possible foreign venues for the tour. With the Penn exhibition, NPG showed a selection of masterworks from its photograph collections.

Among the most popular exhibitions ever held at the Gallery is "Oliphant's Presidents: Twenty-Five Years of Caricatures," featuring caricatures, sketches, and sculpture by Pat Oliphant of the last six U.S. presidents--from Lyndon Johnson through George Bush. Another popular exhibition was "Five of Hearts," recalling the circle of Mr. and Mrs. Henry Adams, Mr. and Mrs. John Hay, and Clarence King. This Washington circle of friends began in 1880, and its members could claim association with many notable personalities of the era, including every U.S. President from Abraham Lincoln to Theodore Roosevelt.

The last in NPG's series of exhibitions commemorating the Bicentennial of the Constitution will open in November 1990. Co-organized with the Tennessee State Museum, this exhibition will focus on the executive branch of government through an examination of the life and presidency of Andrew Jackson. This exhibition will travel to Nashville.

Other major exhibitions under development include an exhibition focusing on the artists and journalists who covered World War II (1991) and two exhibitions for the Columbus Quincentenary. In the first Quincentenary exhibition, NPG is joining with the Prado Museum in Madrid and the Kimbell Art Museum in Fort Worth in organizing an exhibition that will concentrate on 16th-century Spanish portraiture. Several museums in Europe will loan their portrait masterpieces for this exhibition. In the second Quincentenary exhibition, NPG will join the National Museum of American Art to present, in 1993, an exhibition based on the 1893 World's Columbian Exposition in Chicago.

Publications - In FY 1990, NPG published the Irving Penn Master Images, an exhibition catalogue on Winold Reiss, and an illustrated checklist of all known portraits by Reiss. NPG has scheduled a definitive study of portraits of Andrew Jackson and a catalogue to accompany the Jackson exhibition for publication in November 1990.

The University of Delaware Press is publishing the papers from the 1987 conference on The Portrait in Eighteenth-Century America. The Barra Foundation will publish the catalogue of the work of profilist C.B.J. Fevret de Saint-Memin (1770-1852).

Education - The Education Department interprets the Gallery's collection for its visitors through daily tours, elementary and secondary school programs, and senior citizen outreach programs. In FY 1990, the Department conducted a symposium titled "The Politics of Portraiture: Icons, Stereotypes and Other Approaches to Multi-cultural Imaging" and a portrait-drawing workshop titled "Diversity in Portraiture," targeting culturally diverse high school art students in conjunction with the Winold Reiss exhibition. The Department also conducted a series of caricature drawing workshops in conjunction with "Oliphant's Presidents." NPG provided to its visitors a multi-cultural view of American history through the lectures, symposia, one-person biographical plays, recitals, concerts, storytelling, and other performances in its ongoing "Cultures in Motion" program.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, the National Portrait Gallery requests an increase of 4 workyears and \$389,000 to increase curatorial support staff (2 workyears and \$52,000); to convert Catalog of American Portraits data to Collections Information System catalogue records (1 workyear and \$72,000); to provide computer maintenance and replacement (\$20,000); to reconfigure collections files (1 workyear and \$80,000); and to support the Columbus Quincentenary exhibitions (\$165,000). As a joint request with the National Museum of American Art, NPG also requests 2 workyears and \$115,000 for the American Art and Portrait Gallery Building's Office of the Building Manager.

Increase in Curatorial Support Staff (2 workyears and \$52,000) - As the National Collections grow in both size and usage, it is in the public interest to care for, document, and research these collections. At present NPG cannot attain fully its own standards for documenting its collections because of insufficient curatorial support. Through complete documentation of its National Collections, the Gallery's staff will be better able to respond to public inquiries, prepare special exhibitions, do scholarly work, and maintain accurate permanent collection files, thus enhancing and facilitating the interchange among museums and scholars.

An increase in curatorial support staff will allow NPG curators to delegate routine collections maintenance responsibilities and focus on research projects. Additional support staff will enhance the care for the growing collections and the quality of basic research material that goes into each object file. The additional support staff will provide more material for Smithsonian and non-Institutional researchers using the

collections. Collections emphasizing the diversity of American society that pose special research challenges will receive further attention from the curatorial staff.

The requested funds will pay the costs of a full-time secretary (1 workyear and \$25,000) who, in addition to performing routine secretarial and support duties, will assist in compiling the permanent object files. The requested funds will also support a research assistant (1 workyear and \$27,000) who will coordinate incoming acquisitions and compile semiannual reports for meetings, do research on pending acquisitions, perform basic research on objects, catalogue new acquisitions, and provide research support for curators' principal research projects.

This program increase will enhance Institutional research by strengthening technical support to scholars. The basic collections research the Gallery provides has been a model for portrait research in other institutions. The Gallery has expertise and skill in this area, and with additional staff it can continue to set standards in the field.

Conversion of Catalog of American Portraits Data to Collections Information System Catalogue Records (1 workyear and \$72,000) - The records of the National Portrait Gallery collection and the Catalog of American Portraits (CAP) contain valuable information on portraits of notable Americans and American history and culture. Having CAP collections information and research data on an on-line computer system that all Smithsonian bureaus can share will greatly enhance the Gallery's ability to support Institution-wide collections management, acquisitions, and research. A shared computer system will also give NPG access to the collections information of other Smithsonian art and history bureaus. Staff, scholars, and the general public will benefit from this information and its improved accessibility.

Currently CAP and NPG collections records are on the Institution's Honeywell mainframe computer. Because of economic and technical problems in maintaining the Honeywell, CAP and NPG records must move from the Honeywell to the Institution's IBM mainframe. The move from the Honeywell to the IBM will involve reconfiguring data from the current system to the Smithsonian's Collections Information System (CIS). CIS is an Institution-wide data base that facilitates the exchange of collections information among bureaus and museum colleagues. The ability to download CIS data to a local network will greatly enhance NPG's collections management processes.

NPG requests these funds to hire a clerk (1 workyear and \$22,000) for data entry, reconfiguration, and editing. Additional requested funds (\$50,000) will pay for the program design, implementation, and equipment necessary to run these programs.

The Catalog of American Portraits and NPG's collections records contain information concerning American history and culture that is valuable to scholars and the general public alike. For this information to be accessible to researchers and Smithsonian staff, NPG must convert its computer system and transfer the records. Development of CIS will open avenues of interchange among museums both nationally and internationally.

Computer Maintenance and Replacement (\$20,000) - This request will permit the National Portrait Gallery to follow a cyclical maintenance and replacement plan for its increasing inventory of personal computers and software and to keep abreast of the latest computer technology. Using the most current computer technology will enhance research efforts of both Smithsonian staff and visitors, as well as improve the efficiency of administrative staff who support the collections and research functions of the Gallery.

The Gallery can meet many of its computer needs by upgrading and expanding existing equipment. However, some of the Gallery's most innovative programs, such as the CD-ROM workstations for the Library, Exhibition, and Education departments, require state-of-the-art computer technology. These stations will provide history and art researchers with on-line access to the images of the portraits in NPG's permanent collections along with related text information. The Gallery expects to improve distribution of reproductions to the public by providing a user-friendly, color data base of the images from the collections available for sale. In addition, the Education Department plans to use the technology to develop CD-ROM teaching tools for primary and secondary schools. A desk-top publishing workstation for the Publications Office will increase the control and flexibility of publications design and layout. Since this Office produces on average three 200-page exhibition catalogues and three to five brochures per year, a workstation will reduce design and layout costs by allowing more preliminary work to be done in-house. Such a system will reduce the cost of correcting editorial errors by creating a more direct connection between the NPG Publications Office and outside printers or publishers.

The requested funds (\$20,000) will purchase a CD-ROM workstation and a desk-top publishing workstation and will enable the Gallery to upgrade existing equipment and software uniformly throughout its offices.

The expanding scope of the Gallery's responsibilities, from research and education to publication and administration, calls for expanded use of the most current computer technology. This technology will allow the Gallery to serve the Institution and its visitors as fully and efficiently as possible.

Reconfiguration of Collections Files (1 workyear and \$80,000) - After a review of the National Portrait Gallery's storage and handling of archival data, the Smithsonian's Office of Inspector General has mandated that NPG reconfigure its collections files. This program is essential for the responsible management of the Gallery's collections. With the reconfiguration, the permanent files on the collections will be more securely safeguarded than is now possible.

To comply with the audit mandate, the Gallery must maintain an archival file of accession records in the Registrar's Office in addition to working files in the curatorial departments and must update inventory records more efficiently to record location changes when objects are moved. In case of theft, disaster, or damage to the collections, the information in these records is crucial for insurance and recovery. Registrars and curators require ongoing access to this material, so NPG must coordinate the functional needs of these offices with the need for greater security and control of the records.

To implement these audit recommendations, NPG needs an additional staff person for the Registrar's Office, equipment for the file transfer, and training to expand its computerization. The requested funds will provide a museum technician (1 workyear and \$22,000) to assist in transferring files, copying, labeling, and entering data. Additional funds (\$58,000) will purchase new compact filing units, a computer, a copying machine, and other equipment and supplies needed for the reconfiguration.

Security of files is an essential component of responsible collections management. The collections of the National Portrait Gallery are skyrocketing in value because of inflation in the art market and the rarity of the objects in the Gallery's custody. NPG must provide greater security for its archival records to comply with the mandate from the Office of Inspector General and to fulfill its public-trust obligations.

Columbus Quincentenary Exhibitions (\$165,000) - The National Portrait Gallery will celebrate the Columbus Quincentenary by presenting two major exhibitions, each accompanied by substantial publications, incorporating the results of significant new research in art history. While these exhibitions and books are certain to be of interest to the general public, they also will have lasting value to the scholarly community.

NPG is joining the Prado Museum in Madrid and the Kimbell Art Museum in Fort Worth, Texas, in organizing an exhibition that will present 16th-century Spanish portraiture from the height of Spanish colonial influence in the Western Hemisphere. This exhibition will be on view in 1992 in Washington, D.C., and in Fort Worth. NPG and its collaborators intend for the exhibition to be shown in Spain as well as in the United States, and will publish the exhibition catalogue in both Spanish and English. Funding needs will continue into FY 1993 as the exhibition travels to other venues. The second Quincentenary exhibition, co-organized with the National Museum of American Art, will feature approximately 150 paintings and sculptures originally shown in the 1893 World's Columbian Exposition in Chicago.

The National Portrait Gallery FY 1991 Congressional request includes \$40,000 to support these Columbus Quincentenary exhibitions. NPG requests these additional funds to assist in publication of the catalogues for the two exhibitions (\$100,000) and to pay packing and shipping expenses for the Spanish exhibition (\$65,000).

The nationwide series of events centering around the Columbus Quincentenary provides unique opportunities for national and international cooperation among institutions and scholars. Through these exhibitions, the Gallery will interpret the figures and events of the Columbian era and their subsequent impact on the historical and cultural developments of 20th-century America.

American Art and Portrait Gallery Building Management Safety and Maintenance (2 workyears and \$115,000) - The National Portrait Gallery, with the National Museum of American Art, requests funding to enhance programs to address health and safety hazards that may pose potential threats to the public and staff in the American Art and Portrait Gallery (AA/PG) Building. New regulations from the Occupational Safety and Health Administration (OSHA), the Environmental Protection Agency (EPA), and the National Fire Protection Association (NFPA) state that museums must have specialized guidance if they are to remain in compliance with current Federal codes. Furthermore, with its ever-expanding role in facilities operations, the American Art and Portrait Gallery Office of the Building Manager needs additional staff to handle increased duties and responsibilities as well as on-going operations.

These resources will enable the Office of the Building Manager to organize and implement a safety program as directed by the Smithsonian's Office of Environmental Management and Safety (OEMS) and to maintain a better schedule of routine cleaning, lamping, painting, and other essential facilities services.

With these funds, the AA/PG Office of the Building Manager will establish positions of safety specialist and custodian. The safety specialist (1 workyear and \$40,000) will implement and manage the safety program for the staff, visitors, and volunteers in the American Art and Portrait Gallery Building, Renwick Gallery, and the Barney Studio House. The custodial position (1 workyear and \$20,000) will allow the Office to improve its level of service and keep pace with the expanded programs and activities of the bureaus that it supports. Additional funds requested (\$55,000) will correct the backlog of deferred

building repairs, strengthen the preventive maintenance program for exhibition and meeting areas within the building, and support the increase in supplies and equipment needed to initiate a new safety program.

Additional funds and workyears are crucial as part of the Institution's increasing efforts to improve safety, fire protection, and environmental management programs. With the additional staff and resources, the AA/PG Office of the Building Manager can maintain the level of services expected by the public and mandated by Federal and Institutional policies.

NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - These funds come from the Gallery's share of sales in the museum shop, sales of photographic reproductions of collections objects, and participation fees from museums to which NPG loans objects. These funds help defray the costs of public lectures, symposia, special events for exhibition openings, loan exhibition development and management, and research.

Restricted Funds - Designated for specific purposes, these funds are in the form of gifts and grants from individuals, foundations, organizations, and corporations. The Gallery received matching funds from the Tennessee General Assembly for co-sponsoring an exhibition at the Tennessee State Museum and NPG on Andrew Jackson. USAir supported the Washington showing and catalogue of the National Portrait Gallery and National Museum of American Art joint exhibition "Irving Penn Master Images." Mobil Oil Corporation has made a generous contribution in support of the showing of "Camera Portraits, 1839-1989," an exhibition brought to the American public for the first time from Britain's National Portrait Gallery in London. The Gallery received gifts from a number of individual donors and substantial contributions for future activities and general support from the Clarence and Jack Himmel Foundation, Gettysburg College, and the Ruth and Frank Stanton Fund.

HIRSHHORN MUSEUM AND SCULPTURE GARDEN

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	78	3,508	-	20	-	485	-	1,598	-	-
FY 1991 Estimate	78	3,678	-	27	-	525	-	1,625	-	-
FY 1992 Estimate	78	4,278	1	222	-	475	-	1,220	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - Public Law 89-788, signed on November 7, 1966, established the Hirshhorn Museum and Sculpture Garden (HMSG) as the Smithsonian's modern and contemporary art museum. While the nucleus of the collection remains Joseph Hirshhorn's original gift, it has been greatly enriched by Mr. Hirshhorn's bequest of the art he had collected since 1966. Other benefactors -- collectors and artists among them -- have given works to the Museum, and purchases made from funds provided by the Congress, the Smithsonian's Board of Regents, Mr. Hirshhorn, and private donors have broadened the scope of the collection. The collection is the basis of an active program of exhibitions. The Museum staff conducts extensive research, prepares catalogues, and offers a variety of educational activities.

For FY 1992, the Hirshhorn Museum and Sculpture Garden requests \$600,000 to support exhibition costs (\$200,000); rent collection storage space (\$200,000); support its Columbus Quincentenary exhibition (\$110,000); initiate an ongoing program to replace laboratory equipment (\$50,000); finance staff training (\$20,000); and correct health and accessibility program deficiencies (\$20,000).

PROGRAM - In keeping with its status as a museum of modern and contemporary art, HMSG conducts programs of research, exhibitions, collections management, acquisitions, and educational activities involving audiences of all ages. Opened to the public on October 4, 1974, the Museum attracts more than one million visitors a year, making it one of the most heavily visited contemporary art museums in the United States.

Research - The Hirshhorn's resources include more than 13,000 works of art, a curatorial file providing information on artists and works in the collection, and a library with 36,000 books and exhibition catalogues. The staff researches the provenance, exhibition history, iconographic significance, and physical condition of each work of art in the permanent collection. HMSG is developing a system that will ultimately allow researchers to retrieve information concerning the collection through their computer terminals and study works of art not on display.

Exhibitions - The Museum's active exhibition program draws upon its collection as well as other collections. Nearly 700 works from the permanent collection are on display at any time. In FY 1990, HMSG presented three major exhibitions: "Francis Bacon"; "Culture and Commentary: An Eighties Perspective"; and "Bay Area Figurative Art, 1950-1965," organized by the San Francisco Museum of Modern Art. In FY 1991, major exhibitions scheduled include "John Baldessari," by the Museum of Contemporary Art, Los Angeles; "Sigmar Polke," by the San Francisco Museum of Modern Art; and the Tenth Annual Awards in the Visual Arts Exhibitions.

The Hirshhorn staff arranged small exhibitions based on its collections displayed in FY 1990. These exhibits included "Robert Rauschenberg Lithographs: Selections from the Stoned Moon Series"; "American Collages"; and "Mother and Child."

"Directions" is a series of one-gallery exhibitions of works by emerging artists and solo exhibitions of specific bodies of work by better-known artists. These small-scale shows strengthen the Museum's mission to present international modern and contemporary art by providing a forum to initiate dialogue on subjects that would otherwise be difficult to address. Artists featured in FY 1990 were Susan Solano, Ilya Kabakov, and Christian Marclay.

The innovative "Works" program integrates the Museum's building and grounds into the creative process. HMSG commissions artists to visit the Museum and create temporary site-specific pieces. In FY 1990 artists included Matt Mullican, Dennis Adams, and David Ireland.

Collections Management - The Hirshhorn inventories the collection on a three-year cycle, with annual spot checks. Staff reviews the permanent collection to reshape a formerly private collection by deaccessioning and disposing of works of art judged to be surplus, redundant, duplicates, or of inferior quality. The proceeds go to a fund for new acquisitions. As specified by law, the Board of Trustees of HMSG votes on all deaccessions.

Acquisitions - The legislation establishing the Hirshhorn described the Museum's function as a "museum in Washington, D.C., where modern art could be exhibited and studied . . . [to] . . . enrich the culture of the Nation." To carry out its mandate, the Museum's collection must always keep abreast of current developments in the visual arts through an active acquisitions program. In FY 1990 the Museum used private funds to acquire Luis Jimenez's The American Dream; Henry Moore's Stringed Figure; Eric Fischl's The Funeral; and Mario Merz's From Continent to Continent. HMSG used Federal funds to purchase Stephen Balkenhol's Man in Black; James McGarrell's Sweet Tenor Bull for Basil; William T. Wiley's Song of the Torturer; and Robin Rose's Sacred Bone.

Education and Public Orientation - To increase appreciation and understanding of specific exhibitions and of modern art in general, the Museum provides visitors with a variety of educational materials, including catalogues, wall labels, and brochures. The brochures range from a single page to illustrated minicatalogues, distributed free of charge to the public. Auditorium events include concerts by the 20th Century Consort, film programs, and lectures by artists, critics and art historians.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, the Hirshhorn Museum and Sculpture Garden requests \$600,000 to support exhibition costs (\$200,000); rent collection storage space (\$200,000); support its Columbus Quincentenary exhibition (\$110,000); initiate an

ongoing program to replace laboratory equipment (\$50,000); finance staff training (\$20,000); and correct health and accessibility program deficiencies (\$20,000).

Exhibition Costs (\$200,000) - The cost of exhibitions has sky rocketed due to inflation, higher costs for insurance resulting from higher values placed on artworks by their owners, and the necessity of couriers. As a result, HMSG's base has eroded. The Museum has absorbed some of the increased costs by cutting the major loan exhibitions shown each year from four to three.

The requested increase will support the higher costs of renting exhibitions organized by other museums; the higher costs of insurance, packing, shipping, and constructing shipping cases; and the higher costs of lumber, paint, wall board, and other materials used in the display. The increase will also support courier services, which are increasingly required. In the past, requests for couriers to accompany artworks during transport were rare, usually reserved for high-value objects or objects of great fragility. With the rising value of art and increase in recent thefts, such requests are now much more common and HMSG expects them to increase.

The loan exhibitions reveal contemporary trends in the United States and abroad; at the same time, they present pertinent historical information to maintain a quality exhibition program. HMSG must not compromise the reduced schedule of three major loan exhibitions a year.

Collection Storage Rental (\$200,000) - The request will enable HMSG to move works of art from the permanent collection to off-site storage. The Hirshhorn building, designed to hold 6,000 - 7,000 objects, now houses a collection of more than 13,000 objects. Currently the Museum staff is examining the permanent collection to propose deaccessioning works that are of lesser quality, redundant, or outside the Museum's mission. The Museum expects that this cutting will reduce the size of the collection by about 600 objects between now and the year 2000, a decrease that will not significantly relieve overcrowding.

Available storage space is further reduced by the size of contemporary artworks. Contemporary artists in all media are working in much larger sizes. The Museum is typically deaccessioning midsize works to acquire larger works. In accessioning, the number of artworks is therefore not as important as the square and cubic feet needed for their storage. When Mr. Hirshhorn's estate signed over his bequest to the Museum, part of the third floor exhibition space became a staging area for examining and incorporating the objects into the permanent collection. This work is coming to an end. To return the space on the third floor to exhibition galleries and prevent overcrowding in current storage areas, HMSG must acquire space outside the Museum for storage.

The Hirshhorn will use the requested funds to rent and renovate space for storage, construct shelving and provide adequate security systems, and employ temporary assistants to move the objects. Work will begin with the sculpture collection, which has the most pressing need. In succeeding years the Museum will continue to rent the space and provide security. For FY 1993, HMSG will request funds to rent space for the storage of paintings.

Columbus Quincentenary Exhibition Support (\$110,000) - The 500th anniversary of Christopher Columbus's voyages provides all Americans with an opportunity for expanded international cultural understanding. The increased public awareness of and respect for other cultures promoted by this event will build a long-term foundation for encouraging international cooperation and scholarly exchange with Latin America.

The exhibition "Four Latin-American Modernists: Torres-Garcia, Rivera, Lam, and Matta" is HMSG's contribution to the Institution's observation of the Columbus Quincentenary. It aims to broaden public understanding of Latin American culture and, in particular, the impact of these four Latin American artists on modern art.

For FY 1991, the Hirshhorn anticipates funds to finance the bilingual catalogue and free handout for the public. The Hirshhorn needs these funds and new funding in FY 1992 to finance some of the costs of packing, shipping, and insuring the objects that will be displayed in the Quincentenary exhibition. The Museum is seeking outside support to finance the unfunded costs.

Replacement of Laboratory Equipment (\$50,000) - The Hirshhorn's laboratories are equipped to maintain the Museum's collection of more than 13,000 works of art, photograph them, provide for their care, and allow for their use in exhibitions and publications. Much of this equipment, purchased when the Museum opened 16 years ago, is at the end of its useful life. To begin replacement of this equipment, HMSG requires a multi-year program.

New laboratory equipment will enable the staff to treat some works of art using modern technologies not available 16 years ago. The replacement program will eliminate the health and safety hazards associated with the aging equipment, permitting the Museum to maintain high standards in conservation, photography, and exhibition installation.

The funds requested for FY 1992 will initiate HMSG's replacement program with the purchase of equipment for the conservation laboratory. In FY 1993 and following years, the Museum will purchase storage and laboratory equipment for the photo laboratory, registrar's office, and exhibitions department.

Staff Training (\$20,000) - As HMSG establishes new programs and continues old programs, employees at all levels require additional training. In order to keep the public abreast of new findings, the Hirshhorn's research staff must meet with scholars and attend seminars and courses. In addition, the technical and clerical staff need to sharpen their skills, increase their education levels, and acquire specialized training.

The requested increase will allow HMSG's small research staff to attend seminars sponsored by the International Council of Museums, College Art Association, American Association of Museums, and various associations for librarians, conservators, and educators. Technical and clerical staff will receive training in computer hardware and software, advanced office skills (for underemployed staff) and advanced courses to assist minority employees in upward mobility.

The Congress passed new legislation requiring specialized training for new or expanded programs. Examples of these programs are mandatory supervisory training and training in handicapped accessibility. The specialized training is in addition to training needed to support existing legislation, such as safety and health programs. New technologies require employee training and retraining to keep performance at optimum levels.

Health and Accessibility Programs (\$20,000) - The Smithsonian Institution's Office of Inspector General recently completed an Accessibility Survey of buildings on the Mall. The Hirshhorn building was not included in the survey, but the problems identified must be addressed by HMSG. Program accessibility and architectural accessibility are areas HMSG

will address by acquiring TDD equipment for the hearing impaired desiring information about the Museum and its activities and special telephones for hearing-impaired visitors; lowering mirrors in handicapped restrooms; and hiring signers for lectures. Some health and accessibility problems will be solved permanently by the requested funding, while others will be of a continuing nature.

The Smithsonian Institution's Office of Inspector General has recommended that each facility establish Health and Accessibility Programs to comply with legislation. These programs will benefit Smithsonian visitors as well as Smithsonian employees. The requested funds will enable HMSG to fulfill this obligation.

NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - HMSG's share of sales from the museum shop and plaza cafe, along with various annual allotments, provide these funds. These funds support travel costs for trustees, various special events, the 20th Century Consort and, starting in FY 1990, the salary, benefits, and travel costs for the Museum director.

Restricted Funds - The Museum has four endowment funds deriving from different sources. Mr. Hirshhorn pledged \$1 million at the signing of the initial agreement, establishing the first fund. The second is monies Mr. Hirshhorn left to the Museum in his will. The third endowment is from sales of artworks. Finally, the Museum received funds from the Holenia Trust, a Swiss foundation financed by Mr. Hirshhorn. HMSG currently uses these four funds only to purchase works of art. The Museum's Board of Trustees has authorized 10 percent of the value of the endowment funds for use as a purchase each year.

ARTHUR M. SACKLER GALLERY/FREER GALLERY OF ART

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
			General		Special					
	FTE*	Amount	FTP**	Amount	FTP**	Amount	FTP**	Amount	FTP**	Amount
FY 1990 Estimate	68	4,331	1	94	-	-	23	3,210	-	-
FY 1991 Estimate	68	4,668	1	96	-	50	42	3,283	-	-
FY 1992 Estimate	80	6,273	1	96	-	50	44	3,683	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The Arthur M. Sackler Gallery, established in 1982, and the Freer Gallery of Art, established in 1906, research, exhibit, acquire, care for, and manage collections of Asian art. In addition, the Freer contains a collection of American art by artists whose work was greatly influenced by Asian art. These two museums support complementary programs. In exhibitions, the Freer Gallery cannot lend or borrow collections, but the Sackler Gallery can exhibit its own collections as well as exhibitions organized by other institutions. In addition, the Sackler may lend objects from its collections. Collections acquisition for the museums is coordinated so as not to be duplicative, providing the fullest possible resources for original research and exhibitions about, and preservation of, the cultural heritage of Asia.

For FY 1992, the Arthur M. Sackler Gallery/Freer Gallery of Art requests an increase of 12 workyears and \$1,605,000 to provide curatorial services for Japanese art (1 workyear and \$75,000), library and conservation support (1 workyear and \$55,000), and expansion of educational services (1 workyear and \$75,000) at the Sackler Gallery; and, for the Freer Gallery, the reinstallation of the Freer collections in the exhibition galleries (\$1,100,000); staffing for the reopening (9 workyears and \$200,000), and exhibition-related off-site storage (\$100,000).

PROGRAM:

ARTHUR M. SACKLER GALLERY - The Arthur M. Sackler Gallery opened in September 1987 as a museum of Asian art. An active schedule of major loan exhibitions from collections in the United States and abroad complement exhibitions of art from the Sackler's growing permanent collections. The goal of the Sackler Gallery is to expand the knowledge and appreciation of works of art from Asian and Near Eastern countries and of the human and physical contexts from which works of art emerge through research, exhibitions, conservation, education, and acquisitions.

Research - One of the Sackler's major focuses--research--provides the basis for exhibitions, publications, and collections acquisitions. The research program involves both visiting scholars and the permanent curatorial and conservation staff. The Sackler distributes research results to the public through lectures, symposia, collection research files, exhibition catalogues, free gallery guides, brochures, papers, and articles. Major catalogues for the "Jeweler's Eye," "Timur," and "Yokohama" exhibitions are significant examples, as well as the publication of the papers from the Sackler symposium, Investigating Artistic Environments in the Ancient Near East.

In FY 1990, conservation research concentrated on analyzing the lead isotope ratio of Chinese bronzes in the Sackler, Freer, and other collections and on extending identification methods into the field of organic colorants in East Asian paintings. As a joint effort, the Sackler and Freer galleries received a Scholarly Studies grant to study the ancient Near Eastern metalwork collections in both museums.

The Sackler Gallery attracts research scholars and has an active program of research fellowships and internships. Recipients work closely with curators on topics related to the collections. Scholarly grant programs advance the research and education programs based on the Asian art collections and exhibitions at the Sackler.

Exhibitions - During FY 1990, ten exhibitions opened, including "The Noble Path: Buddhist Art from South Asia and Tibet," "India along the Ganges: Photographs by Raghubir Singh," "Yokohama: Prints from Nineteenth-Century Japan," "Antoin Sevruguin: Portraits from Iran, 1880-1920," and a reinstallation of ancient Chinese bronzes and jades from the permanent collection. The staff also refurbished existing exhibitions.

Future exhibitions will include those originated by the Sackler as well as some organized elsewhere and will draw from international public and private collections as well as from the Sackler Gallery collections. Many Sackler-organized exhibitions will travel to other museums and institutions. Future exhibitions include "Court Arts of Indonesia," "Challenging the Past: The Paintings of Chang Dai-chien," and "Ancient Japan: Art and Culture."

Conservation - The Sackler conservation effort includes research to understand the origin of objects and thereby better develop the proper conservation treatment of them. Expanding conservation facilities in the renovated Freer Gallery Building will also accommodate Sackler program requirements. During FY 1989 and FY 1990, the conservation laboratory staff concentrated on objects for exhibitions such as Buddhist and Tibetan sculpture and Japanese prints. Environmental control of the Sackler exhibition galleries and collection storage areas in the new Sackler Building also required attention. The Freer Gallery of Art section of this narrative discusses the East Asian painting conservation studio, which also conserves Sackler collections.

Education - Through gallery tours, school programs, hands-on tours, lectures, films, concerts, symposia, and in-gallery programs with members of the Asian community from the Washington metropolitan area, the Sackler continued to introduce and interpret Asian art and culture to its visitors. In FY 1989 and FY 1990 the Sackler developed Learning Centers in conjunction with five exhibitions. Weekday programs on Chinese calligraphy, brush painting, music, and storytelling took place in the Learning Center adjacent to "Yani: The Brush of Innocence." The Learning Center for "The Noble Path: Buddhist Art from South Asia and Tibet" had regular presentations by monks from the local Tibetan, Cambodian, Laotian, Vietnamese, and Sri Lankan Buddhist communities. These programs alternated each

week with storytelling sessions. In the Learning Center attached to "Yokohama: Prints from Nineteenth-Century Japan" visitors can watch video programs, sit on tatami mats to read about Japanese culture, explore how to make a woodblock print, and learn about the geography of Japan. The Sackler shows video programs Monday through Friday.

The Sackler's publications program includes a quarterly magazine, Asian Art, written for public understanding. This periodical, produced in cooperation with Oxford University Press, uses color plates and informative text to discuss various research activities, the permanent collection, recent acquisitions, and special exhibitions.

Collections Acquisition - Although the Sackler Gallery lacks Federal funding for the purchase of objects for the permanent collection, the sale of merchandise at the Sackler museum shop and funds from the Regents Collections Acquisition Program provide minimal Trust funds. The museum acquires art objects of Asia in its broadest terms, from Japan to the Near East. Objects acquired for the collections are of the highest quality in terms of aesthetic standards, cultural history, and physical condition.

During FY 1990, the Sackler Gallery acquired 35 objects by gift, purchase, and transfer. Gifts included 17 objects of Indian, Chinese, Japanese, Cambodian, and Pakistani origins. Purchases with Trust funds included 13 objects. The National Museum of Natural History transferred to the Sackler Gallery five Chinese paintings. To the study collection, 15 objects were added by purchase and gift.

FREER GALLERY OF ART - The Freer Gallery of Art, which opened in May 1923 as the first art museum of the Smithsonian, houses an Asian collection generally acknowledged to be among the world's finest. The Freer holdings also include a group of late 19th- and early 20th-century American art, including the world's most important collection of works by the American expatriate artist James McNeill Whistler. In addition to the program on American art, the goal of the Freer Gallery, similar to that of the Sackler Gallery, is to expand the knowledge and appreciation of works of art from Asian and Near Eastern countries and of the human and physical contexts from which works of art emerge through research, exhibitions, conservation, education, and acquisitions. The collections and combined resources of the Sackler and Freer galleries make them an important international center for scholarly research and education in Asian art and culture.

In fall 1988, the Freer Gallery closed for a multi-million-dollar construction and renovation project that will provide underground access between the Freer and the neighboring Sackler Gallery. The renovation will:

- triple the Freer's space for art conservation and technical study;
- increase its collection storage facilities by 70 percent;
- improve the safety in public areas;
- offer greater access to visitors with mobility impairments.

Work on the gallery level and exterior will preserve the original appearance of the building, which is on the National Register of Historic Places.

During the renovation, research and plans for future exhibitions, conservation, education, and acquisitions continue. Collection items are available for study by appointment. The library, shared with the Sackler Gallery, houses approximately 47,000 collection-related volumes and is open to the public for reference.

Research - The Freer and Sackler galleries share research and support facilities and staff. These combined resources serve as an international center for education and advanced scholarship in Asian art and culture. Curators show the results of these efforts through publications and educational programs. The collections, curatorial and conservation staff, technical conservation laboratories, and the joint library and archives serve the research facilities.

Although the research results are most visible in exhibitions, the Freer disseminates additional research results to the public through collection research files, lectures, and published papers and books. These activities continue even though the renovation has closed exhibition galleries to the public. For example, the Freer staff is currently revising an important Freer catalogue, Chinese Figure Painting, first published in 1973 and now out of print. The research staff will soon publish a catalogue raisonne entitled An Ideal Country: Paintings by Dwight William Tryon. The Freer holds the world's largest collection of this American artist.

Exhibitions - During FY 1989 and FY 1990, while the exhibition galleries are closed to the public, staff are planning for the reopening exhibitions in late 1992. Ongoing research on Charles Lang Freer and the history of the Freer Gallery will provide significant information for these exhibitions. The reopening exhibitions will include the finest pieces in the Freer's Asian and American collections. Newly remodeled exhibition space will offer curators abundant opportunities to present thematic, changing exhibitions drawing on various aspects of the collections. Staff will continue to respect the founder's wish that the Freer not display works from outside the collections or lend objects to other institutions.

Conservation - The Department of Conservation and Scientific Research staff do object conservation and analysis. Beyond their roles as restorers and caretakers, staff members engage in primary research using scientific methods and technical equipment to learn about manufacture dates, geographic origins, and materials. Conservation specialists, trained in traditional Japanese and Chinese methods, repair and remount Asian paintings.

During the Freer renovations, primary concerns are conserving and storing objects and preparing exhibits for reinstallation. Controlling environmental conditions in the temporary storage areas in the Freer Gallery Building during this period requires continuous monitoring by the conservators.

Besides the work related to preserving collections and reopening exhibitions, the East Asian painting conservators look forward to a future program that will train American conservators. This program will alleviate the critical shortage in the United States of persons skilled in this specialized field. There are only three facilities in the United States that can restore and mount rare Far Eastern paintings and screens, and these facilities concentrate primarily on works for their respective museums. Object conservators will also use the expanded Technical Laboratory for training purposes.

Education - Each academic year, leading scholars, from the Freer and elsewhere, present illustrated lectures on Asian and American art. During FY 1989 and FY 1990, the Freer staff carried out a wide range of research and scholarly activity that was available to the public through educational programs such as lectures. When the Freer reopens, educational materials available in the exhibition galleries will include a free introductory brochure for the visually impaired; free exhibition leaflets introducing

various aspects of the Freer collections; and docent-led tours. The education staff is developing educational activities and new plans and programs for the reopening.

Collections Acquisitions - In FY 1990, the Freer Gallery acquired seven objects that complement the existing collection and are of the highest quality in terms of aesthetic standards, cultural history, and physical condition. Four objects were by purchase, three by gift, and two by purchase and gift. These included Indian metalwork, Chinese calligraphy, a Chinese textile, and a piece of Chinese furniture.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, the Arthur M. Sackler Gallery/Freer Gallery of Art requests an increase of 12 workyears and \$1,605,000 to provide curatorial services for Japanese art (1 workyear and \$75,000), library and conservation support (1 workyear and \$55,000), and expansion of educational services (1 workyear and \$75,000) at the Sackler Gallery; and, for the Freer Gallery, the reinstallation of the Freer collections in the exhibition galleries (\$1,100,000); staffing for the reopening (9 workyears and \$200,000), and exhibition-related off-site storage (\$100,000).

ARTHUR M. SACKLER GALLERY:

Curatorial Services for Japanese Art (1 workyear and \$75,000) - Better knowledge of the extremely influential area of Japanese art by the general public as well as by the scholarly community will enhance understanding and appreciation of the culture of this important country. To balance the research staff in relationship to the Sackler collections, a curator of Japanese art is required.

A stronger program in Japanese art will provide a better foundation to advance the level of knowledge in this area. Greater expertise on staff will enable the Sackler to undertake additional art historical research on Japanese art. This research will lead to more knowledge being disseminated through publications and lectures, more thought-provoking exhibitions, a faster building of collections in this area, and other projects to increase understanding of this culture that cannot now be considered for lack of staff.

Currently the Sackler has one Japanese art assistant curator. The Sackler needs a senior-level curator to manage the many responsibilities in this area, just as senior curators do in the areas of Chinese and Near Eastern art. With an additional Japanese art curator, the Sackler will meet demands for developing public programs across the country, organizing exhibitions, managing a growing collection, and fundraising. In addition to expanding the areas of Japanese art, the curator will oversee nearly 4,000 objects in the Japanese art collection contained in the Freer Gallery and build a Japanese collection in the Sackler Gallery, thereby fulfilling the Sackler's mandate to promote all the arts of Asia.

The Sackler and Freer require a sufficient permanent staff to maintain high-quality research, exhibition planning, and public service and a successful acquisition program. This increase will help ensure that this distinguished world center of Asian art and culture meets its responsibility.

Library and Conservation Support (1 workyear and \$55,000) - Processing and conservation of research resources and collections preserve the materials from which future generations will study and learn about Asian cultures. Currently, library resources cannot be processed quickly enough to serve the needs of users. Collection objects, too, need

to be conserved at a faster rate for use in research and exhibitions. Some objects are deteriorating as they await conservation. Others are so fragile that they cannot be viewed without placing them at risk. In both cases, the public now and in the future is denied the possibility of learning about and seeing these objects.

This request includes two half-time positions (2 workyears and \$25,000). The first position is a library technician to care for library materials. The technician performs technical and para-professional services for the head librarian in the areas of collections management, book acquisition, cataloguing, and public services including research and reference services. A second position is a secretary with Japanese language capabilities for the East Asian painting conservation studio. The secretary will provide clerical assistance to native Japanese conservators, who then can devote more time to the backlog of paintings with conservation needs, especially those with core stain problems. The Sackler also requests funding in the amount of \$30,000 to provide funds for an ongoing program to conserve the extensive paper manuscript collection in the Sackler and Freer galleries. The staff will remount and rebind the 16th-century Persian manuscript of the Ramayana as well as Persian manuscripts in the Vever Collection.

As part of its mission, the Sackler must ensure proper care of its collections and make the collections accessible even when they are not on exhibition. Additional library and conservation support will help the Sackler meet this important function.

Expansion of Educational Services (1 workyear and \$75,000) - The public comes to understand Asian arts and cultures through thoroughly and carefully thought-out interpretive strategies within Sackler's exhibitions and public programs. Sackler needs an education specialist (1 workyear and \$34,000) to develop materials for use in specific exhibitions for the public and for elementary and junior high school students.

The education specialist will develop educational programming and write materials that will bring Asia into greater prominence in the minds of Smithsonian visitors. These materials will introduce the public and students to Asian art and culture using objects from the Sackler collections that explore crosscutting aspects of Asian art and culture. Written materials will include interactive activities with hands-on objects and computer technology. The education specialist will also develop materials for nontraditional museum communities. The request includes \$41,000 to fund publications and related services for interpretive and educational activities.

As the importance and awareness of global interdependence and cultural diversity increase, relatively little is known in the United States about Asia. It is incumbent upon the Sackler Gallery, as part of the Smithsonian Institution, to advance knowledge about Asia. It is also incumbent on the Sackler to develop programs and materials that reach into communities that have had little or no experience with Smithsonian museums and to introduce members of these communities to the richness of their own and other cultures.

#### FREER GALLERY OF ART:

Reinstallation of the Freer Collections in the Exhibition Galleries (\$1,100,000) - The appearance of the exhibition galleries when the Freer reopens is crucial to sustaining favorable public memory of the Freer before and after the renovations. This one-time only request will reestablish Freer collections in exhibition spaces after the Freer Gallery Building renovation is completed.

Reinstallation allows for the adoption of new exhibition techniques that will make the exhibitions more accessible to audiences, more responsive to a broader public, and more effective in meeting the Freer's educational goals while providing the core Freer audience with the sense of continuity of high standards and tradition. The Freer will use requested funds for exhibition cases and glass vitrines (designed with materials that will withstand frequent and longtime use), object mounts, lighting, and other display furnishings.

For almost 70 years, the Freer has maintained a national and international reputation for excellence in research of Asian art and for the quality and content of its exhibitions. The Freer is the original national museum of Asian art and was the first art museum in the Smithsonian. Its reopening, after being closed for four years, is significant and must be managed to meet the highest standards.

Staffing for the Reopening (9 workyears and \$200,000) - The Freer Gallery Building renovations will triple the space available for art conservation and technical study and increase collection storage facilities by 70 percent. To accommodate the increased activity in the new spaces, the Freer will require additional staff.

The Freer needs nine positions to reopen, including four building management positions to clean and maintain nonexhibit space, and additional funds for supplies and equipment. Two art-handling specialists will strengthen the physical care and management of the Freer collections both in storage and on exhibition. Three positions for exhibition specialists along with existing staff will prepare the opening exhibitions and maintain a modest changing exhibition program currently envisioned for the Freer. The requested positions will permit flexibility needed to develop affirmative action training programs.

Greater resources will enable the Freer to provide an appropriate exhibition program and accommodate greater utilization of the collections in storage. Students, scholars, and the public will benefit from new presentation and availability of an extraordinary collection of Asian and American art.

Exhibit-Related Off-Site Storage (\$100,000) - In the past, the Freer has had to discard exhibit cases and vitrines after each exhibition because of lack of storage space. Leasing storage space will permit economical use of these exhibit-related materials.

Currently, both the Freer and the Sackler try to inform other bureaus of available cases, but even so, often have to discard exhibit-related materials. Critical evaluation of this situation indicates that substantial savings could be made if exhibit casework were designed to be saved and reused and could be stored. The requested funds will allow the Freer to obtain leased warehouse space.

Saving funds through reuse of materials will provide more funds for programs such as exhibitions and education. The public will benefit both through the efficient use of tax dollars and an expansion of public service programs.

#### NONAPPROPRIATED SOURCES OF FUNDING:

##### ARTHUR M. SACKLER GALLERY:

Unrestricted General and Special Purpose Funds - Annual allotments to the Arthur M. Sackler Gallery provide funds to defray the costs of special events associated with the

opening of new exhibitions, cover the travel costs for members of the Sackler's Visiting Committee, and provide funds for the staff to do business. The proceeds from sales of Sackler items in the Sackler museum shop support the purchase of acquisitions, the publication of exhibition catalogues and gallery guides, and the operation of the Sackler museum shop.

Restricted Funds - These funds are contributions in the form of grants and gifts from individuals, foundations, organizations, or corporations for specific purposes. A major grant from a Japanese pharmaceutical company, for example, sponsored the exhibition "Yokohama: Prints from Nineteenth-Century Japan."

FREER GALLERY OF ART:

Unrestricted General and Special Purpose Funds - Annual allotments to the Freer Gallery of Art provide funds to defray the costs of special events associated with the opening of new exhibitions, cover the travel costs for members of the Freer's Visiting Committee, and cover staff costs to do business. These funds also support the position of historian for the Freer and Sackler galleries. The proceeds from sales of Freer items in the Sackler museum shop support the purchase of acquisitions, the publication of exhibition catalogues and gallery guides, and the operation of the Sackler museum shop. When the Freer reopens, proceeds from the Freer museum shop will support gallery activities.

Restricted Funds - These funds are contributions in the form of grants and gifts from individuals, foundations, organizations, or corporations for specific purposes.

The major portion of the nonappropriated Trust funds for the Freer comes from the Charles Lang Freer bequest that restricts their use. The funds help finance the Freer's professional curatorial staff, administrative staff, acquisitions for the collections and library, maintenance of the Freer's courtyard, and operation of the Freer museum shop. Funds from the Harold Stern Memorial Endowment support scholarly research in the field of Japanese art. Funds from the Forbes Endowment support research in conservation.

ARCHIVES OF AMERICAN ART

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	23	1,126	-	98	-	-	-	1,758	-	-
FY 1991 Estimate	23	1,172	-	98	-	-	19	1,762	-	-
FY 1992 Estimate	26	1,311	-	98	-	-	19	1,556	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The Archives of American Art (AAA), a national research repository with regional centers in New York, Boston, Detroit, San Francisco, and Los Angeles, has the world's largest collection of archival materials relating to the history of American visual arts, including documents, photographs, works of art on paper, and tape-recorded oral and video interviews. The Archives houses original materials in Washington, D.C., and makes microfilm copies of many materials available in the regional centers and through national and international interlibrary loans. The Archives seeks out, collects, and preserves original materials for study by scholars, students, curators, collectors, and others interested in the history of art and encourages research in American art and cultural history through publications, symposia, lectures, and other public programs.

For FY 1992, the Archives of American Art requests an increase of 3 workyears and \$139,000 to provide professional archival support for the New York Regional Center (1 workyear and \$45,000); and to provide technical support for research services (2 workyears and \$84,000). An increase of \$10,000, justified in the Uncontrollable Increases section of this budget, will support AAA's geographic pay-related payroll base deficiency.

PROGRAM - The Archives of American Art encourages the study of American art and cultural history by collecting, preserving, and making easily accessible for research the primary source materials that are essential to the interpretation and documentation of the arts in America.

Collections Development - In calendar year 1989, the Archives added 121 new groups of papers (approximately 275,000 documents comprising more than 275 cubic feet of original source materials) to its collections. Among these papers are the gallery records of the art dealer Boris Mirski (1898-1974), whose accounts included post-World War II Expressionists Leonard Baskin and Mitchell Siporin, among others; the Makler Gallery records, which document the gallery's work with Milton Avery and George Rickey; and the Sande Webster Gallery, a major exhibitor of African-American artists founded in Philadelphia in 1969.

Other papers acquired include those of the painter Edmund C. Tarbell (1862-1938), a Boston Impressionist and head of the Corcoran School of Art from 1917 to 1922; Florence Arquin (1900-74), a painter, photographer, educator, and writer, with significant material on her lifelong friends Diego Rivera and Frida Kahlo; the art historian William I. Homer (b. 1929), with correspondence to and from many figures in the art world including Ansel Adams, Peggy Bacon, Thomas Hart Benton, Lyonel Feininger, and Georgia O'Keeffe; and eight Winslow Homer (1836-1910) letters. From the West Coast, the Archives acquired four collections documenting California art history during the first half of the 20th century: records of the California Art Club and of the Los Angeles Art Association; personal papers of the painter Francis de Erdely (1904-59); and a Sonia Wolfson scrapbook.

The Archives conducted 37 oral history interviews during 1989, adding to its collections invaluable information on artists Sam Gilliam, Duane Hanson, Ellsworth Kelly, Rockne Krebs, Faith Ringgold, and Carlos Villa as well as on the art historian and scholar Agnes Martin.

Collections Management - The Archives uses contracted services to conserve, restore, and stabilize fragile or deteriorating documents. Work in process or completed this year includes restoration of a sketchbook by the African-American painter William H. Johnson and a Peggy Bacon drawing of Louis Bouche. Restored photographs include ones of John Marin by Kay Bell Reynal; Maurice Prendergast by Gertrude Kasebier; Charles Sheeler, Edward Steichen, and John Marin by Musya Sheeler; and Gertrude Vanderbilt Whitney by Amemiya.

Microfilming makes material readily available throughout the country, and also preserves original documents by precluding the need for handling. The Archives continues to microfilm papers on an established priority basis and, during the past 12 months, completed microfilming 72 collections, producing 148 reels of microfilm--an estimated 177,600 images. In addition, through its Philadelphia Documentation Project, the Archives produced another 38 rolls of microfilm of important collections in Philadelphia institutions.

Research - The Archives' collections are now so extensive that it is no longer possible to do serious research in American art history without reference to its resources. From April 1989 to April 1990, the research centers across the country received approximately 3,355 visits. Scholars, students, curators, writers, collectors, dealers, and publishers studied 9,927 rolls of microfilm and/or oral history transcripts and original collections. Users borrowed an additional 1,880 rolls of microfilm through the Archives' interlibrary loan program. Staff in the regional centers also responded to more than 900 inquiries and conducted more than 100 tours and orientations to the Archives' program. More than 200 books, exhibition catalogues, articles, and dissertations published or compiled during the year have used the resources of the Archives.

Public Programs - In FY 1990, Archives professional staff lectured and participated in symposia and panel discussions. The Archives also organized and sponsored a panel discussion on "Art, Politics and Democracy" in San Francisco and a symposium in Detroit titled "Roses, Too: Sixty Years of Labor Art Programs." In addition, its scholarly seminars on American art studies continued in Washington, D.C.

The Archives published Art-Related Archival Materials in the Philadelphia Region, a guide that grew out of the first part of the Philadelphia Documentation Project, 1984-89. The Archives also published booklets on the Walter Pach Papers and the Niles Spencer Papers

in conjunction with two exhibitions at the New York Regional Center's document gallery. The Archives organized the Niles Spencer exhibition in cooperation with the Whitney Museum of American Art, which concurrently held a retrospective exhibition of Spencer's paintings at its branch in the Equitable Center.

Finally, the Archives lent numerous documents to exhibitions at, among others, the Musee d'Art Moderne in Paris, the Jane Voorhees Zimmerli Art Museum at Rutgers University, the M.H. deYoung Memorial Museum in San Francisco, and the Pennsylvania Academy of the Fine Arts in Philadelphia.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, the Archives of American Art requests an increase of 3 workyears and \$139,000 to provide professional archival support for the New York Regional Center (1 workyear and \$45,000); and to provide clerical support for research services (2 workyears and \$84,000). An increase of \$10,000, justified in the Uncontrollable Increases section of this budget, will support AAA's geographic pay-related payroll base deficiency.

Professional Archival Support for the New York Regional Center (1 workyear and \$45,000) - The New York collection and research center receives more than half of the collections acquired by the Archives of American Art and serves half the researchers who use the Archives' resources every year. The material, often among the most significant coming into the Archives' collections, commands intense interest on the part of persons interested in American art. However, until the Archives processes and catalogues these materials, they cannot be available for study to the hundreds of students, scholars, curators, and collectors who would use them in the New York area, let alone the rest of the country.

The New York Regional Center has never had a professional archivist on its staff. Over the years, a serious processing backlog has developed, and it grows annually. Presently some 500 cubic feet of rich source material sit on shelves, and the staff of one technician is unable to cope with either the backlog or the volume of new material. The requested increase will enable the Archives to hire a trained and experienced archivist (1 workyear and \$38,000) to process and catalogue materials at the New York Regional Center, direct the technician, and help to schedule and oversee contract work to eliminate the backlog, keep abreast of new collections acquired, and make the material accessible to users. The funds also will pay for archival supplies, telecommunications, and computer costs related to accessioning, cataloguing, and transportation (\$7,000).

The Archives must address the processing backlog at its New York Regional Center. This Center receives more material than any other Archives collection center in the country, and the material tends to be well-known and immensely important. New York also has the largest concentration of scholars, museum and gallery staff, collectors, and other potential users. A professional archivist at the New York Regional Center will enable the Archives to carry out its responsibility to care for its collections and make them available to all those who depend on such material for their work.

Technical Support for Research Services (2 workyears and \$84,000) - Over the past several years, the Archives of American Art has been converting its manual catalogue system to an automated data base. The goal is to place the catalogue in the Research Libraries Information Network (RLIN) so that it is available to researchers in schools and libraries across the country. Such access to information about the Archives' collections will make possible expanded use of its microfilmed resources through interlibrary loan, providing

users with the documentation they need for their studies wherever they are and whenever they need it. In addition, the nationwide network will enable Archives' researchers to search for information on and cross-reference subject matter in catalogues of related repositories.

Management of the Archives' data base, its continued development and refinement, the addition of new catalogue entries from acquired collections, and the maintenance of the national data base require continuous technical expertise and staffing as well as payment of network and telecommunications fees. As such expertise has not existed on the staff, the Archives hired a specialist, using temporary foundation funding, to convert the manual catalogue to the automated system. Now in the final phase of its foundation funding, the Archives needs a permanent, trained archivist/automation specialist to manage the automated data base program and a data input technician who will manage the data bases, respond to researcher needs arising from the data bases, work with the national network, and keep the Archives' catalogue current. The Archives has already joined the Research Libraries Group and is preparing to upload its catalogue into RLIN, going on-line by FY 1992.

With this funding, the Archives will hire a trained archivist/automation specialist (1 workyear and \$40,000) and a data input technician (1 workyear and \$25,000). In addition, the support will underwrite annual network fees related to the national network and will cover the telecommunications costs of the network (\$19,000).

The focus of this request is service to the Archives' research constituency across the country. The support will enable the Archives to provide ready access in libraries and schools nationwide to extensive and current information on its collections and to make its primary source materials known. Ultimately, the result is an increase in knowledge and contributions to the understanding of the Nation's cultural heritage through the publications, exhibitions, and programs that can be done only when sufficient documentary evidence is available for research.

#### NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - Provided through annual allotments, these funds defray costs associated with special events, supplement travel expenses incurred by the Archives' Board of Trustees, and provide partial support for general operating costs.

Restricted Funds - Fund-raising activities, gifts, foundation and corporate grants, the Board of Trustees, and a membership program generate funds for the Archives. A substantial portion of this income supports the Archives' general operating expenses, its oral history program, and its publications program.

Special programs supported by foundation and corporate funding include the Philadelphia Documentation Project underwritten by the Pew Charitable Trusts, the retrospective cataloguing and automation project underwritten by the J. Paul Getty Trust and the Andrew W. Mellon Foundation, and national collecting projects underwritten by the Henry Luce Foundation. A major grant from the Brown Foundation as well as income from the Wellin-Taubman Reserve Fund established in 1986 by the Archives' Board of Trustees also helps underwrite the costs of general operations.

COOPER-HEWITT MUSEUM

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	32	1,462	18	933	7	1,100	1	369	-	-
FY 1991 Estimate	32	1,514	18	940	7	1,075	1	450	-	-
FY 1992 Estimate	41	2,366	17	888	7	1,083	1	266	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - Cooper-Hewitt, National Museum of Design, located in New York City, explores both the processes and the products of design. It examines the influence objects have on daily life--how they shape and are shaped by culture. The design concerns of the Museum are varied, including urban planning, architecture, industrial design, landscape design, interior design, textiles, fashion, theater arts, advertising, graphic arts, and crafts. The National Museum of Design encourages "good design," explains the design processes, fosters discussion in related fields, and facilitates the dialogue between audience and designer.

For FY 1992, Cooper-Hewitt Museum requests an increase of 9 workyears and \$852,000 for permanent base funding for an education department (2 workyears and \$200,000); an assistant curator of decorative arts (1 workyear and \$40,000); buildings and grounds operational support (1 workyear and \$129,000); clerical support (2 workyears and \$58,000); a personnel specialist (1 workyear and \$45,000); operational support for the newly acquired Fox House facility (2 workyears and \$100,000); base support for exhibitions (\$150,000); and collections management (\$50,000). An increase of \$80,000 justified in the Uncontrollable Increases section will support Cooper-Hewitt's geographic pay-related payroll base deficiency.

PROGRAM - Cooper-Hewitt is the only museum in the country devoted exclusively to historical and contemporary design. The Museum pursues its goal through exhibitions; publications; provisions for collections study, research, and display; and educational programs for professionals and the public.

Exhibitions - Highlights of Cooper-Hewitt's exhibition schedule reflect the Museum's efforts to achieve a balance between historical and contemporary subjects and explore social issues relating to design. FY 1990 began with the exhibition "The Intimate World of Alexander Calder," comprised of personal works by the sculptor for family and friends. Countless items, including household utensils, furniture, toys, jewelry, wire sculpture, miniature mobiles, and stabiles, demonstrated how the artist "designed" every corner of his personal universe. "Color, Light, Surface: Contemporary Fabrics" focuses on textiles

of the last decade, particularly innovative works involving surface effects and color, new fibers, chemically altered fibers, weaving and dye techniques, and the effects of light on textile surfaces. Organized in cooperation with Guiding Eyes for the Blind, Inc., "The Doghouse" presented amusing architect-designed doghouses in the Museum's garden. The project took a playful approach to serious design issues for the blind and accessibility for audiences with any type of disability. "FLORA DANICA and the Heritage of Danish Porcelain, 1760-1990," consisting of more than 150 distinctively styled and painted porcelain pieces, places the 1790 "Flora Danica" table service in the context of the artistic and cultural development of Danish porcelain.

In the spring of 1991, Cooper-Hewitt will open the first major exhibition devoted to its permanent collections. On view for more than a year, "Cooper Union Legacy" will address the history and identity of Cooper-Hewitt, the uniqueness of its collections, and its strengths and idiosyncrasies. The Museum raised \$225,000 for this exhibition. Other future exhibitions will present the work of 20th-century industrial designer Donald Deskey, 20th-century Czech architecture and design, the computer as a design tool, and design for special audiences. As a contribution to the Columbus Quincentenary celebrations, the Museum has planned an exhibition on global imagery, the process of mapping, and the age of exploration.

Publications - Cooper-Hewitt publishes exclusively with privately raised funds. In FY 1990, the Museum published four free brochures to accompany each major exhibition, a new effort for Cooper-Hewitt. The Museum produced Housing: Symbol, Site, Structure, the last edition in its noted Immoveable Objects series dealing with large-scale design issues. In progress is a collection of articles dealing with basic conservation and collections care issues, originally published by the Museum for the New York Conservation Consultancy and available free of charge to other museums, historical societies, and nonprofit organizations. In FY 1990, Cooper-Hewitt will complete the three-year drive to raise \$400,000 in matching funds to establish the Andrew W. Mellon Fund, a permanent endowment for scholarly research and publication.

Collections Activity - In the first three quarters of FY 1990, Cooper-Hewitt enhanced its permanent collection with the acquisition of 651 objects. The most notable were a group of about 20 articles of furniture, lighting, and other furnishings designed by leading French designers in the late 1980s, manufactured and donated by the firm V.I.A.; ten designs for Faience tiles, by the French firm Sarreguemines et Cie; interior designs by Joseph Urban (1928) and Tom Ellis (1933); and a French furnishing fabric designed in 1925 by Edward Benedictus. Various designers and manufacturers donated, in connection with "Color, Light, Surface," a large group of contemporary fabrics. Cooper-Hewitt is probably the only museum in the world to collect such fabrics.

During the same period the Museum lent 108 objects to 44 museums and borrowed 1,033 objects. In preparation for outside loans and for use in exhibitions, the Museum's two conservators treated more than 300 pieces. Approximately 300 scholars, private individuals, designers, and corporate interests visited the collections for research purposes. Visitors included the Society of Jewelry Historians; Lighthouse for the Blind; Jack Lenor Larsen Design; Schumacher & Co.; Proctor & Gamble; Ralph Lauren Co.; Scalamandre; Liz Claiborne, Inc.; the Finnish designer Markku Piri; Women's Wear Daily; Elle Decor; Metropolitan Home; and many representatives from museums around the world. The Museum initiated, with Fieldcrest Mills, a series of bed linens, based on textiles in the collection. The specialized research library, which complements the collection, saw heavy activity, with 758 visitors using approximately 7,000 volumes. The Museum also took

a first step in making the permanent collections more visible to its audience by establishing a permanent acquisition gallery, which presents changing exhibitions of recent acquisitions.

Educational Programs - The Museum served approximately 6,000 adults this year with a wide range of lectures, courses, symposia, workshops, and tours. In FY 1990, Cooper-Hewitt successfully initiated programs for children in connection with the Calder exhibition. From having previously offered no children's programming at all, Cooper-Hewitt, through grants from the Smithsonian's Special Exhibitions Fund, the Helena Rubinstein Foundation, and the Andy Warhol Foundation for the Visual Arts, served nearly 7,000 schoolchildren during the run of this show. Moreover, with funding received from the New York State Council on the Arts, the Museum held two beneficial panel discussions with educational consultants to help develop additional children's programming. The Museum also expanded exhibition interpretation programs with special tours developed for blind and visually impaired audiences.

Other outreach efforts include "Nueva York Tropical," a series of free lectures and outdoor concerts that examines the influence of Hispanic Caribbean traditions on many New York neighborhoods. Supported by the Smithsonian's Educational Outreach Fund, the series explores how rural folk forms are transplanted to an urban setting through crafts, music, dance, and the vernacular architecture in buildings such as casitas. The Museum plans to offer three Career Days to New York City region public high school students in the fall, through which students will be in contact with professional designers and architects. One Career Day will specifically focus on the ways in which design addresses social issues by introducing students to architects and public agencies working to create housing for the homeless.

The first academic degree-granting program ever offered by the Smithsonian, the Cooper-Hewitt/Parsons School of Design Graduate Studies Program in the History of European Decorative Arts, is an accredited two-year master's program providing invaluable training for professional, curatorial, and educational positions. This year there were ten students in the graduating class, the seventh since the program's inception in 1982.

Research - In addition to exhibition-related work, collections-based research of note includes the cataloguing and study of 250 pieces of Post-Revolutionary Soviet porcelain; the history of 1,500 Frederick Church drawings and oil sketches and his use of photography as a source of inspiration; the continued study of new manufacturing processes utilized in contemporary fabrics; and the study of British and American textile producers of the early 20th century.

Established to advance the understanding of design and decorative arts as it encourages and supports a promising young scholar, the Peter Krueger-Christie's Fellowship provides a stipend of \$15,000 for a one-year period and a travel allowance of \$2,000 for research at Cooper-Hewitt. Named in FY 1990, the first Fellow will conduct research on the 20th-century industrial designer Henry Dreyfuss.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, Cooper-Hewitt Museum requests an increase of 9 workyears and \$852,000 for the establishment of an education department (2 workyears and \$200,000); an assistant curator of decorative arts (1 workyear and \$40,000); buildings and grounds operational support (1 workyear and \$129,000); clerical support (2 workyears and \$58,000); a personnel specialist (1 workyear and \$45,000); operational support for the newly acquired Fox House facility (2 workyears and \$100,000); base support

for exhibitions (\$150,000); and collections management (\$50,000). An increase of \$80,000 justified in the Uncontrollable Increases section will support Cooper-Hewitt's geographic pay-related payroll base deficiency.

Base Funding for an Education Department (2 workyears and \$200,000) - With permanent base funding for an education department, Cooper-Hewitt will develop and administer education programs for young people and special audiences. Currently Cooper-Hewitt offers only adult programs, for which it charges fees. An education staff will enable the Museum to better serve the public and to reach a more diversified audience.

The Education Department will offer outreach curriculum materials, study programs, lectures, brochures, publications, and free programs addressing issues of design. The staff will also develop specialized tours, free of charge, for school groups. The Museum's Education Department will establish relationships with the New York City public school system, private schools, and other leading centers of graduate and professional training in the design and decorative arts fields as a continuing art program and research tool.

In all likelihood, the adult community will continue to be served by self-supporting activities. Ideally the new department will also be involved in developing educational didactic labels and materials in connection with exhibitions.

The requested funds will permit the Museum to hire an education coordinator and a secretary. Remaining funds will provide support costs for the department, including instructors, printing, equipment, and supplies.

Assistant Curator of Decorative Arts (1 workyear and \$40,000) - An assistant curator in the Decorative Arts Department will enable Cooper-Hewitt to meet its research, collections management, and public service responsibilities. This Department initiates and executes more exhibitions than any other department. Many design professionals and craftspersons use the decorative arts collection, which consists of 20,000 objects of many different materials (glass, ceramics, wood, and metal) and types (architectural embellishments, objects of use, jewelry, and furniture) for research and inspiration.

The Decorative Arts Department is the only curatorial department in the Museum with only one curator. A second museum professional in the Department will assist in managing the decorative arts collection, including approving loan requests, fielding public inquiries, identifying objects for acquisition and deaccessioning, cataloguing the collection, and providing a liaison with crafts and decorative arts collections elsewhere within the Smithsonian Institution.

The assistant curator will also assume collections management responsibilities now performed by the curator, thus permitting that person to undertake in-depth studies and initiate new projects. In addition, the assistant curator will develop new courses for the Graduate Studies Program and other outreach initiatives.

An assistant curator will enable Cooper-Hewitt to maintain and service the decorative arts collection and permit the Decorative Arts Department to respond to requests and inquiries in a more timely fashion.

Buildings and Grounds Operational Support (1 workyear and \$129,000) - The Museum's plant consists of three separate structures (all landmark buildings), a small conservatory,

garden, and parking lot. The Museum seeks funds to maintain public portions of the buildings and grounds and the areas occupied by staff. Over the past years, daily attendance, special events, membership activities, and evening programs at the Carnegie Mansion have continued to flourish, adding demands on the Museum's facilities.

With the requested funds the Museum will reinstate and upgrade present service contracts and initiate new service contracts for cleaning and other essential buildings and grounds maintenance. The Museum will upgrade the following service contracts: trash removal; uniform laundry service; routine window washing; pest control; seasonal grounds, conservatory, and horticultural services; and scheduled painting of nonexhibition gallery interior spaces.

The Museum's small maintenance staff, along with outside contractors, performs a variety of maintenance activities for this urban complex. These include graffiti and snow removal; continuous minor fence and sidewalk repair; cleaning, repair, and replacement of carpets; preventive maintenance plastering and painting programs; lighting replacement; and standard janitorial services for offices and specialized cleaning of exhibition and collections storage areas. Assisting the Museum's ten-member maintenance staff, the requested grounds keeper will ensure the daily upkeep of the garden, parking lot, and other outside areas of the Museum.

The Museum initiated the use of service contracts for a portion of janitorial work in FY 1988 as a result of a highly competitive local labor market and high turnover rate among facilities staff. This pilot experiment was very successful. However, the absence of inflationary allowances has exacerbated the effect of rate increases by vendors in New York City, over whom the Museum often has no bargaining power and to whom the Museum has no practical alternatives for lower-cost service. The cost of trash removal, for example, increased 10 percent in FY 1988 over the cost in FY 1987 and increased another 25 percent in FY 1989. Additional funds are necessary to maintain the Cooper-Hewitt facility in a manner befitting a historic landmark and national museum of design.

Clerical Support (2 workyears and \$58,000) - In FY 1990, Cooper-Hewitt redirected two existing workyears and funds to create two new positions: an assistant director for programs and a curator of design. These two positions will add valuable expertise to Cooper-Hewitt's educational programs (exhibitions, publications, workshops, lectures, and classes) offered to the public.

Currently the only full-time clerical support existing at Cooper-Hewitt is in the Director's Office; there are part-time secretaries in Drawings and Prints and Decorative Arts departments. The requested secretaries will be the only support for the assistant director of programs and curator of design. The secretaries are necessary for duties ranging from scheduling meetings to researching documentation.

The majority of Cooper-Hewitt's professional staff is currently performing clerical duties. This funding will keep the professional staff focused on their primary pursuit -- to explore and promote fully its extraordinary decorative arts collection for public interest.

Personnel Specialist (1 workyear and \$45,000) - Cooper-Hewitt has a growing need for a full-time personnel specialist to provide services for the approximately 125 employees at the Museum. The Museum currently relies on services and information provided by the Smithsonian Office of Personnel Administration in Washington and whatever information the

Museum's Business Office has gleaned over the years. The problems of communicating sometimes sensitive personnel issues long-distance and the lack of a trained personnel officer at the Museum impede the processing of personnel actions.

The Museum's two-person Business Office, which must deal with expanded and decentralized financial management responsibilities, is increasingly bogged down with personnel tasks: processing actions, evaluating applications, recruiting, resolving personnel and payroll problems, and responding to staff questions. There is also inadequate knowledge among current Museum staff members concerning Federal and Trust personnel policies, benefits administration, equal opportunity policies and procedures, labor relations, and other personnel issues.

Certain personnel duties are difficult to perform at the Museum without trained staff. A personnel specialist located at the Museum could effectively recruit and interview candidates, especially minority candidates, and establish a working relationship with the New York Regional Office of Personnel Management as well as other recruitment sources in the New York area. An on-site personnel specialist will also provide the Museum with a sufficient level of in-house expertise and service.

Fox House Operating Support (2 workyears and \$100,000) - In May 1989, Cooper-Hewitt acquired a six-story townhouse adjacent to the McAlpin-Miller House to alleviate severe space problems. To ensure the proper care and safety of the collections and the staff in the building, Cooper-Hewitt must have adequate levels of operating support for the new facility.

Basic renovations to the Fox House are now under way, including repair, replacement, or installation of electrical service, plumbing, climate control, and building fabric. Once completed, the renovated Fox House will provide Cooper-Hewitt with improved collections storage and office space. Eventually the Museum plans to incorporate the building into its overall expansion plan, connecting all three buildings into a coherent public facility.

To permit adequate maintenance of Fox House, when renovations have been completed, Cooper-Hewitt requests funds to cover annual operating support. Expenses consist of utility costs--gas, electric, water, and sewer; maintenance of the HVAC system; elevator maintenance and repair; maintenance supplies and materials; and custodial, trash removal, and security services. Daily servicing of the facility, such as cleaning, lighting replacement, minor repairs, and security, will require two custodians.

Cooper-Hewitt is an international leader in the study of design. The Museum's collections are a major reason for this distinction and require proper storage facilities. Operational support for Fox House will ensure the continued protection and preservation of Cooper-Hewitt's collections as well as maintenance of office space for the employees of the Museum.

Base Support for Exhibitions (\$150,000) - The Museum is dedicated to exhibiting works that serve as a design resource for the public and design professionals. Currently Cooper-Hewitt raises private funds for this basic museum activity.

The requested funds will enable Cooper-Hewitt to acquire pieces in building its permanent collections. Without base support, exhibitions will be fewer and more modest.

In the long run, the public and scholars will suffer the effects of the Museum's dwindled resources.

Unlike its institutional counterparts in Washington, the Cooper-Hewitt Museum does not receive Federal funding for exhibitions. As a result, the Museum's long-range planning is hindered by diminishing potential for wider audiences and improved public exposure.

Collections Management (\$50,000) - The requested funding will support the safe move of Cooper-Hewitt's collections during repair and renovation work and replace aging computer equipment in the curatorial and registrarial offices. Automation support will enable the Museum to properly care for and provide public access to its collections.

The collections in the McAlpin-Miller House are subjected to inappropriate risk due to leaky ceilings and uncontrollable temperature variations. Cooper-Hewitt is unable to acquire decorative art objects of major significance due to deficient storage space. The Smithsonian Institution's Office of Design and Construction has identified a five-year restoration and renovation plan for the facility. Work of this magnitude requires the relocation of collections stored in this building. Cooper-Hewitt plans to move these collections into Fox House, which the Institution recently acquired. The relocation of collections into a new museum facility (rather than off-site storage) will reduce costs and keep objects accessible to the public and curators. To control the movement of objects and monitor the inventory locations, the move must be carefully planned with registrarial staff.

This request will fund supplies, materials, labor, and equipment for packing and moving portions of the collection out of unacceptable storage facilities. The Museum will also purchase computer upgrades and supplies and materials for collections inventory and cataloguing.

In FY 1986 Cooper-Hewitt received \$25,000 for automation needs; current automation requirements exceed \$105,000 per year. The requested increase will support Cooper-Hewitt's collections management program, easing automation needs as well as collections management.

#### NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - The Museum obtains these funds from a variety of sources, including museum shop sales, product development, individual and corporate memberships, admission fees, donations, fund-raising events, and annual allotments.

Restricted Funds - Designated for specific purposes, these funds derive from grants, bequests, and donations from individuals, organizations, and corporations. During the first three quarters of FY 1990, significant gifts funded exhibitions such as "Color, Light, Surface," sponsored by the BASF Corporation; "FLORA DANICA," which was endorsed by Royal Copenhagen; and "Drawings by Francesco and Carlo Bibiena," supported by the Arthur Ross Foundation. Cooper-Hewitt received funds for exhibitions in planning stages from the J. M. Kaplan Fund for "Cooper Union Legacy" and from Mrs. Donald Deskey for an exhibition of the late designer's work. The Museum also received funding for educational and research programs. The Helena Rubinstein Foundation (in conjunction with the Calder exhibition) helped initiate children's programming, and the Museum's first major research fellowship was established with the help of Mr. and Mrs. Harvey Krueger and Christie's, Inc. The

Overbrook Foundation and other donors provided invaluable assistance in the three-year drive to match the Andrew W. Mellon Foundation Challenge Grant. Private support for acquisitions came from the Charles E. Sampson Memorial Fund and the annual Decorative Arts Association benefit (with the help of donors such as Edward Lee Cave, Sotheby's, Mrs. Karen Johnson Boyd, Mr. and Mrs. A. Alfred Taubman, and an anonymous donor).

Government Grants and Contracts - Various government agencies and departments provide these funds for specific program support. The Museum annually seeks funding from the New York State Council on the Arts for exhibition support and other programs. In FY 1990, NYSCA supported educational programming for children, planning for "Cooper Union Legacy," a management study, and cataloguing of the Shapiro Collection of Soviet Porcelain.

NATIONAL MUSEUM OF AFRICAN ART

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
			General		Special					
	FTE*	Amount	FTP**	Amount	FTP**	Amount	FTP**	Amount	FTP**	Amount
FY 1990 Estimate	58	3,610	1	51	-	260	-	48	-	-
FY 1991 Estimate	58	3,713	1	61	-	43	-	47	-	-
FY 1992 Estimate	58	3,723	1	61	-	42	-	32	-	-

\*FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The National Museum of African Art (NMAfA) is the only museum in the United States devoted to the collection, preservation, research, exhibition, and interpretation of the visual arts of sub-Saharan Africa. Although the Museum's primary emphasis is on the traditional cultures of the sub-Saharan region, it also studies and exhibits the arts of the entire continent. While the Museum's programs have their basis in the aesthetics of traditional African art, the Museum cooperates with organizations whose purposes complement and illuminate the art and cultures of Africa and enhance the visitor's experience and understanding.

For FY 1992, the Museum requests an increase of \$10,000 for curatorial travel.

PROGRAM - The National Museum of African Art educates and instills an appreciation for the cultures and visual arts of Africa. Staff accomplish these goals through the acquisition and care, research, exhibition, and interpretation of works of art of African history, cultures, and aesthetics.

Collections Acquisitions - The Museum acquired 18 important works of art in FY 1990. As creative cultural expressions, three of these sculptures are exceptional historically, technically, and aesthetically. A rare wooden throne from the Hehe peoples of Tanzania augmented the Museum's East African holdings, a region whose art traditions are often neglected. A figurative cast bronze ceremonial ring, from the Yoruba peoples of Nigeria, dating possibly as early as the 14th century is one of 11 known in the world. A power figure from the Teke peoples of the Republic of the Congo collected in the 1930s is a remarkably preserved and unusual conception in wood with additions of impacted clay and sand ritually applied to ensure the object's efficacy.

Collections Management - The Museum successfully implemented a state-of-the-art storage system for the permanent textile collection in FY 1990. Inventory, condition reports, conservation treatment, and organization of storage units for this collection of 600 textiles ensure its preservation and provide for future growth.

In FY 1990, the Museum enhanced its ability to access automated collection records with the development of a collections data base and installation of an IBM local area network in the Museum. Staff downloaded about 7,000 records from the former Selgem/Honeywell system to the IBM local area network. The Museum can refine and develop appropriate programs for record control, ongoing collections research and interdepartmental access. The staff has developed an automated program to manage conservation test results on all exhibit construction materials used in the Museum. Conservation laboratory research and development conducted in FY 1990 enabled the Museum to complete a computerized data base on the indigenous characteristics of the Museum's collections of West African ironwork, Benin bronzes, and Central African ceramics. These data will determine appropriate conservation treatments that will begin in FY 1991.

Research - The Museum's famous Benin bronze collection was the subject of an article on conservation analysis results published in FY 1990 in volume 124 of the Materials Research Society Symposium Proceedings. Two FY 1990 publications grew out of scholarly symposia organized by the Museum in 1987 and 1988: African Art Studies: The State of the Discipline includes revised and expanded research papers on the history and the future of African art studies; History, Design, and Craft in West African Strip-Woven Cloth includes current scholarly field research on strip-weaving traditions. Continuing its commitments to both scholarly research and public exhibition, the Museum's curatorial staff advanced its research on the permanent collections of Central African pottery, African utilitarian art forms, and the life and catalogue raisonné of works by the Nigerian master carver, Olowe of Ise.

American scholars have seldom studied the aesthetic of African nomads, yet 25 percent of African populations are pastoral. Museum research in progress in FY 1990 focused on the development of a film on the art and architecture of an African nomadic people, the Gabra of Kenya.

The Eliot Elisofon Photographic Archives, a major research resource in African art, history, and culture, strengthened its historical holdings. In FY 1990 the most important Archives acquisitions were a collection of more than 400 vintage postcards of Africa documenting costume, architecture, sites and celebrations, ca. 1914-40, and a collection of 34 images documenting the 1943 funerary celebration of a paramount chief in Abuakwa, Ghana. Archives staff continued duplicating and housing original images.

Exhibitions - Among the ten exhibitions on view or in preparation during FY 1990 was "Icons: Ideals and Power in the Art of Africa." This major international loan exhibition explored how African peoples depict five iconic representations symbolic of power and expressive of shared cultural ideals. The sculptures, including works from the Museum's collection, ranged from the 11th to the late 20th centuries. Three films shot on location in Africa for the Museum further illuminated this exhibition.

"Yoruba: Nine Centuries of African Art and Thought," a touring loan exhibition, included 17 archaeological masterpieces from Nigerian museums in Ife and Lagos. Nigeria's National Commission for Museums and Monuments made possible the archaeological loans. The director general of the Commission attended the Washington opening gala and participated in discussions with the Museum's staff.

"Africa Illustrated: Fantasy and Reality before 1900" was jointly undertaken by the Museum and the National Museum of African Art Branch of Smithsonian Institution Libraries.

The staff installed this exhibition in the newly created gallery space reserved for small-scale, innovative, and experimental projects.

Major new permanent installations from the Museum's collection include exhibitions of Central African pottery and of utilitarian objects.

Publications - In FY 1990, the Museum published (in conjunction with the Smithsonian Institution Press) Icons: Ideals and Power in the Art of Africa, an in-depth study of African art that complements the exhibition of the same name. Other books in preparation, based on the Museum's permanent collection, are "The Art of the Personal Object" and "Purpose and Perfection: Pottery as a Woman's Art in Central Africa."

Education - The Museum educates the public about African art through its interpretive programs, including tours, outreach, school and teacher training programs, and symposia and seminars. In FY 1990, staff emphasized documentary, ethnographic, and feature films as well as videotapes to enhance understanding of the contexts of African art. The FY 1990 film series and panel discussions on "African Reverberations: Films about Africa and New World" effectively explored the complex ties that bind African and African-American creativity and cultures. Films produced by the Museum complement its exhibitions as important educational tools, and the staff use these films well beyond the life of an exhibition.

EXPLANATION OF PROGRAM INCREASE: - For FY 1992, the Museum requests an increase of \$10,000 for curatorial travel.

Curatorial Travel (\$10,000) - NMAFA curators conduct collections-based research and share their findings with the Museum's visitors. Curatorial research is the foundation for scholarly publications, collections documentation, development of the Museum's Eliot Elisofon Photographic Archives, and future exhibitions, all of which enhance knowledge of the art of Africa and the cultural heritage of African Americans. This research must include travel in Africa, Europe, and the United States to examine works of art and consult with other specialists.

African art and cultures are poorly understood by most of the American public. Curators conducting original research will make a giant step forward in correcting false Western notions about the anonymity of all African artists and about stylistic determinants. NMAFA has two major curatorial projects on hold. The first project is a study of the life of the most important Yoruba sculptor in this century, Olowe of Ise (Nigeria, d. 1939), that includes a catalogue raisonné. This research requires on-site investigation and collaboration with Nigerian scholars. The published results will be the first monograph devoted to an African artist in the history of African art studies. The second project involves a comprehensive analysis of art forms and their contexts from peoples who share historical and cultural affinities in the West African region of the Ivory Coast. This complex visual, historical, and cultural analysis will be the first comprehensive examination ever undertaken in this region. In order to proceed with these two projects, NMAFA needs additional funding to support travel costs.

The funds requested will enable NMAFA's staff to conduct firsthand field research on Africa's histories, cultures, and visual arts in Africa, Europe, and within the United States in support of these and future projects. The National Museum of African Art, as the only museum in the United States devoted to the collection, preservation,

interpretation, and exhibition of the visual arts of Africa, must take the lead in research of this type.

Travel to Africa and other sites for staff to conduct original research can benefit the American public and maintain the integrity of information on African cultures and visual arts. Such research increases the scholarly knowledge and understanding of African art and fosters stronger ties between the United States and the nations of Africa.

NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - These funds come from the Museum's share of net proceeds from the museum shop, courses conducted in cooperation with Washington metropolitan area public education institutions, and allotments. NMAfA uses these funds to provide additional support for the Museum's education and collections acquisition programs, exhibition openings, publications, and travel costs associated with the Museum's commission meetings. An allotment also supports the salary costs of one employee. In FY 1990, a grant from the Women's Committee of the Smithsonian National Associates Program funded the development of educational materials and programs for the hearing impaired and the deaf. Funds are available from the Institution's Collections Acquisition, Scholarly Studies and Educational Outreach Program, Research Opportunity Fund, and Special Exhibition Fund to support research, education, and exhibition projects.

Restricted Funds - Individuals, foundations, organizations, and corporations contribute these funds in the form of grants and gifts for specific purposes. The Museum receives income from a collections acquisition endowment established in FY 1988. A grant from the Shell Oil Company Foundation received in FY 1989 will support costs for one academic internship and the Museum's Film Series Program. A generous pledge over a five-year period, begun in 1988, augments the Museum's Federal publications funds. A grant from the James Smithson Society supplemented Federal funds to make possible the acquisition of a power figure from the Teke peoples of the Republic of the Congo.

ANACOSTIA MUSEUM

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	20	1,002	1	47	-	-	-	-	-	-
FY 1991 Estimate	20	1,073	1	57	-	-	-	-	-	-
FY 1992 Estimate	23	1,174	1	57	-	-	-	-	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The Anacostia Museum is a national resource on African-American history and culture. The Museum's exhibitions, scholarly and applied research, historical documentation, and interpretive and educational programs offer scholars and the public the opportunity to study the history of black America from a unique cultural perspective. The Anacostia Museum, a community-based entity, reaches out to nontraditional audiences.

For FY 1992, the Anacostia Museum requests an increase of 3 workyears and \$101,000 to provide an outreach coordinator and support staff (2 workyears and \$63,000) and an education specialist (1 workyear and \$38,000).

PROGRAM - The Anacostia Museum focuses on research, collections, interpretation, publications, and exhibitions pertaining to African-American contributions to science, history, art, and culture and to contemporary urban issues. The Museum is viewed as a national prototype as well as a primary resource for materials of African-American history and culture.

Research - During FY 1990, the Museum continued research on the following exhibitions:

- "To Achieve These Rights: The Struggle for Equality and Self-Determination in the District of Columbia, 1791-1991" is scheduled to open in FY 1992. Commemorating the bicentennial of the founding of the District of Columbia, the exhibition will examine the struggle by African Americans to secure equal rights in the Nation's Capital. It will focus on how the laws of Congress and the District of Columbia have affected the political and social standing of African Americans and their struggle to change the laws.
- "African Americans in the Diaspora" (working title) will explore African-American communities from Latin America, North America and the Caribbean as represented in the Washington, D.C., area. This exhibition and a series of accompanying programs throughout the metropolitan area are scheduled for FY 1991/FY 1992.

Collections - The Museum enhanced its collections with 33 videotapes showing services in black churches in Atlanta, donated by the Atlanta Interfaith Broadcasters Cable Network. The Museum also received papers and articles from the estate of the Reverend Maurice Kidder of Chapel Hill, North Carolina, donated by Phyllis Alden, a descendant of Rev. Kidder. The District of Columbia Museum turned over to the Anacostia Museum 75 boxes containing artifacts obtained from an archeological project in conjunction with subway construction in the Anacostia community. To care for its collections, the Museum hired a registrar during FY 1990.

Interpretation - The Outdoor Learning Center's George Washington Carver Nature Trail opened in July 1990. Its mission is to encourage a greater appreciation for ecology among African-American youth residing in urban areas and to encourage them to pursue careers in the sciences. Summer workshop classes associated with the Nature Trail have been booked to capacity.

The Museum continued to present a wide variety of interpretive programs such as films and performances; lectures and demonstrations by local inventors; an original play detailing the history of an African-American family; a seminar for teachers on African-American visual arts in Washington, D.C.; and monthly programs on conservation, genealogical research, archival techniques, and exhibition methods and procedures sponsored by the Friends for the Preservation of Afro-American Culture.

Publications - The Museum published the catalogue The Real McCoy: African American Invention and Innovation, 1619-1930 in April 1990 to accompany an exhibition of the same name. It traces the introduction of African-derived technologies into colonial America and discusses how the inventions of 18th-, 19th-, and early 20th-century African Americans shaped the development of American life.

In the spring of 1990 the Museum published the first issue of the Newsletter of the Anacostia Museum, slated for quarterly publication.

Audio-visual publications included an interactive video entitled "Are You An Inventor?" which encourages creativity and inventiveness in young people. The Museum also produced a video documenting the history of the black church in the United States.

Future publications will focus on the struggle to achieve equal rights in the District of Columbia and on African-American communities in the Western hemisphere. The Museum will also publish a catalogue of the exhibit "Whose Art Is It, Anyway? The Arts in Public Places." The catalogue documents community outreach efforts underlying the development of the innovative exhibit and presents highlights of the program.

Exhibitions - "The Real McCoy: African American Invention and Innovation, 1619-1930," originally scheduled to close in November 1989, was extended through May 1990 by popular demand. Museum attendance increased 90 percent during this exhibition.

"Whose Art Is It, Anyway? The Arts in Public Places," an interactive exhibit, which opened in July 1990, investigates the visual and performing arts in public places. As part of the Museum's mission to explore urban issues, the exhibit and accompanying forum examine decision-making processes for the placement of public art in urban communities. The Museum has scheduled the exhibit to run through September 15, 1990.

"Connections: African American Women Artists from the Upper South" will open during the winter of 1990-91.

Special Projects - The Museum has convened a series of Community Roundtable Discussions with participants from the Museum's staff and its Board of Directors, Smithsonian Institution central administration, community activists, staff representing other museums from around the country, and Anacostia Museum supporters. These Community Roundtables will assist Anacostia Museum administrators with future planning, programming, and direction and provide guidance for the Museum's potential expansion to facilities at the Poplar Point site.

In collaboration with the Smithsonian Museum Shops, the Anacostia Museum opened a new museum shop during FY 1990. It offers a variety of merchandise related to Museum exhibits and collections, as well as items representing the diverse history and culture of African Americans.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, the Anacostia Museum requests an increase of 3 workyears and \$101,000 to provide an outreach coordinator and support staff (2 workyears and \$63,000) and an education specialist (1 workyear and \$38,000).

Outreach Coordinator and Support Staff (2 workyears and \$63,000) - Community-targeted outreach programs are needed to promote the Museum's presence and stature within the community. Currently, the Museum's location, not convenient to public transportation, isolates it from the people it is intended to serve. A new outreach effort, with an outreach coordinator and support staff, will initiate museum programs and activities to serve the Museum's visitors and surrounding community.

The coordinator will develop portable classroom educational materials and resource publications. The coordinator will also organize a speaker's bureau consisting of lecturers, demonstrators, and visual and performing artists. The outreach program will work with schools and community groups to develop programs and activities that meet specific community needs and interests.

The Museum will use the requested funds to hire an outreach coordinator and support staff to develop and implement outreach efforts for the Anacostia Museum.

Education Specialist (1 workyear and \$38,000) - The immediate neighborhood of the Anacostia Museum lacks many of the informal educational resources available in more stable and affluent areas of the city. Permanent staffing for the Outdoor Learning Center will advance "diffusion of knowledge" within the neighboring community and promote the Museum's activities and programs in an informal public setting.

The Outdoor Learning Center features the George Washington Carver Nature Trail established in July and located on 15 acres of park land adjacent to the Museum. The Center provides inner-city children the opportunity and environment to study urban science, ecology, and the history of the Anacostia neighborhood. Programs and activities challenge participants both intellectually and physically, stimulating a quest for knowledge of the surrounding environment and self-awareness.

The requested funds will allow the Museum to hire an education specialist to develop collaborative, year-round programs with local schools, community organizations, and other local institutions. The specialist will develop curriculum materials and create training

facilities for individuals and families that will provide additional educational opportunities within the Anacostia community. This new position will enhance the scope of the Anacostia Museum's educational offerings and its service to the community.

NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - An annual allotment supports the salary and benefit costs of an exhibit specialist. The exhibit specialist is responsible for the fabrication of all exhibition components and the construction of special packing crates for traveling exhibitions. Additional funds derived from donations and exhibition rentals purchase supplies and materials to support the Anacostia Museum's programs.

Restricted Funds - These are gifts that organizations and individuals have designated to support specific Anacostia Museum programs.

CONSERVATION ANALYTICAL LABORATORY

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	42	2,551	-	-	-	25	-	-	-	-
FY 1991 Estimate	42	2,648	-	-	-	25	-	-	-	-
FY 1992 Estimate	44	2,983	-	-	-	25	-	-	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The Conservation Analytical Laboratory (CAL) located at the Museum Support Center in Suitland, Maryland, is the Smithsonian's specialized research facility for the conservation and technical study of museum objects. CAL helps the Smithsonian and other museums in the study, preservation, and conservation of objects of artistic, scientific, cultural, and historical importance. CAL staff examines the conservation-related properties of these materials, extracts historical information from their technical record, and improves conservation treatment technology. Staff conservators apply the knowledge gained from scientific research directly to the actual treatment of objects. Experience with a wide range of materials and expertise in analytical and technological studies enable CAL to engage successfully in collaborative research with anthropologists and art historians. The wide variety in the state of preservation of objects in the National Collections provides the overview needed to define directions in conservation research. CAL also conducts a conservation training program that includes basic and advanced conservation training, supports and organizes workshops and seminars, and disseminates the latest knowledge in the field of conservation and cultural materials research to museums and research professionals throughout the United States and the world.

For FY 1992, the Conservation Analytical Laboratory requests an increase of 2 workyears and \$335,000 to upgrade or replace research equipment (\$200,000); to develop a research program for the preservation of natural history specimens (1 workyear and \$85,000); and to support chemical analysis of archeological materials (1 workyear and \$50,000).

PROGRAM - The Conservation Analytical Laboratory's major programs are archaeometry, conservation research, conservation training, and technical information. These programs, while distinct, share methodologies and requirements for equipment and staff expertise. Their integration within CAL brings a strong mutual, positive reinforcement.

Archaeometry - In this program physical and natural scientists collaborate with scholars from the arts and humanities to address questions of an art historical or

archeological nature. A number of techniques used in these programs require specialized facilities that CAL, through collaborative agreements, operates with the National Institute of Standards and Technology (NIST).

In FY 1992, research on 19th-century paintings by selected American artists, using various technical means including autoradiography, culminated with the preparation of a technical section for the Albert Pinkham Ryder exhibition. This exhibition opened at the National Museum of American Art (NMAA) and will subsequently travel to New York and London. CAL and NMAA jointly organized a national symposium on technical studies in American painting. With funding support from the Samuel H. Kress Foundation and the James Smithson Society, CAL expanded its facilities for autoradiography at the NIST research reactor. CAL staff can now increase the number of paintings studied in collaborative projects with other institutions.

Biogeochemical research at CAL resulted in successful protocols for isolating and identifying immunoglobulin and DNA from archeological skeletal material. This research potentially opens the way to studies of exposures to specific diseases and of genetic relationships in ancient humankind.

As a result of the increased focus on collaborative efforts with Latin American scholars, CAL, in cooperation with the United States Information Agency and the Latin American Scholarship Program of American Universities (LASPAU), organized a seminar for Latin American Fulbright Fellows studying in archeological programs in the United States. This seminar addressed issues of the application of scientific analytical methodologies to archeology.

Conservation Research - Research in this program pursues the identification and characterization of the chemical and physical processes involved in the deterioration of materials in museum collections (conservation science) and the development and evaluation of treatment techniques for instable collection items (conservation technology). CAL's research scientists and conservators address these research questions in collaborative teams.

The potential for damage to paintings due to shock and vibrations during travel was the subject of a research project performed in collaboration with the National Gallery of Art and the Canadian Conservation Institute. For 1991, these groups are planning an international conference in London on this subject. A series of workshops in the United States will communicate the results of the studies to the museum profession.

Research on the deterioration of modern materials, an ever-increasing problem in museum collections, started with a study on elastomeric materials, especially rubbers, in the collections of the National Air and Space Museum (NASM). The Museum faces problems in preserving items such as the space suits worn by the early American astronauts. The emphasis of this work is on formulating conditions appropriate for the long-term storage of these materials.

Specialists in photographic materials isolated the cause of a deterioration phenomenon in wet collodion glass plate negatives, which constitute a significant part of the photographic collections in several Smithsonian museums as well as other institutions. The staff anticipates that this work will lead to the formulation of more appropriate storage conditions for these materials.

In a multi-year project, the researchers are studying the chemical and physical effects of solvents, which are used in the removal of deteriorated varnishes from oil paintings, on the underlying paint layers. In FY 1990, the researchers produced new data on the potential chemical effects that were of great interest in the museum conservation community.

The analytical services section provided scientific and technical support to conservators and curators throughout the Smithsonian. The staff formulated a priority plan for updating and replacing CAL's scientific equipment. Replacement has become an urgent issue as many of the instruments are nearing the end of their expected useful lifetimes.

Conservation Training - The six students in the first class of the furniture conservation training program graduated at the end of FY 1990. The success of this program is illustrated by the fact that the majority of students in the second class, who finished their first year of course work during the same period, have already found employment as junior staff in conservation departments in major United States museums.

CAL organized eight advanced courses for conservators on subjects such as on-site archeological conservation techniques, display materials, use of the suction table in paper conservation, color theory and measurement, and analysis of historic textile dyes. CAL conservators and scientists taught one semester of specialized courses in the joint CAL-Johns Hopkins University Conservation Science Training Program and supervised the research performed by the students in this program as part of their degree requirements.

In the internship program, five conservators received postgraduate internship training, three preprogram students spent one year working with CAL staff, and three other students trained at CAL during summer internships. Thanks to financial support from the Samuel H. Kress Foundation, one postgraduate intern worked on an archeological excavation at Harappa, Pakistan, under the supervision of a CAL conservator.

Technical Information - CAL technical information staff successfully integrated the extensive bibliographic conservation information file of more than 22,000 entries into the international cooperative Conservation Information Network (CIN). The importance and success of this network, of which CAL is a contributing partner, are demonstrated by the rapid increase in demands for literature searches performed by CAL's information specialists on behalf of conservation researchers and students throughout the Smithsonian.

CAL's public conservation information program answered approximately 1,200 questions from the general public.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, the Conservation Analytical Laboratory requests an increase of 2 workyears and \$335,000 to upgrade or replace research equipment (\$200,000); to develop a research program for the preservation of natural history specimens (1 workyear and \$85,000); and to support chemical analysis of archeological materials (1 workyear and \$50,000).

Upgrade or Replacement of Research Equipment (\$200,000) - In recent years, CAL has acquired an international reputation for leadership in the interdisciplinary research areas of archaeometry and conservation. This position is reflected in the publication record resulting from projects involving CAL staff and collaborating researchers from universities and museums worldwide. CAL also serves as a major study center in these

fields, with many scholars and students participating in various opportunities offered at the Laboratory.

The research conducted at CAL requires the cyclical replacement of very sophisticated scientific equipment to keep pace with advances in technological innovations. While CAL has utilized both Federal and Trust support on many occasions to acquire state-of-the-art instrumentation needed for the pursuit of its scientific activities, its current base resources are insufficient to institute a systematic program of updating and replacing research equipment. Such a program is essential for CAL to maintain its position in the forefront of conservation research. In general, scientific equipment has a limited lifetime, after which repair costs can mount to substantial levels and replacement parts become virtually impossible to obtain.

With the requested funds, CAL will initiate a replacement program to update older and obsolete scientific equipment and introduce new analytical technologies into its research programs. Some examples of the equipment that CAL will replace or update are the X-ray fluorescence spectrometer, scanning electron microscope plus analysis attachments, X-ray diffractometer, VIS/UV spectrophotometer, FTIR spectrophotometer and IR microscope, gas and liquid chromatograph, special photographic equipment, and mechanical test equipment.

Establishing a periodic upgrade and equipment replacement program will safeguard CAL's ability to maintain its leadership and preserve the Nation's cultural heritage.

Research Program for the Preservation of Natural History Specimens (1 workyear and \$85,000) - The National Museum of Natural History (NMNH) collections are a resource used by researchers nationwide. Similarly, extensive collections in other natural history museums are important to researchers in the biological and earth sciences. With the requested funds, CAL will do research on issues that affect the preservation of these priceless and irreplaceable scientific collections.

Preserving natural history specimens is more complicated than preserving other types of museum objects, such as works of art. First, the size of the scientific collections in a natural history museum are several orders of magnitude larger than a typical art museum collection, thus rendering the single object orientation, typical in the latter, unusable. Second, the processing of newly collected biological materials introduces an extra step that can seriously affect preserving the specimens. Finally, the research use of these collections severely restricts the chemical or other interventions that researchers can employ to stabilize them. New biological science research techniques, especially on the molecular level, require the integrity of the original material, with no changes in the chemical makeup of the specimens that could affect the outcome of research experiments. Existing preservation treatments do not meet these standards. Consequently, their influence on the later use of specimens is largely unknown, and new techniques that avoid the potential destruction of research information do not yet exist.

The Conservation Analytical Laboratory, which specializes in research concerning the conservation of museum collections, is uniquely qualified to undertake the urgently needed research into the preservation of natural history specimens. Contacts with natural history collections outside the Smithsonian as well as NMNH have resulted in the formulation of a research program and the establishment of collaborative ties. To take responsibility for this research, CAL will hire a scientist (1 workyear and \$57,000). To provide adequate

support for the scientist, CAL also requests \$28,000 to fund supplies, equipment, travel, and contractual services.

This program will produce data that will enable natural history museums across the Nation to make informed decisions on preservation and conservation techniques for processing and managing their unique and often irreplaceable collections. CAL expects that in the future the program will grow appreciably. Postdoctoral fellows funded through outside support will do much of the research.

Chemical Analysis of Archeological Materials (1 workyear and \$50,000) - At the research reactor of the National Institute of Standards and Technology (NIST), and as part of a cooperative program with NIST, CAL operates a dedicated facility for trace element analysis of archeological materials. The extreme care bestowed on the design of analytical procedures and instrumentation has led to unequaled precision in the data obtained. In addition, CAL operates the Smithsonian Archaeometric Research Collections and Records (SARCAR), which contains a large computer data base of analytical data derived from archeological artifacts worldwide. The combination of high-quality analyses, the extensive data base, and a package of sophisticated statistical techniques used in the interpretation of the data have created a unique environment for state-of-the-art archeological science.

CAL's facilities for neutron activation analysis constitute an internationally renowned resource for archeological analysis of the provenance of ceramic and lithic materials. The concomitant increase in samples submitted in the course of collaborative research projects has necessitated a significant increase in the capacity of this facility. To accommodate the increased demands for analyses, CAL built and installed a second gamma spectrometer system. This system doubles the capacity of the facility and will enable analysis of 2,500 samples of archeological material per year.

While CAL has added the necessary instrumentation, a laboratory technician (1 workyear and \$40,000) is needed to operate the system and thus ensure greater productivity. To provide adequate support for this program, CAL requests \$10,000 to fund supplies and contractual services.

CAL's dedicated analytical facilities for archeological research are a unique national resource. Operating two spectrometers 24 hours a day will accommodate scholars who collaborate with CAL staff on various archeological investigations. Increasing the staff will ensure that CAL reacts positively to proposals submitted by scholars from universities and institutions worldwide for collaboration on important archeological investigations.

#### NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - These funds derive from the fees charged to participants in the advanced conservation specialist programs sponsored by CAL. These fees partially offset the expenses incurred in organizing the courses. Funds from the Smithsonian's Scholarly Studies Fund and Research Opportunity Fund are available to support research projects.

OFFICE OF EXHIBITS CENTRAL

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	46	1,937	-	-	-	150	-	-	-	-
FY 1991 Estimate	46	2,006	-	-	-	192	-	-	-	-
FY 1992 Estimate	49	2,106	-	-	-	187	-	-	-	-

\* FTE = Full-time equivalent  
 \*\*FTP = Full-time permanent

ABSTRACT - The Office of Exhibits Central (OEC) offers expertise in all phases of exhibit design and production to Smithsonian museums and bureaus. OEC's specialists and state-of-the-art facilities handle all aspects of Smithsonian exhibitions, including design, graphics, models, and fabrication. OEC also designs and builds shipping containers for Smithsonian traveling exhibitions. OEC exhibition projects involve artifacts both from Smithsonian collections and from other museums and private collections. To improve service to the public and international sponsors, OEC will coordinate Smithsonian exhibition spaces currently not administered by a Smithsonian museum.

For FY 1992, OEC requests an increase of 3 workyears and \$100,000 to expand the exhibition production services it makes available to Smithsonian museums.

PROGRAM - FY 1990 was a year of diversity for OEC both in the variety of projects and in the number of clients. The following accomplishments illustrate the range of expertise available from the Office of Exhibits Central:

- Anacostia Museum. OEC edited two exhibit scripts: "P.H. Polk" and "Whose Art Is It, Anyway?"
- Experimental Gallery. For space planning, the Model Shop built a scale model of the new gallery in the Arts and Industries Building. OEC designers are advising on transformation of the existing space into a changing exhibition gallery.
- Hirshhorn Museum and Sculpture Garden. The Sheet Plastics Shop produced about 30 vitrines. The Model Shop is refurbishing a model of Tatlin's Tower for a European tour. Conceived by the Russian architect and artist Vladimir Tatlin, Tatlin's Tower was to be the world's largest building, designed in four tiers that would rotate independently of each other according to the hour of the day and day of the calendar. OEC built the model several years ago for a Hirshhorn exhibition.

- International Center. OEC designed a brochure and the installation for the "Pre-Hispanic Foods" Columbus Quincentenary exhibit.
- National Air and Space Museum. The Model Shop made a 1/16 scale model of a German World War I biplane for an upcoming exhibit. The Shop also built a prehistoric dragonfly based on fossil evidence.
- National Museum of American Art. The Graphics Unit produced period stenciling for a floor mat and the floors of exhibit platforms for "Treasures of American Folk Art from the Abby Aldrich Rockefeller Folk Art Center." The Unit also provided silk-screening and stenciling for "Made with Passion: The Hemphill Folk Art Collection in the National Museum of American Art."
- National Museum of American History. OEC designed, edited, and produced "Go Forth and Serve: Black Land-Grant Colleges Entering Their Second Century." For "Parlor to Politics: Women and Reform in America from 1890 to 1925," the Graphics Unit mounted photographs, silk-screened text panels, and produced the title sign.
- National Museum of Natural History. The Fabrication Unit produced 21 large wall cases to display Chinese hell scrolls, which depict the ten stages through which the souls of the dead atone for their transgressions before reincarnation. OEC also designed the installation for "20th-Century Dinosaurs" in the Evans Gallery.

For "Beyond the Java Sea: Art of Indonesia's Outer Islands," the OEC editor worked with Museum curators to edit the script for a wide audience and to write the gallery brochure. The Model Shop fabricated a mannequin of a warrior. The Fabrication Unit built more than 50 custom exhibit cases and will build shipping containers. The Graphics Unit mounted photographs and silk-screened interpretive text and labels.

- National Zoological Park. OEC painted two murals: a background for the rhinoceros iguana in the Reptile House and a coral reef background for a Great Barrier Reef aquarium in the Australia House.

OEC designed a new entrance and introductory area to the Bat Cave, formerly a holding area beneath the Lion and Tiger exhibit, and produced life-size models of bats. OEC also prepared a preliminary design and scale model for an expanded exhibit about bats.

- Office of Folklife Programs. The Graphics Unit mounted photographs and silk-screened text for the Festival of American Folklife.
- Office of Horticulture. OEC supported the "Trees of Christmas" exhibit and assisted with the dinosaur topiary on the grounds of the National Museum of Natural History.
- Product Development and Licensing. The Model Shop cast a detail from a colonial highboy that will be reproduced commercially for the Museum Shops.
- Resident Associate Program. OEC supported the "Discover Graphics" and "Infinite Illusions" exhibits.

- Smithsonian Institution Libraries. OEC designed and edited the "Science and the French Revolutionaries" exhibit and brochure.
- Smithsonian Institution Traveling Exhibition Service (SITES). "Climbing Jacob's Ladder: The Rise of the Black Churches in Eastern American Cities, 1740-1877" was adapted from an exhibit at the Anacostia Museum. OEC designed the exhibit for travel, edited the script, and produced panels, freestanding units, and shipping containers. OEC produced two copies of the exhibit for travel.

OEC designed, edited, and produced "The Road to Heaven Is Paved by Good Works: The Art of Reverend Howard Finster" and prepared 40 pieces of folk art for travel, including some custom brackets.

OEC designed and produced interpretive text and photo panels for "Frank Lloyd Wright: Preserving an Architectural Heritage." The Office also designed and produced brackets for several pieces, and OEC specialists advised the Domino's Pizza Collection on packing fragile stained glass.

In addition to 15 new exhibitions that OEC designed and/or produced for SITES, exhibits that ended their tour came to OEC for dispersal. Other exhibits came in for refurbishing before continuing their tour. Among these was "Exploring the Planets," which OEC updated to include new photographs and information about Neptune.

OEC provided working drawings for building shipping containers that SITES can use when contracting for shipping containers.

- Smithsonian National Associate Program. OEC designed and/or edited nearly 50 travel brochures.
- Visitor Information and Reception Center. The Fabrication Unit built all the cherry furnishings (except the two desks) in the Smithsonian Information Center. OEC also designed and produced the graphics and directional signage.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, OEC requests an increase of 3 workyears and \$100,000 to expand the exhibition production services it makes available to Smithsonian museums.

Expansion of Current Support for Exhibitions (3 workyears and \$100,000) - Expanding the Smithsonian's exhibition design and production resources will benefit the public and the Institution. With additional staff, OEC can design and produce exhibitions for Smithsonian museums for less than the cost of outside contractors. In addition, OEC's expanded exhibition capability will strengthen its ability to support SITES' effort to provide more Smithsonian traveling exhibitions to smaller organizations that have had limited access to Smithsonian collections in the past.

When OEC is forced to turn down a request due to lack of staff, either the project fails to proceed according to schedule, thereby increasing the cost, or the project goes to more expensive outside contractors, an alternative that also increases the cost. The number of project requests to OEC will increase for several reasons. First, a 1988 study by the Smithsonian's Management Analysis Office (MAO) has shown that exhibitions produced by OEC are significantly less expensive than those produced by outside contractors. Specifically, SITES plans to increase the number of its reasonably priced exhibitions for

small and medium-sized museums and historical organizations. Better service to these organizations is important to the Institution's goals of reaching more culturally, ethnically, and economically diverse audiences. In order to keep the production costs (and, therefore, the participation fees) down, SITES will rely more heavily on OEC's services. In addition, several new and active exhibition spaces, such as the International Gallery in the S. Dillon Ripley Center and the Experimental Gallery in the Arts and Industries Building, will depend on OEC since no museums with production capabilities provide exhibition services to these locations.

The requested resources will enable OEC to hire three new staff members. Two exhibit specialists (2 workyears and \$68,000) will prepare labels and text panels, mount photographs, frame artwork, and provide general exhibition fabrication. The other position will be a writer-editor (1 workyear and \$25,000) to work on labels, texts, and brochures in addition to proofreading and specifying typography. Support funding will purchase supplies and materials (\$7,000).

These positions will not only allow OEC to contribute to greater cost-efficiency throughout the Institution but will also allow OEC to respond to greater public needs by providing support for pan-Institutional gallery spaces.

NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - Proceeds from the sale of the OEC book A Freeze-Dry Manual through the Smithsonian Institution Press and reimbursements from internal Smithsonian units provide these funds. OEC uses the funds to purchase supplies, materials, and services in support of OEC activities; to defray costs associated with special events; and to supplement travel expenses.

SMITHSONIAN INSTITUTION TRAVELING EXHIBITION SERVICE

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	17	793	8	314	24	1,835	-	508	-	10
FY 1991 Estimate	18	874	8	374	-	2,342	-	1,334	-	44
FY 1992 Estimate	28	1,874	8	374	-	2,370	-	700	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The Smithsonian Institution Traveling Exhibition Service (SITES) expands the Smithsonian's presence beyond Washington, D.C., by circulating exhibitions to public audiences in museums large and small and in schools, libraries, science centers, historical societies, zoos, aquariums, and community centers. SITES exhibitions reach nearly 11 million people annually in the United States and abroad. A commitment to audience access drives the development of all SITES programs. SITES's top priority is increasing the availability of Smithsonian-created exhibitions among people who cannot see them firsthand by visiting the Institution's museums. Facilitating the sharing of exhibitions created outside the Smithsonian--SITES's second priority--is another way SITES works to respond to diverse program needs and interests.

For FY 1992, the Smithsonian Institution Traveling Exhibition Service requests an increase of 10 workyears and \$1,000,000 to increase its base.

PROGRAM - The Smithsonian Institution Traveling Exhibition Service reconfigures and packages for widespread circulation exhibitions created by the Smithsonian museums and by institutions and organizations outside the Smithsonian. SITES tailors the form and content of these exhibitions to meet the program needs and technical capabilities of diverse museums and cultural and educational facilities worldwide.

In developing exhibitions for audiences of all ages and backgrounds, SITES strives to do more than present artifacts. SITES exhibitions represent a broad range of human perspectives; they pose questions, communicate abstractions, and challenge visitors to make connections between objects, people, places, events, and ideas. By emphasizing diverse viewpoints and by using inquiry as a means of interpreting exhibition themes and images, SITES hopes to encourage people to explore the full breadth of possibilities about themselves, others, and the world around them.

Smithsonian Exhibitions - SITES's FY 1992 schedule offers its largest representation of traveling exhibitions created at the Smithsonian. Among them is a traveling version

of "The Information Age," the National Museum of American History's interactive presentation on the relationship between people and communications technology; a National Zoological Park exhibition, "The Good, the Bad, and the Cuddly," about human perceptions of and attitudes toward animals; a Cooper-Hewitt Museum survey of propaganda imagery on porcelain, called "Revolution in Design"; an Anacostia Museum exhibition, "The Real McCoy," about African-American invention; a National Museum of American Art photographic retrospective entitled "Harlem Document"; the National Air and Space Museum's futuristic look at the next 500 years of space exploration called "Where Next, Columbus?"; and the National Museum of Natural History Columbus Quincentenary exhibition, "Seeds of Change." These projects are but a small sampling of the 40 Smithsonian exhibitions that, in FY 1992, will constitute nearly 50 percent of SITES's total program.

Exhibition Partnerships - Partnerships with institutions and organizations outside the Smithsonian enable SITES to meet more fully the program needs and interests of the diverse audiences it serves. In FY 1992, for example, SITES will strengthen its ability to respond to ever-growing requests for exhibitions about the environment by co-sponsoring "Fragile Ecologies" with the Queens Museum in Flushing, New York. This survey of art installations highlights the planet's delicate ecological balance and the urgency of environmental preservation. Through a joint program with the National Geographic Society, SITES will circulate an aggressive, instructional exhibition to help reduce geographic illiteracy among school-aged youth. Hispanic audiences, long underrepresented in museum exhibitions, will have a fuller range of programs in which to participate with the inclusion in SITES's program of "Familia y Fe," an exhibition developed by Santa Fe's Museum of International Folk Art on cultural continuity in family and religious traditions. "Seeing without Sight," a traveling exhibition based on a project from Quebec's Museum of Civilization, will enable SITES to address for the first time issues and concerns involving physical disabilities.

Cultural Pluralism - Responding to the Nation's diverse cultural landscape mandates the representation of specific subject matter and the use of exhibition formats tailored to specific audience groups. SITES's efforts to achieve both of these goals emerge with special strength in its FY 1992 program. More than 13 exhibitions explore facets of the African-American experience, from the music of Duke Ellington to an international photographic survey, "Songs of My People," created and interpreted by Black photographers and writers. A new initiative to boost SITES's representation of Native-American exhibitions will begin with the circulation of "Plains Indian Arts" and "Tokpela," a project that sets contemporary Hopi artifacts within three-dimensional environments to convey relationships between modern-day imagery and traditional, spiritual sources. In both exhibitions, SITES will develop installation formats applicable to tribal cultural centers as well as to regional art museums.

Hispanic and Asian peoples, cultural groups SITES has not represented strongly in the past, are at the center of four exhibitions that will tour in FY 1992. These programs are based on an exhibition model that SITES initiated in 1988 to generate participation at the grass-roots level. Using this model, SITES hosts workshops, in advance of detailed exhibition planning, that bring together museum representatives, educators, civic leaders, and prospective financial supporters from every community on a given exhibition tour. Together they map out the content of the exhibit and the format of its design as well as educational programs responsive to the interests and concerns of the audience.

For organizations and groups unable to accommodate the technical requirements of traditional museum installations, SITES will make available inexpensive, alternative

exhibitions. In circulating "The Real McCoy," for example, SITES will produce a large-scale artifact exhibit that duplicates the original Anacostia Museum presentation as well as a smaller poster show created for schools, community centers, and regional inventor conventions. Along these same lines, SITES will develop two versions of the National Museum of Natural History's "Seeds of Change" exhibit. One, a collaborative format, will make available research information and design specifications from the Smithsonian's original exhibition to eight of the Nation's regional museums. These museums then will incorporate visual examples from their own collections, thus reinforcing themes pertinent to their communities and audiences. SITES's second "Seeds of Change" exhibit, a poster panel version, will circulate nationwide to libraries--institutions that badly need supplementary programs but have neither the budgets nor technical capabilities to host full-scale museum exhibitions.

To expand yet further its service capabilities to resource-poor institutions, SITES will continue to defray exhibition fees and shipping costs through a partnership with State Humanities Councils. SITES's activities in New Mexico set the model for this arrangement. There, the State Council agreed to fund participation and transportation fees for a group of host museums willing to book SITES exhibitions consecutively. Institutions throughout New Mexico that independently could not have afforded a SITES program thus not only scheduled a show but also created accompanying public programs by pooling their limited funds.

SITES is a high-visibility outreach arm of the Smithsonian. Its exhibitions cover myriad subjects and respond technically to the physical character of diverse settings. SITES hopes that its service capabilities in FY 1992 will enable more groups than ever before to experience the full range of exhibition programs available from America's foremost cultural address.

The Smithsonian's national presence challenges SITES to strengthen the role of exhibitions as vehicles of broad public education. In fulfilling its mission, SITES therefore seeks to enrich people not only by exposing them to collections and research but also by enabling them to understand and appreciate the information and insights these learning tools can provide.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, the Smithsonian Institution Traveling Exhibition Service requests an increase of 10 workyears and \$1,000,000 to increase its base.

Increase to Base (10 workyears and \$1,000,000) - This request to increase SITES's Federal base has one goal: to reduce the exhibition rental fees that SITES must charge and so make Smithsonian traveling exhibitions available to broader, largely underserved audiences across the Nation.

SITES's operating expenses are subject to cost recovery. In booking a SITES exhibition, host museums and educational institutions must pay rental fees that cover not only a program's direct production costs but also a percentage of SITES's staff salaries, office supplies, and equipment. If SITES were not saddled with the financial burden of recovering these expenses, then its exhibition rental fees could support direct program costs only. Fees would then be more affordable for smaller, regional museums, minority museums, schools, libraries, and community centers.

Salaries and benefits are the largest indirect cost burden on SITES's exhibition rental fees. With these requested funds, SITES will hire exhibition project directors and a scheduling/exhibitor relations director (10 workyears and \$512,000). The remaining funds will pay travel expenses for SITES technicians who provide on-site advice on climate control, security, and storage of exhibitions, and who assist with installing exhibitions at smaller institutions that do not have the expertise or resources necessary to mount exhibitions independently (\$40,000); subsidize shipping for institutions that cannot afford rapidly escalating transportation costs (\$80,000); pay printing and reproduction costs for educational brochures for small, economically fragile institutions (\$40,000); pay for office and construction supplies (\$98,000), office equipment (\$15,000), and communication costs (\$15,000); and pay for other services, notably production costs to the Smithsonian's Office of Exhibits Central and outside contractors for constructing, packing, crating, and framing exhibitions, and for curatorial and educational experts who serve as advisors for SITES exhibitions (\$200,000).

At the present time, diverse segments of the American public cannot benefit regularly from the Smithsonian's presence beyond Washington, D.C. SITES hopes to change that in FY 1992 by receiving an infusion of Federal funds that will increase the availability of Smithsonian traveling exhibitions and expand the range of people able to participate in them.

#### NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - SITES's annual operating budget comes largely from rental fees collected from museums and other recipients of traveling exhibitions. These fees, supplemented by an allotment, support exhibition development costs including staff salaries and benefits, design and production, publications, materials, outside specialists, and contractual services. The Smithsonian also supports certain SITES exhibitions on a selective basis with monies from the Special Exhibitions Fund.

Restricted Funds - Individuals, organizations, and corporations donate gifts and foundation grants for specific SITES projects. During FY 1990, SITES received support from the Boeing Company for "Moscow: Treasures and Traditions"; from the MacArthur Foundation for a Spanish-language version of "Tropical Rainforests: A Disappearing Treasure"; from the American Association of Retired Persons for "Coming of Age in America"; from Waste Management, Inc., and the National Solid Wastes Management Association for "Garbage!"; and from Northern Telecom for "The Information Age."

MUSEUM SUPPORT CENTER

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
			General		Special					
	FTE*	Amount	FTP**	Amount	FTP**	Amount	FTP**	Amount	FTP**	Amount
FY 1990 Estimate	42	4,263	-	-	-	10	-	-	-	-
FY 1991 Estimate	42	4,316	-	-	-	30	-	-	-	-
FY 1992 Estimate	85	13,954	-	-	-	20	-	-	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The Museum Support Center (MSC), located in Suitland, Maryland, is a state-of-the-art facility for the care, conservation, and storage of the Institution's collections. MSC provides collections storage in four discrete sections (or pods) for three types of needs: collections storage in cabinets; "wet" collections storage on open shelving for biological specimens in alcohol; and "high-bay" storage for very large objects. MSC also houses the Conservation Analytical Laboratory (CAL) and conservation laboratories for the National Museum of Natural History/Museum of Man (NMNH) and the National Museum of American History (NMAH), the NMNH Laboratory for Molecular Systematics and other NMNH specialized research laboratories.

For FY 1992, the Institution requests total funding of 85 workyears and \$13.954 million for the Museum Support Center, including the purchase of collection storage equipment (\$7.453 million); the preparation and transfer of collections to MSC (45 workyears and \$1.9 million); and the ongoing administration, information management, and facility management activities (40 workyears and \$4.601 million). The FY 1992 request reflects an offsetting reduction of 6 workyears and \$107,000 associated with the program to evaluate the effectiveness of cleaning techniques to remove asbestos contamination from museum objects prior to their move, which will be completed in FY 1991. The Institution requests that funding for MSC collections storage equipment and for MSC move costs continue to remain available until expended (for FY 1992, this sum totals \$9.353 million of this request).

The FY 1992 request for the Museum Support Center includes the following increases above the FY 1991 level: an increase of \$4.604 million for MSC collections storage equipment (over the FY 1991 base of \$2.849 million); an increase of 45 workyears and \$1.603 million for MSC Move costs (over the FY 1991 base of \$297,000, excluding funding for asbestos decontamination study); and an increase of 4 workyears and \$516,000 for MSC operations (over the FY 1991 base of 36 workyears and \$1.063 million). The 45 workyears requested for MSC Move includes 11 workyears associated with base funding used for the personnel costs of temporary on-board positions for the Move.

MSC also requests \$3,022,000 pertaining to a judgment relating to the purchase of equipment for Museum Support Center facilities. This cost is justified in the Uncontrollable Increases section of this budget.

PROGRAM - The Institution's Museum Support Center provides state-of-the-art facilities for the conservation and preservation of museum objects; conservation training; scientific research; and the storage of museum collections.

Conservation facilities occupy a significant portion of the laboratory wing, where activities include conservation treatment, scientific analysis, and training. Smithsonian conservation facilities at MSC include the Conservation Analytical Laboratory, the NMNH Anthropology Conservation Laboratory, and some of the facilities of the NMAH Division of Conservation. NMNH laboratories located at MSC serve as specialized research and service units. They include the Smithsonian Oceanographic Sorting Center and the Laboratory for Molecular Systematics.

The storage wing consists of four large storage pods. MSC will store collections in cabinets on three levels of concrete decks in Pods 1 and 2, and a portion of Pod 4. Pod 3 provides open shelving on three levels for storing "wet" collections (those in alcohol), and a portion of Pod 4 will allow "high-bay" storage of very large objects.

The move of millions of objects and specimens to the Museum Support Center is unprecedented in the museum world. The volume, characteristics, and variety of the collections and the distance of the transfer pose special challenges. The Smithsonian coordinates each phase of "the Move" using an automated project management system for complex projects. MSC Move staff inspects the objects for pests and conservation problems and properly stabilizes them prior to the move. The collections relocated to MSC are in less-crowded and better-controlled conditions than collections stored in most other Smithsonian storage areas. As a result, they have far greater potential for long-term preservation and use.

Early in the MSC planning process, the Smithsonian established the concept of the "Initial Move" to ensure a systematic transfer of millions of designated objects from the National Museum of Natural History and the National Museum of American History to the Museum Support Center over a multi-year period. The Initial Move collections will occupy approximately two-thirds of MSC storage space, and the remaining third will be available for future "Growth."

I. Status of MSC Collections Storage Equipment Reprocurement (August 1990) - In FY 1989, the General Services Administration (GSA), acting as the Smithsonian's agent, awarded the contracts for the four packages that provide the majority of the storage equipment required to relocate the Initial Move high-density collections to MSC. By July 1990, the contractor had installed 705 shelving cabinets and 2,184 drawer cabinets. The contractor completed installation of 764 insect cabinets in May 1990 and installation of 608 botany cabinets in July 1990.

GSA awarded the cantilever shelving units contract on March 8, 1990, and intends to award the compactor screens contract in fall 1990. The contractor should complete installation of the cantilever shelving units by March 1991. Also in fall 1990, GSA plans to solicit the final two bids for collections storage equipment: (1) for 96 x 50-inch large drawer and shelving cabinets, and (2) for specialized fencing storage units. GSA

anticipates the final completion of manufacture and installation of all storage equipment packages during 1993.

II. FY 1990 Move Activity Highlights - In FY 1990, the staff cleaned, prepared, and packed 280 historic dolls and 550 textile books from the National Museum of American History's Department of Social and Cultural History. These objects are in temporary storage at the Suitland facility until storage equipment is available at MSC. MSC Move staff also continued to move collections from the National Museum of Natural History, bringing the total to 322,400 specimen lots moved to the "wet" collections storage equipment and 4,259,300 specimens from the Department of Entomology moved to a temporary MSC storage location. Move staff have recently begun to relocate some of the collections temporarily stored in MSC Anthropology laboratory space into Pod 1 and more than 42,000 African and Asian ethnological objects from NMNH to Pod 1. Relocating these collections will make space available to house new NMNH staff included in the Institution's FY 1991 Congressional request to address Native-American repatriation.

III. Administration and Facility Management - MSC is rapidly achieving its full potential as a state-of-the-art facility for collections storage, conservation, and research. The Office of the Director coordinates activities of the various user and support units; oversees the automated data-processing center used for registration and collections management activities, including the MSC Move; and arranges services to meet the research and informational requirements of MSC occupants. The Office also oversees procedures to control and account for the flow of collections into and out of MSC and ensures the safety of the collections against pest infestations and other hazards.

Under the general supervision of the MSC's Office of the Director, the facility manager is responsible for providing shipping and receiving services, moving equipment and objects, overseeing safety and security operations, and cleaning and maintaining all aspects of the building. Also under the supervision of the Office of the Director, the MSC Office of Information Management provides computer services to staff throughout the Institution. The MSC VAX computer supports a variety of Institutional systems devoted to research, collections management, communications, and other administrative functions. Of particular significance is the MSC Move invoice system, which controls the Initial Move of more than 36 million specimens into MSC.

EXPLANATION OF PROGRAM INCREASE - The FY 1992 request for the Museum Support Center includes the following increases above the FY 1991 level: an increase of \$4.604 million for MSC collections storage equipment (over the FY 1991 base of \$2.849 million); an increase of 45 workyears and \$1.603 million for MSC Move costs (over the FY 1991 base of no workyears and \$297,000, excluding funding for asbestos decontamination study); and an increase of 4 workyears and \$516,000 for MSC operations (over the FY 1991 base of 36 workyears and \$1.063 million). The 45 workyears requested for MSC Move include 11 workyears associated with base funding used for the personnel costs of temporary on-board positions for the Move.

I. MSC Collections Storage Equipment Requirements after Completion of Reprocurement (\$4.604 million) - GSA currently estimates the reprocurement costs, including the construction of decking and utilities and the manufacture and installation of Initial Move high-density storage equipment for Pods 1, 2, and 4, to be approximately \$27.7 million. A total of \$27.4 million, including funding which the Smithsonian has already transferred to GSA through FY 1989 (\$24.6 million) and funding provided in the FY 1990 allocation (\$2.822 million), is available for this reprocurement. GSA has not changed this estimate.

The Institution will require approximately \$300,000 in FY 1991 to complete the reprourement. At the present time, unit price costs for the five types of storage equipment for which GSA has awarded contracts are firm, excluding escalation; the remaining three are still based on estimates. Under the terms of the contracts, GSA has built in annual escalation costs for equipment not installed within one year after contract award, limited to an annual maximum increase of 10 percent of the Producer Price Index for filing cabinets and cases and of 10 percent of the Engineering News Record Skilled Labor Index for freight and installation.

Following the completion of the reprourement, the Institution must address the three remaining requirements for MSC collections storage equipment that had been deferred from previous years to finish the reprourement: the design, purchase, and installation of:

- the Initial Move "high-bay" collections storage equipment for Pod 4;
- the balance (Growth) of the "wet" storage equipment for Pod 3;
- the balance (Growth) of the collections storage cabinets for Pods 1, 2, and 4.

"High-Bay" Collections Storage Equipment - The Smithsonian deferred the purchase of the Initial Move "high-bay" storage equipment for several years in order to complete the reprourement of the high-density storage equipment for the Initial Move. In FY 1991, the Institution plans to design the "high-bay" system, which will store such items as totem poles, whale skeletons, rickshaws, weaving looms, and furniture. This storage equipment will consist of industrial cantilever shelving racks; the necessary mechanical, electrical, and plumbing systems; and equipment to access these collections. Both NMNH and NMAH need this type of storage equipment.

Following the preparation of the final system design, the Smithsonian will contract for the components of the "high-bay" system and its installation. The current preliminary cost estimate of the final design and installation of the "high-bay" storage system, including escalation to FY 1991 price levels, exceeds \$2.0 million. This funding level is based on the estimated cost of this equipment in FY 1985, adjusted for escalation. The Institution will refine this cost estimate after the final design is complete. Actual cost for the "high-bay" storage equipment may vary with the actual bids received at the time of procurement and the effective inflation rate for the city of the bidder during bid submission.

"Wet" Collections Storage Equipment for Growth Areas in Pod 3 - The Smithsonian completed the Initial Move of "wet" collections in 1985. Within the next six years, the Institution plans to purchase additional "wet" storage equipment to occupy the balance of the Growth areas of Pod 3. The installation of the additional "wet" storage system will require metal columns, catwalks, and all utilities for the three-level, self-supporting structure of open shelving. The first phase of this work will require the services of an architectural/engineering firm to provide a design and a procurement cost estimate.

The present preliminary estimate for completing the Growth storage equipment in Pod 3 ranges from \$6.1 to \$8 million. The \$6.1 million estimate is based on the cost data for the design, management and inspection, and construction costs of the first part of the "wet" storage system installed in 1983, adjusted to include inflation at the rate of 6 percent per year. The \$8 million estimate also reflects the fact that the storage equipment for the Growth areas in Pod 3 will be more complicated than the original

equipment, resulting in higher costs. Following the design work of an architectural/engineering firm, the Institution can provide a more accurate estimate of total cost, including an appropriate cost for inflation.

Collections Storage Cabinets for Growth Areas in Pods 2 and 4 - After the installation of Initial Move storage equipment in Pods 2 and 4, the Institution will begin to purchase and install storage equipment for the Growth areas in these two pods. At the present time, the Institution cannot determine the specific number of the various types of cabinets, drawers, and other equipment it will require, nor can it determine the specific timetable for the installation of the Growth storage equipment. The Institution currently anticipates, however, that the purchase and installation of some of this storage equipment could begin as early as FY 1991.

Preliminary cost estimates for the procurement of collections storage equipment for the high-density Growth areas in Pods 2 and 4 total as much as \$11.2 million, excluding escalation. According to some cabinet manufacturers, escalation over one year can be as high as 15 percent for the cabinets alone. Escalation on the freight charges and the installation costs for the storage equipment will further increase these costs. In an effort to reduce these costs, GSA has written the current collections storage equipment procurement documents for the Initial Move to permit it to purchase many, if not all, of the cabinets for Growth space in Pods 2 and 4 on the same contracts. These contracts provide for unit price costs for cabinets, shelves, and drawers as well as for freight and installation. As indicated previously, these contracts also provide for annual escalation, limited to a maximum of 10 percent for cabinet components and 10 percent for freight and installation. These provisions will be in effect for a period of five years, which began in calendar year 1989. If the Smithsonian cannot provide GSA with sufficient funding to procure these cabinets and their components by the end of each of these contracts, GSA will have to solicit new bids. New bids will require revised cost estimates as well, because the cabinets and their components will probably cost more.

In addition to the purchase of cabinets for the Growth space, the Institution will eventually need new steel cabinets to replace a large number of existing wood-frame cabinets and drawers from NMNH that the Museum is relocating to MSC as part of the Initial Move. The new cabinets, which will be six inches deeper than the existing cabinets, will permit the Smithsonian to make more efficient use of the available storage space at MSC. Moreover, since the acid in the wood-frame cabinets is deleterious to many of the objects stored in them, replacement with new metal cabinets will provide a better long-term storage environment. Cost estimates for this replacement total as much as \$4.8 million, excluding escalation.

In summary, the Institution estimates that the procurement of new cabinets for high-density Growth areas and the replacement of the existing wood-frame cabinets will require as much as \$16 million (in 1989 dollars), excluding escalation. Assuming escalation calculated at 10 percent per year and procurement of these cabinets in FY 1992 and FY 1993, the cost to complete the high-density storage equipment (after the Initial Move) will total \$21.4 million. Two factors may change this preliminary cost estimate: (1) escalation, and (2) the actual numbers and types of cabinets, shelves, and drawers procured, if they differ from the ones predicted in the preliminary cost estimates, since they are based on the Initial Move procurements.

Future Funding Requirements for MSC Collections Storage Equipment - Based on the above projections, the Institution currently estimates it will require approximately \$24.1

to \$31.4 million to complete equipping the Museum Support Center. During FY 1991, the Institution will use the balance of the \$2.849 million equipment funding to begin purchase of the remaining storage systems and cabinets. Beginning in FY 1992 and continuing through FY 1995, the Institution expects to request approximately \$8 million each year to continue purchase of this equipment.

Need for No-Year Funding for MSC Storage Equipment - Beginning with the Institution's FY 1991 budget, the Smithsonian requested no-year funding for the design, procurement, and installation of collections storage equipment for MSC. The Smithsonian requests that FY 1992 funding also be no-year funding to permit flexibility in the procurement of the remaining storage equipment, especially for "high-bay" and "wet" storage equipment. Because of the time required to bid and award contracts for major projects such as the MSC storage equipment systems, the procurement process may exceed the period of availability of funds in a one-year appropriation.

After the Smithsonian receives its appropriation, it must prepare a scope of work for the design of the equipment and allow time for potential contractors to submit bids. The Institution must then review and evaluate these bids and award the design contract. Document preparation takes time, then design takes several months, following which the Institution prepares the designer's documents for the storage equipment as solicitation documents to procure the system. The Smithsonian must then allow for appropriate bidding time by the suppliers who desire to manufacture and install the storage equipment, which can take several months, depending on the system being procured.

The Institution then reviews and evaluates the bids to perform this work and awards the procurement contract. The labor-intensive and time-consuming nature of this process makes it extremely difficult to obligate funding within a single fiscal year. The provision of no-year funding for the storage equipment project will allow the design, procurement, construction, and installation processes to proceed without the pressures of hasty year-end obligations to avoid loss of funding. In addition, no-year funding will permit the most efficient and cost-effective use of funding for procurement of the remaining phases of storage equipment for Growth areas at MSC. The Institution then will procure each phase or portions of each phase when needed.

II. Future MSC Move Requirements, FY 1992-FY 1996 (45 workyears and \$1.603 million)  
- Beginning in FY 1991, the Institution will begin to move collections into the Initial Move storage equipment in place at MSC. The FY 1991 Move base funds of \$297,000 (excluding the funds for the asbestos decontamination study) will provide for only a small core staff to work on the MSC Move and for the necessary supplies and equipment to accomplish the relocation. This staff will provide the administrative oversight and quality control for Move activities but will not be sufficient in number to perform the labor necessary to conduct the Move itself, which has in the past been achieved by Move technicians. Under these circumstances, the Move will be dependent upon the time and effort of existing departmental staff who already have full-time jobs; this labor constraint will greatly impede the Move.

For FY 1992, MSC requests funding for sufficient staff to conduct the Move in a timely and efficient manner. The Institution will hire administrative staff, museum specialists, technicians, and conservators. The Institution may also contract some work, such as conservation and asbestos decontamination, to outside individuals or firms. The administrative staff will procure the necessary supplies and equipment, coordinate the logistics, continue the planning, monitor the progress of the Move against the proposed

schedule, and revise the schedule as necessary. The specialists and technicians will inspect, clean, decontaminate, invoice, stabilize, pack, transport, unpack, and place collections in permanent storage equipment at MSC. The conservators will develop handling and packaging procedures and train the Move staff to use them. The Smithsonian will also purchase conservation-quality supplies used in relocating and storing the objects at MSC.

The initial focus of the Move in FY 1991 and FY 1992 will be on high-priority collections and collections that require considerable time to move, including those from NMAH and from NMNH's Departments of Anthropology, Entomology, and Vertebrate Zoology. Over time, the Institution will move collections from all divisions of the seven departments of NMNH (Anthropology, Botany, Entomology, Invertebrate Zoology, Mineral Sciences, Paleobiology, and Vertebrate Zoology) and the two departments of NMAH (History of Science and Technology, and Social and Cultural History). In addition, at the appropriate time, MSC will relocate those collections already in temporary storage at MSC into their permanent storage equipment. The Institution also will relocate thousands of existing collections storage cabinets from the National Museum of Natural History to MSC for storing collections of the Departments of Invertebrate Zoology, Mineral Sciences, and Paleobiology.

The four years from FY 1991 through FY 1994 are the most critical years for the Initial Move. For example, the curatorial departments that are moving smaller numbers of collections will relocate their Initial Move specimens during this four-year period, while the Move of much larger collections, such as Anthropology, will begin during this period and continue through at least FY 1996.

The increased Initial Move activity will require a substantial increase of funding in the next few years to achieve this plan. The Smithsonian projects that the preliminary estimate for the MSC Move from FY 1992 through FY 1996 will total at least \$5 million. In order to bring this project to a timely and successful conclusion, the Institution will reevaluate and refine these cost estimates as the project proceeds and more information becomes available. The MSC Move administration expects FY 1992 to be the year in which the greatest resources will be necessary, in terms of both funding levels and staffing.

To date, the Smithsonian has focused on the Initial Move into the high-density storage equipment. During this time, however, many of the collections of the curatorial departments have continued to grow. As a result, the distinction between those collections and activities designated for the Initial Move and those collections targeted for the future Growth Move has blurred. The Institution may need to conduct some Growth Move activity prior to completing the Initial Move activity. The Institution expects to require additional funding for Growth Move activities before FY 1995. In the near future, the Institution will explore the needs for the Growth Move activities in more detail.

Because the Institution is currently storing many of the collections in areas contaminated by asbestos, a special responsibility of the Move process is to clean these collections prior to the Move. The \$5 million cost estimate includes the cost of this cleaning.

Institutional Benefits to an Expeditious Completion of the Move - A timely and expeditious Move will benefit the Institution for three reasons. First, because the delay in installing the collections storage equipment has postponed the Move so long, the museums scheduled to move collections into MSC are desperate for the proper storage for their collections and for the space relief the relocation will achieve. Second, the Smithsonian

needs to reduce the time spent on the Move in order to reduce its total cost because the longer the Move lasts, the more it will cost as a result of inflation. Third, the Institution must delay other major projects if the Move does not occur quickly.

For the National Museum of Natural History Building Major Capital Renewal Project to proceed on schedule, the Smithsonian must move these collections to the MSC as soon as possible. Two asbestos-contaminated attics in which many of these collections are stored are planned as "swing spaces" for temporary relocation of staff and/or collections as the mechanical renovation progresses through the building. If the collections are not moved to MSC soon, the contractor will not be able to remove the asbestos insulation in the attics or treat it to ensure the safety of the collections and staff, provide the necessary staging space, or make many of the required mechanical changes in the NMNH Building. Any delay in moving these collections scheduled for relocation to the MSC will delay this as well as other planned NMNH Building renovations.

As the Institution completes construction of MSC's collections storage areas and installs its storage equipment, the Move will relocate millions of collection items from the overcrowded storage areas on the Mall. This relocation will eventually vacate some exhibit halls that museums are presently using for collections management and research purposes and are thus closed to the public. Relocating these collections from exhibit halls now occupied by collections management and research activities will permit the museums to return some of these exhibit galleries on the Mall to public use.

Collections in their current overcrowded, pest-infested, asbestos-contaminated conditions are not available for research or exhibit. For example, among the collections needing relocation are Native-American ethnological objects currently stored in one of the NMNH Building's attics, which has exposed asbestos insulation. Moreover, many specimens represent species at risk of extinction through continued human impact on the planet. With the destruction of certain ecosystems, these specimens will become increasingly important for the study of biodiversity, pollution effects, and the physical destruction of the Earth's environment. Some collections, including tropical plants and mammal specimens, are in immediate danger of complete deterioration in the poor environmental conditions at the Suitland Facility and the Smithsonian Institution Service Center.

Collections relocated to MSC will be more accessible to researchers. With the improved environmental and storage conditions at MSC, as well as the cleaning and stabilizing received in preparation for the Move, the collections will also be better preserved for future generations of museum visitors, educators, and researchers. Support for the Move will allow the National Collections to survive and continue to serve the public.

Need for No-Year Funding for MSC Move - The MSC Move is very labor intensive. Any changes in the schedule of purchase and installation of the collections storage equipment, any delays incurred in recruiting and hiring staff, or any other unanticipated event can produce significant changes in the proposed Move schedule. The Smithsonian requests to continue in FY 1992 the provision of no-year funding for the MSC Move to allow shifts in the peak activity between fiscal years, without end-of-year restrictions resulting in the loss of appropriated funding. This provision will increase the overall efficiency of the Move, ensure that sufficient Move funds remain available if there are changes in the schedule, and provide the most cost-effective way to accomplish this project.

### III. MSC Operations:

MSC Facilities Maintenance and Services (2 workyears and \$75,000) - A clean, well-maintained facility is essential to the preservation of museum collections. Dust and dirt are harmful to artifacts and promote the growth of insects, mold, and other pests that can further damage collections. A dirty environment also can adversely affect research projects. Even the smallest particle of dust can disrupt a chemical analysis of ancient paint fragments on an archeological object or the study of the genetic differences between two bird species. Facility maintenance is also important for the health and safety of people. A properly staffed facility maintenance program serves the scholars and conservators who work at MSC and the collections housed there. The end result is the preservation of the National Collections for future generations and a greater understanding of the natural and cultural environment.

Maintaining a specialized research, conservation, and storage facility requires specialized custodial techniques and labor. A particular set of custodial services is provided to each laboratory, office, and storage area. The services provided depend upon the nature of the space and the activities carried out within it. Food areas, hazardous materials areas, and collections storage areas all have different cleaning requirements. All these maintenance activities require a considerable amount of skilled labor.

The requested funds will support the addition of two skilled custodial workers (2 workyears and \$44,000) for the purpose of maintaining the facility, which has doubled in total floor space with the completion of the pod construction. MSC will use the requested support costs (\$31,000) to provide supplies and equipment.

A clean, well-maintained facility is absolutely essential to the care, conservation, and research of museum collections. Additional skilled staff will continue to maintain MSC at the high standards established for this state-of-the-art facility.

Facility Safety Management (1 workyear and \$56,000) - The first duty of any organization is to provide a safe and healthy work environment for all people who enter and use its facilities. The organization also has the obligation to keep the environment free of hazardous waste and other contaminants. Federal, state, and local governments have developed many new policies and regulations that affect the way the Smithsonian conducts research, conserves collections, cleans and maintains its facilities, and disposes of its waste. Facility directors are responsible for understanding these regulations and for developing cost-effective procedures for preserving a healthy and safe working environment without affecting the Institution's ability to research and preserve the National Collections.

MSC manages a facility safety program to ensure compliance with all regulations and provide a safe and healthy working environment. It also manages the disposal of all potentially hazardous waste that results from normal facility maintenance, conservation, and research activities. The program coordinates the use and disposal of alcohol, solvents, oil, cleaning agents, and chemicals. It also conducts inspections to make sure all electrical and mechanical equipment, including X-ray and other radiographic technology, is used properly and in good working order. The program sets standards for recording and documenting safety-related conditions to provide accountability for all activities.

The management of a facility safety program requires specialized skills and knowledge. The individual responsible must know all current regulations, be familiar with basic

industrial hygiene practices, and understand the sophisticated research, conservation, and collections management activities that take place within a museum. MSC will use the funds requested to hire a specialized safety coordinator (1 workyear and \$56,000) to manage the MSC safety program.

MSC contains some of the most sophisticated conservation and analytical research laboratories found in any museum in the world. A well-managed facility safety program is essential to ensure the safety of all people working in this facility and to protect the public and the general environment from potential hazards resulting from the normal use of chemicals and research technologies.

Automated Information Management (1 workyear and \$385,000) - The MSC VAX computer provides programs in support of MSC administration, research, conservation, and collections management. It also supports the MSC Move invoice system, which controls and documents the move of collections into the facilities. MSC provides many basic computer services, including an electronic mail system, to the Institution, and the work of the Institution is dependent upon modern, efficient computer technology.

The MSC VAX computer will be more than ten years old in 1992 and by all standards will have exceeded its normal lifespan. Replacement is the most cost-effective and efficient solution to the problems of increased maintenance costs, decreased efficiency, and inability to support newer applications. The MSC VAX staff is responsible for the basic operation and maintenance of the VAX computer and software, for assisting users with problems and new applications, and for conducting research on new applications and technological opportunities. An efficient, well-trained computer staff is essential to supply the ever-increasing demand for computer technology in managing the enormous amount of information generated from the Institution's research, administrative processes, and collections inventories.

MSC will use the funds requested to replace the VAX computer with a newer, more efficient and cost-effective model (\$337,000) to continue to meet the growing information management needs of the Institution. MSC will also hire an additional computer specialist (1 workyear and \$48,000) to ensure continued, quality service to its users and effective use of new technology.

The single most important task of the Institution, whose fundamental mission is the increase and diffusion of knowledge, is the efficient management of information. Modern computer technology and competent, skilled staff to manage it are essential to this task. MSC has a vital role in providing information management services throughout the Institution and thus directly serves the mission of the Smithsonian. The expanded level of computer support for automated information management will enable the Institution to better preserve the data and promote the use of the National Collections for the benefit of current and future generations.

#### NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - An allotment has supported the purchase of special laboratory equipment for the Conservation Analytical Laboratory.



PUBLIC SERVICE



ASSISTANT SECRETARY FOR PUBLIC SERVICE

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	26	1,452	46	2,782	-	83	-	600	-	-
FY 1991 Estimate	26	1,640	46	2,782	-	42	-	223	-	-
FY 1992 Estimate	30	1,963	44	2,659	-	49	-	-	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The Office of the Assistant Secretary for Public Service encourages program initiatives that advance the Institution's objectives in education and information through multi-media publications, folklife programs, the development of wider audiences, and celebrations focused on the achievements and contributions of women and ethnic minority groups. The Office advises the Secretary on general public service policy issues and program planning. This line-item includes the Office of Wider Audience Development (SOWAD), which advises and assists Smithsonian managers on management policies as they relate to minority audience participation in exhibitions and other public programs; the Office of Telecommunications (OTC), which produces programs for radio, film, and television relating to Smithsonian research activities; the Visitor Information and Associates' Reception Center (VIARC), which coordinates and offers Institution-wide information and public assistance programs; and the Office of Public Affairs (OPA), which publicizes the Institution's exhibits, public events, and research and acquaints the public with the Institution's programs and policies through contacts with news and other media organizations. Although still reflected within the Public Service section for presentation purposes, OTC is now organizationally placed under the Assistant Secretary for External Affairs.

For FY 1992, the Office of the Assistant Secretary for Public Service requests 4 workyears and \$323,000: for its immediate office, administrative support (3 workyears and \$151,000); for the Office of Telecommunications, office and studio renovation (\$41,000) and clerical support (1 workyear and \$22,000); for Visitor Information and Associates' Reception Center, SIC automated components (\$25,000), printing and reproduction (\$25,000) and supplies and materials (\$10,000); and for the Office of Public Affairs, Columbus Quincentenary support (\$29,000) and office automation (\$20,000).

PROGRAM:

I. Office of the Assistant Secretary for Public Service - With base funding of 5 workyears and \$360,000, the Office of the Assistant Secretary for Public Service focuses

on the critical issues of cultural diversity and cultural equity. The Office and the units it oversees serve as central channels for the diffusion of information and assistance programs inside and outside the Institution. They disseminate information on the Smithsonian to broad national audiences, plan and execute formal and informal educational outreach efforts, and engage in research and documentation of living cultures. In cooperation with the Smithsonian African-American Association, Asian-Pacific American Group, Latino Working Committee, and other ethnic committees, they develop and execute outreach programs that bring diverse cultural communities and professional sectors to the Institution. The offices reporting to the Assistant Secretary include the Office of Wider Audience Development, the Visitor Information and Associates' Reception Center, the Office of Public Affairs, the Office of Folklife Programs, the Office of Elementary and Secondary Education, the National Science Resources Center, and the Office of Conference Services.

II. Office of Wider Audience Development - With base funding of 1 workyear and \$45,000, SOWAD develops collaborative relationships with museums, organizations, and individuals to promote cultural diversity and equity. It provides technical assistance to Smithsonian bureaus to strengthen ties with nontraditional audiences and plans seminars for staff and specialists from cultural and educational organizations to explore pertinent themes of contemporary concern bearing on the public interest.

III. Office of Telecommunications - With base funding of 5 workyears and \$284,000, OTC produces programs for radio and television relating to a variety of Smithsonian research and scholarly activities. Distributed nationwide, these diverse programs are an important part of Smithsonian outreach, as they support and interpret the research, exhibition, and educational goals of the Institution.

In FY 1990, the Office developed plans for a major film to acquaint American audiences with the historical and cultural significance of Japanese gardens and their importance in Japan's landscape. It is intended for both television broadcast and extensive educational use.

The Office has joined with the Native American Public Broadcasting Consortium (NAPBC) to produce a 13-part radio series looking at the Columbus encounter and its aftermath from the Native-American perspective. The Corporation for Public Broadcasting has awarded \$224,000 toward production and distribution of this special Quincentenary series. The American Indian producer Peggy Berryhill will be the coordinating producer, working with OTC staff. Production will take place throughout 1991, and the programs will air nationally on public radio beginning in early 1992.

OTC's weekly radio series, "Radio Smithsonian," now airs on 90 stations nationally, reaching a potential weekly audience of 4 million people. Programs focus on exhibitions, research, and performance activities throughout the Institution. During FY 1990, "Radio Smithsonian" won two major awards: a Silver Award for cultural programming from the Corporation for Public Broadcasting, and a second Silver Award from the International Radio Festival of New York.

Working with the Deputy Assistant Secretary for Media (External Affairs), the Office developed production, financial, and marketing plans for new programs in the Smithsonian Video Collection series. The first program will explore the history and continuing vitality of folk art. Following the sales success of the initial five programs and the release of the programs on laser disc, the Smithsonian obtained all rights to the series

from Eastman Kodak, the original distributor. OTC will produce future programs for both broadcast and the home video market.

During FY 1990, OTC worked with the International Center to produce a video based on the conference "The Global Environment: Are We Overreacting?" held at the Smithsonian in September 1989. OTC distributed the program, narrated by John Chancellor, to newspaper editors and television news directors around the country, alerting them on crucial environmental issues.

Collaborating with the National Museum of Natural History (NMNH), the Office co-produced four pilot segments for "Natural History Update," a series of short pieces on natural history topics. Conceived by the director of NMNH, Frank Talbot, the pilots premiered in a theater off the Natural History Building rotunda. Subjects included the discovery of a mosasaur fossil in Oxon Hill, Maryland, and the damage to Puerto Rican forests caused by Hurricane Hugo. The Museum is actively seeking funds to continue the project in cooperation with museums around the country.

OTC produced the Smithsonian Information Center videos for the Visitor Information and Associates' Reception Center (VIARC). Designed to help visitors plan their museum tours, the programs have captured a number of industry awards. The 20-minute theater presentation won a Gold Medal at the New York International Film and Television Festival, a CINE Golden Eagle, and a Bronze Plaque at the Columbus Film Festival. The interactive video disc program received the top honor for Best Consumer Achievement in the Nebraska Interactive Videodisc Awards. OTC and VIARC developed a strategy for marketing the 20-minute program as a home video, which will be available in FY 1991. OTC began planning on a new video disc featuring capsule updates on Smithsonian research, with preliminary filming at the Smithsonian Tropical Research Institute in Panama.

Also in FY 1990, OTC produced the Smithsonian's first video wall, a fitting close for the "Information Age" exhibition at the National Museum of American History. Presented on 12 screens, the 15-minute program reprises the main themes of the exhibition, stressing that computers and information-age machines are tools for human use. For the Smithsonian Institution Traveling Exhibition Service, the Office produced a 12-minute video as the center section of an exhibition on the decorative designs of Frank Lloyd Wright. The program explores the difficult preservation problems associated with saving Wright buildings and their specially designed furnishings.

The Office placed increased emphasis on marketing and promotion during FY 1990. The staff began implementing a broad plan for the sale of an earlier OTC film, "The Movie Palaces," to Smithsonian audiences through the museum shops and to a more general audience through mail-order catalogues and historic preservation groups. In addition to marketing and promoting strategies for the orientation video, the Office created strategies for the one-hour environmental program, "The Earth in Our Hands," and the entire Smithsonian Video Collection. These efforts will ensure greater visibility and maximum revenues for Smithsonian programs and help support future productions.

IV. Visitor Information and Associates' Reception Center - With base funding of 2 workyears and \$185,000, VIARC is a central unit responsible for the dissemination of pan-Institutional information and assistance programs for the public, Associate members, Smithsonian staff, and volunteers. Seven days a week, the staff directs and coordinates

large numbers of volunteers who support the Institution's public information programs and projects behind the scenes.

Created entirely with private funds, the new Smithsonian Information Center provides a multi-faceted information and orientation program for visitors on the Smithsonian and other popular sites in the Washington metropolitan area. Since it opened in November 1989, the Center has increased its visitor information services significantly to accommodate the 46 percent rise in attendance at the Center. Located in the Smithsonian Castle, the Center opens daily at 9 a.m. Highlights include two orientation theaters featuring a continuously shown, 20-minute video of the Institution; interactive "touch-screen" programs on the Smithsonian in seven languages; scale models of Washington's monumental core; electronic wall maps and interactive "touch-screen" programs of popular attractions in the city; printed guides in seven languages; and volunteer information specialists to answer questions and provide direction.

To maintain seven-day staffing levels at 16 museum information desks in 11 Smithsonian buildings and to operate the Information Center, VIARC's volunteer information specialists corps increased by 100 percent, to more than 700. Recruitment efforts to attract volunteers from culturally diverse backgrounds were successful in assuring an average 19 percent representation rate for ethnic minorities in training classes. With the reopening of the Castle, VIARC reinstated docent-led tours of public areas.

The annual Institutional survey of volunteer activities completed in 1990 for FY 1989 indicated an overall increase in volunteer support: 4,784 volunteers provided 487,183 hours of support. VIARC's Behind-the-Scenes Volunteer Placement Program assists Smithsonian offices through registration, recruitment, and placement of volunteers for independent projects. In FY 1989, the Program resulted in a corps of some 784 active volunteers.

In FY 1990, the Public Inquiry Mail and Telephone Information Services unit received new computers, automated office systems, and an office local area network. Staff and volunteers have better access to a variety of research tools such as indexes, directories, and publication and product lists. The unit can respond quickly to the 55,000 pieces of correspondence and 450,000 telephone calls received yearly.

Installation of desk-top publishing at the Information Resources Division has enhanced production of in-house publications. The system promotes faster turnaround on printing and reproduction projects. The establishment and tie-in of a second local area network in the Information Center have allowed initiation of electronic publications operations. Each day VIARC staff reviews and updates interactive programs in the Center to provide visitors with the latest information on Smithsonian activities.

V. Office of Public Affairs - With base funding of 13 workyears and \$766,000 OPA acquaints the public with the programs and policies of the Institution by working with newspapers, magazines, television, and radio, as well as with general publications, to gain media exposure for its exhibits, public events, and research. A major goal of OPA is to encourage culturally diverse audiences to take advantage of the many resources of the Smithsonian.

OPA distributes the Smithsonian News Service, a free, monthly package of four feature-style articles on subjects in art, history, science, technology, and contemporary

life. The service goes to 1,000 daily and weekly newspapers. OPA translates one story each month into Spanish and sends it along with the English edition to 100 Hispanic and bilingual newspapers in the United States, Puerto Rico, and Canada, and to more than two dozen Latin American publications. In FY 1990, OPA expanded its programs to reach a broader range of ethnic communities, including African Americans, Asian Americans, Hispanics, and Native Americans.

An ad hoc African American Media Advisory Committee formed by OPA met twice in FY 1990 to discuss new ways to reach African-American audiences. Its suggestions have included themes for public service announcements, revisions in the format of the monthly Calendar of Events published by the Smithsonian, expansion of radio advertising, and programs for students in African-American communities. OPA sent two staff members to a meeting of the National Association of Black Journalists and prepared an advertisement for the conference booklet.

The Office neared completion of two brochures for African Americans. One, called "Explore the African-American Heritage at the Smithsonian," is a revision of an existing brochure aimed at school-age children and general visitors. A second brochure, "Resources at the Smithsonian for African Americans," is a more detailed booklet for a scholarly audience. OPA radio advertising campaigns aired in January and February 1990 for Black History Month and in March and April for the Anacostia Museum. The Institution sent out 1,400 information packets as the result of the Black History Month advertisements.

For Latino audiences, preparations for the Columbus Quincentenary began with publicity in Vista and other Hispanic magazines, a well-publicized annual Hispanic Heritage Month program, and consultations with advertising and public relations firms that, if funding permits, could coordinate worldwide promotion for the Quincentenary at the Smithsonian. Two staff members prepared a press kit with updated materials on the Quincentenary that was widely distributed. The Office organized an informational booth and conference brochure advertisement at the National Hispanic Media Conference in San Francisco in April 1990, resulting in numerous new contacts with the Hispanic media. The Office also hosted a briefing on the Quincentenary for the 20-member board of the National Association of Hispanic Publications. Contacts with the Hispanic media will increase as the Quincentenary approaches. The Office plans to prepare radio advertisements and a general brochure to publicize Quincentenary programs.

In FY 1990, OPA launched a new bimonthly newsletter, called Smithsonian Runner, for Native-American audiences. The eight-page newsletter goes to 1,600 Native Americans, including American Indian journalists in both mainstream and tribal publications. Feedback from Native Americans indicates that the newsletter is well received. In FY 1990, OPA prepared and distributed extensive press kits for the National Museum of American Indian and coordinated a news conference to announce the new director of the Museum and press activities for regional visits by Smithsonian officials to Indian communities in the West and Southwest. The Office also assisted the National Museum of Natural History's Anthropology Department in preparing a general brochure for Native Americans describing the Department's history, collections, and policies. In FY 1991, OPA will expand its outreach efforts further with the addition of a permanent American Indian public affairs specialist.

One OPA project designed to assist Smithsonian research efforts was the redesign of Research Reports, a newsletter that reports on the Institution's ongoing research. The

publication now appears quarterly instead of three times a year and has several new features, including a column called "Research Vistas," a book review and author profile, and information of special interest to Contributing Members of the Smithsonian National Associates' Program, about 61,000 of whom receive Research Reports.

The Office has also focused its efforts on publicizing environmental research and activities. OPA coordinated publicity for the Smithsonian Tropical Research Institute exhibit at the National Museum of Natural History called "Parting the Green Curtain" and for a media and environmental conference held at the Smithsonian in fall 1989. OPA produced and distributed to 300 television stations a 30-second public service announcement featuring actor Robert Redford, which discussed the beauty and diversity of Planet Earth and the Smithsonian's research efforts to preserve the environment. The Office also publicized the establishment of the new Office of Environmental Awareness (OEA). The publicity resulted in thousands of requests for a special environmental conservation poster prepared by OEA.

OPA coordinates pan-Institution publicity campaigns and undertakes publicity for the Smithsonian units that do not have public affairs specialists. Among the special campaigns undertaken in FY 1990 were publicity for the opening of the "Information Age" exhibition at the National Museum of American History, the launch of the Smithsonian Video Collection, the "Smithsonian World" public television series, and the cable television series called "Invention." In FY 1990, OPA also organized several major publicity campaigns for the Anacostia Museum, including its summer festival, "Whose Art Is It Anyway?"

EXPLANATION OF PROGRAM INCREASE: For FY 1992, the Office of the Assistant Secretary for Public Service requests 4 workyears and \$323,000: for its immediate office, administrative support (3 workyears and \$151,000); for the Office of Telecommunications, office and studio renovation (\$41,000) and clerical support (1 workyear and \$22,000); for Visitor Information and Associates' Reception Center, SIC automated components (\$25,000), printing and reproduction (\$25,000) and supplies and materials (\$10,000); and for the Office of Public Affairs, Columbus Quincentenary support (\$29,000) and office automation (\$20,000).

#### I. Office of the Assistant Secretary for Public Service:

Administrative Support (3 workyears and \$151,000) - Additional administrative staff will allow the Office to provide better oversight and direction for the information, education and public service programs of the Institution. The Office's core mission and its expanded mandate to recognize formally the achievements and contributions of minorities and women require additional staff to handle programming and committee coordination.

The positions requested will provide administrative and clerical support to the Assistant Secretary for Public Service. The requested new positions include a deputy assistant secretary for public service, a clerk-typist, and an executive assistant.

The deputy assistant secretary will support the Assistant Secretary as designated representative at professional meetings, conferences, and workshops; provide bureau oversight; and develop long-range plans for special events, commemorations, and public programs. The position will provide bureau oversight for the education programs of the Office of Elementary and Secondary Education and the National Science Resources Center and serve as liaison for pan-Institutional programs in education. A clerk-typist will be

responsible for scheduling, preparing of travel authorizations and vouchers, and typing reports, meeting summaries, and mailing lists for distribution. The position will support two professional staff positions: the deputy assistant secretary and executive assistant. The executive assistant will serve as manager of the Educational Outreach Fund, identifying scholars to serve on a panel to review proposals for outreach projects. The position will also coordinate panel review meetings, serve as ex-officio member of the Cultural Education Committee, convene regular meetings of Public Service bureau directors, and provide bureau oversight on documentation and distribution of information through publications, exhibits, and interactive technology.

The requested positions will improve the processing of administrative matters by reducing the volume of documents for review and/or approval by the Assistant Secretary for Public Service. The deputy assistant secretary and executive assistant positions will reduce response time to bureau directors on proposed programs, policy issues, and budget review.

In FY 1990, the Acting Assistant Secretary for Public Service began a bureau information exchange every six weeks and designed the schedule and agenda for quarterly review meetings with administrative officers on budget and account reconciliation matters. The Office holds orientation sessions for outreach grant recipients semiannually to ensure compliance with terms of grant award. The requested positions will ensure the continuation of these interbureau efforts and the distribution of findings and summaries.

## II. Office of Telecommunications:

Office and Studio Renovation (\$41,000) - OTC has a severe shortage of physical space, due to the greatly increased workload and the need to accommodate contract personnel on many projects. Reconfiguring the large studio will provide much-needed archival storage and streamline production operations. It also will preclude renting off-site office and storage space.

The Office plans to subdivide its large studio space to create two new offices as well as rooms for video editing and equipment storage. The plan includes adding a mezzanine for archival storage of a large volume of tapes and films. The latter step will allow OTC to keep valuable and useful tapes at the Institution rather than storing them at substantial cost at a distant location. The funds requested will cover architectural plans and contracting services.

This project will prevent overcrowding in OTC's office space. Of the options available, it is the most realistic and economical means of expanding the Office's effective space. It will also allow the OTC to accommodate new projects--financed with outside funds--that will increase its service to the public.

Clerical Support (1 workyear and \$22,000) - The increasing volume and complexity of OTC's activities place heavy demands on the Office's only clerical employee. With an additional clerk-typist, the staff can devote more attention to administrative duties and to developing programs that reach new audiences and markets. Additional clerical support is essential for the Office to achieve maximum productivity.

The clerk-typist will provide a wide range of clerical services for ongoing Smithsonian radio and television productions as well as projects in development. The funds requested will cover a full year's salary and benefits.

This position will support development of new programming for new audiences. By helping the Office meet an ever-growing demand, it will play an important role in maintaining the quality of Smithsonian media programs.

### III. Visitor Information and Associates' Reception Center:

Maintenance, SIC Automated Components (\$25,000) - VIARC has automated Information systems in the Smithsonian Information Center to provide the visiting public with immediate access to the most current information on the Institution's exhibitions, activities and events. Continued maintenance of the systems will provide an estimated 3,000,000 annual visitors with comprehensive, concise and up-to-date information, thus affording them the opportunity to make informed choices about the use of their time and the ability to take advantage of the range of activities available at the Institution.

To achieve this goal, VIARC will purchase annual maintenance contracts for 48 automated computer, interactive video and audiovisual components and the local area network. Additionally, these funds will permit timely replacement of equipment that cannot be repaired in a cost-effective manner.

As the central information and orientation point for the Institution, the Smithsonian Information Center can provide visitors with information-on-demand to guide them through the 13 museums and the National Zoo in Washington, D.C. only if the system components are frequently inspected, cleaned, adjusted, repaired or replaced on a timely schedule.

Printing and Reproduction (\$25,000) - The Visitor Information and Associates' Reception Center is the central support unit responsible for Institution-wide information and assistance programs for the Public, Associate members, Smithsonian staff and volunteers. Information services operate 16 Information Desks serving the visitors to 11 Smithsonian buildings; provide assistance to an estimated 3,000,000 visitors to the Smithsonian Information Center; and respond to 55,000 public mail inquiries and 450,000 telephone inquiries annually.

A variety of materials are produced in appropriate volume to support VIARC's internal information and volunteer operations as well as to respond to external visitor requests for information. To meet demand a variety of bibliographies, brochures, comment forms, fact sheets, flyers, handbooks, and leaflets are printed. As the Institution's audience increases, as exhibitions change and new activities are scheduled, the type and number of printed materials will grow in variety and quantity.

These additional funds will assist in meeting the public's growing reliance upon the central information and support services provided by VIARC, and the Smithsonian Information Center.

Supplies and Materials (\$10,000) - The Visitor Information and Associates' Reception Center is a central support unit responsible for Institution-wide information and assistance programs for the Public, Associate members, Smithsonian staff, and volunteers. Information services operate 16 Information Desks serving the visitors to 11 Smithsonian

buildings; provide assistance to an estimated 3,000,000 visitors to the Smithsonian Information Center; and respond to 55,000 public mail inquiries and 450,000 telephone inquiries annually. Despite continual growth in responsibilities and increased audience demand for services there has been no increase to VIARC's base since 1984. These funds will address a base deficit and permit program operations to continue.

These funds will provide basic supplies and materials ranging from paper and pencils to computer diskettes, alphabetical indices to zip code directories. If these supplies are not provided for use by the corp of 700 volunteer information specialists and 35 staff, requests for information and assistance cannot be fulfilled -- responses to letters cannot be drafted, typed and mailed; envelopes cannot be addressed to respond to telephone requests for printed brochures; text for printed materials cannot be prepared; requisitions for services cannot be completed.

VIARC activities are directly impacted by the growth of the Institution and increased bureau activities. As the Institution's efforts increase to expand its services to an ever widening audience, support for centralized services must be provided to maintain the Institution's commitment.

#### IV. Office of Public Affairs:

Columbus Quincentenary Support (\$29,000) - The Smithsonian Institution is planning 100 different programs to mark the Columbus Quincentenary in 1992, the largest number of any international participant. Both the general public and specific ethnic audiences will learn about these year-long events through advertising and publicity generated by OPA.

Special celebrations like the Quincentenary require additional resources to cover promotion costs. Radio advertising, for example, must reach specialized audiences if the Institution's extensive programming is to have its desired educational impact.

With the requested funds, OPA will air previously produced radio advertising, locally and nationally, with emphasis on five major Hispanic markets. OPA will produce a bilingual brochure about Quincentenary activities and will mail these brochures in response to radio announcements and other publicity.

Office Automation (\$20,000) - The Smithsonian Institution is aggressively increasing efforts to reach ethnic audiences with pertinent information about its resources and activities. Tailoring information to specific audiences requires versatile and cost-effective preparation of material. Desk-top publishing will make this possible.

With the requested funding, OPA will purchase desk-top publishing equipment, including software and training. It will also network existing computers for more efficient production and replace antiquated equipment. With this new equipment, OPA will do layout of publications in-house. This will allow OPA to tailor announcements of Smithsonian events for specific minority outlets, in multiple formats, which will increase the number of audiences reached.

OPA services the public information needs of the entire Institution. New equipment will increase the Office's ability to use modern software and augment publications included in its desk-top publishing program. Expanding the Institution's outreach efforts through specialized media must be done through cost-effective measures. This equipment will enable

the Office to better service Smithsonian units and allow more efficient, cost-effective production of programs for the public.

NONAPPROPRIATED SOURCES OF FUNDING:

I. Office of the Assistant Secretary for Public Service:

Unrestricted General and Special Purpose Funds - Annual allotments provide for the salary, benefits, and support costs of two staff members assigned to the immediate office.

Trust funds also provide salary and benefits for a secretary in the Office of Wider Audience Development and support costs for wider audience initiatives, including the Cultural Education Committee, which fosters the development of pan-Institutional outreach efforts designed to attract diverse cultural audiences. A Special Purpose Fund provides for the Educational Outreach Fund, which fosters research on improved, expanded, and innovative methods of outreach activity. While the projected expenditures appear under this Office, the recipient organizations actually receive grants to support specific projects.

II. Office of Telecommunications:

Unrestricted General and Special Purpose Funds - An annual operating allotment provides support for nine full-time staff members and costs associated with the production of educational and informational materials for the electronic media. The sale of film, video and audio programs provides additional funds.

Restricted Funds - Individual gifts and grants from private foundations and corporations provide these funds, used by OTC for specific programs. In FY 1990, funds from the Phileology Trust supported production of the one-hour environmental film, "The Earth in Our Hands." A consortium of Japanese companies including the Kajima Corporation, Hitachi Limited, and the American Family Insurance Company, provided funding for a major film on the history and cultural significance of Japanese gardens, to be completed in FY 1992. Funds from public television station WQED in Pittsburgh supported development of a special program titled "Earthgame," in which international teams explore solutions to global environmental problems.

Government Grants and Contracts - In FY 1990, the Environment Ministry of the Netherlands provided a grant toward the development of "Earthgame."

III. Visitor Information and Associates' Reception Center:

Unrestricted General and Special Purpose Funds - An annual operating allotment supports VIARC's work as the public service office responsible for pan-Institutional information and assistance activities.

IV. Office of Public Affairs:

Unrestricted General and Special Purpose Funds - Allotments provide for public outreach activities such as wider audience advertising with the African-American, Asian-American, Hispanic, and Native-American media, public service announcements for radio and television, "Welcome" brochures for museum visitors, monthly newspaper advertisements of general Smithsonian events, and the Smithsonian employee newsletter.

SMITHSONIAN INSTITUTION PRESS

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
			General		Special					
	FTE*	Amount	FTP**	Amount	FTP**	Amount	FTP**	Amount	FTP**	Amount
FY 1990 Estimate	29	1,269	40	19,490	-	-	-	-	-	-
FY 1991 Estimate	29	1,391	41	17,651	-	-	-	-	-	-
FY 1992 Estimate	29	1,409	41	21,630	-	-	-	-	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - A member of the Association of American University Presses since 1966, the Smithsonian Institution Press (SIP) edits, designs, produces, and distributes books, sound recordings, and other printed materials prepared by Smithsonian scientists, historians, and curators as well as scholars from educational institutions around the world. Such materials also include research monographs, technical and scientific series, exhibition catalogues for Smithsonian museums, educational pamphlets, and informational leaflets. In addition, SIP generates unrestricted Trust-fund income through the publication and sale of books and recordings on subjects of general interest that relate to the Smithsonian collections and research, which are suitable for direct-mail marketing to Smithsonian Associates and the retail trade. Although still reflected within the Public Service section for presentation purposes, SIP is now organizationally placed under the Assistant Secretary for External Affairs.

For FY 1992, the Smithsonian Institution Press requests an increase of \$18,000 to employ freelance copy editors to augment existing staff in the Contributions and Studies programs.

PROGRAM - The Federal publication activity of the Smithsonian Institution Press is a fundamental extension of the Smithsonian's basic research activities. The scientific, technological, and historical monographs that the Press publishes disseminate research by Smithsonian curators and staff experts to libraries, museums, research institutions, and interested members of the public throughout the United States and abroad. In addition to publishing research findings, SIP edits and designs exhibition catalogues, educational pamphlets, and informational leaflets that serve the millions of visitors to the Smithsonian in Washington, D.C., and the extensive programs conducted nationwide and worldwide.

In addition, SIP acts as the official agent of the Smithsonian Institution in procuring services from the Government Printing Office (GPO) to create government forms, museum guides, and instructions, as well as providing professional assistance to

Smithsonian authors upon request. SIP also edits, designs, and produces Smithsonian Year, the Institution's annual report to its Board of Regents and the Congress.

Federally funded books published during FY 1990 include The Folk Biology of the Tobelo People: A Study in Folk Classification, by Paul Michael Taylor (Smithsonian Contributions to Anthropology, no. 34); Phylogenetic Systematics as the Basis of Comparative Biology, by V. A. Funk and Daniel R. Brooks (Smithsonian Contributions to Botany, no. 73); Case Study of Natural Population Collapse: Post-Hurricane Predation on Jamaican Staghorn Corals, by Nancy Knowlton, Judith C. Lang, and Brian D. Keller (Smithsonian Contributions to the Marine Sciences, no. 31); An Illustrated Checklist of the American Crayfishes (Decapoda: Astacidae, Cambaridae, and Parastacidae), by Horton H. Hobbs, Jr. (Smithsonian Contributions to Zoology, no. 480); United States Women in Aviation, 1940-1985, by Deborah G. Douglas (Smithsonian Studies in Air and Space, no. 7).

EXPLANATION OF PROGRAM INCREASE - For FY 1992 the Smithsonian Institution Press requests an increase of \$18,000 to employ freelance copy editors to augment existing staff in the Contributions and Studies programs. The number of staff editors has not increased since the assumption of responsibility for in-house typesetting in October 1987. This program eliminates all typesetting costs for manuscript sponsors. Presently, staff editors perform the extra duties and maintain acceptable production schedules provided there are no prolonged staff shortages or significant increases in the number of manuscripts submitted by the bureaus.

The primary purpose of the Contributions and Studies programs is to supply a publishing outlet for monographs reporting the research of the Smithsonian Institution. Such monographs have always been difficult to publish elsewhere due to cost constraints imposed by scholarly journals and monographic series on high-resolution illustrations and the large amount of specimen data and tabular material that characterize publications from research-oriented museums. External outlets are increasingly hard to locate, given current developments in publishing economies. Consequently, SIP anticipates an increase in the projected number of Smithsonian research monographs submitted to the Contributions and Studies programs during the next several years.

Research monographs must be published in a timely fashion or their data will be outdated. With the number of manuscript submissions projected to rise, SIP will need additional editors to keep pace. The hiring of freelance copy editors will preclude the addition of permanent staff, maintain the necessary production schedules, and provide relief in emergency situations to prevent production backlogs in the Contributions and Studies programs.

#### NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - In addition to the University Press, the Smithsonian Institution Press has two divisions financed entirely with nonappropriated Trust funds: Smithsonian Books, the direct-mail division that publishes popular books based on Smithsonian collections and research; and the Smithsonian Collection of Recordings, which produces and sells sound recordings relevant to the collections and performing arts. The sale of Trust-funded books and recordings, royalties and special publishing services provide these resources. The funds thus produced support the services required to develop, market, warehouse, and distribute records and scholarly and general interest books published in connection with the Institution's research, collections, exhibitions, and other related programs.

University Press Division - The Smithsonian received highly favorable reviews in major newspapers and journals for several major University Press publications this year, particularly Puerto Rico Mio: Four Decades of Change, in Photographs, by Jack Delano (the first-ever completely bilingual book issued by the Press); Columbian Consequences, volume 2: Archaeological and Historical Perspectives on the Spanish Borderlands East, edited by David Hurst Thomas; Smithsonian's New Zoo, by Jake Page; The Art of Exclusion: Representing Blacks in the Nineteenth Century, by Albert Boime; and The Exploratorium: The Museum as Laboratory, by Hilde Hein. The Press continues to strengthen and expand the subject diversity of its various lists: natural sciences, art and art history, aviation history, cultural and technological history, anthropology, archeology, history, and music and musicology. The Press has undertaken list building in several additional areas, including ethnic, regional, and minority studies and studies of popular and material culture.

In art and art history, the Press continues to publish both its own titles as well as titles in collaboration with museums and other art institutions. Notable among Press books were African Art in American Collections, by Warren M. Robbins and Nancy Ingram Nooter, and Tropical Renaissance: North American Artists Exploring Latin America, 1839-1879, by Katherine Emma Manthorne (sixth in the New Directions of American Art series). Books published by the Press in collaboration with museums included The Intimate Interiors of Edouard Vuillard by Elizabeth Easton, and Icons: Ideals and Power in the Art of Africa, by Herbert M. Cole.

The outstanding title on the Press's aviation list was Amelia Earhart: A Biography, by Doris L. Rich, a book widely reviewed in the popular press as well as in literary journals. In the Smithsonian History of Aviation series, Strike from the Sky - The History of Battlefield Air Attack 1911 - 1945, by Richard P. Hallion, was published this year, as well as Bonfires to Beacons: Federal Civil Aviation Policy, by Nick A. Komons, issued as the first in the Classics of Aviation subseries.

New in the Smithsonian in the Ethnographic Inquiry series were The Mississippian Emergence, edited by Bruce D. Smith, and Ambiguous Relations: Kin, Class, and Conflict among Komachi Pastoralists, by Daniel J. Bradburd. A complex book notable for its reproduction of 16th-century Spanish documents transcribed and translated in full was The Juan Pardo Expeditions: Exploration of the Carolinas and Tennessee, 1566-1568, by Charles Hudson (with documents annotated by Paul E. Hoffman).

The Press also initiated publication of its new series, Smithsonian Studies of American Musicians, with Chadwick: Yankee Composer, by Victor Fell Yellin. This book includes copious music examples as well as historic photographs. New Perspectives on Jazz, edited by David N. Baker, was also published on the music list; it is among the Press's desktop publications.

Smithsonian Books - Smithsonian Books publishes books for the Smithsonian Associates on subjects relating to Smithsonian collections and research interests. Marketed primarily by direct mail to the Associates and other lists, these books are also available to the general public through licensing arrangements with several trade publishers, including the sales force of the University Press Division. Some of the current titles are the 12-volume Smithsonian Guides to Historic America; Editor's Choice: An Anthology of the First Two Decades of "Smithsonian Magazine"; Lords of the Air: The Smithsonian Book of Birds; Images of America: A Panorama of History in Photographs; In the Age of Mankind: The Smithsonian Book of Human Evolution; Exploring the West; The Smithsonian Book of Flight; The

Smithsonian Book of North American Indians; and Treasures of the Smithsonian. Smithsonian Books published After Columbus: The Smithsonian Chronicle of the North American Indians in August. In addition, Smithsonian Books has successfully marketed a 60-minute video, The Magnificent Whales. The goal of the program is to continue publishing well-written, carefully researched, commercially successful, and critically acclaimed books and related videos.

For FY 1991, Smithsonian Books plans publications on advertising in America and on the birth of civilizations.

Smithsonian Collection of Recordings - The Recordings Division publishes both popular recordings suitable for direct-mail marketing to Smithsonian Associates and recordings of scholarly interest. During FY 1990, the Division released The Art of Roland Hayes, featuring recordings of the great African-American art singer, and J. S. Bach, another addition to the growing catalogue of authentic instrument recordings made at the Smithsonian. J. S. Bach includes the St. John Passion, BWV 245, performed by the Smithsonian Chamber Chorus and Players, Kenneth Slowik, director; Six Sonatas and Partitas for Solo Violin, performed by Jaap Schroder; and Three Works for Solo Harpsichord, performed by James Weaver. The Division re-released the Grammy Award-winning Big Band Jazz, programmed by Martin Williams and Gunther Schuller, on compact disc, and released the Smithsonian Collection of Classic Jazz, programmed by Martin Williams, for the retail market in compact disc format. This year, for the sixth year in a row, Smithsonian Collection releases have been nominated for National Academy of Recording Arts and Sciences "Grammy" awards. Both American Musical Theater and Jazz Piano were nominated in the categories of Best Historical Album and Best Album Notes.

OFFICE OF FOLKLIFE PROGRAMS

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	9	1,027	15	795	-	100	-	518	-	800
FY 1991 Estimate	10	898	15	817	-	100	-	500	-	850
FY 1992 Estimate	12	1,049	15	817	-	100	-	600	-	875

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The Office of Folklife Programs (OFP) engages in cultural conservation activities--scholarly research, professional advocacy, and public programs--that promote continuity, integrity, and equity for traditional ethnic, tribal, regional, minority, and working-class cultures both in the United States and abroad. The Office documents and interprets traditional cultural forms in collaboration with community members; disseminates information on traditional cultural forms to the general public; provides access, visibility, and representation for diverse cultures in a national museum setting; assists traditional communities as they chart their own cultural futures; pursues cultural conservation concerns nationally and internationally; and contributes to the theories and methods of cultural conservation and representation. The Office accomplishes these goals through research projects, the Festival of American Folklife, Programas del Quinto Centenario in commemoration of the Columbus Quincentenary, symposia, community inreach and educational outreach activities, museum and traveling exhibitions, fellowship and training programs, Smithsonian Folkways Records, and the Smithsonian Folklife Studies series of documentary publications, recordings, and films. Cultural documentation associated with these activities constitute the Folklife and Folkways Archives and Collections.

For FY 1992, the Office of Folklife Programs requests an increase of 2 workyears and \$151,000 for a fiscal technician (1 workyear and \$26,000); the Columbus Quincentenary programs (1 workyear and \$50,000); and cultural conservation research (\$75,000).

PROGRAM - The Office of Folklife Programs researches American and worldwide grass-roots cultural traditions and publishes and presents research to scholarly and public audiences through the Festival of American Folklife, Smithsonian Folklife Studies, Smithsonian Folkways Records, and other exhibits and programs. OFP conserves traditions through documentary and archival collections of music, verbal arts and material culture, and the encouragement of exemplary tradition bearers. OFP cooperates with other Federal and State agencies to advance the Nation's interest in cultural continuity, conservation, and equity.

Research - Teams of American and Soviet scholars are conducting fieldwork in Eskimo, Russian, Ukrainian, Armenian, and Bukharin Jewish communities in both the United States and the Soviet Union to analyze continuity and change of traditional culture in the two societies. Other major research projects examine cultural creolization in the New World, the folklife of New Mexico, the occupational culture of the White House, the Jewish Sephardic diaspora, Arab-American culture, and Australian and Pacific Island folklife. Staff scholars continue their individual work on African-American and Hispanic culture, American Indian music, South Asian folk knowledge, Brazilian Indian culture, African narrative, and the folklife of Southeast Asian immigrants to the United States. Visiting fellows have studied Caribbean music, Native-American narrative, African-American sociolinguistics, and Pennsylvania pottery traditions.

Festival of American Folklife - The Festival of American Folklife, held annually on the National Mall since 1967, educates a broad public to human cultural diversity and encourages tradition bearers by giving national recognition to their artistry. The Festival provides a national and international model for the research-based presentation of cultural traditions. The 1991 Festival will feature programs on the continuity of pre-Columbian Native-American cultures, the culture of American family farming, and the folklife of Indonesia. The 1992 Festival will feature the state of New Mexico, the occupational and family folklore of the White House, the culture of the Sephardic Jewish diaspora, and a special Columbus Quincentenary program on the new forms of creolized or syncretized culture that arose in the New World as a result of the juxtaposition of cultures.

Publications - The Smithsonian Folklife Studies series recently released monographs on Tule Technology and Working Americans II and an ethnographic film on Korean Onggi Pottery. Publications celebrating the 25th annual Festival of American Folklife will include a picture book, a cookbook, a compilation of the "best" program book articles, a manual for festival production, and a history by Ralph Rinzler, the Smithsonian's Assistant Secretary for Public Service, Emeritus. The Smithsonian Institution Press will publish three books resulting from OFP-sponsored Quincentenary symposia--Seeds of the Past: Continuities in Native American Agriculture, Seeds of Commerce: Economic and Cultural Consequences of Caribbean Plantation Society, and Seeds of Industry: Transformations of Local Culture.

Smithsonian Folkways Records - Folkways continues to produce new research-based recordings with liner notes, rerelease older material in cooperation with Rounder Records, and operate an archival cassette fulfillment operation for noncommercial recordings. Major projects include a 20-volume set of recordings on Indonesia sponsored by the Ford Foundation and done cooperatively with the Indonesian Ethnomusicological Society, a series on the "Musics of the Americas," world music videos with JVC (Victor Company of Japan, Ltd.), and recordings of the "Musics of Struggle" with Columbia Records. Recent releases on Hawaiian music of Ni'ihau, the Hispanic music of Islenos in Louisiana, and Tuvan throat singing of central Siberia have earned critical acclaim and indicate the wide scope of current projects.

Exhibitions - OFP-produced exhibits on "Family Folklore," "The Grand Generation," and "Stand by Me: African-American Expressive Culture in Philadelphia" continue to tour museums and community centers across the United States.

Education and Public Programs - OFP continues the Summer Folklore Institute for community and lay scholars. This unique program enables 12 community scholars from across

the country to join with museum, academic, and technical experts to enhance their skills in documenting, preserving, and presenting folklife traditions. OFP plans to produce a comprehensive manual directed at training lay scholars using curriculum materials developed at the Institute since 1989. OFP also continues to sponsor public programs in the museums and elsewhere. In 1990, OFP sent Hawaiian hula dancers, a bluegrass band, a tap dancer, a New Orleans jazz band, and a Mexican-American duet to the Soviet Union to give Ukrainian farmers, factory workers, and city dwellers a sampling of American grass-roots culture.

Archives - The Folklife and Folkways Archives contains audiotapes, records, videotapes, photographic images and film, paper files, and books documenting folklife traditions from all parts of the United States and 50 countries. Highlights of the collection include 40 years of world music documentation and field notes used in Folkways Records production, fieldwork reports for 25 years of the Festival of American Folklife, narratives of occupational folklife, family folklore, immigration stories, American musical traditions, and the performance traditions of Anglo-American, African-American, Native-American, Hispanic, and various Euro-American groups. Recent additions include the Cook Collection of Caribbean musics, the Woody Guthrie papers, and songs of struggle collected at the Festival of American Folklife.

Public Service - OFP cooperated with the State of Hawaii to remount the program on Hawaiian folklife done at the 1989 Festival in Honolulu. The State, working with OFP, plans a continuing annual festival as well as a permanent cultural center for the study and presentation of Hawaiian and Pacific cultures. OFP worked with the U.S. Virgin Islands to remount its 1990 Festival program on the islands and create a permanent installation and research center. OFP continues to work with Michigan, Oklahoma, and other states on festival and folklife support, as well as with other nations including Canada, Mexico, Australia, the Soviet Union, China, Pakistan, and Senegal.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, the Office of Folklife Programs requests an increase of 2 workyears and \$151,000 for a fiscal technician (1 workyear and \$26,000); the Columbus Quincentenary programs (1 workyear and \$50,000); and cultural conservation research (\$75,000).

Fiscal Technician (1 workyear and \$26,000) - The Festival of American Folklife directly reaches more than one million visitors to the Mall and additional millions through media coverage and the remounting of Festival programs in their home states. Despite computerized accounting systems, the fiscal demands on the Office of Folklife Programs have grown both in volume and complexity because of the multiple Festival funding sources and procurement constraints. A fiscal technician will monitor Festival funding to ensure the most effective use of these financial resources.

The responsibilities of the fiscal technician will include monitoring accounts and procurements, maintaining reliable computerized accounting records, preparing monthly reports, and reconciling Office accounts with those of the Office of Accounting and Financial Services. A fiscal technician following these procedures will assure the most efficient, timely, and proper use of public funding and hence the most effective presentation of folklife research highlighted in the annual Festival. This heightened accountability will also strengthen the Office's position for soliciting further funding from outside sources and will resolve deficiencies repeatedly cited by the Office of Inspector General.

OFFP will use the requested funds to hire one fiscal technician (1 workyear and \$26,000).

Many agencies provide funding for the Festival, including state and local governments, private organizations, and the Institution. It is in the best interests of all agencies for the Office to maintain a sound financial records system. The Office of Folklife Programs must be accountable to those agencies supporting the Office's research.

Columbus Quincentenary Program (1 workyear and \$50,000) - In 1992, the Festival of American Folklife will commemorate the Columbus Quincentenary with a living exhibition, "New Cultures of the Americas." This program will inform a broad audience about the unique cultural forms, foodways, crafts, ritual performances, and other genres such as Euro-Hispanic conjunto (an American musical tradition rooted in German and Mexican melodies), Afro-French zydeco (music of French-speaking African-Americans in Louisiana), and East Indian-Caribbean foodways that illustrate cultural sharing, syncretization, and creolization. Americans will gain an appreciation of how cultures intermingle, strengthen each other, and are continually being created.

Contracted professional and lay scholars in diverse American communities will conduct ethnographic field research in regions illustrating strong forms of creolized, local grass-roots culture such as the urban Northeast of the United States, the Mississippi delta region, the U.S. Southwest, Hawaii, the Caribbean, Brazil, Mexico, Argentina, and the Andes. The project coordinator, with the Festival coordinator, will assess the resultant film, video, audio, and written documentation to develop a Festival program. The project coordinator also will develop all logistical support for the research phase and for program production on the National Mall.

The requested funds will supplement base funding of \$160,000 to hire a project coordinator (1 workyear and \$44,000) to assist in Festival program development. Additional funds (\$6,000) will support contract researchers and travel and documentation expenses.

This Columbus Quincentenary Festival program will be a major vehicle for projecting a model of cultural continuity and creativity that goes beyond popular notions of the American "melting pot." The program will point to the continuity and integrity of diverse American cultures while at the same time highlighting the creativity born of their inter-relationships.

Cultural Conservation Research (\$75,000) - Many forms of grass-roots traditional culture have perished. Others continue to survive and adapt to new and changing circumstances. Little social scientific research has been done on the process of cultural conservation and creativity. OFFP requests \$75,000 for contract researchers to investigate and examine this process in three selected case studies. The studies will contribute to scholarly theories and methods for understanding cultural change. They will also be useful to policy makers seeking ways to reconcile national and mass culture forms with local, grass-roots communities.

Case 1: Soviet-American and Soviet communities in the United States and the Soviet Union - Professional and lay scholars will focus on the continuities and changes in traditional culture among various Soviet populations and their cognate groups that have immigrated to the United States. Among those communities OFFP scholars will study are Bukharin Jews in Bukhara and in Queens, New York; Old Believers in Russia and in Oregon and California; Armenians in Armenia and in Massachusetts and Los Angeles; Ukrainians in

the Ukraine and in Chicago; and Eskimos and native peoples in Siberia and in Alaska. The project should result in an understanding of how culture perseveres and changes in the context of two very different social systems.

Case 2: African-American coil basketry in the Georgia Sea Islands and coastal South Carolina - This ancient African tradition provides employment to some 10,000 Americans and produces museum-quality baskets referencing the history of rice plantation agriculture, slavery, and African-American culture. Development of the coast for tourism and condominiums has jeopardized the tradition and livelihood of people by reducing the accessibility of the grasses used in basket making. OFP researchers will assess the social, historical, and economic implications of the cultural tradition and the ways in which the local community and other interests have organized to keep the tradition alive.

Case 3: Culture and tourism - Forms of tourist culture on Indian reservations and in Hawaii, the U.S. Virgin Islands, and Puerto Rico are often developed to the detriment of local grass-roots culture. Contract researchers, under the OFP guidance, will examine how local culture is represented to tourists in hotel performances, theme parks and cultural centers, and other activities; the impact of tourism on local cultures; and models of tourism that promote and contribute to the continuity and creativity of local cultures. Particular case studies include the Navajo reservation, Hawaii, and the U.S. Virgin Islands. Study results will contribute to growing scholarly studies of cultural representation and provide policy makers with a means of fostering and supporting local culture through the development of a culturally appropriate and sensitive tourism.

These three cultural conservation studies are innovative and promise seminal, theoretical, methodological, and public policy results. They view culture as a living part of peoples' lives, subject to ongoing contemporary processes, and point to the role of the Smithsonian in studying, conserving, and representing culture not only in museums but in the communities across the Nation in which it is made.

#### NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - Concessions at the Festival of American Folklife generate funds that help support program, research, and development costs of the Festival. The Smithsonian's Educational Outreach, Special Exhibitions, and Research Opportunities Funds and the International Exchange Program help support the Summer Folklore Institute, museum exhibits, travel to scholarly meetings, and Soviet-American research.

Restricted Funds - Grants and gifts from foundations and corporations provide these funds in support of Festival programs, Folkways Records, and other projects. In FY 1990, the Ford Foundation began its three-year support for \$390,000 of an Indonesian recording project. Smaller gifts and grants from the Music Performance Trust Funds, Inter-American Foundation, Bill and Camille Cosby, and the Grateful Dead indicate the range of support for OFP projects.

Government Grants - Various state and local governments provide these funds to support performances and programs at the annual Festival of American Folklife. In FY 1990, OFP received \$400,000 from the government of the U.S. Virgin Islands in support of its program at the Festival.

ACADEMIC AND EDUCATIONAL PROGRAMS

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	17	841	9	795	-	2	-	-	-	-
FY 1991 Estimate	17	846	9	817	-	2	-	8	-	-
FY 1992 Estimate	18	932	9	756	-	5	-	20	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - Research and education are among the principal objectives of the Smithsonian. To attain these goals, the Institution promotes scholarly and academic ties with other learned institutions and offers resources to the general public as well as the academic community. Scholarly and academic ties develop and flourish through programs in higher education, symposia and seminars, and learning opportunities at the elementary and secondary levels. This line-item includes the Office of Interdisciplinary Studies (OIS), the Office of Elementary and Secondary Education (OESE), and the National Science Resources Center (NSRC).

For FY 1992, the Office of Elementary and Secondary Education requests \$56,000 for base funds to meet program accessibility needs; and the National Science Resources Center requests 1 workyear and \$30,000 to expand its Clearinghouse for Science Teaching Resources Program.

PROGRAM:

I. Office of Interdisciplinary Studies - With base funding of 4 workyears and \$177,000, the Office of Interdisciplinary Studies organizes interdisciplinary and international symposia, colloquia, and other events for specialized and public audiences focusing on contemporary life and global concerns. Many of these programs result in publications. The Office convenes Institution-wide programs to increase communication and information exchange among Smithsonian staff and produces educational materials for schools, universities, libraries, and the general public.

In FY 1990, the international symposium, "Les Droits de L'Homme and Scientific Progress," brought together leading scientists with historians, legal scholars, and public figures from France and the United States to examine the linkage between science, democracy, and human rights. The symposium will generate a reference volume for

universities and libraries summarizing the proceedings, as well as a published volume of the papers.

The third annual world food colloquium, entitled "Sharing Innovation: Global Perspectives on Food, Agriculture, and Rural Development," took place on October 17, 1989, in conjunction with the presentation at the Smithsonian of the World Food Prize. Featuring speakers from six nations of Asia, Africa, and Latin America, the colloquium focused on research and technology transfer. Two hundred people attended the all-day colloquium, and 600 participated in the evening World Food Prize ceremonies at Baird Auditorium. SI Press will publish the colloquium volume in fall 1990. The fourth world food colloquium, entitled "Nutrition and Food Security: Perspectives on Research, Policy, and Operational Programs," will be held in October 1990.

The volumes published by OIS include scholarly essays. Various colleges and universities have adopted several for course use. A newsletter, initiated by OIS in FY 1990, reports on interdisciplinary studies at the Smithsonian. It is distributed throughout the Institution as well as to colleagues elsewhere.

During FY 1990, OIS-sponsored "Ways of Knowing" quarterly seminars brought together medical doctors, historians, and anthropologists from Harvard University, the Johns Hopkins University, and the Smithsonian to explore "Models and Meanings of Health and Illness."

Beginning in FY 1991, OIS will sponsor a second intramural series, entitled "The Smithsonian's Research Enterprise," to highlight the research activities of Smithsonian scholars at various locations. Scholars from different disciplines will exchange information with Smithsonian professional staff and share perspectives. The first seminar, in October 1990, will present mapping the universe and the canopy of a tropical rain forest, two highly innovative and promising research activities under way in astrophysics and tropical biology.

OIS will also launch a bimonthly seminar series entitled "Cultural Diversity," which will extend and strengthen cross-cultural communication at the Smithsonian. The seminar series will complement the Institution's many programmatic and administrative efforts to build a richer and more diverse set of activities. The first seminar, in fall 1990, will focus on the meaning of cultural diversity and its implications for the Smithsonian.

OIS's second educational video, entitled "Citizen Stories," explores the line between rights and responsibilities in American democracy. It will be released in late 1990. Also in FY 1990, OIS will convene a workshop for science teachers and curriculum specialists in the metropolitan Washington area on the teaching of space science in the elementary and intermediate grades. The workshop will include presentations by staff of the National Air and Space Museum's Astrophysics Laboratory and discussions among educators on designing curriculum units that introduce students to learning about the universe, apply its concepts to other realms of life, and excite students' interest in science in general. In addition to NASM, the National Science Foundation and the National Aeronautics and Space Administration will participate in the workshop.

II. Office of Elementary and Secondary Education - With base funding of 8 workyears and \$399,000, the Office of Elementary and Secondary Education is the Smithsonian's central office for formal and informal educational programs. It serves as the focal point for developing pan-Institutional policies and goals for education. Charged with improving elementary and secondary education throughout the United States, OESE assists individual

bureaus and offices in developing educational programs and materials with appropriate educational organizations. Outreach programs, designed to bring diverse educational and cultural communities to the Institution, receive particular attention. OESE develops museum resources for teachers and students, locally and nationally, through publications, a teacher education program, special education projects, and internships for precollege students.

During FY 1990, OESE expanded its publications program. The new Resource Guide for Teachers catalogues all of the Smithsonian's materials available for educational use, along with those produced by the Kennedy Center, the National Gallery of Art, and Reading Is Fundamental. In collaboration with a commercial publisher, OESE initiated a series of curriculum kits for high school teachers and students. In addition to lesson plans and student activities, the kits contain facsimiles of documents, other primary source materials, and audiotapes. The first four units in the series, set for publication in FY 1990/FY 1991, will present materials from the Smithsonian's music collection to enable teachers to integrate American history and music. OESE also completed the last four units of "The Peoples of the Americas," a Columbus Quincentenary project. The Office will distribute this multi-cultural preschool kit across the Hemisphere, with a commercial publishing company handling printing and fulfillment. Art to Zoo, a quarterly journal for teachers, reached approximately 90,000 educators (and more than 2 million students) in more than 20,000 schools.

For the District of Columbia area teachers, OESE organized a symposium, "Word of Mouth: Storytelling and Multicultural Education." The event was attended by more than 300 teachers. OESE also inaugurated a partnership program with the D.C. Public Schools. One project, a collaboration that brings Smithsonian resources to the school's curriculum needs, will focus on different grade levels at four schools. In these "lab schools," teachers, students, principals, and Smithsonian staff will work together to improve the quality of education. In summer 1991, another project will support a teacher institute to explore a new Afro-centric curriculum.

For educators across the country, OESE's Regional Workshop Program, now in its eighth year, continued to work with local communities, to serve as catalyst for strengthening relations between museums and schools. In FY 1990, OESE held regional workshops in Amarillo, Texas, and in Wilmington, North Carolina, drawing 750 teachers. In FY 1991, the Office will conduct regional workshops in Charleston, South Carolina; Wichita, Kansas; and Tallahassee, Florida. An FY 1990 evaluation of the program enabled OESE to make revisions responsive to the needs of participating communities.

As part of the Institution's response to the Rehabilitation Act of 1973, OESE provides sign language interpreters for public programs and offers technical assistance to Smithsonian offices to make their programs, exhibitions, and facilities accessible to disabled audiences. In FY 1990, the program distributed a training manual and videotape, Part of Your General Public Is Disabled, to national and international museums. Training sessions for docents, at the Smithsonian and in museums across the United States, demonstrated ways to make tours and public programs accessible to disabled visitors.

In summer 1990, OESE sponsored the 15th annual internship program for graduating high school seniors. Forty students from 27 states participated. OESE staff placed students in Smithsonian curatorial divisions and other offices to work on projects in their fields of interest. In addition, OESE piloted an eight-week internship program designed to meet the specific academic and economic needs of District of Columbia Public School students.

III. National Science Resources Center - With base funding of 5 workyears and \$270,000, the National Science Resources Center is a joint undertaking of the Smithsonian Institution and the National Academy of Sciences to improve the quality of science and mathematics teaching in the Nation's schools. NSRC identifies, develops, and disseminates science and mathematics teaching materials that are imaginative, classroom tested, and scientifically up-to-date. The Center also organizes leadership development institutes for science teachers and other school system personnel. These institutes encourage the sharing of resources and help build a talent pool to staff local program improvement efforts. NSRC programs stress the involvement and collaboration of teachers and scientists and place special emphasis on increasing the numbers of underrepresented minorities and women engaged in the study of science.

The Smithsonian Institution and the National Academy of Sciences have established an advisory board for NSRC that includes representatives from several major corporations, eminent scientists, and educational leaders in the United States. The board counsels the NSRC executive director on broad policy issues and helps set priorities for the Center's program activities.

To increase the scientific and technological literacy of young children, NSRC has undertaken several projects to improve the teaching of science in the Nation's elementary schools. School systems and other organizations that are initiating these projects use NSRC's elementary science resource collection and computer information data base, which include bibliographic information and brief annotations about the materials in the resource collection. NSRC's Science for Children: Resources for Teachers, developed from the data base, includes information about the materials in the elementary science resource collection and a directory of science museums and other organizations that provide hands-on science kits and assistance to elementary school teachers.

"Science and Technology for Children" (STC) is a four-year NSRC elementary science curriculum project that is developing curriculum units for grades 1-6 in the areas of physical science, life science, earth science, and technology. STC units are simple, inexpensive materials designed to teach science and link science to the broader elementary school curriculum of mathematics, reading, writing, art, and social studies. Teachers across the country field-test the STC units to refine and validate them.

NSRC is developing a network of teachers, scientists, science educators, and school administrators who are working to improve the teaching of elementary school science. NSRC also sponsors leadership development institutes to prepare selected teachers, science supervisors, school system administrators, and scientists to organize hands-on elementary science programs in their school districts. These institutes help school systems design effective in-service education programs, establish science materials support systems, and develop the community support needed to reform their science programs.

EXPLANATION OF PROGRAM INCREASE: For FY 1992, the Office of Elementary and Secondary Education requests \$56,000 for base funds to meet programmatic needs; accessibility needs; and the National Science Resources Center requests 1 workyear and \$30,000 to expand its Clearinghouse for Science Teaching Resources Program.

I. Office of Elementary and Secondary Education:

Program Base Funds (\$56,000) - Publications and programs from the Office of Elementary and Secondary Education serve teachers and students nationwide. Adequate base funds will

enable OESE to provide teachers with methods enabling the Nation's schoolchildren to gain knowledge and to develop essential skills.

OESE draws on the unique strengths of the Smithsonian: its diverse research and its tremendous collections. The Office creates programs and produces publications that teachers can use as basic research tools to generate and maintain student interest. Kits, for example, incorporate objects, photographs, documents, films, and sound recordings to give solid meaning to classroom work. Because of the multi-cultural nature of the Institution's collections, OESE projects enable students to make cross-cultural comparisons, grasp the universality of human experience, and see beyond the limit of their own experiences. OESE's efforts are a means for the Smithsonian to meet its responsibility to promote cultural literacy. Taken together, OESE publications and programs are a targeted response to current primary problems in education.

Over the years, the Office's base allotment has eroded--the result of absorbing necessary pay increases and Gramm-Rudman-Hollings reductions. Increased printing costs combined with these cuts mean that the Office can no longer meet its obligation to the Nation's teachers. For example, in FY 1990, lack of funding required that the Office cancel both its local publications (Let's Go to the Smithsonian, a periodical bulletin for teachers highlighting current educational activities throughout the Institution, and Smithsonian Spectrum, an annual brochure surveying the Institution's educational services), and cut back on the circulation of its national quarterly, Art to Zoo. This publication costs less than a penny per issue for each student served (including salary, printing, and mailing costs).

The requested increase represents a small investment that will produce significant results in educating the Nation's schoolchildren. Most of the funding requested (\$52,000) will support the production of publications. The balance (\$4,000) will enable the Office to respond more effectively to educators' needs by training on-board staff in national programming. Without these additions to base funding, the Office cannot continue its efforts to reach teachers and students across the country.

OESE acts as a central clearinghouse for Smithsonian information of interest to schools. OESE programs focus on teachers and students, locally and nationally. Continued financial constriction inevitably means fewer issues and copies of Art to Zoo. The real beneficiaries of this increase will be the Nation's schoolchildren. Their teachers will be better prepared to encourage inquiry and active learning.

## II. National Science Resources Center:

Clearinghouse for Science Teaching Resources Program (1 workyear and \$30,000) - NSRC plans to expand its Clearinghouse for Science Teaching Resources Program to include resources for middle schools as well as elementary schools. This expansion will enable the Clearinghouse to provide teachers and science educators across the country with up-to-date information about high-quality resources for teaching elementary and middle school science.

The expanded Clearinghouse will include a resource collection, housed in NSRC's facilities in the Arts and Industries Building, and a computer information data base. The Clearinghouse will disseminate information to teachers and science educators through published resource guides and a computer telecommunications network.

The requested funding will allow NSRC to hire an administrative specialist to assist in the collecting and cataloguing of resource materials for middle school science teachers and in the operations of the Clearinghouse. NSRC will need the requested funding for the duration of the operations of the Clearinghouse.

The expanded Clearinghouse will help NSRC fulfill its mission to disseminate information about effective science teaching materials to teachers across the country. Many of NSRC's seminal science curriculum projects developed innovative materials of exceptional quality that were not able to be disseminated. The Clearinghouse will help to remedy this problem by serving as a unique storehouse of information about past and present programs.

#### NONAPPROPRIATED SOURCES OF FUNDING:

##### I. Office of Interdisciplinary Studies:

Unrestricted General and Special Purpose Funds - An annual allotment provides funds for salaries and benefits and other related administrative costs. In addition, funds support the planning and development of institutional programs, public events, educational materials, and publications, including costs for honoraria, printed materials, editorial assistance, publications, audio and video services, and travel for outside speakers.

Restricted Funds - Funds provided are in the form of restricted endowments that specify the use of donations or bequests on behalf of sponsoring organizations such as individuals, foundations, corporations, and Federal agencies. Examples of these funds are the Sergei N. Grimm Endowment, which finances research related to urban planning, and the Barrick W. Groom Endowment, which supports interbureau and interdisciplinary programs. During FY 1990, OIS received a grant from the International Life Sciences Institute Nutrition Foundation of Washington, D.C., for support of the October 1990 international food, agriculture, and nutrition colloquium to be held in cooperation with the ceremonies at the Smithsonian honoring the World Food Prize laureate. The Annie Laurie Aitten Charitable Trust of New York has helped fund OIS's educational videos.

##### II. Office of Elementary and Secondary Education:

Unrestricted General and Special Purpose Funds - The OESE's programs for young people are supported by Institution Trust funds. Internship programs for graduating high school seniors provide hands-on learning experiences for young people from the Washington metropolitan area and across the Nation. In addition, a Career Awareness Program is an affirmative action effort introducing local high school students to museum careers.

Trust funds also support OESE's publications program as well as its Quincentenary curriculum development project on the "Peoples of the Americas." The major effort of the publishing program is a series of curriculum kits for teachers. Under an agreement with Golden Owl Press, Inc., OESE is developing and writing the materials, while the commercial publisher will be responsible for printing and fulfillment.

Restricted Funds - Corporate grants support OESE efforts for teachers. In-kind contributions from American Airlines provide the transportation for the Regional Workshop Program, which serves communities in the United States by promoting the use of museums as educational resources. A grant from Brother International Corporation supports the development, publication, and distribution of a secondary school curriculum kit.

### III. National Science Resources Center:

Unrestricted General and Special Purpose Funds - An allotment from unrestricted funds provides partial funding for the core operations of the National Science Resources Center. These resources support salaries and help develop, with the assistance of the National Academy of Sciences, program initiatives to attract further support from the private sector.

INTERNATIONAL CENTER



INTERNATIONAL CENTER

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
			General		Special					
	FTE*	Amount	FTP**	Amount	FTP**	Amount	FTP**	Amount	FTP**	Amount
FY 1990 Estimate	12	916	10	692	-	150	-	-	-	-
FY 1991 Estimate	13	990	10	648	-	150	-	-	-	-
FY 1992 Estimate	19	1,448	11	709	-	150	-	-	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The International Center (IC) monitors, coordinates, and enhances Smithsonian-wide international endeavors. The Center provides support for the diverse range of Smithsonian international programs through the work of several independent divisions: the Office of International Relations; the International Gallery; the Office of Quincentenary Programs; the Office of Conference Services; the Smithsonian Institution/Man and the Biosphere Biological Diversity Program; and the Office of Environmental Awareness. Through the International Center, the Smithsonian also supports international research programs such as the Council of American Overseas Research Centers.

For FY 1992, the International Center requests an increase of 6 workyears and \$458,000 to provide for computer life-cycle enhancement for the International Center (\$20,000); strengthen central institutional support for international relations (1 workyear and \$113,000); continue pan-Institutional planning for the Columbus Quincentenary (1 workyear and \$124,000); establish the Institute of the Americas (1 workyear and \$46,000); establish a permanent base of Federal support for the Office of Conference Services (2 workyears and \$100,000); and provide program support for the Smithsonian Institution/Man and the Biosphere Biological Diversity Program (1 workyear and \$55,000).

PROGRAM - From its inception, the Smithsonian has been an international institution. During the course of the past 140 years, Smithsonian researchers have spanned the globe, forming unique collections and establishing a worldwide network of correspondents and collaborators. Today the Institution's international activities take place on a number of different levels, from informal scholar-to-scholar contacts to highly structured Institutional programs.

In FY 1985, the Smithsonian established the Directorate of International Activities to advance the global objectives of the Smithsonian's charter by facilitating its international research and encouraging collaborative work abroad. Following an internal program review in FY 1987, the Institution reorganized the various parts of the former Directorate of International Activities into a new International Center in April 1988. A fundamental objective of the Center is to help place the Institution's scholarly work

at the service of the general public as it seeks to understand a changing international scene. Located in the S. Dillon Ripley Center of the Quadrangle Complex, the International Center provides facilities for discourse and exhibitions on a wide array of international matters. Bureau-generated programs fostered by the International Center include conferences, symposia, seminars, exhibitions, lectures, performances, film showings, and workshops. An International Activities Council, composed of the Assistant Secretaries for Research, Museums, Public Service, and External Affairs, provides oversight and policy guidance for the International Center as well as for the broad range of international programs undertaken throughout the Institution.

As part of the reorganization that established the International Center, the Smithsonian created or combined several offices, each of which provides Institution-wide support or coordinating services: the Office of International Relations, the International Gallery, the Office of Quincentenary Programs, and the Office of Conference Services. Responsibility for the individual offices of the International Center is divided among the Assistant Secretaries on the International Activities Council.

Office of International Relations - The Office of International Relations (OIR), which reports to the Assistant Secretary for External Affairs, provides basic liaison support and coordination for the international aspects of Smithsonian research and museum programs. This responsibility includes:

- supplying guidance and information on foreign affairs and international relations;
- facilitating communications and logistical arrangements for research and participation in meetings abroad;
- assisting in drafting and negotiating agreements relating to international cooperative programs;
- assisting foreign scholars and officials who visit the Smithsonian or participate in its programs in the United States;
- compiling and updating the "Profile of Smithsonian International Activities" data base;
- obtaining passports and visas for Smithsonian travelers.

The Office also manages the Smithsonian Foreign Currency Program and other international research exchange grants programs.

International Gallery - The International Gallery, which reports to the Assistant Secretary for Museums, presents exhibitions that deal with significant global topics from various disciplinary points of view or cultural perspectives. The first three exhibitions presented in the International Gallery--"Generations," "Tropical Rainforests: A Disappearing Treasure," and "Caribbean Festival Arts"--illustrate this emphasis. "Generations" explored the richness and diversity of cultures from ancient times to the present as they celebrate the art and rituals associated with birth. "Tropical Rainforests" examined the destruction of the Earth's most biologically diverse habitat, using a cross-disciplinary approach that drew extensively upon research conducted at the Smithsonian Tropical Research Institute, the National Museum of Natural History, the

National Zoological Park, and other international research centers. "Caribbean Festival Arts," organized by the Saint Louis Art Museum, explored the ethnic sources, Caribbean development, and current form of the three pan-Caribbean festivals: Jonkonnu, a widely celebrated masquerade; an Islamic festival commemorating the death of Hussein; and the pre-Lenten carnival culminating in Mardi Gras.

The International Gallery's fourth exhibition will be "Moscow: Treasures and Traditions," a survey of the art of Moscow from the 15th century to the present. Organized by the Smithsonian Institution Traveling Exhibition Service (SITES) and currently on display in Seattle, the exhibition will open in November 1990.

Office of Quincentenary Programs - The Office of Quincentenary Programs, which reports to the Assistant Secretary for Research, coordinates and supports the development of a wide range of programs and activities commemorating the 500th anniversary of Christopher Columbus's landfall in the Americas. Within the Smithsonian, 11 major exhibitions and the Festival of American Folklife will explore the encounter between the Old and New Worlds. Research relating to the Quincentenary commemoration extends to collaboration with national and international ambassadors, attaches, scholars, institutions, boards, and commissions. The resulting exhibitions, symposia, seminars, lectures, publications, documentaries, and educational materials are providing an alternative interpretation and understanding of the emergent cultures and issues in the Americas following the 1492 encounters.

In 1990, the Office of Quincentenary Programs initiated The New World, a newsletter with editions in English, Spanish, and Portuguese. Published quarterly, the newsletter discusses the significance of the Quincentenary commemoration and provides information about activities at the Smithsonian. The newsletter is distributed to more than 10,000 individuals, libraries, and organizations. In addition to its ongoing administrative work, the Office also began planning for the Institute of the Americas, a new bureau that will facilitate scholarly exchange on intellectual, cultural, ecological, and other issues that affect the Western Hemisphere.

Office of Conference Services - The Office of Conference Services (OCS), which reports to the Assistant Secretary for Public Service, coordinates logistical arrangements for conferences and seminars initiated by scholars and staff throughout the Institution. Each year the Smithsonian sponsors approximately 50 professional meetings, ranging from small workshops to major international conferences. For many years, the responsibility for handling all of the logistics of each meeting, from preconference planning through implementation and postconference wrap-up, rested exclusively with the sponsoring research or curatorial department. Faced with these additional duties, the responsible departments or bureaus often found it necessary to hire temporary coordinators. To more efficiently coordinate the planning and implementation of conferences, the Institution created a central Office of Conference Services in 1988. This Office now works with sponsoring bureaus, offering the necessary level of support for meetings on a case-by-case basis.

Support for International Research - In addition to the new offices established within the International Center, the Smithsonian continues to support other programs in international research under the International Center umbrella. Primary among these programs are the Smithsonian Institution/Man and the Biosphere Biological Diversity Program, the Office of Environmental Awareness, and the affiliated, independent Council of American Overseas Research Centers.

Smithsonian Institution/Man and the Biosphere Biological Diversity Program - In 1986, the International Center, in cooperation with the National Museum of Natural History and the UNESCO's Man and the Biosphere Program, established the Smithsonian Institution/Man and the Biosphere Biological Diversity Program (SI/MAB) to formulate biological diversity inventory procedures and administer training in their use. Based on studies and surveys conducted in several protected areas of the Americas, including Bolivia, Ecuador, Puerto Rico, Peru, and the Smokey Mountains of Tennessee, the program developed an initial methodology for conducting detailed biological diversity inventories of species-rich areas around the world.

Though useful institutional linkages have also resulted from this program, its most important objective is the training of biologists, conservationists, nature reserve managers, and related professionals from developing countries. This training provides researchers in the field of biodiversity conservation from these countries with the skills necessary to conduct their own research. In a number of cases, these trained researchers have later undertaken fieldwork in association with Smithsonian counterpart scholars. This program has organized training workshops for almost 200 participants in several countries of Latin America and the Caribbean as well as in the United States.

This year the SI/MAB Program is beginning its first year of operation in two new countries: Guatemala and Brazil. The United States Agency for International Development (USAID), UNESCO's Man and the Biosphere Program, the World Heritage Fund, the World Wildlife Fund, and Conservation International have funded training activities over the last three years. Important goals of the program in FY 1992 include:

- to provide a team of 16 to 20 researchers, educators, conservationists, nature reserve managers, and other key individuals from five Latin American countries with basic training in the principles of biological diversity conservation, the management of protected areas, ecology, and related biological research;
- to arrange exchanges of scientific and technical expertise through consultations and training workshops, utilizing regionally or nationally recognized experts;
- to institutionalize these short-term intensive courses in five to seven Latin American countries, so that scientists and educators there will be able to provide their own national, regional, and international training in future years;
- to develop four educational modules to be used as educational and reference material tailored to meet the specific needs of Latin American decision makers in the area of conservation and biological diversity.

Office of Environmental Awareness - The Office of Environmental Awareness, administered by the International Activities Council, works with Smithsonian bureaus and outside groups to monitor research and policy developments on environmental topics and to disseminate information to a variety of audiences through publications, electronic media, workshops, public programs, and exhibitions. It complements existing global change research and bureau-based educational programs by focusing on specific environmental topics and audiences.

The next ten years may prove crucial to the preservation of the life support systems of the planet. Although there is a heightened sense of public awareness about environmental threats, there are few outlets for disseminating current and accurate

information beyond the scientific community. The Smithsonian proposes to play an important role in the presentation of objective environmental information to the public through the Office of Environmental Awareness.

Council of American Overseas Research Centers - American overseas research centers are the recognized extensions of advanced foreign research programs of major American universities and museums. They constitute the channel through which research information about countries important to United States interests invigorates American academic institutions. These centers operate in Italy, Greece, Turkey, Cyprus, Tunisia, Morocco, Iran, Egypt, Jordan, Israel, Yemen, India, Pakistan, and Hong Kong. They provide fellowship funds, access to local research resources, logistical support, liaison with host-country officials, and library and housing facilities to thousands of American academics. The facilities of each center offer contacts for American scholars and their host-country colleagues, and their publication and seminar programs disseminate research results worldwide. The private structure of the centers and the unbiased research they promote make them respected focuses of American academia in the countries in which they operate. As a result, they contribute considerably to a positive United States image abroad.

The Council of American Overseas Research Centers (CAORC) facilitates and coordinates the work of its 14-member institutions. Federated in 1981, the existing centers create a forum to identify and address common concerns. CAORC links its member research centers, United States and foreign institutions, and scholars into a global information network. It fosters collaboration among research centers to strengthen academic programs and administrative procedures and sponsors international research projects. The Council undertakes the establishment of new centers in areas where research exchange opportunities are lacking.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, the International Center requests an increase of 6 workyears and \$458,000 to provide for computer life-cycle enhancement for the International Center (\$20,000); strengthen central institutional support for international relations (1 workyear and \$113,000); continue pan-Institutional planning for the Columbus Quincentenary (1 workyear and \$124,000); establish the Institute of the Americas (1 workyear and \$46,000); establish a permanent base of Federal support for the Office of Conference Services (2 workyears and \$100,000); and provide program support for the Smithsonian Institution/Man and the Biosphere Biological Diversity Program (1 workyear and \$55,000).

Computer Life-Cycle Enhancement for the International Center (\$20,000) - While one-half of the International Center's computer equipment is more than five years old, the number of personnel of the offices within the International Center is increasing. The offices are aggressively developing computerized data base applications to serve the entire Institution, including the "Profile of Smithsonian International Activities" data base.

The International Center seeks to implement a Computer Life-Cycle Enhancement program for the timely replacement, repair, and upgrade of computer hardware, software, and communications within the IC. This will facilitate both current and future development of computer applications within the IC, allowing the offices to meet the expanding requests for international services throughout the Institution. With the requested FY 1992 increase (\$20,000), IC will implement the Computer Life-Cycle Enhancement program for the Center.

A progressive program for the enhancement of computer hardware and software will increase the capabilities of IC staff in meeting the growing number and complexity of Institutional requests. Technological advancements will facilitate the IC's ability to provide the necessary services for the pursuit of the Institution's emphasis on global change research, cultural diversity, and education. For the Smithsonian to remain at the forefront in these areas, the supporting offices must remain abreast of technological advancements.

Central Institutional Support for International Relations (1 workyear and \$113,000) -

The Smithsonian's international activities have expanded by one-third during the past nine years, increasing the international prestige of the United States as well as that of the Institution. Along with the increased demand for services, the complexity of bureau and office requests submitted to the Office of International Relations (OIR) has matured. The current pan-Institutional emphasis on global change research, education, and cultural diversity will require additional support services beyond the capacity of the current staff.

To alleviate the increased demands on OIR staff and foster international collaboration, OIR requires the implementation of the following three-part plan:

- hire a full-time secretary to augment the current staff and address the increasing requests for logistical and coordinating support services;
- enhance the Smithsonian's status as an international research and exchange platform, providing training, fellowships, and collaboration with foreign visitors, fellows, scholars, and researchers;
- provide funding for OIR to support international conferences and workshops to foster collaboration via international scholarly and museum programs, networks, and exchanges.

For FY 1992, OIR requests an increase of 1 workyear and \$113,000 to implement this plan. The costs for each part of the plan are allocated as follows: a full-time secretary (1 workyear and \$29,000); enhancement of international collaboration with foreign visitors, fellows, scholars, and researchers (\$50,000); and an international meetings fund to support international conferences and workshops (\$34,000).

The expanded support for OIR will enable the Smithsonian to achieve goals in its areas of emphasis by fostering international research, scholarly and museum programs, fellowships, training, and exchange programs and by providing the infrastructure necessary to support various international activities. It is imperative that OIR expand to keep pace with the growing number and complexity of requests for support services involving international activities.

Pan-Institutional Planning for the Columbus Quincentenary (1 workyear and \$124,000) -

The Office of Quincentenary Programs coordinates and develops activities pertaining to the commemoration of the 500th anniversary of Christopher Columbus's arrival in the Americas. Scheduled programs include major exhibitions, conferences, symposia, publications, recordings, traveling exhibitions, educational materials, and a television series. The focus of the program provides for the dissemination of information to an international audience. With the majority of programs scheduled to occur during FY 1992,

the projected increase in administrative and liaison services necessary to support the programs will exceed the capacity of the current staff members.

The Office requires additional staff and support to coordinate day-to-day contact with bureaus and outside organizations, develop and oversee project schedules, examine program materials for diversity, secure translation services, provide travel for staff to take part in Quincentenary events, publish a scholarly newsletter, develop and print invitations to events, procure necessary contracts, provide supplies and materials for program events, and purchase computer equipment for the program manager.

For FY 1992, the Office of Quincentenary Programs requests an addition of 1 workyear and \$124,000 to hire a program manager (1 workyear and \$34,000); to provide printing of invitations and four newsletters (\$50,000); to procure contracts and other services (\$16,000); to provide travel for staff to programs and events (\$20,000); to purchase computer equipment (\$2,000); and to purchase office supplies and materials (\$2,000).

The addition of a staff member and support costs will provide the services required for the commemoration of the 500th anniversary of Christopher Columbus's landfall in the Americas. The pan-Institutional emphasis on education and cultural diversity are reflected in the development and fruition of Quincentenary programs in the United States and abroad. The added support will ensure the quality and content of programs participating in the commemoration.

Establishment of the Institute of the Americas (1 workyear and \$46,000) - The Smithsonian Institution has emphasized cultural diversity and education as primary directions for future expansion efforts. Through the collaboration of events related to the Columbus Quincentenary, the Institution has developed international contacts and resources throughout Central and South America. Presently, there is no organization to coordinate the continued cultural exchange following the close of the Quincentenary commemoration.

The Smithsonian proposes to establish the Institute of the Americas within the International Center. The first step is creation of a Quincentenary Council of the Americas, made up of prominent business people and scholars from the United States, Latin America, and the Caribbean. The Council will establish goals, identify problems and issues on which to focus, and help to secure funding for the Institute. Semiannual meetings among the Secretary of the Institution, the Director of the Institute, and the Council are planned to coordinate programs. Development of a master plan to determine long-range planning for the Institute, including financial, personnel, and facilities requirements, will be the initial task of the Council.

To establish the Institute of the Americas, the Office of Quincentenary Programs requests 1 workyear and \$46,000 to hire a program manager (1 workyear and \$40,000), provide travel funding for Council members and staff (\$5,000), and secure contractual services (\$1,000).

To advance the emphasis on cultural diversity and education, the Smithsonian's efforts to establish the Institute of the Americas will foster scholarly and institutional exchanges on issues affecting the Americas. The further diffusion of knowledge through the discussions on related issues will foster better understanding among the nations in the Western Hemisphere.

Establishment of Federal Base for Office of Conference Services (2 workyears and \$100,000) - Professional conferences, seminars, and symposia foster the national and international scholarly exchange of research results in the natural sciences, social sciences, arts, and humanities. As a leading international research institution, the Smithsonian convenes scores of conferences and meetings each year. The increasing number of requests for Office of Conference Services (OCS) assistance exceeds the capacity of the present staff to provide support to all of the bureau proposals. To address the increasing demand for OCS services and facilitate the dissemination of Institutional research, the Office of Conference Services seeks additional full-time permanent staff skilled in conference management.

For FY 1992, OCS requests a conference coordinator (1 workyear and \$34,000) and a conference assistant (1 workyear and \$29,000) to:

- develop conference budgets and account for costs;
- reserve meeting rooms and accommodations;
- prepare conference schedules, invitations, and programs;
- budget for and arrange support services (i.e., audio-visual and security);
- engage foreign-language interpreters;
- establish systems to track registrations and prepare registration packets;
- recruit and train on-site registration personnel.

In addition, OCS requests \$10,000 for supplies, materials, and office equipment; \$8,000 for the printing and reproduction of a Smithsonian Conference Facilities Guide; and \$19,000 for other services.

The establishment of a permanent base of Federal support for the Office of Conference Services will enable the Smithsonian to continue to foster national and international scholarly exchange and take advantage of economies of scale inherent in central support services.

Program Support for the Smithsonian Institution/Man and the Biosphere Biological Diversity Program (1 workyear and \$55,000) - The Smithsonian Institution/Man and the Biosphere Biological Diversity Program (SI/MAB), through its collaboration of Smithsonian staff with biologists, conservationists, nature reserve managers, and related professionals from developing countries, has established training programs to disseminate conservation, management, and inventory procedures for biologically diverse resources. With the expansion of the SI/MAB program into Guatemala and Brazil, the costs for the administration and continued support of the Program have also increased. Contributions from international organizations such as United States/Man and the Biosphere Program, UNESCO's Man and the Biosphere Program, the United States Agency for International Development, and the World Wildlife Fund have helped to defray increasing costs. To secure their continued support, as well as additional long-term resources, SI/MAB is preparing a detailed seven-year plan.

SI/MAB presents an opportunity for the Smithsonian to assume leadership in the international educational process that will affect the worldwide implications and concerns

regarding biological diversity. Currently, there exists no formal educational program of an international scope to collect, study, and disseminate research findings regarding biological diversity. SI/MAB is supporting a team of international experts in designing educational modules for Latin American decision makers. Educational material on conservation of biological diversity, protected area management, tropical ecology, and wildlands management are under development. During the next five years, the demand for similar modules will increase dramatically. As the program continues to expand, the requirement for knowledgeable staff members skilled in the area of conservation education will be critical.

To facilitate the pan-Institutional emphasis on global change research, cultural diversity, and education, as well as to provide support for the increased scope and complexity of its program, SI/MAB Program requests the addition of an education specialist (1 workyear and \$55,000).

The establishment of SI/MAB as an international leader in the field of biological diversity will elevate both Smithsonian and U.S. interests abroad. The emphasis on joint research and training between Smithsonian and foreign institutions and researchers will foster international exchange and cooperation with scientists and institutions from developing countries. The education specialist will provide additional support for this pan-Institutional program.

#### NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - Allotments provide funds to support planning and development of research and exhibition programs for the International Center and administration of Columbus Quincentenary activities. A special purpose fund provides stipend support for international scholarly exchanges aimed at strengthening the Smithsonian's institutional linkages.

Restricted Funds - Restricted funds consist of gifts, grants, and other donations from individuals, foundations, organizations, and corporations for specific purposes. These include undertaking research abroad, supporting exchanges of researchers and collections, mounting exhibitions, screening films, and staging performances and other public presentations in the International Center.



ADMINISTRATION



ADMINISTRATION

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	349	19,945	210	14,505	2	1,639	-	117	-	-
FY 1991 Estimate	384	23,611	218	15,640	2	1,640	-	156	-	-
FY 1992 Estimate	431	34,796	218	17,003	2	1,237	-	157	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - Administration includes central management, planning, oversight, and review provided by the Offices of the Secretary, Under Secretary, the Treasurer, Assistant Secretary for External Affairs, Assistant Secretary for Administration, General Counsel, and Inspector General. Offices included in this line item reporting to the Treasurer are: Financial Management and Planning, Accounting and Financial Services, Risk Management, Sponsored Projects (formerly Contracts), and Business Management. Offices reporting to the Assistant Secretary for External Affairs included in this line item are: Special Events, Congressional Liaison, and Membership and Development. Administration also covers a wide range of specialized administrative and technical offices, including: Equal Opportunity, Human Resources (formerly Personnel Administration), Management Analysis, Travel Services, Procurement and Property Management, and Printing and Photographic Services, Planning and Budget, and Information Resource Management. In addition, Facilities Services (responsible for Design and Construction, Plant Services, Protection Services, Environmental Management and Safety, and Architectural History and Historic Preservation) is included here. These units receive both appropriated funds and nonappropriated Trust funds for their operating support in approximate balance to the overall funding of the Institution. However, Trust funds entirely support some offices, such as Business Management, Sponsored Projects, and Risk Management.

For FY 1992, the requested increase for administrative units totals 47 workyears and \$11,185,000. In keeping with the President's commitment to improve the management of the Government, the increase will augment the Inspector General function (3 workyears and \$327,000); and enable the General Counsel to handle burgeoning legal activities associated with new Institutional initiatives (1 workyear and \$27,000). The Assistant Secretary for Administration requests 7 workyears and \$500,000 for the Institution to establish a substance abuse program (1 workyear and \$250,000) and give the Smithsonian greater flexibility in expanding present affirmative action initiatives (6 workyears and \$250,000). In addition, the request will allow the Office of Human Resources to keep up with the growing Institutional demand for its services (5 workyears and \$335,000), permit the Management Analysis Office to update its computing and word processing capability

(\$39,000); allow the Travel Services Office to support expanding travel needs at the Institution (1 workyear and \$38,000); strengthen procurement system controls for the Office of Procurement and Property Management by implementing procurement related automation (\$66,000); and expand the printing capabilities of the Office of Printing and Photographic Services (1 workyear and \$325,000). The requested resources will also greatly enhance the management of information systems by the Office of Information Resource Management (26 workyears and \$4,976,000) and allow the Office of Environmental Management and Safety to comply with OSHA and EPA regulations (3 workyears and \$171,000).

In addition, included in the Administration request, but justified in the Uncontrollable Increases section of this budget, are: funds to cover payroll base shortages in the Management Analysis Office (\$6,000) and the Office of Planning and Budget (\$21,000); resources to allow the Office of Risk Management to implement an Institutional Disaster Preparedness Program (\$200,000); and support for the Office of Accounting and Financial Services related to Personnel Payroll System charges from the National Finance Center (\$120,000). Also justified in the Uncontrollable Increases section are resources for the Assistant Secretary for Administration to replace the Institution's Administrative Service Center (\$1,000,000) and funds to support rising Federal health insurance rates (\$3,100,000). A decrease of \$66,000 for Workers' Compensation partially offsets the requested increases.

In addition to the total request for administration, the Smithsonian Institution Libraries (SIL) requests 2 workyears and \$1,500,000 to replace the Institution's outdated bibliographic information system (SIBIS). The justification for this request is included with the Office of Information Resource Management (OIRM). The combined request will allow OIRM and SIL to improve their information technology capabilities by applying cost-effective commercial computer technology to the Institution's expanding activities.

PROGRAM - The Office of the Secretary, with the assistance of the Office of the Under Secretary, is responsible for planning, direction, and management. The Office of the Assistant Secretary for Administration, with the assistance of the director of Facilities Services, is responsible for administrative and facilities services.

The Office of Inspector General (OIG) provides audit and investigative services to the Institution. Internal audits increase program efficiencies, economies, and effectiveness. Contract audits address claims, cost proposals, and cost and pricing data arising from contracts, grants, or other financial agreements. Investigative activities address issues of fraud and abuse related to Smithsonian programs and monies. The results of these inquiries serve as a basis for appropriate criminal, civil, or administrative remedies. In FY 1990, OIG issued two semiannual reports to the Office of Management and Budget and Congress, noting the accomplishments of the Office.

The Office of the General Counsel (OGC) advises the Smithsonian Board of Regents, the Secretary, and others on all legal matters arising from the administration of the Institution. In FY 1990, OGC provided legal oversight and counseling on such matters as the transfer of Heye Foundation Collection to the National Museum of the American Indian; repatriation of Native-American remains and artifacts; negotiations for the establishment of the Postal Museum; negotiations for the establishment of the National Air and Space Museum Extension; review of Smithsonian policies and procedures according to the Department of Health and Human Services guidelines on misconduct in science; and the establishment of debt-for-nature programs (discounted Latin American debt exchanged for local currency to fund research and conservation efforts in Latin America).

The Office of the Treasurer oversees financial management and, through the Business Management Office, certain Institutional income-producing activities, including museum shops, mail order, product development and licensing, and concessions. Financial management duties rest in the Office of Accounting and Financial Services, the Office of Financial Management and Planning, the Office of Sponsored Projects, and the Office of Risk Management. These offices handle accounting, payroll, financial reporting, financial systems development, administration of grants and contracts, insurance matters, Treasury and bank relations, and investment management.

The Office of Congressional Liaison, Office of Special Events, and Office of Membership and Development report to the Assistant Secretary for External Affairs. The Office of Congressional Liaison establishes and maintains the Institution's relationships with Congress; presents Smithsonian policies, programs, and plans to Congress; develops and clears legislative proposals and supplemental materials; coordinates and oversees Smithsonian participation at legislative hearings; serves as liaison with Federal agencies and organizations with related interests; and provides constituent services for Congress and the Administration.

The Office of Special Events plans, arranges, and oversees luncheons, receptions, and dinners associated with exhibition openings, seminars, lectures, and meetings. In addition, the Office prepares and distributes a monthly master calendar of special events.

The Office of Membership and Development provides fund-raising support to Institution-wide priorities and selected bureau projects and programs.

The Office of Equal Opportunity (OEO) plans, conducts, and monitors a positive action program to ensure equality in employment practices and program activities. Two major accomplishments during FY 1990 included incorporating affirmative action and equal opportunity into the planning and budget process and the publication of an affirmative action plan covering employment, placement, and advancement of disabled individuals. Working closely with the newly established Deaf and Hard-of-Hearing Advocacy Group, OEO helped to enhance the productivity of hearing-impaired employees by providing for sign language interpreters and assisting managers and supervisors with accommodations for disabled employees. Additionally, OEO assisted in the implementation of the Step Up '90 Program, which incorporates classroom training with on-the-job training for participants.

The Office of Human Resources (OHR), plans and directs a comprehensive program of human resources management for the Smithsonian's diverse employee population. Within the framework of public policy, law, and regulation, the Office provides leadership for a range of personnel services and program activities responsive to the work force needs of the Institution. Numerous areas of responsibility assigned to the OHR include recruitment and staffing, employee orientation, position management and classification, the merit promotion program, pay and performance systems, benefits administration, technical policy guidance, employee and labor-management relations, training and development, employee counseling, and personnel program evaluation. Additionally, OHR oversees such programs as workers' compensation and unemployment insurance as well as all automated personnel processing and record keeping systems. During FY 1990, in conjunction with the Office of Information Resource Management, OHR developed a personnel action tracking system that will be fully implemented when a local area network is installed. This system will later be expanded to make it directly available to all bureaus and offices.

The Management Analysis Office (MAO) provides advisory assistance to Smithsonian administrative operations. The Office studies organizations, systems, and procedures; prepares and distributes management's policy statements and operational guidelines; undertakes a periodic internal controls review; oversees the forms management program; and publishes a biweekly staff bulletin.

The Travel Services Office (TSO) provides the most efficient service to Smithsonian travelers at the most economic rates available. Special fares and rates as well as government discounts for airlines, hotels, and car rentals are used to the maximum extent possible. During FY 1990, TSO provided support to the various committees and task forces associated with the new National Museum of the American Indian. In addition, both domestic and international travel assistance was provided to more than 30 conferences and workshops.

As the principal acquisition office for the Smithsonian Institution, the Office of Procurement and Property Management (OPPM) contracts for the majority of goods and services used in support of Smithsonian programs, projects, and facilities. In addition, the Office coordinates major Smithsonian projects. Besides awarding contracts, the Office administers contracts until completed and accepted by the Smithsonian.

The Office of Printing and Photographic Services (OPPS) printing function is served by the Duplicating Branch, having perhaps the broadest Smithsonian-wide customer base of any service organization in the Institution. The OPPS photographic mission is divided into three categories--the taking of photographs, the processing of photographic materials, and the archival preservation of photographs. The Office has developed one of the finest environmental storage units anywhere in the world. By combining these advanced storage capabilities with new video disc technologies, this unit will pioneer many of the techniques for the preservation of photographic images while making them simultaneously and universally available.

The Office of Planning and Budget (OPB) coordinates Institution-wide planning and produces the Five-Year Prospectus. The Office formulates the Institution's Federal and nonappropriated Trust fund budgets for approval by the Secretary and the Board of Regents. OPB prepares justifications for approved budgets for submission to the Office of Management and Budget and Congress and subsequently interacts with each on related matters. OPB monitors established budgets to ensure that spending plans advance planning goals and comply with pertinent limitations. During FY 1990, OPB activities emphasized planning improvements, better management information, and implementing initial phases of a new personnel cost projection system.

The Office of Information Resource Management (OIRM) provides leadership in information technology throughout the Institution in planning, systems development and support activities. In the planning arena, OIRM coordinated office and bureau contributions to the development of the Institution's first information resource management plan. OIRM completed a five-year communications study that will lead to the development of an integrated and modern communications network. In conjunction with pan-Institutional groups, OIRM began working to define standard terminology and methods for potential automation of office and bureau functions. In the systems development arena, OIRM added new Collections Information Systems (CIS) data bases within the National Air and Space Museum, the National Museum of American Art, and the National Museum of Natural History. These efforts automated an additional 988,500 collections-related records. OIRM expanded the functions and data bases of the Smithsonian Institution Bibliographic Information System (SIBIS), which now supports more than 3,000 on-line inquiries per day. In the

support arena, significant accomplishments included increasing computing capacity by approximately 300 percent and expanding communications access to distant units, including the Smithsonian Tropical Research Institute in Panama. Access to electronic mail was expanded to more than 1,000 staff, and connections were established to the international academic community.

During FY 1990, the Office of Facilities Services (OFS) created special teams to investigate a number of issues affecting quality and timely service, human resources, and equal opportunity. The results of these efforts will contribute to Institutional goals to increase professionalism and productivity, heighten awareness of and sensitivity to cultural diversity, expand opportunities for minorities and women in professional and managerial positions, improve tracking and sharing of information on facilities management activities, and improve the quality of the physical plant.

The Office of Environmental Management and Safety (OEMS), also part of Facilities Services, monitors occupational safety and health and reviews, disseminates, and implements the requirements of all new fire, safety, health, and environmental laws, regulations, and standards. In FY 1990, OEMS completed comprehensive fire, safety, and environmental program evaluations at 21 Smithsonian facilities. In addition, OEMS conducted a radiation survey and developed a formal construction safety program. OEMS developed a waste minimization program to reduce hazardous waste generation and resultant disposal costs.

The Office of Architectural History and Historic Preservation (OAHP), part of Facilities Services, researches the architectural history of Smithsonian buildings and publishes books and scholarly articles based on that research. The Office has oversight responsibility for the Institution's obligations in historic preservation, including design review of construction projects. OAHP also creates the historical ambiance appropriate to the architectural style of the two original Smithsonian buildings through its management and use of the Smithsonian Furnishings Collection.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, the requested increase for administrative units totals 47 workyears and \$11,185,000 as detailed below. In addition to these increases, the Smithsonian Institution Libraries' (SIL) request for 2 workyears and \$1,500,000 is justified with the Office of Information Resource Management.

<u>ACTIVITY</u>	<u>FTE</u>	<u>AMOUNT</u>
Office of Inspector General	3	\$ 327,000
Office of the General Counsel	1	27,000
Assistant Secretary for Administration	7	500,000
Office of Human Resources	5	335,000
Management Analysis Office	0	39,000
Office of Travel Services	1	38,000
Office of Procurement & Property Management	0	66,000
Office of Printing and Photo Services	1	325,000
Office of Information Resource Management	26	4,976,000
Office of Environmental Management & Safety	3	171,000
Payroll Base Deficiencies	0	27,000
Disaster Preparedness	0	200,000
Personnel Payroll System	0	120,000
Administrative Service Center	0	1,000,000
Health Insurance	0	3,100,000
Workers Compensation	0	(66,000)

Office of Inspector General (3 workyears and \$327,000) - The requested increase will provide OIG with an Automatic Data Processing (ADP) audit capability, administrative support for audit and investigative functions, and additional office space for these activities.

OIG requests two senior auditors (2 workyears and \$131,000) with experience in ADP auditing. In recent years, the Smithsonian has increasingly computerized administrative and program activities. Audit resources, with technical knowledge of ADP systems, are not available to review and monitor ADP systems during development and maintenance steps. This request will permit the Office of Inspector General to devote full-time audit coverage to the Smithsonian ADP systems.

The Office of Inspector General also seeks additional administrative support. At this time, two Trust-funded positions provide administrative support for OIG's 18 professional positions. The requested position (1 workyear and \$46,000) is imperative to produce OIG audit and investigative reports and operate and maintain various OIG data bases. This support will allow OIG professional personnel to commit additional attention to audit and investigative activities.

To meet office space requirements, OIG also seeks \$150,000 to expand its office space. Current OIG operations have fully utilized assigned office space, which has become increasingly inadequate. There is now little room for records and property retained during OIG investigations, for audit work papers and reference documents, or for interviews conducted by OIG investigators. In addition, office space does not exist for projected staff additions.

The requested increase will permit OIG to properly serve in the administration of the Institution.

Office of the General Counsel (1 workyear and \$27,000) - In carrying out its program, the Office of the General Counsel performs a wide range of legal functions, including contract negotiation, administrative hearings, trial preparation, and claims settlement.

OGC requests a legal assistant to support its attorneys in areas such as case management assistance, legal research, document preparation and processing, and document and file indexing, storage and retrieval.

The requested increase will add one legal assistant to the OGC support staff. This position will aid OGC's professional staff in meeting the demand for legal services, resulting from new Smithsonian programs, initiatives and developments in the law.

Assistant Secretary for Administration (7 workyears and \$500,000) - The requested resources will allow the Institution to implement a Substance Abuse Program, will give the Institution flexibility in expanding present initiatives, and will develop new programs in the areas of Equal Opportunity and Affirmative Action. The two components of this request follow:

-- Substance Abuse Program (1 workyear and \$250,000) - Like most employers, the Institution finds that its work force needs a full range of services and activities to help achieve an alcohol- and drug-free workplace. Such services and activities include information and training for employees, supervisors, and managers. These services also include assistance, counseling, and rehabilitation for those abusing alcohol or drugs;

medical examinations and testing where appropriate; and investigations and prevention of drug use, possession, and distribution.

At present, the Smithsonian has only limited capacity for dealing with substance abuse. This capacity includes limited medical services, an Employee Assistance Program, and a small investigative function for looking into allegations of drug trafficking. By early FY 1991, the Institution will prepare and implement an overall plan and program covering all aspects of substance abuse. If possible, the Institution will allocate additional resources for this program in FY 1991 to initiate information sharing and training. For FY 1992, the Assistant Secretary for Administration requests \$250,000 to implement and sustain its substance abuse program. The substance abuse program is essential to the future health and well-being of the Institution, the productivity of its employees, and the protection of Smithsonian facilities and collections and the public.

-- Equal Opportunity/Affirmative Action (6 workyears and \$250,000) - The Smithsonian's increased attention in the past several years to matters of cultural diversity and affirmative action have elicited a tremendous response from all areas of the Institution. Such positive feedback puts additional pressure on the Institution to develop more programs to educate and enlighten the broader community to what means are available to realize the Smithsonian's ambitious goals. The requested increase will give the Institution flexibility in expanding present initiatives and developing new programs for both staff and external audiences.

Ethnic commemorative celebrations are a highly visible aspect of current programming in cultural diversity. The Smithsonian has a number of programming committees that work with the bureaus and offices to develop well-rounded public programming for such events as Black History Month, Asian/Pacific-American Heritage Week, Hispanic Heritage Month, and Native-American Heritage Week. These volunteer ad hoc committees have taken root, and several have developed into employee advocacy groups for particular racial and ethnic populations. Several groups also desire to publish newsletters that will encourage greater employee participation and management attention to the discussion of common concerns. The Assistant Secretary for Administration requests \$35,000 to achieve these goals.

The Institution's focus on cultural diversity, as one of its Areas of Emphasis, requires that staff be afforded as much training on this and related topics as possible. Managers are already required to take a course on affirmative action that covers regulatory concerns, but other courses are needed to give guidance on how to manage a diverse work force as well as how to attract and retain one. The requested increase of \$15,000 will enable the Institution to contract with experienced trainers in the areas of affirmative action and cultural diversity and make the courses available more often for a larger number of employees. More informal staff workshops will also be offered on a regular schedule covering a range of issues from public programming to co-worker relationships.

Finally, to meet its own affirmative action standards and secure culturally diverse senior staff, the Smithsonian needs to be able to hire known, qualified minority individuals when they become available rather than only when there is a posted vacancy. During the past year the Under Secretary and the Assistant Secretary for Administration received requests from at least four bureaus about the possibility of hiring exceptional minority professionals known to be interested in working at the Institution. Due to the very tight budget situation this year, it was impossible to take advantage of those opportunities. The 6 workyears and \$200,000 will give the Institution some flexibility in its base to make such appointments.

It is important that the Smithsonian's staff reflect the equality of opportunity and cultural diversity to which its programs are committed. With this commitment, the Institution's integrity will be maintained.

Office of Human Resources (5 workyears and \$335,000) - The requested increase will upgrade the personnel services and programmatic capabilities of the Office of Human Resources. By FY 1992, a new director will have sufficient perspective on the needs of the Institution to begin to implement an expanded human resources management program. These staff resources are necessary for the Office to provide high-level support services now in demand.

The upgrade of personnel services (5 workyears and \$260,000) will include the following components. One full-time recruiter will target minority sources for affirmative outreach efforts, develop methods for identifying and attracting qualified job candidates, and maintain a usable, up-to-date applicant supply file. Two policy/program specialists will provide the expertise to develop and implement focused, innovative initiatives addressing the Smithsonian's most critical human resource concerns. Two personnel service specialists will support the current operations staff and ensure that day-to-day technical assistance needs do not go unmet. This request also includes \$26,000 to expand the training of staff in personal computer-applications and other essential personnel specialty areas.

At present, many of the Office's professional staff do not have access to a personal computer or printer. In addition, the Office requires new word-processing software as it phases out old software and begins using the word-processing package now used by most other Smithsonian offices. A computer equipment purchase/replacement program (\$75,000) will provide better support to the Smithsonian's bureaus and offices in personnel action processing, report generation, and ultimately electronic forms applications.

Finally, the National Academy of Public Administration's report made clear that each of the above elements should be part of any plan to develop and improve the Smithsonian's human resource system. This request will help OHR function effectively to meet the needs of the Institution.

Management Analysis Office (\$39,000) - To increase its ability to provide management reviews and assistance to Smithsonian bureaus and offices, the Office requests funds (\$39,000) to update its computing and word processing capability, thus increasing the responsiveness and effectiveness of its existing staff.

The FY 1992 increase of \$39,000 is requested for procurement and installation of computer equipment. MAO will benefit from the enhanced efficiency inherent in updated computer capability, and the ability to communicate with other offices electronically.

Office of Travel Services (1 workyear and \$38,000) - As Smithsonian programs and activities continue to grow, there is a need for additional staff in the Travel Services Office to provide travel arrangements in support of these expanding activities. The volume of travel handled by TSO is growing at a rate of approximately 10 percent a year. The last addition to the staff was in FY 1988.

The addition of a travel clerk (1 workyear and \$25,000) will allow TSO to maintain the quality of service it now provides. Without additional staff, TSO will have to limit the types of services it offers, a constriction that will place an additional burden on

the Smithsonian bureaus and offices, as well as the individual travelers. The requested increase also includes \$13,000, which will be used to lease additional airline computer equipment and to relocate the Office to a larger space.

This increase will allow TSO to handle the expansion of its routine work and continue to serve offices throughout the Institution, thereby improving efficiency and reducing overall cost.

Office of Procurement and Property Management (\$66,000) - The flow of procurement information and documents among offices must be speeded up significantly. The Institution has invested much time, effort, and money into office automation for the purpose of increased production of contracts; improved management information, including requisition status reports and records maintenance and control; quicker reporting and accounting data; and better internal controls. Further, this entire effort has been focused toward a timely interface with the new Smithsonian-wide Financial Management System. Yet, overall transaction processing time (i.e., from requisition to payment) has not been reduced substantially. The Office still needs to develop a means to short-cut the disproportionate time now taken for information to flow between the Office of Procurement and Property Management, requisitioning offices, receiving activities, and the Office of Accounting and Financial Services. Since most of this information requires documentation, an electronic forms transfer system must be developed Smithsonian-wide. An internal task force is now planning the method of implementation. The requested funding of \$53,000 will provide the hardware, software, and contracted services.

Smithsonian programs, activities, and facilities have expanded greatly. The need to support these activities with adequate supplies has increased correspondingly. The Office of Procurement and Property Management requests an additional \$13,000 to purchase general, common-use, office supplies for the Smithsonian Institution's central Supply/Stock Room Facility.

By stocking additional supplies, OPFM will meet increased program needs and, at the same time, save a considerable amount of money. OPFM will purchase supplies centrally to strengthen its internal management systems and provide proper program support to the growing numbers of Smithsonian bureaus and staff. With the additional funding, OPFM will continue to purchase common-use supplies in volume and store them in bulk. OPFM will, in turn, distribute the supplies to the various Smithsonian units. Through the bulk purchase of common-use supplies, OPFM will realize considerable savings, often as much as 50 percent or more.

Both electronic forms transfer and the purchase of stock room supplies will assure continuing adequate support of current and increased Smithsonian programs and, at the same time, reduce operating expenses. Such internal management improvements will greatly facilitate the smooth and efficient presentation of museum programs to the general public.

Office of Printing and Photographic Services (1 workyear and \$325,000) - This increase is needed to rescue the Duplicating Branch from an impossible situation: at the same time that demands for its services from organizations throughout the Institution are increasing, its equipment base is dangerously aging. Approval of this request will allow OPFS to continue to serve the widest possible variety of Smithsonian bureaus and offices. The Institution's emphasis on existing and new programs seeking to reach a wider and more diverse audience will be directly and continuously benefited by increased services in this Branch.

The Duplicating Branch requires approximately \$1 million in replacement equipment between now and 1995. The \$300,000 requested as an increase to the OPPS base will allow phase-in of the equipment purchase over a three-year period. Once equipment levels are fully functional, OPPS will use these funds for continuing replacements, as equipment reaches its projected life of four to five years.

Since FY 1987, the Duplicating Branch has been understaffed, yet during that time the number of pages printed has increased by more than one million each year. This increase has been handled through impressive efforts by the unit staff, greater use of overtime, and the continued introduction of high-volume equipment. However, the staff is seriously overextended, and equipment maintenance costs are exceeding budgets. The Branch requests an additional operator (1 workyear and \$25,000) to alleviate the demands on the rest of the staff.

The requested funding increase will enable the Duplicating Branch to phase in new high-tech equipment and continue to accommodate and serve offices throughout the Institution.

Office of Information Resource Management (26 workyears and \$4,976,000) - The Smithsonian Institution finds itself far behind its counterparts in academic, research, and cultural institutions in realizing its computing and communications needs. One of the most important areas of infrastructure needs at the Institution is the application of advanced technology to information processing. The Institution has made some progress in updating its computer systems over the past several years. However, its ability to utilize advanced technology fully to foster more effective information processing is woefully inadequate. Making the full use of today's (and tomorrow's) technologies will require significant long-term investments in resources, well beyond what the Institution's available base funding can support. Like other program infrastructure needs, these additional resources do not constitute new or growing programs, but rather necessary funding to carry out current programs more effectively and efficiently and to assure responsive internal controls. Addressing these infrastructure gaps is the only solution to meet today's research, education, and administrative objectives and lay the foundation for future advancement. Please note that OIRM's individual justification components include 2 workyears and \$1,500,000 requested within the Smithsonian Institution Libraries line-item. The component pieces of this request follow.

-- Central Computer Support (4 workyears and \$3,500,000) - This portion of the request combines strategies for satisfying the requirements of central Smithsonian computing and library and archival functions. The central mainframe computer now supports the Institution's collections and research activities. This facility is projected to be used to full capacity to meet these programmatic computing requirements as early as January 1991. In addition, the new Financial Management System will come on-line during FY 1991, putting additional demands on the mainframe's capacity. The separate library and archival system is currently beyond its useful life and is no longer fully supported by the vendor. A replacement system is critical to continue automated support for library and archival services such as cataloguing, serials control, and circulation. With a new system, the Smithsonian Institution Libraries will better perform current automated functions and link to INTERNET and to future implementations of the National Research and Education Network (NREN). These enhancements will strengthen public access capabilities.

This request includes the purchase of the necessary computing capacity to meet the Institution's central computing requirements and offer a new platform for the library and

archival system. It provides a new mainframe computer with increased processing capacity and expands the use of the current mainframe for a new library and archival system. In this way, expanding requirements for central computing and communications are met and the rapidly deteriorating library and archival system is replaced with minimal cost.

The Institution requires \$3.5 million to accomplish its objective and meet its increasing computing needs. An amount of \$1,946,000 covers the cost of a new mainframe computer and related software and peripherals as well as the addition of two computer operators (2 workyears and \$54,000). The remaining \$1,500,000 will allow for purchase of software and peripherals, in combination with the used mainframe, for a new library and archival system. It also allows for the addition of two computer specialists (2 workyears and \$96,000) to develop, implement, and maintain the new library and archival system.

Combining strategies for these diverse requirements provides an efficient and effective way to use resources. Reuse of the existing mainframe computer for a new library and archival system averts the need for two major computer purchases, with an estimated cost savings of approximately \$1 million. By increasing its computing capacity, the Smithsonian can continue its automated support of programs and maintain its position as a world leader in collections and research activities. Without new and expanded computing capacity for the Smithsonian Institution Libraries, the Institution faces serious degradation of its library and archival services and its ability to meet its public mandate.

-- New Data Base System (2 workyears and \$430,000) - The Smithsonian requires a sophisticated data base management system (DBMS) to meet its complex and information-intensive requirements for data storage and retrieval. Its one and only DBMS on the Institution's central computer meets none of the Federal standards and guidelines for a DBMS. Response and processing time for applications using this DBMS are insufficient. The nature of the current DBMS prohibits its use for other pending and projected application systems. A new DBMS is essential to permit the Smithsonian to make progress in automating the management and research of its collections and the processing of financial and accounting information.

The Institution's financial management and accounting systems are currently under revision by commercial suppliers using standard DBMS architecture. Smithsonian collections management, library, and archival systems are undergoing major redesign based on standard DBMS architecture. Implementing these systems on a new DBMS with standard architecture will contribute to their success and potential future portability.

OIRM will purchase a new DBMS to implement or enhance several major systems. This request of \$430,000 includes \$250,000 for the projected cost of a DBMS and \$55,000 for licenses and maintenance. It also includes the addition of two computer specialists (2 workyears and \$125,000), who will implement and maintain the DBMS for use throughout the Institution.

DBMS technology has changed in the five years since the Smithsonian installed its DBMS. The current system is now outdated and insufficient to meet the Institution's growing demands. A new DBMS affords the Smithsonian an opportunity to accommodate its complex information requirements in new ways. Failure to purchase a new DBMS threatens the ability of the Smithsonian to implement systems now being designed to process an increasing volume of data.

-- Development of Communications Networks (1 workyear and \$308,000) - The Smithsonian data communications network forms the backbone for the transmission of information throughout the Institution's facilities on the Mall and to its remote locations in Arizona, Massachusetts, New York, and Panama. The network is essential for maintaining day-to-day program and administrative functions such as personnel and accounting transactions, electronic mail, and access to Smithsonian collections, library, and archival data bases. The network supports direct access to Smithsonian computer systems and allows connections with the rapidly growing local area networks of microcomputers. The traffic and functional growth of the network must be adequately sized, managed, and maintained to sustain operations.

This request focuses on the installation of new communications software that will enable the distributed use of data base management systems and other software applications. It also includes the implementation of pilot networks across the Institution, linking bureau local area networks with central computers. Success in these areas can be built upon in future years to develop executive information systems and other decision support applications.

The requested increase includes \$240,000 for software and contract support services. In addition, one senior communications specialist (1 workyear and \$68,000) will implement and maintain the network.

This request is essential for staff, scholars, and the public to have access to the Institution's automated information systems. It funds a coordinated communications network of sufficient size and capacity to support growing computer and communications demands. Without it, effective computer use and efficient use of electronic communications are severely curtailed.

-- Collections Information System (3 workyears and \$639,000) - This request seeks funding to increase automation of the Smithsonian collections information. The Smithsonian stewards one of the world's greatest and most diverse cultural, scientific, and environmental information resources. The Institution holds information pivotal to the current understanding of the global environment. Many Smithsonian and cross-Institutional research activities rely upon access to and distribution of vast amounts of multi-disciplinary information. Such access to and accountability for its collections information depends upon automation. The long-planned and partially completed automated Collections Information System (CIS) is now failing because of insufficient funds. When complete, CIS will provide access to information concerning the 136 million objects and specimens in the Smithsonian collections. After five years of limited development, CIS contains automated information on only a small percentage of the Institution's objects and specimens.

This request launches an aggressive campaign to complete automation of Smithsonian collections information. The Institution foresees developing an automated system based upon a computer-processing architecture of bureau-specific and Smithsonian-wide applications. The resulting automated data bases will be accessible to Smithsonian staff, research scholars, and the public.

The Institution will develop the new CIS over a multi-year period. The Institution requires \$639,000 in FY 1992 to augment current Smithsonian staff and computer resources dedicated to this project. This request includes \$495,000 for private sector systems development support and three computer analyst positions (3 workyears and \$144,000).

The Smithsonian must provide access to its collections information for its staff, research scholars, and the general public. It must also prudently account for the Nation's treasures. To meet these goals, the Institution must create and maintain an automated collections information system as a critical infrastructure program. A fully developed CIS will provide a platform for interpretation of Smithsonian collections to an international audience. Without CIS, the Smithsonian will continue to fall behind in its ability to manage collections, exhibitions, publications, research, and other programs that present to the public an understanding of the diverse fields of arts, history, and sciences.

-- Management and Development (5 workyears and \$424,000) - This request begins bridging the gap created by a decade of expanded information resource management (IRM) functions without comparable increases in staff. Since 1980, central IRM at the Smithsonian has acquired new responsibilities that are still unaddressed or only partially implemented. Computer security and internal controls functions mandated by Congress are currently inadequately addressed. Institution-wide IRM planning and central computer cost center functions are understaffed. Aspects of the Paperwork Reduction Act go unimplemented because of staff shortages. These new responsibilities, resulting from rapid changes in computer technology and information management, are now ineffectively planned and managed at the Institution.

This request alleviates some of the Institution's exposure to computer security and financial risks due to understaffing. It focuses on hiring key management and technical staff. Critical positions in the areas of computer security and internal controls and financial and strategic management will be filled. Contract support will supplement new staff positions to assure appropriate full implementation of these functions.

The five requested positions include two senior administrators, one computer specialist, one data security specialist, and a financial manager. Salaries and support of these positions require \$378,000. Additional contract support requires \$46,000.

The Institution remains at risk without requisite security, technology, internal controls, financial, and strategic management functions in place. Its collections information and personnel and financial data are vulnerable. Additionally, the Institution fails to make effective use of its information technology. Short-term solutions are often employed in the absence of sufficient staff to assess long-term strategic gains.

-- Applications Support (10 workyears and \$1,000,000) - This request permits the use of comprehensive standards, policies, architectures, and automated systems to manage the Smithsonian's vast information resource. It encompasses the development of systems from planning through implementation and applies standard methods to ensure the proper use of resources. Incorporating standards and methods in its development of applications also enables the Smithsonian to take advantage of information technologies. Automation initiatives are geared toward automating day-to-day programmatic and administrative functions across the Institution.

With this request, the Smithsonian will complete work in multiple areas. OIRM will finalize an Institution-wide plan for collections and facilities management functions and automate paper forms processing with an electronic forms system. OIRM will modify Smithsonian financial and accounting systems to use a new data base management system and will upgrade the current electronic mail systems, increasing the speed of communications throughout the Institution. In addition, the requested resources will allow OIRM to design

and develop a geographic information system for Smithsonian researchers as well as policies and standards to increase opportunities for sharing resources and implementing compatible systems. OIRM will install standard methods and tools for developing systems that will reduce development time and maintenance.

The requested increase includes \$561,000 for ten staff positions: 1 workyear and \$57,000 for an information planning specialist, 1 workyear and \$57,000 for an architecture specialist, 1 workyear and \$57,000 for a management analyst, and 7 workyears and \$390,000 for computer specialists. The additional staff will develop and use standards and tools to plan, design, implement, and maintain new applications across the Institution. An additional \$439,000 covers contract support for specialized expertise and for the training, software, and equipment necessary to implement application systems.

This request supplies the critical staff, automated tools, and private sector support necessary to design, develop, and implement key Smithsonian systems. The requested resources will provide executive information systems, support public access to Institutional educational programs, and assure consistent tracking of resources for management accountabilities. Overall, the requested resources will produce and maintain systems that constitute the infrastructure of Smithsonian activities.

-- Communications Services (3 workyears and \$125,000) - This request seeks staff and equipment to improve communications services for the general public and staff at the Smithsonian. The divestiture of AT&T and the Institution's construction and renovation program have created significant increases in the demand for communications services. This demand causes telephone service delays to the general public and staff and increases costs and work load backlogs. In the past eight years, communications services have continually increased, while staffing levels remained the same.

This increase allows for improved response time of telephone operators taking calls from the general public. It also ensures that service backlogs can be maintained at acceptable levels. The requested increase includes \$102,000 for one telephone operator and two communications specialists. One additional telephone operator will improve the service response to visitors calling the Smithsonian's general information number. The two specialists will work directly to meet staff requirements for telephone and data communications services. OIRM will use the remaining funds (\$23,000) to acquire communications-related equipment and services.

A general breakdown of communications services at the Institution is foreseeable as demands increase and staff remains constant. The currently unacceptable service response will become exacerbated as public communications carriers continue to divest their traditional services upon their customers.

-- Personal Computer Replacement (\$50,000) - This request funds replacement of aging personal computers (PCs). Like other types of equipment, personal computers have a useful life. Fully exploiting the useful life of PCs at the Institution ensures effective use of staff and dollar resources. As new machines are purchased, older machines are recycled to other uses. Reusable parts from defunct machines are recycled into functioning machines. If this recycling chain is broken, staff productivity is impaired. Downtime and expensive repairs are costly side effects of interrupted life-cycle management of personal computers.

With the requested funds, OIRM will institute and manage a cyclical replacement program for its personal computers. A percentage of PCs will be replaced and recycled annually as their useful lives expire. In FY 1992, the replacement program will cost \$50,000.

Keeping personal computers in good repair and upgraded promotes staff productivity. It contributes to efficient use of staff and dollar resources.

Office of Environmental Management and Safety (3 workyears and \$171,000) - The requested increase will provide the resources necessary to meet the Institution's statutory requirements to ensure full compliance with Occupational Safety and Health Administration (OSHA), Environmental Protection Agency (EPA), and other Federal agency regulations. This compliance will fulfill the Institution's obligations to staff and visitors for a healthy environment in which to work and visit.

OEMS requests 3 workyears and \$171,000, which will help ensure evaluations of hazardous operations and development and recommendation of proper work practices and engineering methods to control hazardous exposures. The resources will allow OEMS to train Smithsonian staff in asbestos, respiratory protection, fit-testing, and noise and hearing conservation, as required by OSHA regulations. The Office will increase review of construction and renovation plans to ensure compliance with Environmental Protection Agency (EPA), American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) and National Academy of Sciences (NAS) standards, as well as OSHA asbestos requirements and ventilation design criteria. The resources will enhance OEMS's function of evaluation and control of poor indoor air quality in multi-use facilities and assist in implementing an Institution-wide operations and maintenance program for the control of asbestos. In addition, OEMS will implement a comprehensive industrial hygiene training, evaluation, and survey program for the personnel of the Office of Plant Services.

The Institution must comply with Federal agency regulations. It also must protect the health and safety of its staff and visitors. This increase will enable the Institution to meet these obligations.

#### NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - Funding of these centralized services from both appropriated and nonappropriated sources produces a ratio of Federal and Trust-fund administrative support approximately in proportion to the operating program expenditures of the Institution as a whole. The amounts shown under Unrestricted General represent administrative expenditures for those units that are organizationally under Administration. Other units that receive administrative allotments appear in the appropriate section of the budget request. For example, administrative costs for the Smithsonian Astrophysical Observatory appear within its Nonappropriated Trust Funds section. This section also includes expenditures for producing, distributing, and marketing photographic material and slide sets and funds to help defray the costs of the Office of Printing and Photographic Services. The Office of Equal Opportunity receives a program allotment that supports community outreach through exhibits and publications specifically aimed at women and minorities. Funds also provide for the identification and implementation of new financial and administrative management systems. Special Purpose funds include gifts received through unrestricted bequests that, in accordance with the Bylaws of the Board of Regents, subsequently transfer to the endowment. Anticipated expenditures in the Special Purpose category include support of studies in ornithology,

computer conversion costs, a computer cost center, and small amounts used for legal seminars and research.

Restricted Funds - This category includes foundation grants for scientific research publications and general research projects and expenditures against investment income earned on endowment bequests.

FACILITIES SERVICES



OFFICE OF DESIGN AND CONSTRUCTION

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	44	2,757	9	434	-	-	-	-	-	-
FY 1991 Estimate	45	2,901	9	449	-	-	-	-	-	-
FY 1992 Estimate	47	3,170	9	449	-	-	-	-	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The Office of Design and Construction (ODC) provides architectural, engineering, and facility planning services to support the development, operation, maintenance, repair, and improvement of the Smithsonian's physical plant. These support service duties include short- and long-range feasibility analyses, master plans, design and engineering studies, design development, contract document preparation, project management, contract administration, and preparation of cost estimates for budgets and construction. The staff reviews contracts, plans interior design and space renovations, provides technical consulting support, and operates construction field offices.

For FY 1992, ODC requests an increase of 2 workyears and \$269,000 for management and technical costs associated with the enhancement of the Smithsonian's Repair and Restoration and Construction programs, including office automation (\$150,000) and a construction engineer and clerical support staff (2 workyears and \$119,000).

PROGRAM - The Office of Design and Construction provides the facilities planning and project management expertise necessary to plan, design, construct, and administer all construction, renovation, restoration, and repair projects for the Smithsonian buildings, museums, and research facilities. These facilities are located in the Washington metropolitan area, Arizona, Florida, Maryland, New York City, and Panama. The Office administers:

- ongoing repair projects to existing buildings, generally accomplished within one or two funding years;
- major projects involving cyclical renovation or replacement of building equipment or components, generally accomplished over many years, both because of cost and to avoid major disruption of activities;
- projects primarily driven by need to provide adequate and appropriate space for ongoing programmatic activities rather than by repair or preservation considerations, that include change or improvements to existing space or

minor additions, and that cost less than \$1 million and have little or no impact on operating cost;

- construction or acquisition of new space with a project cost of more than \$1 million, which constitutes significant facilities expansion or requires significant additions to operating resources.

Facilities Planning - The facilities planning staff provides short- and long-range facilities planning services that require preparing master facility plan studies and related analyses and coordinating funding and construction strategies for overall Repair and Restoration (R&R) and Construction programs. Professional planners prepare detailed preliminary facility requirements data for future-year projects. During the planning process, the staff provides a forum and guidance for establishing construction priorities and develops strategic plans. Most recent examples of facilities planning work include:

- a site evaluation study for the proposed National Air and Space Museum Extension that facilitated the choice by Smithsonian decision makers of the Dulles Airport site;
- a program update, massing study, and preliminary cost estimate for a multi-phased Suitland collection storage and research center that will allow the Smithsonian to address its storage needs well into the next century;
- the start of a Smithsonian-wide facilities inventory that will serve as a planning tool to identify existing resources, deficiencies, and future needs, enabling the Smithsonian to improve control over expensive facilities construction, leasing, and relocations.

Project Management - The Office provides project management assistance to Smithsonian bureaus and offices. The project managers and support staff provide professional and technical support to guarantee a safe, proper environment for visitors, staff, and the National Collections. Through the Repair and Restoration program, the staff works to preserve, repair, rehabilitate, and correct code violations of an aging physical plant. Through the Construction program, the staff works to design and construct new facilities. The staff also provides professional assistance to bureau directors on exhibition construction and space modification projects. These services include:

- providing careful orchestration of planning, design, and construction activities at specific bureaus and offices;
- preparing contract documents including designs, specifications, and cost estimates for construction projects;
- monitoring construction activities to ensure strict compliance with contract requirements and all safety and health standards;
- reviewing exhibit designs prepared by museum staffs to ensure compliance with safety, health, and accessibility requirements and compatibility with existing building systems.

Repair and Restoration, Construction, Salaries and Expenses appropriations, and Trust funds support various facilities and exhibition projects. ODC's professional staff administers construction contract services and architectural engineering service contracts. In addition, the staff reviews exhibit installation projects and supervises interior design and space related projects. Recent major repair, restoration, and construction projects include:

- additions and alterations to the Freer Gallery Building, including the link to the Quadrangle;
- window replacement at the Smithsonian Institution Building;
- construction of the Tupper Laboratory and Conference Center at the Smithsonian Tropical Research Institute (STRI) in Panama;
- major construction at Barro Colorado Island in Panama;
- construction of the base camp at the Whipple Observatory;
- terrace replacement at the Air and Space Building;
- replacement of PCB-contaminated transformers;
- removal of asbestos from various facilities;
- repairs in various buildings and museums, including fire protection, disabled access, and health and safety improvements.

During FY 1990 about 170 projects were active in ODC. About 40 were administered as construction contracts and the remainder were in a planning or design phase. In addition, staff reviewed about 100 exhibit installation projects.

EXPLANATION OF PROGRAM INCREASE - For FY 1992, ODC requests an increase of 2 workyears and \$269,000 for management and technical costs associated with the enhancement of the Smithsonian's Repair and Restoration and Construction programs, including office automation (\$150,000) and a construction engineer and clerical support staff (2 workyears and \$119,000).

Automation (\$150,000) - The Office of Design and Construction's automation program will develop information and technology resources to improve management of human and financial resources and provide modern tools for the design and management of Smithsonian facilities. This program will result in better service to client bureaus and offices throughout the Institution by providing better information for planning, opening new paths for sharing information, and developing systems that will help design and maintain facilities ideally suited to their purpose.

ODC will develop its automation program by installing and operating a local area network and developing applications and information to share among users. The network will provide a new means of communication and cooperation within the Office and allow employees to obtain information from and share it with other offices more easily. Applications of specific interest are project management, funds tracking, computer-aided design (CAD), and communications.

Project management will provide better control of resources for scheduling and, when coordinated with effective funds tracking, will improve the management of the annual Repair and Restoration and Construction budgets. CAD can help not only with the quality and the timeliness of the design cycle but also with the need for design standards and for a central source for facility plans. An improved communications capability will allow ODC to be more responsive to its clients, possibly by supporting electronic queries about project status and automating work requests.

With this request, ODC will:

- replace out-of-date computers and software to ensure a consistent level of performance across its network;
- acquire additional work stations to support CAD applications;
- retain professional support services for its network;
- develop its CAD data base through field surveys;
- improve communications capabilities to permit access to its CAD data bases from clients throughout the Institution.

Project managers and ODC staff aim to bring in high-quality work on a timely basis and within budget for all Repair and Restoration and Construction program assignments. The efficient use of automation can enhance ODC's success in meeting that goal.

Major Repair and Restoration and Construction Support (2 workyears and \$119,000) - The Repair and Restoration appropriations continue to grow annually to support the elimination of the backlog of repair to the Smithsonian's aging physical plant. Construction appropriations also increase to support major development projects such as the Natural History East Court Building, the Suitland collection storage and research center, and the Air and Space Museum Extension. Staff expansion must keep pace with program expansion to ensure the effective planning, managing, and executing of Repair and Restoration and Construction projects.

ODC requires additional in-house staff who are familiar with Smithsonian facilities and have the necessary skills to oversee the progress of construction programs. The request of 2 workyears and \$119,000 will secure a construction engineer and secretary. With this increase, ODC will better serve Smithsonian bureaus and public by providing planning and design documents that depict sound, logical and economical solutions; accurate project cost estimates; and on-site project support to ensure that contractor performance meets Smithsonian standards.

These resources are a continuation of the Institution's expanded Repair and Restoration and Construction programs and will provide additional support needed to enhance the operation of these programs.

NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - These funds provide salary and partial support costs as ODC services both Trust and federally funded programs.

OFFICE OF PROTECTION SERVICES

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
			General		Special					
	FTE*	Amount	FTP**	Amount	FTP**	Amount	FTP**	Amount	FTP**	Amount
FY 1990 Estimate	764	23,339	-	8	-	75	-	-	-	-
FY 1991 Estimate	767	24,437	-	8	1	87	-	-	-	-
FY 1992 Estimate	781	26,342	-	23	1	97	-	-	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The Office of Protection Services (OPS) protects the visitors, staff, collections, and facilities of the Smithsonian Institution by providing guard, physical security, and medical services.

For FY 1992, the Office of Protection Services requests an increase of 14 workyears and \$1,905,000 to correct a base shortage (\$1,000,000); reduce a guard shortage on the Mall (9 workyears and \$207,000); hire a technical review analyst for security systems planning and management (1 workyear and \$40,000); upgrade security at the Smithsonian Tropical Research Institute (2 workyears and \$59,000); hire an occupational health nurse (1 workyear and \$39,000); hire a medical records clerk (1 workyear and \$22,000); purchase a laboratory and medical services contract (\$103,000); and purchase radio communication and other security equipment (\$300,000). OPS also requests \$135,000 for funding the salary costs of New York City guards and the newly imposed special pay scale for nurses. These costs are justified in the Uncontrollable Increases section of this budget.

PROGRAM - OPS is a security and health services support organization responsible for protecting the collections, facilities, and other property of the Smithsonian from damage, destruction, or loss from any cause and for creating and maintaining a safe and healthy environment for visitors and staff. Included within this broad mission is a responsibility for determining the protection requirements of Smithsonian facilities and meeting these requirements by operating a guard force; procuring, installing, and maintaining an alarms network and responding to its signals; installing and maintaining locks and other security hardware in Smithsonian facilities; planning and providing occupational health services for employees and taking appropriate action to eliminate health hazards from the workplace; and providing emergency medical treatment for the injuries and sudden illnesses of visitors and staff. To accomplish its mission, OPS employs a large force of security officers and a staff of administrators, training specialists, alarm systems specialists and technicians, investigators, museum security specialists, a medical officer, nurses, and emergency medical technicians.

The security force operates twenty-four hours a day, every day of the year, to patrol and provide access control at the major Smithsonian facilities in and near Washington, D.C., the Cooper-Hewitt Museum and the National Museum of American Indian in New York City, and the Smithsonian Tropical Research Institute in Panama. Uniformed guards, plainclothes officers, and K-9 (canine) officers are stationed at entrances and patrol galleries inside and grounds around Smithsonian buildings day and night. They respond to emergencies and operate and respond to the signals of an alarms network that covers all Smithsonian facilities.

An expansive network of locks, alarms, and other devices is necessary to control access to and protect Smithsonian facilities and property. OPS advises curators and exhibitors on appropriate security systems and plans, designs, acquires, installs, and maintains security systems in Smithsonian facilities in the Washington metropolitan area. In addition, OPS provides advice on security systems for facility, exhibit, and collection protection to Smithsonian organizations outside Washington and to museums, libraries, churches, historic sites, and corporations.

OPS has been developing the Smithsonian Institution Proprietary Security System (SIPSS) to provide complete internal control of the equipment used in and the information provided by its security systems, to improve the timeliness of OPS response to the signals received through its alarm installations, and to control the costs associated with operating a security system. OPS has completed the SIPSS installation in all Washington-area facilities and will convert the remaining security systems to SIPSS during the next year.

OPS conducts or arranges for security management surveys to determine protection requirements of Smithsonian facilities, investigates alleged and actual violations of the law occurring on Smithsonian premises, and escorts many shipments of valuable objects to and from the Smithsonian. The investigative program resolves collection losses, thefts, and other internal matters referred to the Office. Similar assignments affecting the Smithsonian's retail operations are also referred to OPS for advice and investigation. Successful resolution of collections losses and thefts requires coordination with the United States Attorney, the Department of Justice, and the court system.

OPS provides occupational medicine services and an Employee Assistance Program (counseling and referral) for Smithsonian employees. The medical officer, occupational health nurses, employee assistance counselors, and emergency medical technicians assist in identifying and eliminating hazardous work environments, monitor the health of employees exposed to certain occupational hazards, provide first aid for on-the-job injuries of employees, and conduct programs for a drug-free workplace in the Smithsonian Institution. Major program elements include medical surveillance of employees exposed to specific hazards (e.g., asbestos, loud noise, and certain toxic chemicals); medical evaluation of individuals in jobs with hazardous duties or functions (e.g., underwater diving); employee counseling and referral for treating substance abuse and emotional problems; training for management personnel in how to deal with impaired employees; routine medical treatments (e.g., allergy shots and dressing changes) prescribed by an employee's private physician to reduce the amount of time employees must spend away from the workplace for simple health care; immunizations for Smithsonian employees on official travel orders; health education; CPR and first aid training for employees; major disease screening programs; and monthly inspections of all Smithsonian food service facilities. The medical officer represents the Smithsonian on committees of scientific societies, including local and national occupational medical organizations and specialized groups engaged in Institutional concerns

such as the medical aspects of scientific diving. OPS provides occupational medicine services at the Smithsonian's Washington area facilities and at major remote facilities.

OPS will continue to develop the occupational health programs it is already operating and will undertake additional required and recommended programs when the space needed to administer these programs becomes available. The programs OPS expects to grow most rapidly are employee assistance counseling, drug testing, monitoring of employees exposed to toxic chemicals, screening tests for major preventable/treatable diseases, and preemployment physicals for certain high-risk positions.

EXPLANATION OF PROGRAM INCREASE: For FY 1992, the Office of Protection Services requests an increase of 14 workyears and \$1,905,000 to correct a base shortage (\$1,000,000); reduce a guard shortage on the Mall (9 workyears and \$207,000); hire a technical review analyst for security systems planning and management (1 workyear and \$40,000); upgrade security at the Smithsonian Tropical Research Institute (2 workyears and \$59,000); hire an occupational health nurse (1 workyear and \$39,000); hire a medical records clerk (1 workyear and \$22,000); purchase a laboratory and medical services contract (\$103,000); and purchase radio communication and other security equipment (\$300,000). OPS also requests \$135,000 for funding the salary costs of New York City guards and the newly imposed special pay scale for nurses. These costs are justified in the Uncontrollable Increases section of this budget.

Base Shortage Correction (\$1,000,000) - The Office of Protection Services' main objective is to provide adequate security for Smithsonian property. A deficiency in base resources jeopardizes this security. The base erosion has evolved over approximately ten years and is due to general budget restrictions, the FY 1990 Gramm-Rudman-Hollings sequestration, additional costs for summer hours, additional security needs at the Smithsonian Tropical Research Institute, and increased Repair and Restoration (R&R) construction site security.

Vacancies currently remain unfilled to offset the base deficiency. This practice weakens overall security and affects public accessibility by closing exhibit halls and galleries. By eliminating the base shortage, OPS will be able to provide the necessary security coverage for Smithsonian property and R&R construction sites before and after normal working hours.

Additional funding to supplement base resources (\$1,000,000) will allow OPS to fill positions already appropriated by Congress and provide support costs for security, supplies, uniforms, laundry, and dry cleaning. Adequate base funding will allow OPS to provide appropriate security for Smithsonian property.

Reduction of Guard Shortage on the Mall (9 workyears and \$207,000) - The addition of nine guard positions will help reduce OPS's critical guard shortage. Posting these guards at currently understaffed stations will reduce the risk of theft, damage, or destruction to collections as well as the threat of theft and harm to visitors. Excessive use of overtime on the night reliefs will be alleviated.

Three additional guard positions will conduct necessary nighttime fire inspection tours of the National Air and Space Museum. These positions will replace three guards OPS reassigned from night relief to improve plainclothes coverage in the museum galleries and museum shop areas and ensure professional investigation of incidents and offenses that occur in the Museum. Four additional positions will provide access control between the

Castle and Quadrangle during the second and third reliefs. Two additional positions will provide uniformed coverage of the museum shop in the National Museum of Natural History on a daily basis to help ensure prevention and/or detection of shoplifting.

OPS will use the requested funding (9 workyears and \$207,000) to fill these permanent positions.

Many factors determine the number of guard posts needed for any given building, including crowd conditions, value of collections on display, and vulnerability of those collections and other items to theft, destruction, or vandalism. The requested positions will help alleviate the risk to Smithsonian property, staff, and visitors.

Security Systems Planning and Management (1 workyear and \$40,000) - The OPS Security Systems Division coordinates plans for interior design and space renovations. The division provides technical support to review construction projects to ensure that appropriate security devices and measures are incorporated into the designs of exhibits and other space renovations. Ensuring that the security systems meet proper standards will enhance the safety of Smithsonian visitors and staff and the security of the collections.

OPS will use the requested resources to hire a technical review analyst (1 workyear and \$34,000) to assist in planning and managing electronic security requirements in exhibits and renovations projects. The employee will review proposed projects, provide detailed scopes of work to be accomplished under contract, and oversee installation of security systems and devices. The position will enable OPS to ensure that necessary electronic security requirements are incorporated into construction and renovation plans and are properly and appropriately installed. The position will also oversee the installation of SIPSS hardware and software. OPS will use additional funding (\$6,000) to purchase supplies and materials, including computer hardware.

The Security Systems Division has been short-staffed for the past five years. OPS has diverted resources from other critical activities to review plans for an increasing number of projects such as the proposed National Air and Space Museum Extension and the National Museum of the American Indian in New York City and on the Mall. A planning and management person will ensure that these plans include appropriate electronic security devices.

Security Upgrade at the Smithsonian Tropical Research Institute (2 workyears and \$59,000) - The security office at the Smithsonian Tropical Research Institute (STRI) is responsible for the security and protection operations of all Smithsonian personnel and facilities in Panama. New research areas are now under STRI control. The new Tupper Laboratory and Conference Center and Barro Colorado Island (BCI) facilities have started operations. STRI plans to open other new facilities in BCI, Ancon, Gamboa, and the San Blas Islands. At the same time, the economic deterioration in Panama has increased theft and poaching. Presently, one security officer manages all security functions. The expansion of STRI activities and the political volatility and the socioeconomic environment of Panama call for additional security personnel to protect Smithsonian staff and property.

The deputy security officer will assist the security officer in promoting effective daily security and protection operations at STRI. The secretarial position will provide general office clerical support for the security personnel and maintain the security office. At the present time, the security office must close when the security officer is in the field.

The requested funds will pay for a deputy security officer (1 workyear and \$34,000) and a secretary (1 workyear and \$25,000). The Institution must strengthen security functions at STRI to handle security situations endemic to STRI. Political and economic deterioration in the country has increased the threat of theft and vandalism to STRI property, thereby increasing the need for additional security personnel.

Occupational Health (2 workyears and \$164,000) - The occupational health of employees is a major concern. The Smithsonian has more than 6,000 employees who work over a large geographic area. The Occupational Safety and Health Administration (OSHA) and the Office of Personnel Management (OPM) require government agencies to monitor programs that routinely expose employees to a wide variety of hazardous chemicals and environments. The OSHA- and OPM-regulated programs in which the Smithsonian is involved employ more than 1,000 persons and continue to grow. Providing the required services to these employees necessitates a staff large enough to minister to them. Effective, appropriately staffed occupational health services are essential to keep Smithsonian employees healthy and productive in their work. To ensure effective compliance with Federal regulations and to afford the greatest degree of health services to Smithsonian employees, the Office of Protection Services requires resources for several occupational health programs.

Occupational Health Nurse: An occupational health nurse (1 workyear and \$39,000) will be qualified in the use of the medical equipment required to perform testing on employees. Other services provided will be the administration of flu and allergy shots, tetanus and rabies immunizations, and travel immunizations and prophylaxis. Additional programs offered to all employees include parasite, diabetes, TB, glaucoma, blood pressure, vision, and cholesterol testing.

The additional occupational health nurse will support the expanding occupational health services that OPS offers to Smithsonian employees. OSHA continues to increase required medical surveillance programs related to hazards in the work environment. Additional nursing staff, trained in occupational health, will provide employees with these new and expanded programs.

Medical Records Clerk: The Smithsonian's medical records system enables the Institution to meet several OPM standards for record keeping and reporting. Employees in OSHA- and OPM-regulated programs must have periodic health testing and examinations, and each employee's permanent health record must include this new information. Additionally, OPM standards require that a medical record exist for every employee whether or not he or she ever uses Smithsonian health services. OPM also mandates that a copy of this record be given to the employee when he or she leaves an agency, be forwarded to the new agency if the employee continues in government service, and remain a part of the employee's permanent personnel record. Maintaining up-to-date records and documenting on-the-job injuries and illnesses are continuous and time-consuming tasks.

A medical records clerk (1 workyear and \$22,000) will maintain and service the new automated Smithsonian employee medical records system. The new employee will ensure the efficient and accurate entry of medical data, routine updating of the system, and production of printed medical records when employees leave. Current, accurate, and easily accessible employee medical records are essential for maintaining all employees' health at the Smithsonian as well as for complying with Federal regulations.

Laboratory and Medical Services Contract: The mandated programs and procedures of OSHA and OPM also require extensive laboratory tests. The amount of laboratory testing has more than tripled over the last year and will continue to increase. Planned implementation of preappointment medical examinations for selected hazardous occupations will substantially increase the number of examinations and laboratory services required.

The requested funds (\$103,000) will pay for the laboratory testing required by the occupational health programs, including preappointment physicals and examinations for exposure to asbestos, formaldehyde, and other hazardous substances. OPS will require additional funding in future years as the Institution adopts more mandatory programs and identifies the full employee population required to participate in the programs.

New and broader occupational health programs designed to prevent occupational injuries and illnesses will keep Smithsonian employees healthier and more productive and will help minimize work-related compensation claims.

Radio Communications and Other Security Equipment (\$300,000) - A vital component of the maintenance and safe exhibition of Smithsonian's collections, visitors, staff, and buildings are alarm devices and security equipment that function properly.

An Institution-wide radio communications system will permit rapid and direct communications to essential Smithsonian security and plant management personnel. The present constraints of time and channel sharing contribute to unnecessary delays in transmission. This communication system will enhance the protection and safety of employees and the public. A state-of-the-art radio system will provide dependable, point-to-point communications and eliminate shared frequencies. Currently, all radio traffic to the eight guard companies (employing more than 500 guards) must time-share on a single emergency radio channel. This arrangement results in users having to wait for a free channel on which to transmit. These delays compromise security. In an emergency, communications could become undependable, complicating the efforts to handle the situation.

OPS also needs state-of-the-art alarm equipment, such as magnetic switches, motion detectors, electric locks, and card readers to replace worn-out or obsolete equipment, some of which have been in service at the Smithsonian for at least ten years. OPS must stock an inventory of new devices to perform emergency maintenance on alarm devices and ensure the reliability of the Smithsonian security system.

OPS will use the requested funds (\$200,000) to replace or recrystallize approximately 300 radios. In the future, OPS will need an additional \$1.3 million to upgrade fully the communications with new transmitting and repeater equipment, a comprehensive antenna system that will ensure communications in every facility in the Washington metropolitan area, and the hand-held and vehicle-based communications units needed to implement the system. With additional funding (\$100,000), OPS will develop standard equipment stock lists for each building's alarms shop for emergencies and a standard stock list for the supply officer. These funds will also allow the Institution to maintain an up-to-date inventory of all devices and replacement parts.

Effective protection for the Smithsonian's collections, visitors, staff, and buildings depends largely on well-functioning radio and alarm systems.

NONAPPROPRIATED SOURCES OF FUNDING:

Unrestricted General and Special Purpose Funds - These are provided by an allotment and by reimbursements for the use of guard services at special events and lectures at Smithsonian facilities. These funds are used to purchase supplies, materials, and equipment.

OFFICE OF PLANT SERVICES

(Dollars in Thousands)

Fiscal Year	APPLICATION OF FUNDS									
	FEDERAL FUNDS		UNRESTRICTED FUNDS				RESTRICTED FUNDS		GOV'T GRANTS & CONTRACTS	
	FTE*	Amount	General		Special		FTP**	Amount	FTP**	Amount
			FTP**	Amount	FTP**	Amount				
FY 1990 Estimate	493	37,692	6	1,214	1	306	-	3	-	-
FY 1991 Estimate	493	42,996	6	1,235	7	566	-	3	-	-
FY 1992 Estimate	519	45,872	6	1,233	7	567	-	2	-	-

\* FTE = Full-time equivalent

\*\*FTP = Full-time permanent

ABSTRACT - The Office of Plant Services (OPlantS) operates, maintains, and repairs 14 museum and art gallery buildings and many other work and collection storage areas located in the Washington metropolitan area and New York City. In support of research, exhibitions, education, and other public programs, OPlantS provides utilities, transportation, mail services, exhibits renovation, and other program services. OPlantS also provides technical service and assistance to several Smithsonian units located outside the Washington metropolitan area, including the Smithsonian Tropical Research Institute in Panama, the Fred Lawrence Whipple Observatory in Arizona, and the Smithsonian Environmental Research Center in Edgewater, Maryland.

The Office of Horticulture, South Group Facilities Management, and Quadrangle Facility Management are also part of this line-item. The Office of Horticulture maintains the Smithsonian grounds and a greenhouse-nursery to service the Institution's horticultural needs. South Group Facilities Management offers a full range of maintenance services for the Arts and Industries Building and Smithsonian Institution Building. Quadrangle Facility Management offers similar services for the Arthur M. Sackler Gallery, the National Museum of African Art, and the S. Dillon Ripley Center, located in the Quadrangle Complex.

For FY 1991, the Office of Plant Services requests an increase of 12 workyears and \$1,539,000 to correct base deficiency (\$822,000); support its buildings and facilities maintenance program (10 workyears and \$550,000); enhance automated administrative and management systems (2 workyears and \$67,000); and increase human resources programs (\$100,000). Funds are also requested for the Office of Horticulture for a tree replacement program (\$75,000); for South Group Facilities Management for buildings and exhibit maintenance support for the new Experimental Gallery in the Arts and Industries Building (4 workyears and \$76,000); and for Quadrangle Facility Management for support services for the S. Dillon Ripley Education Center (10 workyears and \$216,000).

An increase of \$970,000 justified in the Uncontrollable Increases section of this budget will support the Institution's utilities and rent.

PROGRAM:

I. Office of Plant Services (OPlantS) - The Office of Plant Services operates, maintains, and repairs more than 5 million square feet of museums and art galleries in Washington, D.C., and New York City. The Office maintains building interiors and exteriors, elevators, escalators, mechanical and electrical equipment, and lighting and refrigeration components. It also oversees emergency property repairs. The Office provides trade and craft support for the Institution, including plumbing, electrical, woodcrafting, painting, and plastering efforts. In addition to supporting Smithsonian research projects and office relocations and modifications, OPlantS supports exhibition installations and public events throughout all Smithsonian facilities.

The automated Facility Monitoring System continually analyzes and controls mechanical equipment throughout the Institution. This system monitors areas of buildings requiring stable humidity and temperature control and alerts a control center when deviations from normal conditions occur. Because this automated system identifies abnormalities so quickly, immediate adjustments avoid costly repairs and prevent damage to the National Collections.

The automated Preventive Maintenance System ensures increased reliability, decreased repair costs, and longer life by scheduling regular preventive maintenance on building operating systems. This system schedules preventive maintenance for fire prevention systems, guard stations, and automatic lighting as well as roofing systems and heating, ventilating, and air conditioning systems in all museums and the Smithsonian Environmental Research Center.

The Office maintains and operates a supply warehouse to stock and distribute frequently used building maintenance and custodial supplies and materials. To obtain the best prices, OPlantS purchases materials in bulk and stores them for future distribution. In addition to supporting office relocations and modifications, OPlantS offers packing, crating, warehousing, and moving services for museum objects and collections. The Office also provides a full range of transportation services for the Institution, as well as mail services and postage monitoring.

In FY 1990, OPlantS provided program support to museums and other Smithsonian organizations, including preparation of space for 95 new exhibitions. Notable among these exhibitions were "Dinamation" and "Underwater Sea Life" at the National Museum of Natural History; "Yoruba" at the National Museum of African Art; "Culture and Commentary" and "Francis Bacon" at the Hirshhorn Museum and Sculpture Garden; "Information Age" at the National Museum of American History; "Tiffany" at the Renwick Gallery; and "Igor Sikorsky" and "Flight in the Arts" at the National Air and Space Museum. OPlantS craftspeople renovated office space to accommodate changing program needs in various locations; completed energy conservation projects at the Air and Space, Anacostia, and Natural History buildings; and continued installing automated exhibit lighting systems. The building inspection program identified and estimated additional facility repair needs to be performed by OPlantS and/or contract personnel under the Repair and Restoration of Buildings program. Unfunded requirements identified by the inspection program form the basis of the annually compiled backlog of essential maintenance and repair.

The Potomac Electric Power Company commended the Office of Plant Services for participation in the electrical Load Curtailment Program.

II. Office of Horticulture - The Office of Horticulture (OH) applies the discipline of horticulture in educational, scientific, research, exhibition, and display activities throughout the Smithsonian. There are more than 100,000 plants and artifacts in OH's collections, and much of the plant material is used in Smithsonian museum interior and exterior displays. OH also uses garden furnishings from the collections and plants propagated and grown at the Smithsonian greenhouse-nursery in landscape design. Grounds management personnel install and maintain the plants. OH units extensively use sources within the Horticulture Branch Library to support these programs. Exterior pest control, removal of trash from the gardens, and snow and ice removal are also the responsibility of this office.

In FY 1990, the Women's Committee of the Smithsonian National Associate Program provided a grant to institute a new computerized engraving system for plant identification labels and interpretive signs. The new labels have proved to be a successful addition to the education and fulfillment of the visitors.

The Office of Horticulture expanded its mission by offering internships to area and regional university students interested in horticulture or landscape architecture. Through this program, the OH employed three landscape architect students from the University of Maryland. The benefits and knowledge gained from this program will exemplify the research and developmental aspect of the science of horticulture and landscape architecture in a museum setting.

OH is currently testing, with intent to purchase, a computerized irrigation system that will enable the OH to monitor all Smithsonian irrigation systems on-line. This system will permit the OH to have a running tally of water usage by building. By monitoring water usage, the system will identify leaks in individual lawn irrigation zones. Upon identifying a leak, the system will automatically close down the zone identified as using too much water or malfunctioning, then advance to the next zone. All data is stored and available in a central computer. The acquisition of the Maxicom program will enable the Grounds Management Division personnel to control and manage water costs.

Continuing to work with the Smithsonian Institution Office of Product Development and Licensing, two preeminent furniture and garden ornament manufacturers reproduced and marketed Victorian garden chairs, settees, a table, urns, plant stands, and a Wardian case from Office of Horticulture collections.

OH gardeners installed three seasonal plantings in the Mary L. Ripley and Enid A. Haupt gardens. OH used more than 125,000 spring bulbs, pansies, ornamental cabbages and kale, flowering annuals, and tropical plants in the flower beds and special gardens in the 82 acres of grounds managed by the OH.

The staff made progress in correcting soil composition and compaction in the Enid A. Haupt Garden. OH improved percolation in this roof-top garden through such techniques as mechanical verification, vertical borings filled with Turface to improve water movement, and natural aerification through the introduction of earthworms.

OH focused special emphasis on the older trees and shrubs on the Smithsonian grounds. Spraying, cabling, and pruning of these valuable assets to our environment will help

prolong their lives. Safety issues were also addressed by evaluating limbs for clearance and pruning to improve illumination of grounds.

During FY 1990, the Grounds Management Division replaced many trees that had died due to disease, insect infestation, or mechanical damage. Notable among trees replaced were 17 Mount Fuji flowering cherry trees (Prunus subhirtella) in the Hirshhorn Sculpture Garden, four American elms (Ulmus Americana) along Constitution Avenue, and new plantings of Chinese elms (Ulmus parvifolia) on the National Air and Space Museum terrace. To help assure the safety of visitors to the Smithsonian, grounds management staff cabled many American elm trees with weak branch crotches.

III. South Group Facilities Management - South Group Facilities Management is responsible for cleaning, minor maintenance, labor services, lamping, craft services, shipping and receiving, and special events. This office contracts for trash removal and pest control and coordinates office moves and cleaning associated with renovation projects located in the Arts and Industries and Smithsonian Institution buildings.

IV. Quadrangle Facility Management - Quadrangle Facility Management provides a wide variety of support services to the Education Center of the S. Dillon Ripley Center, Museum of African Art, Arthur M. Sackler Gallery, Resident Associate Program, National Associate Program, Smithsonian Institution Traveling Exhibition Service, and International Center. These services include space scheduling, custodial labor, rigging, minor maintenance, lamping, shipping and receiving, and related services. The automated scheduling and maintenance program greatly enhances the reliability and effectiveness of housekeeping, public events, and related support services.

EXPLANATION OF PROGRAM INCREASE: For FY 1991, the Office of Plant Services requests an increase of 12 workyears and \$1,539,000 to correct base deficiency (\$822,000); support its buildings and facilities maintenance program (10 workyears and \$550,000); enhance automated administrative and management systems (2 workyears and \$67,000); and increase human resources programs (\$100,000). Funds are also requested for the Office of Horticulture for a tree replacement program (\$75,000); for the South Group Facilities Management for buildings and exhibit maintenance support for the new Experimental Gallery in the Arts and Industries Building (4 workyears and \$76,000); and for Quadrangle Facility Management for support services for the S. Dillon Ripley Education Center (10 workyears and \$216,000).

An increase of \$970,000 justified in the Uncontrollable Increases section of the budget will support the Institution's utilities and rent.

I. Office of Plant Services - For FY 1992, OPlantS requests an increase of 12 workyears and \$1,539,000. This increase will allow continuation of the phased program begun in FY 1988 to provide the necessary resources for routine correction of inefficient or potentially dangerous conditions identified by facilities inspections.

Correction of Base Deficiency (\$822,000) - Since FY 1985, budget restrictions have severely weakened OPlantS's purchasing power. Restoring funds will assure proper maintenance of the facilities for the continued enjoyment and benefit of the public and the housing of the staff and collections.

Funding for correction of the base deficiency (\$822,000) will allow OPlantS to fill all authorized positions as well as maintain supply and inventory levels. Full funding

of all positions assures that timely service can be provided. Adequate inventory levels make certain that services are cost-effective and avoid delays in performing minor repairs.

The requested resources will supplement an existing program. As the Smithsonian's facilities age and deteriorate, they require more attention to prevent minor problems from escalating to major repairs that add to the backlog. Full funding of this request will provide the quality of maintenance and repair necessary to keep the Smithsonian's facilities in good operating condition.

Buildings and Facilities Maintenance Program (10 workyears and \$550,000) - Additional resources directed toward facilities maintenance will provide a safer, a more energy-efficient, and a more aesthetically pleasing environment for the visiting public and Smithsonian staff. Increasing energy efficiency will result in lower operating costs through reduction of deferred maintenance.

The requested resources will allow the Institution to decrease the backlog of essential maintenance and repairs and stay abreast of facilities and energy management techniques. OPlantS will hire maintenance mechanics (10 workyears and \$340,000) to inspect facilities and to identify problems and make repairs. This request includes \$210,000 to provide equipment for these positions.

Implementing new facilities and energy management techniques will ensure long-term preservation of all Smithsonian facilities, more energy-efficient operations, and better environmental control of the Institution's aging physical plant. This program will also result in better control of facilities costs and services, a safer environment for visitors and staff, and improved public appearance.

Automated Administrative and Management Systems (2 workyears and \$67,000) - The funds requested in FY 1992 will provide one administrative assistant (1 workyear and \$40,000) and one computer specialist (1 workyear and \$27,000) to support automated systems in the Office of Plant Services. These additional personnel will help maintain vital automated activities such as project scheduling, maintenance service order status, reimbursements, accounting and personnel management, warehouse inventories, and development of new automated systems applications. The staff also will maintain an inventory of hardware, software, and computer equipment and determine solutions to information management requirements.

Automation of administrative and management systems will result in more current and accurate facilities management information upon which to base facilities decisions. Accurate data relating to project scheduling, maintenance service order status, reimbursements, accounting and personnel management, and warehouse inventories will benefit the Institution by providing a solid foundation allowing for flexibility and responsiveness to changing facilities circumstances.

Because OPlantS has responsibility for tasks relating to facilities management and energy conservation and managing accompanying resources, it is crucial that the Office manage resources judiciously. Automating standard facilities management procedures and requirements will assure that OPlantS staff function with precision and consistency. The approval of these resources will contribute greatly to good facilities management and successful energy conservation efforts.

Human Resources Programs (\$100,000) - Human resources are the most important assets in the Office of Plant Services. As the physical plant ages, OPlantS employees become even more important as a first line of defense, ensuring that buildings and operating systems are continually scrutinized and problems corrected. Well-trained employees offer the most successful intervention for dealing with potential problems before they become major expenses.

As employees become more critical in the facilities management process and provide the first line of defense in facilities management efforts, it is increasingly important for them to be properly trained. Employees must keep abreast of the most current methods of maintaining deteriorating and aging facilities systems as well as becoming fully knowledgeable about the installation and operations of newly acquired state-of-the-art facilities operations systems. As more demands are placed on facilities operations, OPlantS must provide training opportunities to employees to empower them with the knowledge, skills and abilities to execute their responsibilities.

Increased human resources efforts will result in better employee morale, employee acceptance of a greater degree of responsibility in carrying out assignments, and higher productivity for the Institution. Well-trained employees will immediately assess situations and make recommendations, thereby reducing costs and possible communication problems with clients.

As the Institution's facilities span greater ranges of age, complexity, and deterioration, it is even more important that OPlantS employees be trained and educated to be effective in controlling potential physical plant problems. As energy conservation becomes more important, training in this ever-changing field becomes critical to support these efforts. OPlantS will meet the challenges of physical plant management with an educated, trained work force. Providing individual training and development opportunities benefits the Institution as well as the employees.

## II. Office of Horticulture:

Tree Replacement Program (\$75,000) - The trees OH manages enhance the urban environment and the overall experience of Smithsonian visitors. Providing a home to different species of birds and other fauna, the trees surrounding Smithsonian museums offer old and young visitors alike some insight into the symbiotic relationship between plants and animals in an urban environment. Trees provide other benefits, such as purifying the air of pollutants, reducing rainwater runoff, lowering the temperature in adjacent buildings, and providing an aesthetically pleasing landscape.

The requested increase of \$75,000 for tree replacement and contractual tree service will enhance the Office of Horticulture's ability to preserve existing trees and replace trees that have died. To ensure the orderly improvement of Smithsonian grounds, OH staff will develop a priority list of locations to be serviced and replanted with trees. Determining the cause of tree deaths will help improve chances for success of the newly planted trees. After purchasing appropriate replacement trees in spring 1992, the staff will plant the trees in the nursery. In the late fall they will transplant the trees to scheduled sites around the Smithsonian museums. Contractual tree service will begin in the spring and will consist of pruning, cabling, and spraying for insect control.

By replacing trees on a regular basis, OH staff will help ensure that the Smithsonian grounds will remain an enticing and refreshing place for visitors to relax, enjoy themselves, and learn.

### III. South Group Facilities Management:

Exhibits Support (4 workyears and \$76,000) - South Group Facilities Management provides cleaning and maintenance services for the two oldest and most historic buildings of the Smithsonian--the Arts and Industries and the Smithsonian Institution (Castle) buildings. Annually, these two buildings receive more than 2.5 million visitors.

Concurrent with the 1989 opening of the new Smithsonian Information Center in the Castle, the Visitor Information and Associates' Reception Center expanded its visitor service programs. The Great Hall is now open to the public one hour earlier each day, showing films and providing automated information systems on Smithsonian-related programs. Bus tours and travel groups come directly to the Castle. The number of visitors to the Castle has thus increased dramatically. As a consequence, South Group Facilities Management staff needs to service the public areas more frequently in order to maintain clean, safe, and sanitary conditions and to ensure a pleasing appearance and appropriate welcome to visitors and staff.

In addition, the Experimental Gallery, a new venture of the Smithsonian, will occupy approximately 13,000 square feet of space in the Arts and Industries Building starting in FY 1991. The Gallery will offer visitors opportunities to try out exhibition elements before their installation in Smithsonian museums and offer existing staff opportunities to develop and learn new exhibition techniques through participation on Experimental Gallery exhibition teams. Because the staff will use innovative, experimental, and creative techniques, designed to interact with the public, the Institution anticipates a significant increase in the number of visitors to the Arts and Industries Building. South Group Facilities Management staff will undertake exhibits cleaning and maintenance for the new Experimental Gallery and other exhibits located in this building. This is a new responsibility for the office. It will help ensure that exhibit areas are well maintained and safe as well as pleasing in appearance to visitors. The opening of the Infant Care Center and a new health unit in the building will also place additional demands on the services by South Group Facilities Management, since these two areas will require specialized cleaning.

To meet increased demands for cleaning and maintenance services in the Arts and Industries and Smithsonian Institution buildings generated by the installation of new visitor and staff programs in these buildings, South Group Facilities Management requests four additional custodial positions. These new positions will primarily support the Experimental Gallery that will occupy two exhibit halls in the Arts and Industries Building in FY 1991. With this increase, existing staff will be able to maintain the nonpublic spaces of the two buildings that are its responsibility and preserve the pleasing appearance of the public traffic areas of the Smithsonian Information Center.

The requested workyears and funding for FY 1992 will ensure prompt buildings maintenance services under South Group Facilities Management's care and will support new initiatives.

#### IV. Quadrangle Facility Management:

Support Services for Education Center (10 workyears and \$216,000) - Based on the preliminary years of operations in the Quadrangle Complex, Education Center events will generate a higher level of activity than was expected in earlier planning. In order to meet this higher than expected demand, the Quadrangle Facility Management requests additional staff.

The Education Center of the S. Dillon Ripley Center, located in the Quadrangle Complex, provides classroom and lecture hall facilities for educational programs and other meetings. The Education Center is a multi-user meeting location that requires frequent room rearrangements and building management services. During calendar year 1990, the total number of events to be held in the Education Center is estimated at 7,000. These events will range from craft, art, photographic, and cultural presentations to specialized programs on art, music, history, and conservation. Statistics confirm the popularity of these events. In the International Gallery, the "Caribbean Festival Arts" exhibition sponsored a "Family Weekend" on the Concourse that drew 20,000 people.

In planning initial staffing requirements for Quadrangle Facility Management, the Smithsonian projected low-maintenance requirements for the Education Center. The initial projections assumed a shorter daily public schedule (from 10:00 a.m. to 5:30 p.m.) than the facility is actually open. During FY 1990, Quadrangle Facility Management will meet the higher demand for its services through overtime, by deferring some lower-priority requests from Quadrangle occupants, and by reassigning some tasks to the program bureaus located in the Quadrangle.

Quadrangle Facility Management requests an increase of 10 workyears and \$216,000 for FY 1992 to hire seven laborer positions (7 workyears and \$125,000) to support the growing demand of building management services for the Education Center. An events scheduler (1 workyear and \$27,000) will coordinate a work schedule and process the paperwork required for scheduling room setups. A labor supervisor (1 workyear and \$30,000) and a facility staff assistant (1 workyear and \$34,000) will coordinate the Education Center automation.

In addition to the actual classroom and lecture hall facilities in the Education Center, the Concourse space has become a focal point for an increasing number of large public events because of its size and location between the Education Center and the International Gallery. Quadrangle Facility Management strives to support all these activities with the highest level of efficiency to ensure that each visitor is well served and leaves with a positive lasting impression.

#### NONAPPROPRIATED SOURCES OF FUNDING:

##### Unrestricted General and Special Purpose Funds:

I. Office of Plant Services - Allotments provide unrestricted Trust funds to cover salaries and support costs in the Office of Plant Services. These allotments also provide the Trust-fund share of space rental costs for administrative activities located at L'Enfant Plaza.

Reimbursements from Trust-funded client organizations provide Special Purpose Funds for support services offered by OPlantS. These funds purchase supplies, services, equipment, and landscaping materials.

II. Office of Horticulture - Reimbursements from Trust-funded client organizations provide support to OH through the purchase of supplies, services, equipment, and landscaping material.

III. South Group Facilities Management - The primary source of nonappropriated funds is from reimbursements for special events. The amount varies depending upon the nature of the event and the requirement for overtime. At present, South Group Facilities Management collects approximately \$15,000 a year. This money has been used to purchase special event equipment, computer hardware and software, and sanitary supplies for female rest rooms. A token amount is collected from the latter.





NATIONAL ZOOLOGICAL PARK  
CONSTRUCTION AND IMPROVEMENTS

1990 Appropriation . . . . .	\$ 6,423,000
1991 Estimate . . . . .	\$ 6,671,000
1992 Estimate . . . . .	\$20,050,000

Appropriations to this account provide funding for:

- repairs, alterations, and improvements to plant property;
- additions to existing facilities and minor new facilities, including exhibits;
- plans and specifications for construction;
- renovation, restoration, and construction of new facilities outlined in the Master Plan.

The Zoo contracts for most construction and improvement projects. If the contractor's estimates are above acceptable cost levels, a more economical alternative is to hire permanent or temporary labor to accomplish the work. The account also funds related expenses such as relocation of animals during the renovation or construction of facilities and major grounds maintenance resulting from storm damage.

In keeping with the 1889 charter, the National Zoological Park endeavors to "administer and improve" the Zoo for "the advancement of science and instruction and recreation of the people" (20 U.S.C. 81). The National Zoological Park (NZN) complex includes 163 acres in the Rock Creek Valley of Washington, D.C., and a 3,150-acre Conservation and Research Center (CRC) located in Front Royal, Virginia. Since 1890, exhibition and public educational functions have been centered in the Rock Creek Valley portion of the National Zoological Park. Conservation, research, and breeding functions take place at both Rock Creek and the Conservation and Research Center at Front Royal, Virginia. Since 1975, CRC has assumed primary responsibility for saving threatened and endangered animal species.

The composition of the FY 1992 request is as follows:

ROCK CREEK MASTER PLAN:

Olmsted Walk Landscaping	\$1,000,000
Amazonia Gallery	1,700,000
Aquatic Trail (Phase I)	6,600,000
Grasslands and Forest Exhibits (Phase I)	1,700,000
Loop Trail Graphics	300,000
Hall of Humankind	3,000,000

CONSERVATION AND RESEARCH CENTER DEVELOPMENT PLAN:

Water Systems and Hydrants (Phase II)	\$ 600,000
Road Improvements/Extensions	1,100,000
Maintenance Facility	1,000,000
Multi-Purpose Animal Facility - Design	250,000

RENOVATION, REPAIR, AND IMPROVEMENTS:

Rock Creek	\$2,000,000
Conservation and Research Center	<u>800,000</u>

TOTAL REQUEST	\$20,050,000
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ROCK CREEK MASTER PLAN - The National Zoo's Rock Creek facilities have been undergoing major renovation and improvements through implementation of the Master Plan. Congress has appropriated a total of \$57,830,000 over the period from FY 1974 to FY 1990 to carry out major portions of the Master Plan. Full implementation of the Master Plan, as revised in 1986, will place the National Zoological Park among the world's finest zoos.

Olmsted Walk Landscaping (\$1,000,000) - With the completion of the final phase of the Olmsted Walk program, it is time to landscape the area. In keeping with NZP's Olmsted heritage, the Zoo plans to provide simple, functional, and biologically instructive landscaping in the public areas adjacent to the walkway. For FY 1992, the Zoo requests \$1,000,000 to implement the Olmsted Walk Landscaping Program.

Olmsted Walk runs the length of the Zoo from the main pedestrian entrance on Connecticut Avenue to the lower entrance at Beach Drive. The walkway encompasses all zoo entrances, the concession plazas, many of the major exhibit buildings, the lawns, and public picnic areas. Establishing and maintaining a coherent landscaping treatment throughout this area will provide unity and a distinctive identity.

The landscaping will screen parking areas, create shade, add color, and develop diversity for the benefit of the visiting public. The Program will place large shade trees in the plaza areas, in open lawns, and along the parking lots. Deciduous trees will provide shade in summer and allow warming sun in winter. The Program will use planter beds to protect canopy trees while lending visual interest and a pleasant background to seating in paved plaza areas. Selected tough, durable, easy-to-replace plants will go in the plaza areas and along the walkway.

The horticultural theme centered around the Olmsted Walk Landscaping Program will enhance the visitors' understanding of plants and their relationships with animals and humankind. It will serve as a focal point for the Zoo's conversion to a BioPark, focusing on issues such as economic uses of plants, plant-animal coevolution, rare and endangered plants, and habitat destruction.

Amazonia Gallery (\$1,700,000) - This request is for funding the final phase of the Smithsonian Tropical and Global Environmental Science Gallery (\$1,700,000). The Zoo's FY 1991 budget request contains initial funding of \$3,000,000. Once completed, the Gallery will serve to educate and inform visitors about global problems and tropical biology.

The Gallery will show the visitors the small-scale wonders of tropical biology by focusing on the intricate and exciting interactions that make the environment work. In addition, it will provide a window in Washington on the riches of Smithsonian science. The Gallery will feature contributions to an understanding of the tropics from the Smithsonian Tropical Research Institute, National Museum of Natural History, National Zoo, and others. The Gallery will highlight the processes of investigation and discovery as well as the discoveries themselves. It will cover topics such as the complexity of interactions among plants and animals, global environmental issues, and conservation. Visitors will see scientific research in a way that will get them involved in asking questions and seeking answers.

The Smithsonian Tropical and Global Environmental Science Gallery will enable the Zoo to explain, in a dramatic and exciting way, the global implications of environmental change in the tropics. The final message will be optimistic, emphasizing that human ingenuity and inventiveness can provide solutions to current problems. It will also

exemplify the rising commitment of people to the conservation of the Earth's irreplaceable natural riches.

Aquatic Trail - Phase I (\$6,600,000) - The Zoo will construct four new habitat exhibits as part of the new Aquatic Trail. The request for the first phase, for FY 1992, is \$6,600,000. Within the cluster of exhibits the Zoo will focus on key aquatic ecosystems and habitats, many of which are highly endangered. These will include the American Lake, South Atlantic Coast, Chesapeake Marsh, and Mangrove Swamp. To make the series of exhibits both entertaining and educational, each exhibit will offer interpretations from a slightly different point of view. At the same time, the displays will supply sufficient content for a more extensive inquiry by an interested visitor.

The American Lake will provide an underwater visit at a prototypical inland lake in the eastern United States. The interpretation will focus on the plant and animal response to temperature stratification of lakes, the food chain, and fish schooling and communication.

The South Atlantic Coast will display a small colony of black-footed penguins, bringing penguins to the zoo for the first time. The interpretation will focus on penguins as both predators and prey, their adaptations to the marine environment including analogies to fish and marine mammals, and their spectacular communal nesting.

The Chesapeake Marsh will focus on a local habitat and familiar animals and use this focus to raise issues of global concern. The exhibit will emphasize current threats to the Bay's animal life and ecological balance, including economic and recreational implications. The exhibit will illustrate the important ecological and historical research carried on by the Smithsonian Environmental Research Center, located on the Chesapeake Bay.

The Mangrove Swamp will feature one of the most widespread of all tropical habitats - one that is fast disappearing. It will emphasize the erosion-reducing and land-forming role of the Mangrove areas and the novel lifestyles and adaptation of the various species that inhabit the system. The Mangrove Swamp will be adjacent to the Amazonia exhibit, as the ecosystem typifies the estuaries of all great tropical rivers.

Grassland and Forest Exhibits - Phase I (\$1,700,000) - The Zoo is planning three new exhibits, each representing a distinct ecological and geographic area: American Grasslands, African Grasslands, and Forests. Funding requested in FY 1992 (\$1,700,000) will provide for the design and initial site preparation for the three exhibits. Actual construction will begin in FY 1993. Each exhibit will put major emphasis on uniquely adapted flora and fauna and the interconnectedness of the ecosystem.

The American Grasslands exhibit will consist of two major habitats: the North American Prairies and the South American Grasslands. Separating the two exhibits, a planted berm will conceal a service yard and holding buildings. Bison, coyotes, sandhill cranes, prairie dogs, and gopher snakes will populate the prairie exhibit. The South American portion will house mara, giant anteaters, capybara, maned wolves, rhea, and guanacos. The history of grasslands and the adaptations of Native Americans to live in grassland areas will be emphasized.

The African Grasslands will also consist of two major habitats: the African Savannah and the African Desert. The trails in the two subdivisions will include screening and specimen plantings to create the illusion of being in Africa. Animal species such as

zebra, ostrich, wildebeest, flamingo, spotted hyena, blesbok, gerenuk, and dwarf mongoose will inhabit the savannah. A nocturnal segment will include animals such as the zorilla, aardvark, fennec fox, cobra, and insects. The desert will feature gazelle, crowned crane, meerkat, duiker, and klipspringers.

The Forests will be located on the hilly terrain east of the Connecticut Avenue entrance and will include three habitats: West African Forest, Southeast Asian Forest, and the Sulawesi Forest. Mandrill, leopard, bongo, Eld's deer, tapir, muntjac, anoa, and babirusa will be among the featured animals. The Forest will show prominently the remarkably convergent lifestyles of forest-dwelling people in each of the habitat exhibits. The art and artifacts of indigenous peoples will illustrate their long history of adaptation and inventiveness.

Loop Trail Graphics (\$300,000) - In conjunction with the completion of the final phase of Olmsted Walk, the Zoo will provide the master graphics necessary to bring together all the pedestrian walkways in the park. This request for FY 1992 is for \$300,000. Olmsted Walk establishes a clear pedestrian thoroughfare from the Connecticut Avenue entrance down to the Rock Creek entrance. This efficient route connects most of the Zoo's exhibit facilities. However, it bypasses the Bird House, with its new wetlands exhibit, the exhibits in Beaver Valley, and the Zoo's Aquatic Habitat complexes. The Loop Trail will connect these major exhibits, along the Valley Trail, and other animal areas with the main Olmsted Walk using a system the Zoo calls "Wayfinders." A prototype wayfinding system was installed in 1990 and is currently being evaluated.

Hall of Humankind (\$3,000,000) - This project will modernize an aged and outmoded Monkey House. With the \$3,000,000 requested for FY 1992, the Zoo will pioneer a new exhibit strategy for great apes and monkeys, using living animals to extend and explore human knowledge of ourselves. The existing Monkey House does not convey any of our new understanding of the animals' advanced cognitive capacities. The modernized facility will display animals that can use tools, communicate by sign language, draw creatively, and use television as a source of information and entertainment. An orangutan or chimpanzee group will illustrate language use, the critical human adaptation. The apes are capable of learning sizable vocabularies of gestural signs or computer-generated symbols and of using these "words" with proper syntax and punctuation to communicate needs and emotions to humans and other apes. The exhibit will also be a laboratory, and the research will be the exhibit. The visitor will be introduced to the cognitive sophistication of apes (and be reminded of our shared heritage). Displays on human and ape vocal anatomy; and brain size and asymmetries and their relationship to language, manipulation, and musical and mathematical talent will be included in this living exhibit.

The Hall will also have monkeys, orb-weaving spiders, leaf-cutting ants, and honeybees to show analogues of the social, communicative, and agricultural accomplishments of humans. The Zoo's Hall of Humankind will complement new exhibits on human origins at the National Museum of Natural History.

CONSERVATION AND RESEARCH CENTER DEVELOPMENT PLAN - The Zoo's Conservation and Research Center (CRC) conserves wildlife, particularly vertebrate species threatened with extinction. Its facilities are dedicated to the captive propagation of selected birds and mammals, and its research and breeding programs are carried out collaboratively on five continents. The Zoo has established a Development Plan for the facility which calls for establishment of an infrastructure that will serve equally well all the major functional

paths that the Center may follow in the next 20 years. The following projects for FY 1992 conform to the Center's Development Plan.

Water Systems and Hydrants - Phase II (\$600,000) - Renovation of CRC's 70-year-old water holding and distribution system is vital to the operation of the Center. With funds requested in FY 1991 (\$600,000), the Center will upgrade the water distribution system. The second phase of this project (scheduled for FY 1992 at a cost of \$600,000) will incorporate major repairs to both the Center's water storage tanks. New tank liners will be installed to help maintain the quality of the water for the facility.

Road Improvements/Extensions (\$1,100,000) - The Center's roadway network has three surface types: paved roads, gravel roads, and unimproved jeep trails. This road system has not been substantially upgraded in 20 years and has deteriorated as a result of overuse and annual freeze-thaw cycles. With funds requested in the FY 1991 budget request (\$100,000) the Zoo will begin to upgrade the roadways in areas directly affected by work on the water systems. NZP will use the funds requested for FY 1992 (\$1,100,000) to upgrade and extend the balance of the Center's roadway system.

Weather resistant gravel roads will be extended to newly renovated pastures and facilities in the underdeveloped areas of the Center. The Center will upgrade jeep trails, which provide access to within one-quarter mile of any point on the property. The current trails are unimproved cleared corridors requiring the use of four-wheel drive vehicles. Substantial portions of the existing jeep trails were pioneered in 1977 during the perimeter fence construction operation. Once upgraded, the Center's roadways will provide a valuable circulation link for fence maintenance, wildlife studies, and perimeter security.

Maintenance Facility (\$1,000,000) - To improve operations, security, and accessibility, the Center will consolidate into one facility its maintenance and grounds units. The two operations are presently located in ten separate buildings throughout the property. This situation is inefficient in terms of time, supervision, and costs.

The Center will construct, at a cost of \$1,000,000, a new, prefabricated building that will consolidate all operational shops and maintenance/grounds personnel at one location. This plan replaces an earlier, more costly plan that called for the renovation of a group of supply buildings at the Center. This new structure will have an added benefit of eliminating traffic through the central animal areas of the Center. Buildings vacated by this move will be used to expand research laboratory space and to provide student housing at the Center.

Multi-Purpose Animal Facility - Design (\$250,000) - Funding requested for FY 1992 (\$250,000) will be used to design a large, quick-response facility for the propagation and research of small to medium-sized endangered species of mammals. The structure will use the same passive solar heat/natural light employed so successfully in the Center's small animal facility. The building, scheduled for construction in FY 1993 at a cost of \$2,500,000, will be located in the middle of the Center. It will provide both indoor and outdoor enclosures for a variety of highly endangered species.

RENOVATION, REPAIR, AND IMPROVEMENTS:

Rock Creek (\$2,000,000) - The National Zoological Park is responsible for the repair and preventive maintenance of existing facilities. The Zoo strives to maintain a safe

environment for its visiting public and staff, provide ecologically suitable and comfortable enclosures for the animals, and maintain all buildings in good condition. The funding requested for FY 1992 will help ensure that the Zoo's preventive maintenance program will not include a large backlog of major repair projects.

The Zoo's Rock Creek facilities, located on 163 acres, include more than 450,000 square feet of buildings and 160,000 square feet of roofs. Along with the Park's perimeter fence measuring 10,564 linear feet, the Zoo's in-ground utility distribution system includes more than 4,600 linear feet of high voltage electrical lines, approximately 4,000 linear feet of medium voltage electrical lines, 16,000 linear feet of water mains, 6,000 linear feet of gas mains, 28,000 linear feet of sewer lines, and 14,000 linear feet of storm drains. The Park's preventive maintenance program includes the care of these utility systems to ensure safe operation of the facilities.

The major projects scheduled for the Rock Creek facility in FY 1992 include:

- reroofing at least one major building;
- interior painting and safety and handicap accessibility upgrade of one major building;
- preventive maintenance of HVAC systems;
- renovation and replacement of interpretive signage;
- renovation of the quarantine facility;
- renovation of the research animal colony building.

The National Zoological Park requests \$2,000,000 to continue its program of renovation, repair, and preventive maintenance at the Rock Creek facility. Funding at this level will enable the Zoo to provide the required level of maintenance to all buildings.

Conservation and Research Center (\$800,000) - The Zoo's Conservation and Research Center at Front Royal is a nonpublic facility devoted to the conservation of endangered wildlife through programs in propagation, research, and international training. The 3,150-acre facility includes more than 89 structures ranging from animal shelters to research laboratories and residences. The property has 2-1/2 miles of roads, 20 miles of jeep trails, and more than 30 miles of fences.

Funding requested in FY 1992 will enable the Center to continue the required maintenance and upkeep of these diverse facilities. Specific projects scheduled for FY 1992 include:

- renovation of the existing fire station;
- renovation of the carpenter shop and supply building;
- renovation of the plumbing shop, paint shop, and mechanic shop;
- construction of a new warehouse for small equipment;
- renovation of Bldg. 159 at the Crane yards.

The \$800,000 that NZP requests for FY 1992 will support the Center's preventive maintenance program and help reduce costly repairs at this important facility in the future.





## REPAIR AND RESTORATION OF BUILDINGS

1990 Appropriation.....	\$26,468,000
1991 Estimate.....	\$28,656,000
1992 Estimate.....	\$35,000,000

Smithsonian facilities include 15 museums and gallery buildings in Washington, D.C., and New York City and total more than 5.5 million square feet of building space. These museum buildings house research and collections management activities and a wide range of exhibitions in the fields of science, history, technology, and art. The Institution also operates and maintains restoration, storage, aircraft, and spacecraft display facilities in Suitland, Maryland, and New York City; centers for biological research, conservation, and education in Panama and on the Chesapeake Bay near Edgewater, Maryland; a center for astrophysics in Cambridge, Massachusetts; and the Whipple Observatory on Mt. Hopkins in Arizona. These facilities range in age from new to more than 140 years old, and many appear on the registers of historic landmarks.

The Repair and Restoration of Buildings (R&R) account pays the cost of repairs, corrective measures to meet life safety and health regulations, and replacement or renovation of major building components or equipment. This budget document discusses the repairs and renovations at the National Zoological Park as a separate justification.

The heavy public use of buildings and the demand for constant temperature and humidity levels to protect the National Collections exacerbate the natural aging process of building materials, equipment and systems. The Smithsonian now achieves longer than average predicted life for most equipment. As a measure of preventive maintenance program effectiveness, this is in spite of the fact that the 24 hour operation places the equipment under a more severe duty cycle than is normal. Eventually, even effective preventive maintenance and regular repair programs cannot keep the equipment components of building systems operating. The Institution must overhaul heating, ventilation, and air conditioning (HVAC) systems and electrical and plumbing systems periodically to replace deteriorated equipment, wires, ducts, and pipes. It must repair the effects of weather on the exterior of buildings and guard against interior damage. In addition, the enactment of new codes and regulations calls for building modifications to ensure a safe and healthful environment and disabled access for visitors and staff.

In past years, funding levels for maintenance, repair, and preservation of buildings have not kept pace with the rate of deterioration. A substantial backlog of essential repair work exists. These repairs are vital to ensure the continued reliable functioning of building equipment and systems, long-term preservation of the buildings, or compliance with life safety and health codes and standards. The most recent (January 1990) estimate of the backlog of projects is \$229 million. This figure reflects a marked increase over prior year backlog totals. Continuing inspections have uncovered additional requirements and more extensive damage and deterioration. More detailed studies of previously identified problems and the inflationary effect of project delays have contributed to higher cost estimates for individual projects. Only sustained major funding increases will reduce this backlog and preserve buildings for continued use by future generations. As evidenced by the continual growth of the backlog amount, annual funding at the "current services" level in the Repair and Restoration of Buildings program is not sufficient to support the work required. Some of the work is, in fact, more urgent and more costly today because inadequate funding in the past prevented the timely repair or replacement of building systems and components.

The Smithsonian separates projects under the R&R program into two categories and accordingly requests funding in two subaccounts. The first subaccount, Major Capital Renewal, includes funds for the cyclical replacement of major building systems and equipment and major renovation projects required to ensure long-term preservation of the buildings. These projects are different in magnitude, expense, and planning complexity from the more routine ongoing restoration work, preventive maintenance projects, or repairs undertaken when a piece of equipment fails. More than half the identified backlog consists of these major replacement requirements for HVAC and electrical systems at the Natural History, American History, Smithsonian Institution, Arts and Industries, Renwick Gallery, and American Art and Portrait Gallery buildings.

The second R&R subaccount is Repairs, Restoration, and Code Compliance. Funding requested through this subaccount will eliminate, over a period of time, the remainder of the backlog of repairs and other work needed to meet safety and health requirements. This subaccount encompasses six categories of routine maintenance and repair projects. This budget request presents an aggregate amount for each of the six categories, with a description of the kinds of work planned.

The composition of the FY 1992 R&R budget request follows:

REPAIR AND RESTORATION OF BUILDINGS

MAJOR CAPITAL RENEWAL		\$13,650,000
REPAIRS, RESTORATION, AND CODE COMPLIANCE		
General Repairs	2,935,000	
Facade, Roof, and Terrace Repairs	3,140,000	
Fire Detection and Suppression Projects	1,560,000	
Access, Safety, and Security Projects	4,225,000	
Utility Systems Repairs	7,350,000	
Advanced Planning and Inspection	<u>2,140,000</u>	
Subtotal		\$21,350,000
TOTAL REQUEST		\$35,000,000

Following the narrative description of the program for FY 1992, a listing shows all planned projects by building and R&R category.

MAJOR CAPITAL RENEWAL:

Projects in this category involve replacing major building systems and components that have outlived their useful lives. Complete replacement ensures long-term operation and preservation of the building. Modifications to the building also improve energy efficiency, meet fire detection and suppression requirements, and correct hazardous conditions. By coordinating these kinds of tasks, the Institution saves money and avoids repeated disruption to activities in the building. The Smithsonian achieves operating efficiencies as well by designing new building systems and components to work together. For example, by installing multiple-paned windows and increasing insulation, the Smithsonian can install heating and cooling equipment with lower capacity. The equipment costs less to purchase and install, and long-term operating costs are lower. The impact of renovation work on programmatic activities is a key factor in planning a major project. Work of this magnitude causes serious disruption to activities in the building. The

Institution must relocate staff and collections from the areas under construction to prevent damage, allow staff to continue working during the construction period, and ensure continued public access and safety.

For FY 1992, the Smithsonian requests \$13,650,000 for the projects described below:

American History Building (\$6,750,000) - A 1982 study of the HVAC system of the 26-year-old American History Building recommended replacement of the deteriorated heating, ventilation, air conditioning, and refrigeration equipment systems and controls. Replacement of these systems will ensure continuous provision of required environmental conditions in an energy-efficient manner. The study also recommended modifications to the building envelope to increase energy efficiency. The Institution recently completed the required window and roof replacement and facade repairs using previously provided funding.

The 1986 Master Coordination Plan established a detailed schedule for replacing the HVAC and related systems. This plan also incorporated anticipated life safety and fire protection improvements and asbestos removal work so that workers could isolate vertical portions of the public areas of the building and accomplish all work required in each segment at the same time. This scheduling of complex but interrelated projects results in less disruption to the Museum's activities and saves money through a single contract for each vertical portion. The final phase of the project will incorporate all work required in the office areas of the fourth and fifth floors. A separate follow-on project will perform similar work in the basement of the building.

Work in each vertical quadrant includes replacing the air mixing boxes, controls, and air-handling equipment; installing new sprinkler, smoke detection and emergency lighting systems; constructing new fire walls and other fire protection improvements originally outlined in the Fire Protection Master Plan; installing conduit and cabling to support the security and communications networks; and removing asbestos present in mechanical rooms and other areas of the building. The Museum is coordinating this project with its exhibit renewal program. The project includes the cost of relocating artifacts and personnel displaced in the course of the work.

The first phase of this project began with funding received in FY 1987 (\$1.2 million) and FY 1988 (\$1.6 million) and included all work required in the east quadrant of the building. The Institution completed this phase in FY 1989. Work on Phase II, in the west central quadrant, began with funding received in FY 1989 (\$2.1 million) and was recently completed. The Institution recently initiated Phase III, in the west quadrant with \$3,675,000 appropriated in FY 1990. The contractor will complete this phase in 1991. The \$3,790,000 anticipated for FY 1991 will support Phase IVa construction in the east central quadrant and design of the final phase of work (Phase IVb), which will include construction on the fourth and fifth floors. The Institution requests \$6,200,000 in FY 1992 for Phase IVb construction, which will complete the project.

The Smithsonian also requests \$550,000 to initiate HVAC replacement and related work in the basement of the Museum, work that was not included in the original scope of the Major Capital Renewal project. Over the past several years, problems associated with air circulation and exhaust fumes and the deterioration of HVAC and electrical equipment make it imperative that the systems be replaced with equipment of sizes and types suited to present and projected usage of the space. During the replacement procedure, the Museum will remove asbestos from existing equipment. The funds requested for FY 1992 will prepare

design documents for the first phase of the basement work and begin the relocation of staff and collections affected by the construction. Future requests will fund the construction costs.

Natural History Building (\$6,900,000) - Over the past several years the Institution undertook a number of separate studies of the Natural History Building to address energy conservation, fire detection and suppression, communications, security upgrading, asbestos abatement, and other remedies to building deficiencies, especially in the HVAC and electrical systems. As a result of these studies, the Institution realized the magnitude of the work required and initiated a Master Implementation Plan to ensure that the Natural History Building is maintained in an effective manner. The Institution will schedule work in a way to minimize disruption within the building and reduce costs by grouping tasks. The Museum will coordinate the exhibit reinstallation program with the renovation project. The Institution proposes to fill in the East Court space with a new building to provide permanent space for expansion of the Museum's current activities. The Museum will use this new building during the renovation project as staging space, to allow relocation of staff and collections affected by the renovation work to a safe space while work is in progress. Construction of this building will require relocation of the current chiller plant to a new vault under the parking lot as well as accommodation for other functions now in the East Court space. The Construction section of the budget request includes a justification for the East Court Building.

Guided by a Fire Protection Master Plan developed in 1979, fire protection improvements and asbestos removal and containment work are well under way. However, the replacement of the HVAC and critical electrical equipment is the more significant aspect of this project and thus governs the overall work schedule. The majority of the HVAC equipment is now more than 25 years old and requires replacement to avoid system failure. The automatic temperature control system is obsolete and does not operate satisfactorily. The age of 90 percent of the electrical lighting and power panels in the building is in excess of 20 years. Some of the electrical panels date from 1910 and present a potential safety hazard. Other panels installed in the 1960s are not UL (Underwriters' Laboratory) approved as meeting established safety standards, and replacement circuit breakers are no longer available. The main high-voltage switchgear equipment, which serves all the transformers for the Natural History, Arts and Industries, and Smithsonian Institution buildings, is approximately 40 years old. The Smithsonian must completely replace these components and other related electrical equipment because repair parts are no longer available.

The Institution completed a detailed plan for the replacement of building systems at the Natural History Building in fall 1989. The plan spreads the work over a number of years to provide the most cost effective construction sequence, minimize disruption of programs, and obviate Museum closings. The scope of work includes:

- replacing the HVAC system with a new centralized system located in new penthouses over the east and west wings;
- replacing the chiller plant with updated equipment in a new vault beneath the southeast corner of the parking lot;
- modifying the building envelope, specifically by replacing the roof over the wings and installing roof insulation, replacing single-glazed windows in the

wings with double-glazed windows, replacing roof rain leaders, and installing air locks or vestibules at entrances and loading docks;

- centralizing laboratories with new exhaust air systems;
- improving the automatic temperature control system;
- connecting the equipment to a central control and monitoring system.

The project will incorporate remaining fire protection work originally conceived under the Master Plan. Work will also include removing or encapsulating asbestos insulation located in the attics and attached to equipment, ductwork, and piping throughout the building.

Funds appropriated in FY 1986 (\$235,000) supported the Master Implementation Plan and the evaluation of the potential requirements for interim measures to keep the facility operational through the construction period. With amounts of \$100,000 and \$475,000 received in FY 1987 and FY 1988 respectively, the Institution completed planning for the renovation project and began assessing requirements for the relocation of staff and collections affected by the construction. The plan includes a detailed schedule and cost estimate on which to base future budget requests. The Institution is using funds appropriated in FY 1989 (\$1,000,000) and FY 1990 (\$9,950,000) and a portion of the funds anticipated in FY 1991 for design and construction of the new underground chiller plant and detailed design of the penthouses over the east and west wings and roof and window work. The FY 1991 funding will also begin the window restoration and replacement portion of the project; ensure immediate replacement of electrical and HVAC equipment that fails before its scheduled replacement; and plan the relocation of staff and collections that will be displaced during the construction period.

For FY 1992, the Institution requests \$6,900,000 to equip and construct the new penthouses and equip the East Wing penthouse, replace and reinsulate the roof systems over the wings, continue window restoration, and ensure emergency replacement of failed equipment (\$5,500,000); design the next phase of the project (\$900,000); and prepare staff and collections for relocation during the construction (\$500,000).

REPAIRS, RESTORATION, AND CODE COMPLIANCE:

Projects in this category include:

- minor, unscheduled, but essential repairs to sidewalks, roads, parking lots, waterproofing, electrical and lighting systems, plaster walls, and marble floors;
- repairs to facades, roofs, skylights, terraces, and window frames;
- installation of heat and smoke detection systems, sprinkler and chemical suppression systems, fire doors and fire-rated walls, and exit capability improvements;
- improvements to ensure access for the disabled; asbestos abatement, renovations to elevators, correction of exhaust or ventilation problems, installation of emergency electrical generator systems; and security modifications and lighting;

- repairs and energy conservation improvements to HVAC, plumbing, electrical, and communications systems;
- advanced design of future-year projects and long-range planning for repair and restoration of Smithsonian facilities.

For FY 1992, the Smithsonian requests \$21,350,000 for the projects listed below:

General Repairs (\$2,935,000) - Funds requested in this category support a wide variety of projects. These funds provide resources for minor, unscheduled, but essential repairs that the Institution cannot anticipate specifically or that do not fit into one discrete category. For FY 1992, the Institution requests \$2,935,000 for such projects as:

- structural repairs to the pier at the Naos site of the Smithsonian Tropical Research Institute;
- repairs to sidewalks, parking lots, and roads at various locations;
- general repairs to off-Mall facilities;
- emergency repairs required throughout the Smithsonian.

In addition, the funds will allow the completion of several projects begun in previous years. These projects include:

- repair and modification of the public rest room facilities at the Air and Space Building;
- renovation and repair of the Freer Gallery Building to correct electrical and lighting problems and repair or replace badly deteriorated plaster walls and cracked marble floors on the gallery level.

Facade, Roof, and Terrace Repairs (\$3,140,000) - Maintaining the integrity of the exteriors of all Smithsonian buildings is critical. This maintenance will prevent major structural and interior damage and deterioration due to age, water intrusion, and weathering. Proper care will ensure a safe environment for visitors, staff, and collections. In addition, energy conservation demands weather-tight exteriors. Work in this category includes a variety of projects accomplished cyclically and varies with the life of the materials used. For example, roofs need replacing nearly every 20 years; facade joints need recaulking and repointing about every ten years; and window frames and other exterior trim need repainting every five years. Several Smithsonian buildings now require large-scale restoration. The Institution plans to offer additional protection for building exteriors through an enhanced preventive maintenance and repair program.

For FY 1992, the Institution requests \$3,140,000 for facade, roof, and terrace repairs. Planned projects include roof inspection, repair, or replacement at the Natural History Building, the Hirshhorn Building, and at the Silver Hill Facility, and skylight replacement at the Freer Gallery Building. Work will continue at the Smithsonian Institution Building to restore the facade stones. Other projects funded from this subaccount include:

- waterproofing the planter boxes at the Air and Space Building to correct water infiltration into basement areas;
- repairing the deteriorated caulking in the facade joints of the Museum Support Center;
- dismantling the statue above the entry to the Arts and Industries Building to determine the cost of required restoration;
- repairing and painting wooden and metal facades and building elements at a variety of locations.

Fire Detection and Suppression Projects (\$1,560,000) - A major Institutional priority is to provide the best fire protection and safety measures available under today's standards and with state-of-the-art technology. Every major Smithsonian facility has a fire protection master plan. For FY 1992, the request of \$1,560,000 will continue fire protection master plan work in the Air and Space, American Art and Portrait Gallery, Cooper-Hewitt, and Hirshhorn buildings. The Institution will also make fire protection improvements at the Natural History, American History, and Arts and Industries Buildings, at the Research Branch of the Museum of the American Indian, the Museum Support Center, and various locations at the Smithsonian Tropical Research Institute. Work will include the installation of heat and smoke detection systems, sprinkler and chemical suppression systems, fire doors and walls, and the improvement of exit capability.

Access, Safety, and Security Projects (\$4,225,000) - The Institution continues to emphasize providing better access for disabled persons, improving environmental conditions for the health and safety of visitors and staff, and correcting facility conditions that threaten the security of the National Collections.

For FY 1992, the Institution requests \$4,225,000 for a number of important projects in these areas. Among the projects planned for correction of hazardous conditions are:

- continuing the asbestos abatement program;
- inspecting and renovating elevators at the Natural History Building and the Research Branch of the new Museum of the American Indian, to ensure safe operation;
- repair of the exterior emergency doors at the American History Building to provide safe egress routes in the event of evacuation;
- installing emergency power or lighting systems in various facilities, including the Smithsonian Environmental Research Center, the Smithsonian Tropical Research Institute, and the Research Branch of the Museum of the American Indian, to maintain safety during power outages;
- correcting exhaust and ventilation problems in the Natural History and American Art and Portrait Gallery buildings and the Museum Support Center;
- installing explosion-proof fixtures in a chemical storage room at the Museum Support Center.

The Smithsonian will begin a multi-year project to correct a number of deficiencies that impede accessibility to the public spaces and amenities by handicapped persons. The work will include improving entry by wheelchair at the Natural History and American Art and Portrait Gallery buildings, eliminating obstructions and overhead hazards, correcting elevator deficiencies, changing placement of drinking fountains, improving emergency warning systems, and providing seating space for wheelchair users and listening systems for the hearing impaired.

Projects for FY 1992 to improve security of the collections, staff, and visitors include:

- expanding the security system at the Smithsonian Astrophysical Observatory in Arizona;
- improving illumination around buildings and in parking lots on the Mall, at the American Art and Portrait Gallery Building, the Environmental Research Center, and the Museum Support Center for more effective surveillance.

Utility Systems Repairs (\$7,350,000) - Funds in this category will maintain, repair, and upgrade the heating, ventilating, and air conditioning systems, and plumbing, electrical, and communications systems throughout the Institution's facilities. Ongoing renovations, repairs, and replacements of deteriorated equipment components are essential for ensuring reliable and energy-efficient operation of utility systems. The long-term preservation of the National Collections is dependent upon stable temperature and humidity conditions.

Energy conservation remains a high priority at the Smithsonian. The most significant energy savings will result from upgrading HVAC systems, replacing obsolete equipment, and improving the efficiency of environmental zones. The Institution modifies existing HVAC systems to accommodate programmatic growth, changes in the use of buildings, and the environmental needs of collections as they become better understood. The Institution uses an integrated approach to renovations and modifications to plan for long-range, systematic HVAC improvements that will meet museum environmental requirements in an energy-efficient manner.

Comprehensive HVAC studies and energy audits for most of the buildings facilitate planning of other improvements. The scope of HVAC studies includes field investigations of age, condition, efficiency, and performance of existing equipment, controls, and current operating conditions; reviews of existing drawings, specifications, operating manuals, and hygrothermograph records; analyses of the relationship between the building structures and HVAC systems; and assessments of programmatic needs for environmental control. The data gathered by these studies provide a basis for determining redesign or replacement needs of existing HVAC systems; developing construction cost estimates; identifying favorable payback opportunities; and establishing priorities for the repair, replacement, or modification of such equipment components as air-handling units, chillers, condensers, compressors, cooling towers, automatic temperature and humidity controls, pumps, pipes, fans, filters, ductwork, and related electrical and plumbing systems. At the same time, energy audits investigate all factors relating to energy use, such as power-consuming equipment and building conditions (doors, windows, insulation, floors, and partitions). After identification of energy conservation opportunities and evaluation of costs and potential energy savings, plans will guide the renovation and improvement work. This process identified a number of major system replacements that the Major Capital Renewal

subaccount will fund in addition to minor repairs and renovations requested in the Utility Systems Repairs category.

Funding of \$7,350,000 requested in FY 1992 in this category will support routine repair, replacement, and modification projects. These projects include:

- replacing the transformer supervisory system serving most of the museums on the Mall and installing a transformer network system at the Air and Space Building to improve reliability of electrical service;
- continuing miscellaneous HVAC repairs at the Hirshhorn Building;
- replacing the cooling towers at the Air and Space Building;
- repairing utility systems at the Cooper-Hewitt Museum, including plumbing repairs at the McAlpin-Miller House, boiler replacement at the Fox House, and energy study implementation at the Carnegie Mansion;
- replacing the electrical switchgear and cleaning the ducts at the American History Building;
- repairing the electrical system and improving air and water distribution systems at the Research Branch of the Museum of the American Indian.

Several planned utility improvement projects include continuing code compliance and energy conservation measures at the Renwick Gallery and the Arts and Industries buildings, installing state-of-the-art automated controls on HVAC equipment, replacing electrical wiring and junction boxes at the Natural History Building, and upgrading the electrical transformers at the Barro Colorado and Frijoles sites at the Smithsonian Tropical Research Institute.

Advanced Planning and Inspection (\$2,140,000) - Funds in this category support projects to identify and analyze long-range repair and restoration needs and to design future-year projects in advance of funding requests. Detailed design will provide more accurate cost estimates with which to plan repair strategies and identify budget requirements. The Institution will realize significant cost savings in escalation costs if actual construction can begin as soon as resources are appropriated. In addition, needed repairs will be made much sooner, thus preventing further deterioration and ensuring faster compliance with codes. The amount of \$2,140,000 requested in FY 1992 will allow the Smithsonian to design a greater number of projects in the backlog of essential maintenance and repair. Funds requested for FY 1992 will also continue development of an integrated master plan and electronic data base for all facilities, which will assist in managing the Institution's extensive physical plant and maintaining effective strategic planning. The significant increase in funding in this category over previous years reflects the Institution's commitment to eliminating the backlog more quickly by improving planning and cost estimating and reducing costs in the R&R program.

REPAIR AND RESTORATION OF BUILDINGS  
Detail of FY 1992 Request by Building

FACILITY, ACCOUNT, AND PROJECT TITLE	SUBCATEGORY	ESTIMATED COST
<u>Air and Space Building</u>		
REPAIRS, RESTORATION, AND CODE COMPLIANCE		
Public Rest Room Modifications	General	330,000
Planter Box Waterproofing	Facade	500,000
Fire Protection Master Plan Implementation	Fire	300,000
Electrical Reliability Improvements	Utility	1,750,000
Miscellaneous HVAC Improvements	Utility	<u>1,300,000</u>
TOTAL FOR FACILITY		\$ 4,180,000
<u>American Art and Portrait Gallery Building</u>		
REPAIRS, RESTORATION, AND CODE COMPLIANCE		
Fire Protection Improvements	Fire	50,000
Exhaust System Modifications	Access	100,000
Exterior Building Lighting	Access	<u>100,000</u>
TOTAL FOR FACILITY		\$ 250,000
<u>American History Building</u>		
MAJOR CAPITAL RENEWAL		
Master Coordination Plan, Phase IVb		
Construction		5,800,000
Relocation		400,000
Basement HVAC Improvements		
Design		250,000
Relocation		<u>300,000</u>
SUBTOTAL		\$ 6,750,000
REPAIRS, RESTORATION, AND CODE COMPLIANCE		
Panic Hardware Installation	Fire	25,000
Exterior Doors Repair	Access	25,000
HVAC Duct Cleaning	Utility	300,000
Electrical Switchgear Replacement	Utility	<u>1,000,000</u>
SUBTOTAL		\$ 1,350,000
TOTAL FOR FACILITY		\$ 8,100,000
<u>American Indian Museum, Research Branch</u>		
REPAIRS, RESTORATION, AND CODE COMPLIANCE		
General Repairs	General	50,000
Fire Protection Modifications	Fire	30,000
New Doors and Partitions	Fire	35,000
Emergency Lighting System	Access	15,000
Elevator Repair	Access	10,000
Miscellaneous Electrical Repairs	Utility	45,000
Ductwork Modifications	Utility	15,000
Water System Upgrade	Utility	<u>15,000</u>
TOTAL FOR FACILITY		\$ 215,000



Natural History Building

MAJOR CAPITAL RENEWAL

Master Plan Improvements		5,500,000
Design		900,000
Relocation		<u>500,000</u>
SUBTOTAL		\$ 6,900,000

REPAIRS, RESTORATION, AND CODE COMPLIANCE

Roof Repair	Facade	300,000
Chiller Plant Fire Protection Modifications	Fire	200,000
Elevator Repairs	Access	95,000
Vertebrate/Paleo Prep Lab Ventilation	Access	120,000
Miscellaneous Electrical Repair	Utility	<u>160,000</u>
SUBTOTAL		\$ 875,000

TOTAL FOR FACILITY \$ 7,775,000

Renwick Gallery Building

REPAIRS, RESTORATION, AND CODE COMPLIANCE

Energy Study Implementation	Utility	<u>350,000</u>
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TOTAL FOR FACILITY \$ 350,000

Silver Hill Facility

REPAIRS, RESTORATION, AND CODE COMPLIANCE

General Repairs, All Buildings and Grounds	General	200,000
Road Repairs	General	150,000
Roof Repairs	Facade	<u>100,000</u>

TOTAL FOR FACILITY \$ 450,000

Smithsonian Astrophysical Observatory

REPAIRS, RESTORATION, AND CODE COMPLIANCE

Road Repairs and Improvements	General	525,000
General Repairs, Whipple	General	160,000
General Repairs, Oak Ridge	General	15,000
General Repairs, Cambridge	General	25,000
Security System, Whipple	Access	<u>10,000</u>

TOTAL FOR FACILITY \$ 735,000

Smithsonian Environmental Research Center

REPAIRS, RESTORATION, AND CODE COMPLIANCE

General Repairs	General	100,000
Security Lighting, Mathias Building	Access	25,000
Emergency Power Study Implementation	Access	<u>275,000</u>

TOTAL FOR FACILITY \$ 400,000

Smithsonian Institution Building

REPAIRS, RESTORATION, AND CODE COMPLIANCE

Facade Restoration (Masonry)	Facade	50,000
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TOTAL FOR FACILITY \$ 50,000

Smithsonian Tropical Research Institute

REPAIRS, RESTORATION, AND CODE COMPLIANCE

General Repairs	General	150,000
Pier Structural Repairs, Naos	General	85,000
Fire Protection, Various Sites	Fire	255,000
Emerg. Power, Elec. Generator, Tivoli	Access	400,000
Transformer Replacement, BCI and Frijoles	Utility	<u>60,000</u>
TOTAL FOR FACILITY		\$ 950,000

Miscellaneous Locations

REPAIRS, RESTORATION, AND CODE COMPLIANCE

Grounds, Sidewalk, and Parking Lot Repairs	General	100,000
Emergency Repairs	General	200,000
General Facade Renovations	Facade	200,000
Asbestos Abatement	Access	1,000,000
Emergency Power Study Implementation	Access	400,000
Security Lighting, Mall Buildings	Access	450,000
Institution-Wide Accessibility Master Plan	Access	500,000
HVAC Controls Upgrade	Utility	200,000
Transformer Supervisory System Replacement	Utility	500,000
Advanced Planning and Design	AdvPlan	1,890,000
Combined Master Plan for All Facilities	AdvPlan	<u>250,000</u>
TOTAL MISCELLANEOUS		\$ 5,690,000

TOTAL REQUEST, REPAIR AND RESTORATION OF BUILDINGS \$35,000,000







CONSTRUCTION

1990 Appropriation.....	\$ 8,320,000
1991 Estimate.....	\$16,189,000
1992 Estimate.....	\$83,450,000

The FY 1992 request for funding in the Construction account represents a significant investment in the Institution's long-range program goals. The Institution has a growing backlog of requirements for physical plant expansion and modification to support existing and future program requirements. The Smithsonian staff has assembled these needs into a comprehensive long-range capital improvement program that will phase solutions to these needs over the next decade. The FY 1992 Construction request will address the most urgent components of this program. Funding of these projects is essential to maintain vitality in the Institution's far-reaching programs of research, collections management, public exhibitions and education, and other services.

This year's Construction request is as follows:

MAJOR CONSTRUCTION	
Air and Space Museum Extension	\$ 8,000,000
General Post Office Building Renovation	1,750,000
National Museum of the American Indian	39,750,000
Natural History East Court Building	23,500,000
Smithsonian Tropical Research Institute	
Tivoli Maintenance Facility	1,950,000
Suitland Collections Research Center	<u>500,000</u>
Subtotal	\$75,450,000
CONSTRUCTION PLANNING	1,500,000
MINOR CONSTRUCTION, ALTERATIONS, AND MODIFICATIONS	<u>6,500,000</u>
TOTAL	\$83,450,000

MAJOR CONSTRUCTION:

Air and Space Museum Extension (\$8,000,000) - The National Museum Amendments Act of 1965 directs the National Air and Space Museum to "collect, preserve, and display aeronautical and space flight equipment of historical interest and significance." In keeping with the Smithsonian's general mandate, the Museum conducts collections-related research and interprets the significance of new scientific discoveries and successive waves of technological advance associated with aviation and space flight.

The National Air and Space Museum (NASM) currently faces a critical shortage of facilities that threatens to cripple its basic collecting program. In the 42 years of its existence, the Museum has brought together the most significant collection of aircraft and spacecraft in the world. The Museum exhibits and stores its collection of aircraft and spacecraft and related artifacts in the Mall building and at the Paul E. Garber Facility in Suitland, Maryland. These buildings are filled to capacity, despite deliberate steps to limit the growth of the collection. A number of significant items can now only

be accommodated outside, where they are constantly subjected to the highly destructive effects of acid rain and other environmental elements. The enormous size of contemporary aircraft and spacecraft also prohibits the Museum from adding important artifacts to its collections. A number of aircraft that belong in the collections cannot be stored at either site because it is physically impossible to transport them from the airfield to which they are delivered, even if dismantled. The Museum's extensive program of lending aircraft and spacecraft to other museums in the United States and abroad has helped relieve this problem, but the Institution risks interrupting the continuity of its collections if appropriate space for storage of significant larger artifacts is not found.

The advanced age and deteriorated condition of the Suitland buildings also jeopardizes long-term preservation of the Museum's existing collection. The Garber Facility includes approximately 23 temporary metal structures, many of which date from the late 1940s and early 1950s. A recent building survey completed as part of the Suitland Master Plan estimated the future life span of most of these buildings as between ten and 15 years. Furthermore, most of the buildings do not provide the controlled climatic conditions necessary for preservation of fragile museum materials.

In addition to storage problems, artifact size has dictated exhibit limitations as well. The Museum cannot display a number of significant aircraft and spacecraft now in its collections because they are too big and too heavy for the Mall building. These include the Boeing 367-80 (prototype for the 707), Vought XF8U Crusader, Saturn V launch vehicle, Boeing Flying Fortress, Sikorsky S-43 Flying Boat, B-29 Enola Gay, the space orbiter Enterprise, and the newly acquired SR-71 Black Bird. The need to provide current interpretation on the significance of advances in aerospace technology is a critical requirement for the Museum. Present exhibitions are largely unable to focus on the tremendous social impact of aviation and space flight or the policy implications that human advances in space hold for the future, largely because of space constraints.

An Air and Space Museum Extension at or near an airport in the Washington area would best meet the physical requirements for storage and exhibition of contemporary aircraft and spacecraft. Such an extension, located and constructed to accommodate large-scale artifacts, would provide the context for communicating the complex themes of social, environmental, and policy change that have been ushered in by their use. In FY 1990, the Smithsonian selected a site at the Dulles International Airport for the proposed Extension to NASM. The selection was based in part on a comparison of logistical and physical characteristics of the potential sites, including:

- proximity to an active runway;
- flexibility in building configuration and space for future expansion;
- adequacy of existing and projected transportation networks for visitor access and artifact movement;
- compatibility with and noninterference from existing airport operations and absence of vibration, noise, and fumes (from aircraft and vehicular traffic);
- potential numbers of visitors that might be attracted;
- geological configuration and subsurface conditions;

-- availability of utilities and vital support services, such as police and fire departments.

Another determining factor was the level of state and local support in terms of site and access improvements and assistance in financing the construction of the Extension. The offer from the Commonwealth of Virginia includes site work and utilities estimated at \$26.2 million; up to \$6 million in general funds for construction of the building; a \$3 million interest-free loan for planning and design; and major highway improvements to facilitate public access to the site.

The Smithsonian expects to complete the proposed Extension in several phases, starting with a component that will meet the Museum's most pressing collections storage and exhibition needs. Of the \$162 million total estimated cost for Phase I, approximately two-thirds (\$107 million) will come from Federal appropriations and the balance (\$55 million) from fundraising and state support. Congress is currently considering legislation authorizing the Institution to plan and design the Air and Space Museum Extension, with appropriations of \$9,000,000 for design. The Institution is using FY 1990 and FY 1991 Construction Planning funds for further planning of the Extension. In FY 1992, the Institution requests \$8,000,000 to design the initial phase of the Extension project. The Commonwealth of Virginia will supplement this amount with \$1,000,000 to complete the design. While not reflecting the anticipated 2:1 split of appropriated versus nonappropriated funding (including site work performed by Virginia), this plan for completion of design with largely appropriated funds will allow the Institution to initiate the fund-raising campaign to secure the balance of construction funding. The Institution will match appropriated funds for the first phase of the project 2:1 with nonappropriated funding.

General Post Office Building (\$1,750,000) - The General Post Office Building is bounded by 7th, 8th, E, and F streets in Northwest Washington, D.C. Its original wing (on the E Street side of the building) is the work of America's first native-born professional architect, Robert Mills of South Carolina. Mills also designed the Patent Office Building, the original plan for the Washington Monument, and the Treasury Building. The General Post Office Building is the fifth oldest public building in Washington and has never been renovated or restored. The building's fine architectural detailing, however, is for the most part still intact and unchanged from the original and thus warrants full restoration. The Pennsylvania Avenue Development Corporation, within whose area the building lies, supports the timely, well-executed renovation of this significant building, as do the Government of the District of Columbia and the National Capital Planning Commission.

On October 19, 1984, the President signed Public Law 98-523 authorizing transfer of the General Post Office Building from the General Services Administration to the Smithsonian Institution without reimbursement. The legislation also authorized appropriations of up to \$40 million to the Institution for the renovation of the building. The General Services Administration is currently using the building for temporary housing of a number of Federal agencies. Custodianship of the building will transfer to the Smithsonian when renovations funding is available.

The Institution is concerned about the long-term preservation of this historic landmark and plans a comprehensive program of restoration and repairs to make the building usable for Smithsonian activities directed at scholarship in the field of American art. Drawing upon the resources of the National Museum of American Art, the National Portrait

Gallery, and the Archives of American Art, the Institution can utilize a renovated facility to advance understanding of the unique contribution the arts and culture of America have made to the world and draw comparisons between America's diverse cultural traditions and those from other nations. The Institution will complete the plans for the building's use in 1991 and will use \$1,750,000 requested for FY 1992 to begin design of the restoration.

Most of the building systems are in very poor condition. Asbestos insulation encases exposed plumbing in almost every space. Because the drinking water is unsafe, occupants must use bottled water. Other conditions include:

- an overloaded electrical system that is in poor condition and is a potential fire hazard;
- an unreliable steam heating system with corroded and heat-leaking exchanger tanks;
- deteriorated pumps and other mechanical equipment;
- window air conditioners, in various states of repair;
- very old, unreliable central air conditioning units that only serve limited areas of the building.

The building has no fire safety systems, such as water sprinklers and smoke detectors, and the existing fire alarm system consists of old, unreliable pull stations. One of the building's two small passenger elevators is automatic and reportedly has several deficiencies, and the other requires an operator. Both are very old and reportedly subject to frequent breakdowns. Recent roof repairs did not replace the rain gutters and interior downspouts, and these are subject to intermittent failure, causing leaks in the building. Window frames have dry rot, and the poor condition of the exterior stone facade exacerbates interior water problems. The basement area of the building is substantially uncovered earth, admitting moisture and rodents. The interior courtyard, a paved parking area over a wooden structure, may be structurally unsound. Major restoration is necessary to arrest deterioration and to make the building safe for continued occupancy.

The Institution proposes a comprehensive program to preserve the historic nature of the building, to bring it up to code, and to adapt it for Smithsonian use. The planned work includes:

- repairing the stone facade;
- replacing rain gutters and interior downspouts and repairing interior water intrusion damage;
- restoring all original interior and exterior architectural finishes;
- restoring or replacing all windows;
- repairing all electrical and plumbing systems;

- providing new insulation, a vapor barrier where necessary, and a heating and air conditioning system with industrial quality controls;
- installing smoke detection and sprinkler systems along with security equipment;
- sealing and finishing the dirt areas of the basement to contemporary code standards;
- rebuilding and replacing elevators.

The proposed renovations will preserve the building for future generations and will provide an energy-efficient, safe, and secure environment for collections, staff, and visitors. Although Congress authorized \$40 million for building renovation in 1984, the Institution currently estimates that the total cost of the project will exceed this amount. The Institution will use the \$1,750,000 requested for FY 1992 for the initial design phase, which will provide a detailed cost estimate for full renovation of the building. The Smithsonian will request funds in subsequent years to complete design and most of the required renovations within the present authorization.

Postponement of this project will increase the risk of irreparable damage or deterioration of the building. Moreover, each year additional deterioration increases the cost of renovation and repairs. Inflation contributes to higher costs as well. Failure to make the most urgent improvements will prevent the Smithsonian from making full use of the building. Under current plans for funding the design phase in FY 1992 and initiating construction in FY 1993, it will be 1995 before the renovation is complete. Continued delay will adversely affect the Institution's ability to conduct core programs in American art (presently housed in inadequate facilities in the Patent Office Building) for the benefit of the public and future generations of citizens concerned with America's diverse culture.

National Museum of the American Indian (\$39,750,000) - On November 28, 1989, President Bush approved Public Law 101-185 establishing the National Museum of the American Indian. The basis of the new museum is the Heye Foundation Collection, which includes more than one million Native-American objects and artifacts from all parts of the Western Hemisphere. The New York State Supreme Court approved the transfer of the Foundation's collection to the care and custody of the Smithsonian, effective June 24, 1990. The agreement between the Smithsonian Institution and the Museum of the American Indian, Heye Foundation, signed in May 1989 also provides for transfer of the Foundation's endowment and most of its other property, including an 86,000-item archives.

The creation of this new national Museum is the culmination of almost a decade of negotiations between the Foundation, the City and the State of New York, and, more recently, the Smithsonian Institution. When the new Museum is completed in the late 1990s, it will stand as a tribute to the many and varied contributions of American Indians, Eskimos, Aleuts, Native Hawaiians, and other Native-American cultures. In Congressional testimony describing the prospective of the Museum, Secretary Robert McC. Adams said, "It is likely to alter beyond all expectation public understanding of American Indian people."

Public Law 101-185 authorizes the Institution to provide facilities for the Museum in three locations:

- a major museum building to be constructed on the Mall in Washington, D.C., on land reserved for Smithsonian use by Congress in 1975;
- an exhibition and education facility located in a portion of the Old United States Custom House in lower Manhattan, to be known as the George Gustav Heye Center;
- a collections storage, conservation, and research facility on the site of the Museum Support Center in Suitland, Maryland.

The Institution anticipates four major sources of funding for construction of these facilities: New York City, the State of New York, Federal appropriations, and private donations. The Institution received an appropriation in FY 1990 for programming and planning all three facilities and for design of the Custom House conversion. For FY 1991, the Smithsonian anticipates \$8,130,000 to prepare the Custom House space, to begin design of the Suitland building, to continue planning for the Mall museum, and to complete planning and programming for the new Museum as a whole. The Smithsonian requests a total of \$39,750,000 for FY 1992 to continue development of these facilities. The details of this request are as follows:

The Museum on the Mall - The Institution will construct a new building on the National Mall near the foot of Capitol Hill, adjacent to the world's most frequently visited museums. Congress reserved the last remaining construction site on the Mall for the Smithsonian in 1975. The location will provide excellent exposure for Native-American artifacts and related museum activities centered on Native-American culture. The Institution expects that this facility will house permanent and changing exhibitions, reference and collection areas, an auditorium and theater, museum shops, public education facilities, and space for research and other programs.

The Institution projects the total cost of construction of the Mall building to be in the neighborhood of \$106 million, assuming a construction start in 1994. The Smithsonian plans to fund two-thirds of the cost from Federal sources and expects that the balance will result from a national fund-raising campaign. Initial planning efforts will define the program requirements and refine the construction and equipment estimate as well as relevant logistical and operating requirements and costs. With \$720,000 received in FY 1990, the Institution will begin overall programming and planning for the new Museum as well as detailed planning for the Mall museum building. Funds anticipated in FY 1991 (\$430,000) will complete programming for the Museum as a whole and continue preliminary planning of the Mall building. The Institution requests \$7,350,000 in FY 1992 to complete planning and design. The current schedule calls for completion of the building in FY 1997 and its public opening in 1998.

The Old United States Custom House, New York City - The Institution will convert space in the Old United States Custom House in lower Manhattan, to house an extension of the National Museum of the American Indian. The New York facility, to be named in memory of George Gustav Heye, will contain space for exhibitions, education, and other public service programs. The Institution projects the cost of preparing portions of the U.S. Custom House for museum use to be approximately \$25 million. The State of New York and New York City have each pledged to contribute one-third of the cost, or up to \$8 million each, toward construction of the George Gustav Heye Center. The Institution received \$600,000 in FY 1990 for planning and design of the Custom House facility and expects \$6,700,000 in FY 1991 for construction. This plan assumes the application of the 2:1 match

of funds provided by New York City and the State to those obtained by the Institution for each stage of the design and construction process. The Institution requests \$1,700,000 in FY 1992 to furnish and equip the Center. The current schedule calls for an inaugural exhibition at this facility in FY 1992 and a full opening in FY 1994.

The Suitland Building - The Institution plans to construct a facility adjacent to the Museum Support Center to provide for proper housing and study for the former Heye Foundation Collection. This building will locate this extensive collection of Indian artifacts near the Indian artifacts from the National Museum of Natural History, thus consolidating resources for conservation, preservation, and collections-related research activities. The Institution currently expects the storage facility to cost approximately \$44 million to design, build, and equip, based on a construction start in 1992. The Smithsonian will use \$300,000 appropriated in FY 1990 for preliminary planning purposes. This planning will identify a specific site and building configuration, provide details such as geotechnical data, and help refine construction cost estimates and schedules. The amount of \$1,000,000 anticipated in FY 1991 will permit initial design of the building. The Smithsonian requests \$30,700,000 in FY 1992 for design completion (\$1,000,000) and construction (\$29,700,000). The Institution will include funds to equip the building in a future-year request. Upon completion of the building in FY 1995, the Institution will relocate the Heye Foundation Collection from its New York storage site.

Natural History East Court Building (\$23,500,000) - The Natural History Building on the Mall houses more than 1,200 employees of the Smithsonian Institution and several government agencies, including 159 scientists and their associated staff. Each year these individuals, along with more than 2,000 visiting scientists, conduct basic collections-related research in a broad range of subjects critically important in advancing scientific knowledge and understanding natural phenomena. In addition to the large force of scientific staff and other personnel, the building also houses substantial collections, numbering well over 100 million biological specimens and anthropological artifacts, and 30 public exhibition halls with associated educational and outreach activities. A number of other Smithsonian organizations also occupy the building, including the Smithsonian Institution Libraries and the Office of Plant Services.

The National Museum of Natural History (NMNH) faces two significant challenges regarding space for the immediate future: accommodating a total building renovation of the heating, ventilating, and air conditioning (HVAC) system, and relieving severe overcrowding. The Museum proposes to meet these two challenges by constructing a building inside the Natural History Building's East Courtyard.

In the immediate years ahead, the Museum must deal with a complete renovation of the Natural History Building's aging HVAC system. This project, funded from the Repair and Restoration of Buildings account, will also include asbestos removal, window replacement throughout the building, and some work on fire protection and security systems. This project will affect all operations of the Museum during the seven to ten years it will take to complete. Large portions of the collections will be moved back and forth. Entire exhibition spaces will be closed to the public and reopened. Most staff members and virtually every activity will have to relocate temporarily. Given the extent and duration of the HVAC renovation, the Institution seeks to minimize disruption, particularly of the Museum's scientific productivity and public programs. The decade of the 1990s is a crucial one for the Museum's scientific enterprise because of the growing concerns about the loss of biodiversity and the issues relating to global environmental change.

The second major challenge is severe overcrowding of staff and activities. During the past 25 years, the Museum has responded to challenges facing the scientific community at large, such as the rapid destruction of the diversity of life in the tropics and the need to address global change. To meet these challenges, the Museum has increased its efforts and enlarged both its programs and staff. Authorized positions have increased from 331 in 1972 to 561 in 1990, a net increase of 230 full-time permanent employees. As a consequence, the Museum has divided and subdivided and closed offices, laboratories, and collection spaces; and closed four large exhibit halls indefinitely to accommodate staff space needs. NMNH is using two halls as staging areas to prepare collections for transfer to the Museum Support Center (MSC) in Suitland. Even when the Museum completes collections transfer, however, there will not be enough space available to accommodate all the staff functions in the Natural History Building or to house under adequate conditions the Museum's diverse programs.

To meet its challenges regarding space, the Museum considered several alternatives. To accommodate temporary relocations for the HVAC renovation, the Museum must find substantial temporary space, either off-site or on-site. Off-site leased space would not provide adequate conditions and facilities without being prohibitively expensive in direct costs and in the toll the move would take on the academic and public life of the Museum. On-site relocation, requiring 125,000 square feet of staging space under the optimum seven-year plan for renovating the HVAC system, would close down a major portion of the public exhibition space and have a strongly negative impact on the visiting public.

After weighing its options, the Museum settled on the East Court Building proposal to resolve both these space problems. The new East Court in-fill building will interconnect directly with the existing building and ultimately become an integral part of the Natural History Building.

During the HVAC renovation project, the East Court Building will provide approximately 80,000 net square feet of relocation staging space for offices, laboratories, and collections. Although this amount falls short of the estimated need, the Museum can manage the necessary relocations by temporarily compressing some of the activities and collections within the Natural History Building and by using a limited amount of exhibition space for the duration. At the end of the HVAC construction period, the Museum will have 80,000 square feet of permanent space to accommodate currently overcrowded research laboratories, offices, collection areas, and public exhibit, education, and other outreach and Institution support activities.

The preliminary cost estimate for the East Court Building is \$25 million. This estimate includes the cost of relocating the greenhouse, osteology preparation laboratory, and building trades shops now located in buildings presently in the East Courtyard. The estimate for furnishing and equipping costs is an additional \$5,000,000. The Senate has passed legislation authorizing the Institution to construct the new building and authorizing appropriations totaling \$30,000,000. Similar legislation is pending in the House. The Institution expects completed action before the end of the current session.

The Institution will complete the necessary planning for the new building during FY 1990 using Construction Planning funds. The planning process will identify the program elements to be included, develop specific space and configuration requirements, and provide a more precise cost estimate and construction schedule. The amount of \$1.5 million anticipated in FY 1991 will design the new building. The Smithsonian requests \$23,500,000 in FY 1992 for construction. This funding will allow the Institution to proceed with its

plans to renovate the Natural History Building and at the same time provide valuable permanent space for the Museum's programs. Funds to equip the building will be included in a future-year request.

Smithsonian Tropical Research Institute (\$1,950,000) - The Smithsonian Tropical Research Institute (STRI) is the world's premier center for basic research in tropical biology. During the past decade STRI has implemented a Master Facilities Plan to replace or upgrade its old facilities, some dating from the turn of the century. Many of these buildings were not constructed for research purposes and are inefficient and in some instances unsafe. The upgrading of these facilities is a prerequisite for STRI to fulfill its responsibilities to the Nation.

Research at STRI is unique because of its accessibility to a variety of tropical habitats and its ability to examine long-term environmental impacts on animal and plant populations. Its two-ocean capability also allows for interesting evolutionary studies in a marine environment.

Through consistent support for the STRI Facilities Master Plan, Congress has recognized the importance of STRI's programs and the need for improvement in its facilities. In 1986, the Smithsonian received Congressional authorization under Public Law 99-423 to plan and construct additional research and dormitory facilities at various STRI sites in Panama. Subsequent appropriations have allowed the Institution to begin construction of several of these new facilities. The Earl S. Tupper Laboratory and Conference Center is now complete, and new laboratory facilities on Barro Colorado Island are under construction.

The final major project outlined in the Facilities Master Plan is construction of a new maintenance facility at the Tivoli site in Panama City. With the construction of new facilities, STRI has more than doubled its previous square footage. A new modern maintenance facility will allow continuation of adequate levels of maintenance support for STRI's physical plant and its fleet of vehicles and boats.

The current maintenance shop, which serves all STRI sites throughout the Isthmus, is located on the ground floor of Building 359 on Naos Island, Fort Amador. Marine research laboratories and offices are located directly above the shop. High noise levels, vibration, dust, and traffic associated with normal shop operations are disruptive to sensitive experiments. Occasional extra loads on the electrical power in the shop have caused computer malfunctions in the laboratories upstairs. The distance from STRI's main center of operations, at Tivoli, is also a significant obstacle. STRI must transport shop personnel, supplies, and materials to the site daily. The remote location delays response to emergency situations, especially during nonduty hours, as public transportation is not available. In addition, the space now occupied by the maintenance shop is needed as laboratory space for the expanded marine sciences research program. Since space adjacent to the ocean is limited, this space is critical to the continued success of that program.

The Institution requests \$1,950,000 in FY 1992 to construct a new maintenance facility near the newly completed Tupper Laboratory and Conference Center. Because of its central location and proximity to suppliers, the Tivoli site is more appropriate for this operation. Modern shop facilities will provide much-needed capability to service STRI's expanded physical plant and its research vehicles and boats.

Suitland Collections Research Center (\$500,000) - A vital component of the Smithsonian's mission is collecting, studying, and preserving significant artifacts that document human and natural history and reflect human achievements in the arts and sciences. The Institution has for a number of years experienced a severe shortage of space in which to store, document, research, and conserve its collections.

The Museum Support Center (MSC), which opened in 1983, and a proposed Extension to the National Air and Space Museum at Dulles International Airport will provide space to solve the most immediate storage needs for natural history and aerospace collections. However, the Institution urgently needs space to ensure the continued preservation of the collections and the vitality of the collection-based research and collections management programs of other Smithsonian museums and bureaus. Present conditions endanger long-term preservation of the collections, limit access by research staff and scholars, and inhibit the orderly acquisition of significant additions to the collections. The Institution has made concerted efforts to limit the growth of collections by carefully screening offers of donation, deaccessioning marginal items collected in the past, and encouraging extensive loan programs. Despite these efforts, the Smithsonian's collections have of necessity continued to expand.

The Institution has documented its immediate and long-term needs for additional space to house growing collections in history and art as well as important archival and library collections. Based on the initial phase of the Suitland Master Plan, the Institution will require approximately 2.8 million square feet of new collections management, conservation and research support space over the next two decades.

The space problem is exacerbated by the age and condition of the present storage buildings at the Smithsonian's facility in Suitland, Maryland. Among the structures at Suitland are temporary metal buildings that provide approximately 115,000 square feet of storage space for the National Museum of American History (NMAH). Most of these buildings have a remaining life expectancy of less than ten to 15 years. Since half of NMAH's collections, exclusive of stamps and coins, reside there, it is essential to have facilities ready in the next decade to ensure that the National Collections have proper housing. Other Smithsonian museums, as well as archival and library bureaus, are also experiencing serious shortages of appropriate collections storage space. Space in Mall museums is already severely overcrowded, and several museums and bureaus have moved collections into leased space in off-Mall locations to avoid damage and deterioration of artifacts from excessive compression. However, many of these locations, including most of the Suitland buildings, do not provide the environmental conditions necessary for long-term preservation of collections.

A recently completed study determined that buildable land is available on the Smithsonian's Museum Support Center property in Suitland, Maryland, to accommodate the identified requirements. Space will also be available on adjacent land, once the Paul E. Garber Facility is dismantled, that could provide three to five million additional square feet of space for future growth of the National Collections and support services well into the next century.

The Smithsonian plans to sequence construction of a new Collections Research Center on the MSC site at Suitland over the next 10 to 20 years. The Institution will contract in late 1990 for the final phase of the Suitland Master Plan, using Construction Planning funds. The study will determine the appropriate placement of structures, roads, infrastructure, and landscaping that will form an integrated complex of buildings and

services to support management of and research in the National Collections. The location of bureaus and their functions on the site, as well as a construction-phasing plan and an environmental analysis, are also part of the study.

For FY 1992, the Institution requests \$500,000 to carry the planning process into the next stage. This planning will develop more specific program and facility requirements, refine estimates and schedules for construction, identify and analyze logistical issues, and establish operating cost estimates for the initial structure or structures on the site. This detailed level of planning is essential and must precede a request for authorization and funding of construction.

CONSTRUCTION PLANNING - An essential part of an effective facilities development program is the ability to assess requirements and make detailed long-range plans. A comprehensive long-range planning program identifies major issues affecting each expansion project, including program needs, spatial ideas, operating logistics and costs, and preliminary construction cost estimates. The Institution initiated an improved long-range planning capability with funds received in FY 1989. Staff will continue planning future projects with Construction Planning funds received in FY 1990 and anticipated for FY 1991.

For FY 1992, the Smithsonian requests \$1,500,000 to continue development of a comprehensive long-range capital improvement program. This planning process will result in better-defined plans for future-year construction projects prior to authorization and budget requests. The Institution is currently considering a facilities expansion or improvement program that may total \$600 million over the next ten years. Annual resources of \$1.0 to \$1.5 million will ensure continued feasibility studies, planning, and concepts upon which to base precise designs and cost estimates for construction of these and other projects. With these resources the Institution will also establish operating and logistical support requirements and make required environmental assessments for critical capital improvement projects. This information will assist Smithsonian management decision making and provide the basis for review commission and Congressional approval.

The absence of planning resources results in rough approximations of project requirements, such as space and configuration, construction and operational costs, and environmental and logistical factors. Such absence also results in capital improvement planning without coherence and unified direction. To avoid these problems, the Institution requests continued support for its long-range planning program.

MINOR CONSTRUCTION, ALTERATIONS, AND MODIFICATIONS - Projects in this category include:

- minor new construction (under \$1,000,000 in estimated cost);
- alterations and modifications to buildings to meet programmatic objectives in the areas of research, collections management, exhibitions, and public services.

For FY 1992, the Smithsonian requests \$6,500,000 for the projects described below.

American Art and Portrait Gallery Building (\$390,000) - The National Museum of American Art's collections are growing at the pace of about 1,000 items per year. Space is no longer available in the building to house additional objects in an appropriate climate-controlled and secure environment, nor is space available at the Museum Support

Center, the Silver Hill Facility, or the facility at 1111 North Capitol Street. Off-site leased storage is costly and impractical. The Museum plans to construct a mezzanine in the space currently occupied by the Office of Research and Fellows and improve attic storage space. The planned restorations will increase art storage space in the American Art and Portrait Gallery Building and provide additional office and work areas. Modifying the space will require selected demolition, construction of a mezzanine floor and partitions, upgrading of electrical and HVAC service to both areas, and installation of storage racks. An elevator will transport large art pieces between the floors. Construction of the mezzanine and improvement of the attic space will allow the Museum to correct overcrowding in art storage areas and staff activities.

American History Building (\$100,000) - For FY 1992, the Smithsonian requests \$100,000 to complete renovation of NMAH's textile conservation laboratory. The Smithsonian will begin the conversion with \$300,000 received in FY 1990 and \$200,000 expected in FY 1991. Completion of this final phase of the renovation will expand the laboratory for the conservation of costumes, textiles, and fragile organic materials. A laboratory meeting the requirements of these materials does not currently exist within the building. The Museum will convert several rooms in the basement now used for collections storage and offices. The renovation work will include relocating collections and installing sinks, cabinets, counters, fume hoods, and other equipment needed for conservation of these sensitive artifacts. Conversion of this space will enable the Museum to perform timely conservation treatments to a wider range of artifacts.

American Indian Museum, Research Branch (\$30,000) - The Institution requests \$30,000 in FY 1992 for minor alterations at the newly acquired Research Branch facility of the National Museum of the American Indian. The Research Branch Building, in the Bronx, was built in 1925 and houses the curatorial offices, conservation facilities, laboratories, and the bulk of the former Heye Foundation Collection. The Foundation attached a four-story annex in 1960, and another addition will open in 1991. The existing kitchen, lunchroom, and adjoining rest room date back to the original construction as the caretaker's apartment. These areas, which serve all staff as well as visiting researchers, guests, members of Indian tribes, and potential benefactors, are poorly arranged and very worn. The single rest room is actually a converted bathroom with shower and does not meet handicapped accessibility codes. These essential support areas will be inadequate to meet the needs of an expanded staff once the new addition is opened. Provision of appropriate food preparation and consumption areas is especially important as there are no eating establishments in the immediate neighborhood. The Smithsonian will use the requested funds to renovate the kitchen and lunchroom and construct new restroom facilities. The work will include installation of new partitions and lighting, storage, built-in countertops and appliances, plumbing fixtures, and electrical outlets. New rest rooms will be completely accessible for disabled staff and visitors.

Arts and Industries Building (\$300,000) - The Arts and Industries Building (A&I) houses four major exhibition halls. It also houses essential program and administrative activities on the Mall, including those that require public access, such as Public Affairs, Museum Programs, Elementary and Secondary Education, and the National Science Resources Center. Other central support organizations located in this building include Protection Services, Information Resource Management, and Planning and Budget. There is an immediate and continuing need to renovate space to offer more functional work areas for current administrative and program requirements. The Institution has used funds provided in FY 1988, FY 1989, and FY 1990 and expects \$275,000 in FY 1991 to continue renovation of space and acquisition of modular furniture to increase future flexibility. For FY 1992,

the Smithsonian requests \$300,000 to modify an additional 5,000 square feet. Funding for this ongoing project will support the Institution's efforts to use the space in the Arts and Industries Building efficiently.

Cooper-Hewitt Museum (\$300,000) - For FY 1992, the Smithsonian requests funds for renovation of the McAlpin-Miller House and the newly acquired Fox House at the Cooper-Hewitt Museum in New York City.

The McAlpin-Miller House is a five-story brownstone townhouse adjacent to the Carnegie Mansion, which houses the exhibits of the Cooper-Hewitt Museum. The Museum uses the McAlpin-Miller House for offices and collections storage. The building is inefficiently laid out, and access to the collections stored there is difficult. Climate controls do not meet museum standards for storage of artifacts. Space utilization is low due to the extensive network of corridors, and much of the building is in violation of fire safety regulations because of limited access. The Museum is preparing a space study of the building with \$35,000 appropriated in FY 1990. This plan will integrate architectural renovation of the building with mechanical, electrical, and plumbing repairs funded under the Repair and Restoration of Buildings account. The Institution will begin the architectural changes to the first floor of the building with \$75,000 anticipated in FY 1991. The FY 1992 request includes \$100,000 to continue the modifications on the second floor. The Institution will request funds in future years to complete the remaining floors of the building. The project will reconfigure the existing space layout by relocating or removing certain interior partitions, develop exit corridors, modify rest rooms to comply with disabled access guidelines, repair and refinish wood floors, and repair and repaint remaining walls, ceilings, and wood trim. This work will allow more efficient use of the space for the Museum's activities and greater staff access to the collections. Modifications will also help preserve the artifacts by improving the environmental control and other storage conditions.

In 1989, the Cooper-Hewitt purchased the Fox House, next door to the McAlpin-Miller House. This important acquisition will provide much-needed expansion space for the Museum. The Fox House was built in 1905 as a single-family residence and converted to apartments and professional offices in 1945. A number of residential tenants will remain in the building for the next few years. When the current leases expire, the Institution will renovate the entire building for full museum use. Meanwhile, the Museum must make a number of short-term changes to the unoccupied portions of the building. The Smithsonian expects \$260,000 in FY 1991 to renovate approximately four floors that will be vacated by tenants. The FY 1992 request includes \$200,000 to renovate the remaining floors. The work includes removal of unused kitchen and shower facilities on each floor, new lighting, plaster repair and painting, new floor covering, repair and refinishing of wood millwork and trim, and upgrading of corridors and stairwells to improve fire protection. This funding will enable the Cooper-Hewitt to use this building to solve its most urgent space problems.

Freer Gallery Building (\$910,000) - The Institution requests funding for two projects at the Freer Gallery Building: site work and landscaping modifications, and auditorium renovation.

The Institution is currently renovating the Freer Gallery Building with funds received between FY 1986 and FY 1991. The Institution plans to modify pedestrian circulation in the area between the Freer and the Smithsonian Institution Building to accommodate the increased pedestrian traffic resulting from the opening of the Kiosk entrance to the S. Dillon Ripley Center in the Quadrangle Complex. Changes will include redirecting or

upgrading the driveway and the walkways around the building and installing better signage for pedestrians. Landscaping improvements will provide better visual interplay between the Freer and the Castle. The Institution is seeking \$40,000 in FY 1991 for design of these modifications and requests \$360,000 in FY 1992 for construction.

The auditorium in the Freer Gallery Building is showing signs of age. The seat upholstery and carpeting is wearing thin, and walls and finishes are cracked and deteriorated. The projection booth is too small to accommodate the latest equipment, and the lighting is inadequate. For FY 1992, the Institution requests \$550,000 to correct these conditions. The Freer will replace the carpeting and seats, restore or recover the plaster walls and ceiling, expand the projection booth, and install new lighting. Funding of this project will ensure appropriate facilities for the Freer's active schedule of educational events for the public.

Hirshhorn Building (\$150,000) - Since the opening of the Hirshhorn Museum and Sculpture Garden in 1974, the collection has grown to more than 13,000 pieces. Because only a small portion of the collection is on display at one time, the Museum must store the balance. A shortage of storage space now exists within the building, and off-site space is not currently available. Prints, paintings, sculptures and library collections are stored in overcrowded conditions that subject them to the risk of permanent damage and limit access by staff and scholars. The Museum currently uses several exhibition galleries for overflow storage. The Museum proposes a series of modifications to existing storage areas in the building to allow more effective use of limited space. The Institution requests \$150,000 for FY 1992 to study and implement improvements to the Print Room. The Museum will assess alternative compact storage systems and the impact of such a system on lighting, mechanical, and fire protection systems. Implementation will include installation of the selected storage system and necessary alterations to the building systems. Funding of this project will protect the collections from damage, improve their accessibility, and allow the return of exhibition galleries to their original purpose. Future-year projects will address alterations to other storage space in the building.

Museum Support Center (\$880,000) - For FY 1992, the Institution requests funds for three projects at the Museum Support Center: completion of a weather enclosure at the loading dock, completion of the greenhouse to house botanical collections of the National Museum of Natural History, and expansion of the lunchroom facility.

The loading dock at the Museum Support Center (MSC) opens directly outdoors. This entrance is the sole access for most collections transferred from other locations for storage. Many of the artifacts shipped to MSC for storage are very delicate. Temperature and humidity changes contribute to rapid deterioration of these objects. To maintain the carefully monitored conditions under which they must be stored, the curatorial staff ships these artifacts in special environmentally controlled vehicles. The weakest link in the chain of environmental control is the MSC loading dock, where lack of a buffer zone exposes the artifacts to weather extremes and truck fumes and compromises the continuity of pest control. The Institution will use \$285,000 appropriated in FY 1990 and \$70,000 expected in FY 1991 to design and begin construction of an airlock enclosure around the loading dock area and the entrance to Pod 4. For FY 1992, the Smithsonian requests \$100,000 to complete the work. This enclosure will protect artifacts delivered to or loaded from MSC from exposure to weather conditions. The controlled environment within the enclosure will also reduce the chance for fluctuations in temperature and humidity within Pod 4, thereby conserving energy.

The Institution also requests \$555,000 to complete construction of a 3,000-square-foot free-standing greenhouse at the Museum Support Center. The greenhouse will house living plant collections for anatomic, cytologic, taxonomic, and molecular systematics research for the National Museum of Natural History's Laboratory for Molecular Systematics and Department of Botany. Growing space in close proximity to the laboratories is vital to ongoing research programs. The greenhouse's heating and cooling system will provide full climate control and further limit insect and pest intrusion. A system of walkways and entries will minimize the impact of staff movement on the controlled atmosphere and limit insect and pest intrusion. Completion of the greenhouse will enable a number of important research programs to continue.

The Museum Support Center preserves the Institution's collections in secure, environmentally controlled, and pest-free conditions. The Center enforces pest-control procedures rigorously, including a prohibition on preparation or consumption of food in the offices and laboratories in the building. With the steady increase in personnel that has accompanied movement of specimens into the building in the past several years, the existing lunchroom no longer meets staff needs. At times, employees and building occupants, which number approximately 150, must wait for lunchroom space, reducing the time they have to eat or delaying their return to work. During good weather, staff use an outdoor eating area, but this is a seasonal solution to the problem. In addition, food selection is extremely limited. The lunchroom offers only vending machines, and nearby eating establishments are not readily accessible on foot within the time available for lunch breaks. The Institution requests \$225,000 to expand the lunchroom. The modifications will add seating space as well as provide space for a delicatessen-style food service operation. Funding of this project will help keep the Museum Support Center pest free and improve employee morale.

Natural History Building (\$625,000) - For FY 1992, the Institution requests funding for two projects in the Natural History Building: continuing modifications to office and laboratory space, and demolition of Halls 18, 19, 20, and 2 to make way for reinstallation of the geology, gems, and minerals exhibit.

The continuing transfer to the Museum Support Center (MSC) of the National Museum of Natural History's collections presents a much-needed opportunity to reorganize and renovate the space within the Natural History Building to address the needs of growing programs. The Museum can relieve major space problems in the building by relocating various functions after first reconfiguring the newly vacated space for more efficient use. The Museum is using funds received in FY 1990 (\$100,000) and expected in FY 1991 (\$100,000) to begin this process. For FY 1992, the Institution requests \$315,000 to create new office space in the area formerly occupied by the Paleo Botany Department, which recently relocated to larger space elsewhere in the building. The funds requested will relocate the fossil analysis room, install partitions and acoustical ceilings, replace floor coverings and lighting fixtures, and modify HVAC, electrical, and fire protection systems. The renovation will allow consolidation of the Entomology Department in more efficient quarters. The requested funds will also enlarge the executive offices, with space gained by the removal of Entomology collection storage cases in the corridor. Expansion into the corridor will allow subdivision of offices into a series of suites, with individual offices on the outside and support space on the inside. Modifications will also include installation of acoustical ceilings and lighting and changes to the HVAC and fire protection systems. Funding of this project will relieve severe crowding as well as make more appropriate and efficient use of available space in the building. The Institution will request funding in future years to continue space modifications.

The Institution also requests \$310,000 in FY 1992 for demolition of Halls 18, 19, 20, and 2. These Halls presently house the geology, gems, and minerals exhibit. The Museum plans to reinstall this exhibit as part of the long range program to update its exhibitions offerings. The new exhibit will incorporate recent advances in the field and new exhibit technologies. The requested resources will fund the demolition of the existing exhibit, including removal of ductwork, equipment, lighting, and walls. The Museum will fund construction of the actual exhibit through its exhibits base in the Salaries and Expenses account, supplemented with nonappropriated resources. Funding of the demolition project will allow the Museum to present new and important ideas to the public about the history of the Earth.

Silver Hill Facility (\$900,000) - The Institution requests \$900,000 to construct a storage building to house collections of the National Museum of American History and the National Air and Space Museum. The collections storage buildings at Silver Hill, Maryland, cannot accommodate current storage requirements. The two museums have collected important artifacts over the past 15 years, and the buildings are filled to capacity. Additional acquisitions require further compression of collections presently stored in the buildings and expose artifacts to potential damage from unstable environmental conditions and insect and rodent infestations in the buildings. For FY 1992, the Institution requests \$900,000 to construct a pre-engineered building to relieve the overcrowded conditions. The new building will provide about 20,000 square feet of storage space. A 20-foot ceiling height, minimal heating and ventilation, low ultra-violet lighting, and fire and security safeguards will provide a sound basic environment for larger, less fragile artifacts. Although the Institution plans in the near future to construct substantial storage facilities for the National Air and Space Museum at Dulles International Airport and for the National Museum of American History on the site of the Museum Support Center, the building requested here will ease immediate storage problems. When the collections move to these facilities, the Institution will use the new Silver Hill building for other urgent Institutional storage needs.

Smithsonian Astrophysical Observatory (\$600,000) - For FY 1992, the Institution requests \$600,000 for conversion of the building that houses the Multiple-Mirror Telescope (MMT) to accommodate a new mirror. Scientists at the Smithsonian Astrophysical Observatory (SAO) have developed a method of doubling the light-gathering capability of the MMT and increasing its field of view over one hundredfold, by replacing the six 72-inch mirrors with a single 6.5-meter mirror. The converted telescope will allow astronomers to study far more efficiently more than twice as much of the universe than is now possible, including phenomena currently inaccessible. The Major Scientific Instrumentation line-item of the Salaries and Expenses account will fund development and construction of the mirror and associated equipment and controls. The Institution requests \$600,000 under the Construction account to modify the MMT building to support the new mirror. Conversion of the building, rather than construction of a new one, will significantly reduce the overall cost of the new telescope. The funds requested will extend the large shutters on the building to accept the new mirror, install louvers for improved air circulation, modify laboratory space to house large instruments and optics, and strengthen the rail on which the building rotates to withstand increased wind loads. Funding of this project will significantly expand SAO's research capability and ensure that Smithsonian astronomers remain in the forefront of the field into the 21st century.

Smithsonian Environmental Research Center (\$465,000) - For FY 1992, the Institution requests funding for two projects at the Smithsonian Environmental Research Center:

completion of laboratory support space for the solar radiation research program, and construction of a storage building for scientific and maintenance supplies and equipment.

The Smithsonian Environmental Research Center (SERC) at Edgewater, Maryland, performs basic scientific research on coastal land and water systems. Its 42,000 square feet of laboratory, office, educational, and support space occupies several buildings on 2,600 acres of tidal river system land. SERC also rents space in Silver Spring, Maryland, for its solar radiation laboratory. The owner of this building plans to sell it in the near future. As a consequence, SERC must construct additional laboratory space at the Edgewater facility to accommodate this important program. The Institution plans to add laboratory "modules" to SERC's newly completed Mathias Laboratory Building. SERC will use \$350,000 anticipated in FY 1991 to construct the laboratories. The Institution requests \$100,000 in FY 1992 to construct associated support space, including rest rooms, a walk-in cold room, janitorial storage with slop sink and mop drain, an instrument room, and laboratory storage area. Construction of laboratory space will prevent disruption of this valuable research program. Consolidation of the laboratory with the rest of SERC activities will also save operating costs and benefit administrative and research communications. Future-year requests will construct additional laboratories to support new and existing research programs.

The Smithsonian also requests \$365,000 for construction of a 3,375-square-foot storage building at SERC. This building will replace five storage trailers that are rapidly deteriorating and no longer meet life safety and health codes. The storage facility will house experimental research equipment and instruments, scientific specimens and samples, laboratory supplies, and maintenance materials. Although outdoors for much of the time, the scientific and maintenance equipment must be stored on a seasonal basis to avoid shortening their life expectancy unnecessarily. Construction of a consolidated, central storage facility will increase research and maintenance efficiency and reduce replacement costs.

Smithsonian Institution Building (\$100,000) - The Smithsonian Institution Building houses the Office of the Secretary and other senior management of the Institution. Recent changes in the use of the building require minor modifications to the building to provide the necessary support facilities for staff activities. The Institution will begin alterations to staff offices with \$100,000 expected in FY 1991. For FY 1992, the Institution requests \$100,000 to continue this work to ensure the efficient operation of these key organizations.

Smithsonian Tropical Research Institute (\$350,000) - The Institution requests funding in FY 1992 for two projects at the Tropical Research Institute (STRI): modifications to the Ancon Building at Tivoli, and dock site improvements at Gamboa.

STRI recently relocated its administrative headquarters from the Ancon Building to the nearby Tupper Laboratory and Conference Center. The Institution plans to renovate the Ancon Building to provide dormitory and laboratory space for short-term visiting scientists. For FY 1992, the Smithsonian requests \$50,000 for this work. The funds will convert the second floor into bedrooms and the ground floor into a series of laboratory-office suites. STRI will coordinate this project with utility upgrading work funded from the Repair and Restoration of Buildings account. Conversion of the Ancon Building will allow the most effective use of this well-located facility.

STRI's research site at Gamboa is on the Panama Canal about 15 miles northwest of Panama City. Previously, the primary mainland docking facility serving Barro Colorado Island (BCI) was located at Frijoles, northwest of Gamboa and accessible only by railroad from Gamboa or Panama City. Because the railroad is unsafe, STRI use of the railroad is no longer possible. STRI has a temporary arrangement with the Panama Canal Dredging Commission to use its docking facilities at Gamboa to transport personnel and supplies to BCI. In FY 1989, Congress appropriated \$300,000 for a new STRI dock facility at Gamboa. Since that time, however, STRI has determined that, because of its more convenient location, Gamboa should supplant BCI as the primary location for large vessel docking and boat repairs. The Institution requests \$300,000 in FY 1992 for necessary site improvements to support the expanded functions of the Gamboa dock. The work includes dredging, constructing a breakwater, and providing a sheltered area for performing fiberglass work and other repairs to small boats. Funding of this project will enable STRI to continue vital water-based operations and carry out maintenance for its fleet of vessels.

Alterations and Modifications Planning (\$400,000) - For FY 1992, the Smithsonian requests \$400,000 to plan future Minor Construction, Alterations, and Modifications projects. As in other categories of construction activities, such as Major Construction and Repair and Restoration of Buildings, planning is essential for an effective facilities management program. The requested resources will allow the Institution to assess future requirements for minor changes to existing facilities to accommodate programmatic growth and changes in program direction. Planning studies will evaluate space requirements, make engineering analyses, prepare concept designs for buildings and sites, and estimate total project costs. Careful research into these future needs will result in more accurate cost estimates in advance of budget requests and more timely obligation of construction funds once received.





## COLUMBUS QUINCENTENARY PROGRAMS

The Smithsonian's Columbus Quincentenary Programs commemorate the voyages of Christopher Columbus and the subsequent encounter among Europeans, Africans, and indigenous peoples of the Americas. Through a program of exhibitions, scholarly and public symposia, publications, educational programs, traveling exhibitions, and radio and television programs, the commemoration will focus on the cultural, historical, and scientific implications of the hemispheric encounter. Twenty bureaus and offices, coordinated by the Office of Quincentenary Programs, will participate in the observance. The Smithsonian's Quincentenary commemoration will serve as the basis for a permanent program emphasizing the history and cultures of the Americas. Descriptions of Quincentenary programs and the participating bureaus are listed below.

Cooper-Hewitt Museum - The Cooper-Hewitt Museum will present an exhibition that shows how maps have documented world views through the ages and how their design reflects changing perspectives and technologies. The exhibition opens in spring 1992.

Hirshhorn Museum and Sculpture Garden - The Hirshhorn Museum and Sculpture Garden will present an exhibition titled "Four Latin American Modernists: Torres-García, Rivera, Lam, and Matta" featuring works by Joaquin Torres-García, Diego Rivera, Wifredo Lam, and Roberto Matta--20th-century Latin-American artists who have explored new frontiers of expression. The exhibition will open in spring 1992.

National Air and Space Museum - The National Air and Space Museum will produce a world atlas based on satellite images and publish a user's guide to the atlas. In addition, an exhibition titled "Where Next, Columbus?" will examine space exploration in the next 500 years, the solar system, the search for extraterrestrial life, and the scientific technologies that are a part of extensive exploration.

National Museum of American Art - The National Museum of American Art will present an exhibition titled "The West as America, 1820-1920." Through major 19th-century paintings, the exhibition will examine the myths that formed a national bias for expansion. The Museum is collaborating with the National Portrait Gallery on an exhibition titled "American Art at the 1893 World's Columbian Exposition in Chicago."

National Museum of American History - The National Museum of American History is developing a major exhibition titled "American Encounters." The exhibition focuses on encounters among indigenous, Spanish, and Anglo-American cultures in New Mexico and the subsequent adaptation of Indian and Hispanic cultures. An annual series of small case exhibitions and public symposia has begun, leading up to the opening of "American Encounters" in October 1992.

National Museum of Natural History - The National Museum of Natural History will develop a major exhibition organized around the concept "Seeds of Change." The exhibition, opening in October 1991, will examine plant, animal, and disease exchanges between the Old and New Worlds that transformed the cultural and ecological landscape of the Americas. The Museum is also sponsoring a wide range of symposia, educational programs, and publications associated with the exhibition.

National Portrait Gallery - The National Portrait Gallery, in collaboration with the Kimbell Art Museum in Fort Worth, Texas, and the Museo de Prado in Madrid, is developing an exhibition of portrait treasures of Spain. Scheduled to open in 1992, the exhibition will present more than 50 works by artists during the 16th-century reign of Philip II. In FY 1993, NPG will present, in collaboration with the National Museum of American Art,

an American paintings and sculpture exhibition based upon the 1893 World's Columbian Exposition in Chicago.

Office of Elementary and Secondary Education - The Office of Elementary and Secondary Education will develop a series of multi-cultural education packets written in English, Spanish, and Portuguese. The packets will introduce preschool age children to the cultural and animal life of the Americas. During 1991, the Office will present a symposium on the effects of cultural transplanted--from Latin America and to the United States--on the folk art traditions of storytelling, textile arts, and music. The Office will also produce a video recording of the symposium. A special issue of the Office's Art to Zoo will show teachers how to use multi-cultural resources in their communities for teaching about Latin America.

Office of Folklife Programs - The Office of Folklife Programs will present a "Living Exhibition on the National Mall"; a series of three symposia dealing with cultural expression from agricultural, commercial, and industrial societies in the Americas; a scholarly program of folklore, ethnographic, and ethnomusical research; and associated publications. In 1991 and 1992, the Festival will feature indigenous cultures of the Americas. Smithsonian radio programs, teacher training workshops, and exhibition program books will augment the exhibitions.

Office of Public Affairs - The Office of Public Affairs will promote Smithsonian Quincentenary activities through print, media publications, television, public service announcements, and radio advertisements.

Office of Quincentenary Programs - The Office of Quincentenary Programs coordinates the Smithsonian's Columbus Quincentenary commemoration. The Office will also publish The New World, a quarterly newsletter with English, Spanish, and Portuguese editions, to highlight the Smithsonian's Quincentenary programs.

Smithsonian Institution Press - The Smithsonian Institution Press is publishing a three-volume series entitled the Columbus Consequences. The series will address the social, demographic, ecological, and ideological impact of Columbus's landing. Scheduled for publication prior to the 1992 observances, the project explores early European/Native-American interaction of Spanish colonial settlements in the New World.

Smithsonian Institution Traveling Exhibition Service - The Smithsonian Institution Traveling Exhibition Service will design and distribute traveling versions of several exhibitions. Among them are the International Gallery's "Tropical Rainforests: A Disappearing Treasure," the National Air and Space Museum's "Where Next, Columbus?" the National Museum of American History's "Contrast: 40 Years of Continuity and Change in Puerto Rico," and the National Museum of Natural History's "Seeds of Change."

Smithsonian Tropical Research Institute - In 1992, the Smithsonian Tropical Research Institute will co-sponsor the Fourth World Congress on National Parks for the International Union for Conservation of Nature and Natural Resources to address the conservation of natural resources in the Americas. In addition, the Tropical Research Institute will present an international symposium, "Non-Imperial Politics," which will allow experts in the fields of archeology, paleo-environmental studies, and ethnohistory to share their research.

National Zoological Park - The National Zoological Park will highlight the unique tropical ecosystem in an exhibition titled "Amazonia." The exhibition will provide closeup views of the complex webs of partnerships and competition that exist among plants and animals of the rainforest and discuss the global impact of the rainforests' destruction.

Other Quincentenary Activities - Other events include a public symposium "Exploring the Unknown," sponsored by the Office of Interdisciplinary Studies, and the Office of Museum Programs will conduct a training session for museum professionals from Latin America and the Caribbean. In addition, several Smithsonian bureaus are collaborating on a six-part television series, "The Buried Mirror," written and narrated by Mexican author Carlos Fuentes, which will examine Spanish and indigenous contributions to the Americas and the emergence of "new cultures" in both historical and contemporary contexts. The Resident Associates Program will develop complementary programs such as: lectures, seminars, workshops, and performances with a focus on Quincentenary-related exhibitions and programs.

The accompanying table identifies Federal funding appropriated in FY 1990 (see table), estimated in FY 1991 and requested for FY 1992 to support Columbus Quincentenary programs:

Federal Funding for Columbus Quincentenary Programs  
FY 1990 - FY 1992

	FY 1990 Approp. <u>(\$000s)</u>	FY 1991 Estimate <u>(\$000s)</u>	FY 1992 Request <u>(\$000s)</u>
National Museum of Natural History	455	462	462
National Air and Space Museum	41	41	41
National Museum of American History	350	459	659
National Museum of American Art	45	60	60
National Portrait Gallery	15	40	205
Hirshhorn Museum and Sculpture Garden	20	50	160
Cooper-Hewitt Museum	24	24	24
Smithsonian Institution Traveling Exhibition Service	55	55	55
Smithsonian Institution Press	0	15	15
Office of Quincentenary Programs	86	126	296
Office of Folklife Programs	105	160	210
Office of Elementary and Secondary Education	38	15	15
Public Affairs	<u>0</u>	<u>15</u>	<u>44</u>
TOTAL	1,234	1,522	2,246

SMITHSONIAN INSTITUTION  
MUSEUM PROGRAMS AND RELATED RESEARCH  
(SPECIAL FOREIGN CURRENCY PROGRAM)

1990 Appropriation.....	-0-	—		
1991 Appropriation.....	-0-		--	Equivalent in Excess
1992 Estimate.....	-0-	—		Foreign Currencies

PROGRAM OF GRANTS FOR RESEARCH

The Smithsonian Institution, through its Special Foreign Currency Program, makes grants to United States universities, museums, and other institutions of higher learning, including the Smithsonian itself, primarily for research and advanced professional training in fields of traditional Smithsonian competence.

Excess currencies appropriations directly funded the Program through FY 1986. Outlays from the budget authority appropriated through FY 1986, including the Forward-Funded Reserve for the American Institute of Indian Studies, will continue into the mid-1990s. In addition, since FY 1986, the Smithsonian has received allocations of U.S.-owned Indian rupees from the funds appropriated to the Department of State in FY 1985 for the establishment of the U.S.-India Fund for Educational, Cultural, and Scientific Cooperation. (OMB Bulletin 90-04, issued on December 28, 1989, indicates that the Secretary of the Treasury has designated Burma as an excess currency country for FY 1990 and FY 1991.)

For more than 20 years, the Special Foreign Currency Program has been a major source of support for research carried out by United States institutions in those countries for which excess foreign currencies are available. The full responsibility for the design, execution, and publication of research results rests with a scholar working within the program of a United States institution. Smithsonian foreign currency grants strengthen the fundamental research and training activities of collaborating institutions abroad, since most projects directly involve host country institutions and scholars. Enduring professional ties, which result from joint efforts and scholarly exchange, contribute to the strongest form of United States cultural relations with other nations. These ties also contribute to the global integration of research data in the sciences. As a result of this interaction, the gap between industrial and developing nations' scholars has narrowed. Moreover, research sponsored by the Program aims, in part, at improving understanding of the environment and the management and conservation of scarce natural and cultural resources that are threatened by the rapid growth of world population and technological development.

In FY 1990, ongoing research supported by these grants included the following projects of special interest:

- archeological and geomorphic studies at Harappa in Pakistan that are enhanced with studies of present-day traditional bead makers in Khambhat, India;
- multi-disciplinary study in December 1989 that brought U.S. social scientists together for a third time to observe an Indian ecophysiological study of airbreathing fishes that provides information on effects of the environment on an important food source;

- an exchange between U.S. and Pakistani folklorists, anthropologists, and linguists that gives Pakistani researchers access to current Western research techniques in music, foodways, language, and art;
- documentation of Mughal gardens of Pakistan that provides not only heretofore unknown scholarly information but lays the foundation for the authentic restoration of these important sites.

Further, with emphasis on the exchange of information through small workshops, symposia, and field conferences, the Program encourages international research in specialized areas. In FY 1990, for example, U.S. scholars received support for participation in exchanges on the subjects of astronomy, wetlands ecology, traditional medicine, children's books, genetics, health and disease, and zoo management.

#### FORWARD-FUNDED RESERVE FOR THE AMERICAN INSTITUTE OF INDIAN STUDIES

Since 1967, the Smithsonian has provided annual funding through the Special Foreign Currency Program to the American Institute of Indian Studies (AIIS) for its fellowships, research, symposia, and publications programs as well as its administrative costs. The Smithsonian has helped sustain this Institute and other American research centers abroad for the last 20 years because of their significant contributions to scholarship and science without regard for national boundaries and because of their special service to American scholars.

With Special Foreign Currency Program funding received from FY 1980 through FY 1985, the Smithsonian established a forward-funded reserve of \$7,170,000 equivalent in rupees. This reserve enabled the AIIS to sustain its programs after the removal of India from the excess currency list in 1985. Since FY 1986, AIIS, with oversight from the Smithsonian, has drawn upon the funds from this reserve for its fellowship program and administration costs in India. The Institution continues to examine annual proposals through its peer review system before releasing funds from the reserve account to AIIS. The reserve should support AIIS programs through the 1990s in conjunction with continued support from the U.S.-India Fund. In 1991, the Institution and the AIIS expect to receive permission to keep the reserve in interest-bearing (rupee) accounts, a plan that will help to continue the viability of the fund for many years.

#### U.S.-INDIA FUND FOR EDUCATIONAL, CULTURAL, AND SCIENTIFIC COOPERATION

In FY 1985, Congress appropriated \$110 million equivalent in U.S.-owned Indian rupees to the Department of State to establish the U.S.-India Fund for Educational, Cultural, and Scientific Cooperation. Since FY 1986, the Smithsonian has received allocations from this fund to continue programs in India similar to those administered under the Special Foreign Currency Program, which would otherwise have ended when India lost excess currency status in 1985. The Institution received an amount of \$1.4 million in FY 1986, \$1.5 million in FY 1987, \$1.8 million in FY 1988, \$1.75 million in FY 1989, and \$2.5 million in FY 1990. In FY 1991, the Institution expects to receive \$2.2 million. Based on current usage, the fund will be totally liquidated by 1998.





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