

AM
101
566
A462

8

MSR2-SI

SMITHSONIAN INSTITUTION

Fiscal Year 1973

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 1972.)

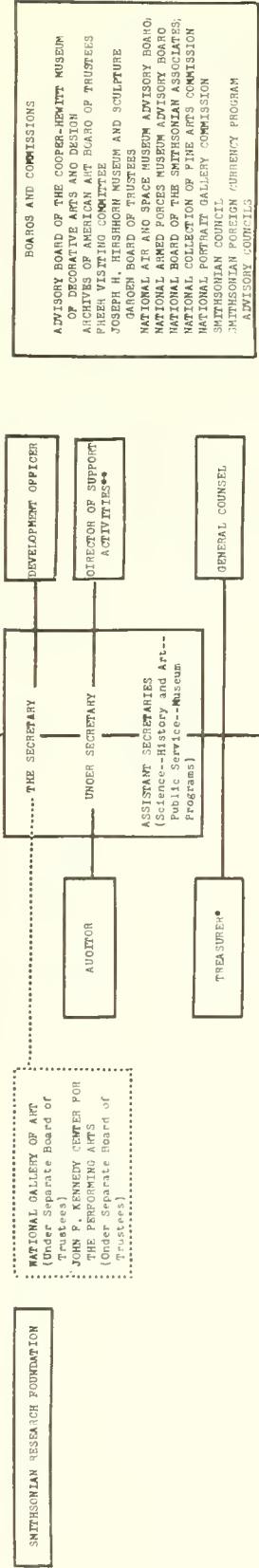


Institutional Support

Documentation and Conservation	A-97
Communication	A-101
General Administration	A-107
Buildings Management Department	A-109
SCIENCE INFORMATION EXCHANGE	Tab B
SPECIAL FOREIGN CURRENCY PROGRAM	Tab C
PLANNING, RESTORATION, RENOVATION, AND CONSTRUCTION OF BUILDINGS AND FACILITIES.....	Tab D
Introduction	D-1
Construction and Improvements, National Zoological Park....	D-2
Restoration and Renovation of Buildings.....	D-4
Construction, National Air and Space Museum.....	D-12
Construction, Bicentennial Park Planning.....	D-14
Construction, National Museum of Natural History Research Center Planning.....	D-15

SMITHSONIAN INSTITUTION

BOARD OF REGENTS



BUREAUS AND ACTIVITIES

- WOODROW WILSON INTERNATIONAL CENTER FOR SCHOLARS (Under Separate Board of Trustees)
- SMITHSONIAN RESEARCH FOUNDATION
- NATIONAL GALLERY OF ART (Under Separate Board of Trustees)
- JOHN F. KENNEDY CENTER FOR THE PERFORMING ARTS (Under Separate Board of Trustees)
- SMITHSONIAN SCIENCE INFORMATION EXCHANGE, INC.
- SMITHSONIAN TROPICAL RESEARCH INSTITUTE
- COMETRY FOR THE STUDY OF MAN
- NATIONAL AIR AND SPACE MUSEUM
- NATIONAL MUSEUM OF NATURAL HISTORY
- NATIONAL ZOOLOGICAL PARK
- BULLETIN OF ENVIRONMENTAL SCIENCES
- NATIONAL BOARD OF FINE ARTS ASSOCIATES
- SMITHSONIAN SCIENCE INFORMATION EXCHANGE, INC.
- SMITHSONIAN TROPICAL RESEARCH INSTITUTE
- ARCHIVES OF AMERICAN ART
- COOPER-HEWITT MUSEUM OF DECORATIVE ARTS AND DESIGN
- PREER GALLERY OF ART
- JOSEPH HENRY PAPERS
- NATIONAL ARMED FORCES MUSEUM ADVISORY BOARD
- NATIONAL COLLECTION OF FINE ARTS
- RENNICK GALLERY
- NATIONAL MUSEUM OF HISTORY AND TECHNOLOGY
- OFFICE OF ACOUSTIC STUDIES
- OFFICE OF SPINNERS
- SMITHSONIAN ARCHIVES
- HISTORY & ART
- SCIENCE
- FINANCIAL SERVICES
 - ACCOUNTING
 - BUSINESS MANAGEMENT
 - INVESTMENTS
 - PROGRAMMING AND BUDGET
- PUBLIC SERVICE
 - ANACOSTIA NEIGHBORHOOD MUSEUM
 - BELMONT COMPREHENSIVE CENTER
 - DIVISION OF PERFORMING ARTS
 - OFFICE OF ELEMENTARY AND SECONDARY EDUCATION
 - OFFICE OF INTERNATIONAL ACTIVITIES
 - OFFICE OF PUBLIC AFFAIRS
 - SMITHSONIAN ASSOCIATES
 - SMITHSONIAN INSTITUTION PRESS
 - SMITHSONIAN MAGAZINE
 - SMITHSONIAN MUSEUM SHOPS
- HISTORY & ART
- MUSEUM PROGRAMS
 - SMITHSONIAN AND NATIONAL MUSEUM PROGRAMS
 - CONSERVATION ANALYTICAL LABORATORY
 - OFFICE OF EXHIBITS PROGRAMS
 - OFFICE OF THE REGISTRAR
 - SMITHSONIAN INSTITUTION LIBRARIES
 - INTERNATIONAL EXCHANGE SERVICE
- SUPPORT ACTIVITIES
 - ADMINISTRATIVE SYSTEMS
 - BUILDINGS MANAGEMENT
 - CONTRACTS Duplicating
 - EQUAL EMPLOYMENT OPPORTUNITY INFORMATION SYSTEMS (ADEP)
 - PERSONNEL ADMINISTRATION
 - PHOTOGRAPHIC SERVICES
 - SUPPLY
 - TRAVEL SERVICES

SMITHSONIAN INSTITUTION

Summary of Appropriation Accounts
(In thousands of dollars)

	<u>Appropriated FY 1971</u>	<u>Appropriated FY 1972</u>	<u>Increase Sought</u>	<u>Request 1973</u>
Salaries and Expenses	\$36,895	\$44,701	\$18,085	\$ 62,786
Science Information Exchange	0	1,300	500	1,800
Museum Programs and Related Research (Special Foreign Currency Program)	2,500	3,500	2,500	6,000
Construction Accounts:				
Construction & Improvements				
National Zoological Park	200	200	7,800	8,000
Restoration and Renovation of Buildings	1,725	550	5,114	5,664
Construction	<u>5,200</u>	<u>5,597</u>	<u>35,178</u>	<u>40,775</u>
Grand Total	\$46,520	\$55,848	\$69,177	\$125,025

SMITHSONIAN INSTITUTION

FISCAL YEAR 1973 ESTIMATES OF APPROPRIATIONS

GENERAL STATEMENT

In September 1846 the first meeting of the Regents of the Smithsonian Institution was held in Washington. In September 1971, we celebrate our 125th anniversary. Our growth, development, and public service contributions over this period have been noteworthy. The Institution now maintains public exhibits in seven buildings representative of the arts, American history, aeronautics and astronautics, technology, anthropology, and the natural sciences. The Renwick Gallery of American design and crafts will join this distinguished company early in 1972. The National Zoological Park presents living animal exhibits. We preserve for reference, exhibit, and study millions of items of scientific, cultural, and historic importance. Research is performed throughout the world in a wide range of the natural and physical sciences and in the history of cultures, technology, and the arts. We present performances of American folk arts and crafts in order to help keep alive the rich cultural traditions of the Country. Education programs are conducted throughout the Institution at all academic levels. Publication, information, traveling exhibition, and neighborhood museum programs help to bring the wealth of Smithsonian resources to those persons unable to visit our major museums and our research laboratories.

The Smithsonian's FY 1972 budget presentations to the President and to the Congress identified a number of continuing goals and objectives. These remain as valid now as a year ago and provide the context for consideration of our budget requirements for the coming year. For FY 1973, the Institution is requesting appropriations totaling \$125,025,000 distributed among four major budget categories.

	FY 1972	Requested Increase	FY 1973
"Salaries and Expenses"	\$44,701,000	\$18,085,000	\$62,786,000
Science Information Exchange	1,300,000	500,000	1,800,000
Special Foreign Currency Program	3,500,000	2,500,000	6,000,000
Construction	6,347,000	48,092,000	54,439,000
Totals	<u>\$55,848,000</u>	<u>\$69,177,000</u>	<u>\$125,025,000</u>

Highlights of this request with respect to goals and objectives and our FY 1972 plans and FY 1973 priorities are as follows:

Support the quality of the professional staff effort within the Smithsonian to sustain the basic scholarly program.

Critical to the achievement of this objective has been our efforts to achieve an adequate level of technical and financial support for our scientists and historians. With the close backing of the President and the Congress, the Institution made a substantial breakthrough in its FY 1972 appropriation by winning additional technician, electronic data processing development, and research project funding for the National Museum of Natural History. The Smithsonian Astrophysical Observatory is enabled to undertake the first phase of its multimirror telescope development. Additional funding for the Chesapeake Bay Center and for the Smithsonian Tropical Research Institute will permit these field biology research stations to play more active and productive roles in understanding ecological forces through interdisciplinary

research studies. The vigorous prosecution of mutually reinforcing lines of laboratory and field studies of national concern is one of our major objectives. These programs remain among our very highest priorities in the FY 1973 budget requests. Throughout the programs of the Institution there are increasing instances of inter-bureau cooperation. References to this activity, which strengthens and unifies the Smithsonian as a single organization devoted to research and public services, appear throughout the program descriptions appearing in this budget.

Emphasize the Smithsonian's role as a community of educators

We are an institution for communicating with the public at large. To do this we serve a dual educational role. By making our collections, library, and research facilities available to students and to pre- and post-doctoral visitors who work under the supervision and guidance of our professional staff, we offer a rich variety of resources and perspectives available for productive research and training in scientific and humanistic endeavors. In turn, these students and visiting researchers bring an infusion of knowledge and vitality to our own research efforts. Our second role is to make our exhibits more useful to elementary and secondary schools as provocative supplements to classroom instruction. We do this through guided tours and the preparation and distribution of traveling exhibits, classroom use publications, and other home and classroom audio and visual materials. Support for our Academic and Educational Programs and for the related educational programs in our museums and galleries continues to occupy our closest attention.

Contribute to the reappraisal of the American Experience by portraying our Nation's course over the past 200 years and suggesting paths for our continued development

The Smithsonian Institution is preparing to play a central and major role in the celebration of the Bicentennial of the American Revolution. The Bicentennial presents an opportunity for a wide-ranging and creative use of the Smithsonian's great capabilities and resources, which are of a nature ideally suited to the occasion and the times. We welcome the challenge and believe that our program, which has as a theme The American Experience, will meet all expectations. We will offer imaginative and exciting events and, at the same time, we will make contributions that will continue to reward the general public and the scholarly community for many years to come. The Bicentennial undertaking at the Smithsonian will involve almost every department.

With the support of the FY 1971 and 1972 appropriations for this purpose, and with every possible commitment of the Institution's regular budget, we have completed an overall plan (Smithsonian Institution: American Revolution Bicentennial Programs 1971-1976), submitted as a supplement to this budget, and have made a strong beginning on the program itself. The work must be spread out over the intervening years, allowing lead time for the research, design, collecting, and construction which go into the production of major exhibitions, and for the nationwide information-gathering that must take place. Phased scheduling will assure completion of the various program components by the Bicentennial year.

This special Bicentennial funding serves dual purposes: it will normally pay for projects that are complete in themselves; and, in some cases, it will expand a special Bureau exhibit, or enrich it, for example, by the

acquisition of unusual objects, or by enabling it to reach a wider national audience. The amounts requested in this special appropriation over the next few years will be used to make the extraordinary effort, above and beyond the Institution's normal level of operations, that is called for by this special occasion. These appropriations will be used exclusively for activities that could not otherwise take place.

Closely related to this effort is the work and regular program plans of our history and art activities, our neighborhood museum, and our performing arts group. At a time of rapidly changing technology and national and international tensions, there is an urgent need to discover and appreciate man's special cultural traditions and achievements.

Improve man's understanding of the physical and natural environment upon which human society depends

FY 1971 and 1972 funds were appropriated for coordinated environmental research at the Smithsonian. This support enabled the separate bureaus of the Institution for the first time to develop jointly a plan to monitor, assemble, and analyze biological and physical data on specific important ecosystems, hopefully to predict the consequences of environmental change, and, thereby, contribute to better management of our natural world. The Institution has unique capabilities for such studies. These include highly competent personnel; the largest collections of plants and animals in the world (with detailed distribution, abundance, and other associated data); long-term experience with measuring the characteristics of solar radiation reaching the earth and other astrophysical data; and the availability of permanent and protected field-research sites in both temperate and tropical zones. In addition, the Smithsonian enjoys particularly favorable relations with its scientific colleagues and institutions in virtually every country of the world.

Environmental Sciences Program activity during FY 1971 was limited to such priority items as the organization of an interdisciplinary program and establishment of a continuing mechanism for its operations; the selection of sites of highest priority for study; and the implementation of interrelated studies of these sites. FY 1972 and 1973 research activity will consist of two parts: one, a long-term comparative study of marine shallow-water systems, temperate and tropical, and, two, a corresponding study of a deciduous forest ecosystem.

The planning activity is closely related to and consistent with the recommendations of the International Biological Program. In so doing, the Institution is following the intent of Congress as expressed in Public Law 91-438. We give high priority to this interdisciplinary and team plan of work.

Establish a great national museum on the Mall to recreate the experience of man's great adventure: flight and space exploration

The redesign of the National Air and Space Museum building is well underway using the \$1,900,000 appropriated to the Smithsonian in the current fiscal year. This redesign will be completed in approximately one year and we expect to be ready to award a construction contract by mid-FY 1973. We are requesting construction funds of \$40,000,000 in that year's budget plus essential additional operating funds for the National Air and Space Museum itself to enable it to step-up the very substantial job of research, collections preparation, and exhibits planning and production that must take place while the building is under construction if the July 4, 1976 opening date is to be met.

This building, in addition to being a showcase for historic machines, will also encompass a wide variety of educational exhibits concerned with the new science and technology of the Space age. The public will be able to see gathered together under one roof, for the first time, an explanation of how man has used a broad range of disciplines to achieve flight, and how he may extrapolate these into the future. The impact of flight upon our environment and our culture will be investigated and exhibited to the public using the latest multi-media techniques. A planetarium chamber will be included, but in addition to viewing the conventional star show, the visitor will be able to "travel" through space to the surface of the moon or the planets. Another important adjunct will be an Historical Research Center, providing not only an aerospace library and film center, but facilities for research scholars as well. This center will make available the Museum's vast resources of photographs, drawings, technical manuals, films, and other documentary and archival materials.

Respond to the needs of the Nation's museums to assist them present to their public an appreciation of the past and portents of the future

Public Law 91-629 approved December 31, 1970, reauthorized appropriations for the National Museum Act through FY 1974 and funding of \$1,000,000 to the Smithsonian Institution each year. Of this amount \$600,000 was granted by the Congress for FY 1972. Funding at the full \$1,000,000 as requested in the FY 1973 budget will permit the Smithsonian Institution to support fully all aspects of the National Museum Act.

The requested total funding would be used to meet the following basic needs of the nation's museums: cataloging and data access; museum laboratory centers, especially for conservation of the Nation's treasures; training of museum personnel; research in museum techniques; and the preparation of manuals of instruction. These funds will be made available, primarily by grants and contracts, to individuals, museums, and professional associations, in concert with the National Museum Act Advisory Council appointed for this purpose by the Smithsonian Institution. The membership of the Advisory Council encompasses the principal museum disciplines--art, science, and history--and is broadly representative of all regions of the United States. The Council will advise and assist the Institution in determining priorities and assessing the quality of programs seeking support under the Act. The first meeting of the Council is scheduled for November 1971 at which priority guidelines will be established and requests for funding will be reviewed. At the working level the Smithsonian Institution and the Endowments for the Arts and the Humanities, through their respective Offices of Museum Programs, will regularly consult and review program support in order to avoid overlap.

Improve the management of scientific and scholarly information

In our roles as custodian of the Nation's collections and as a principal producer of basic research we must try to serve the public interest in improved management of scientific and scholarly information. Closely related to this effort must be the conservation and preservation of the sources of this information. The FY 1972 appropriation provided some slight additional support for this need. We must do better. In order to show more effectively how improved management would serve Smithsonian needs for research and public needs for exhibition, publications, and problem solving, the FY 1973 budget request brings together, under two broad headings, "Documentation and Conservation" and "Communication", our requirements for library services, preparation of publications, photography, electronic data processing, the accessibility of archives, information dissemination, and the conservation of the national collections.

The budget estimates to help accomplish the Smithsonian's goals and objectives are presented in four sections:

- A. "Salaries and Expenses"
 - for regular operating programs in the museums, galleries, zoological park, research laboratories, and other program units \$31,447,000
 - for special programs of an Institution-wide nature and of unusual importance for national research, education, exhibition, and museum assistance needs..... 5,550,000
 - for program support purposes..... 25,789,000
 - Total..... * \$62,786,000
- B. "Salaries and Expenses" of the Science Information Exchange..... \$ 1,800,000
- C. Special Foreign Currency Program in archeology and related disciplines, systematic and environmental biology, astrophysics and earth sciences, and museum programs (dollar equivalent)..... \$ 6,000,000
- D. Planning, restoration, renovation, and construction related to Smithsonian buildings and facilities \$54,439,000

Each of these requests is summarized below and justified in the following sections of the budget.

A. "Salaries and Expenses"
Regular Operating Programs

<u>1971 Actual</u>	<u>1972 Estimate</u>	<u>1973 Estimate</u>
\$17,944,000	\$21,999,000	\$31,447,000

The total increase, including program and necessary pay funds, requested for "Salaries and Expenses" for regular operating programs in the museums, galleries, zoological park, and research laboratories is \$9,448,000, distributed as follows:

<u>Science</u>	(In thousands of dollars)		
	1972	Requested	1972
	Base	Increase	Estimate
	<u>\$15,762</u>	<u>\$5,539</u>	<u>\$21,301</u>

To correct serious deficiencies in the availability of technicians and other supporting staff, scientific equipment, services, and laboratory supplies and materials, and to augment programs with key professional research staff and improved instrumentation in order that the Smithsonian can continue its traditional basic investigations and educational services in anthropology, biology, geology, and the space sciences and technology which are fundamental to a better understanding of man and his environment. Includes budget requests

Science (continued)

of the National Museum of Natural History, Smithsonian Astrophysical Observatory, Smithsonian Tropical Research Institute, Radiation Biology Laboratory, Office of Environmental Sciences, National Air and Space Museum, Center for the Study of Man, and the National Zoological Park.

	1972 Base	Requested Increase	1972 Estimate
<u>History and Art</u>	\$5,642	\$3,583	\$9,225

To provide essential professional and support staff, objects for the collections, and services, supplies, and equipment required for the basic operations of the Institution's established and developing museums and art galleries in order that they can tell the story of this Country's growth and development to millions of Americans and citizens of other countries through research, exhibition, education, and publications programs. Includes the budgetary requirements of the National Museum of History and Technology, National Collection of Fine Arts, National Portrait Gallery, Joseph H. Hirshhorn Museum and Sculpture Garden, Freer Gallery of Art, Archives of American Art, and the National Armed Forces Museum Advisory Board.

<u>Public Service</u>	595	326	921
-----------------------	-----	-----	-----

To provide additional support to certain of those Smithsonian activities which reach out to serve a wider public. Requests are included for the Anacostia Neighborhood Museum the Office of International Activities, and the Division of Performing Arts.

Totals	<u>\$21,999</u>	<u>\$9,448</u>	<u>\$31,447</u>
--------	-----------------	----------------	-----------------

Special Programs

<u>1971 Actual</u>	<u>1972 Estimate</u>	<u>1973 Estimate</u>
\$1,546,000	\$2,886,000	\$5,550,000

This requested increase of \$2,664,000 is aimed at strengthening the Institution's abilities to perform special research projects, present important and timely exhibitions, and extend its public education and museum assistance services. Included are budget requests for the American Revolution Bicentennial, the Environmental Sciences Program, Major Exhibitions, the National Museum Act, Academic and Educational Programs, and the Smithsonian Research Awards Program.

Program Support

<u>1971 Actual</u>	<u>1972 Estimate</u>	<u>1973 Estimate</u>
\$17,391,000	\$19,816,000	\$25,789,000

An appropriation increase of \$5,973,000 is requested for those administrative, technical, and facilities management activities which serve and support the program functions of the Institution. Included in this category are Documentation and Conservation, Communication, General Administration, and Buildings Management activities.

B. Science Information Exchange

<u>1971 Appropriation</u>	<u>1972 Appropriation</u>	<u>1973 Estimate</u>
\$ <u>1/</u>	\$1,300,000	\$1,800,000

A funding increase of \$500,000 is requested to meet the essential costs of maintaining and developing data input on research in progress as a national information service to the federal and nonfederal research communities.

1/ Funded under contract from the National Science Foundation at \$1,400,000 for 10 months (an annual rate of \$1,680,000).

C. Special Foreign Currency Program

<u>1971 Appropriation</u>	<u>1972 Appropriation</u>	<u>1973 Estimate</u>
\$2,500,000	\$3,500,000	\$6,000,000

The need is to provide adequate support, without a drain on hard dollars, for overseas archeological work, systematic and environmental biology, astrophysical and earth sciences studies, and museum programs. The development and expansion of regular programs, as well as the opening up of important new research possibilities, especially in India and Poland, have resulted in a rising demand for excess foreign currency funds by American Institutions of higher learning.

D. Renovation, Restoration, and Construction

<u>1971 Appropriation</u>	<u>1972 Appropriation</u>	<u>1973 Estimate</u>
\$7,125,000	\$6,347,000	\$54,439,000

Included in this request is \$8,000,000 for planning, construction of parking and service facilities, and repairs at the National Zoological Park;

\$5,664,000 for restoration, renovation, repairs, and improvements to Smithsonian buildings and facilities; \$40,000,000 for construction of the redesigned National Air and Space Museum; \$275,000 for the construction planning of Bicentennial Park and \$500,000 for construction planning of a National Museum of Natural History Research Center.

Total 1973 Appropriations Requested \$125,025,000

Tab A

"SALARIES AND EXPENSES"

SMITHSONIAN INSTITUTION
Necessary Pay and Related Benefits

An increase of \$1,455,000 is required for personnel compensation and personnel benefits. The operations of the Smithsonian have been carefully reviewed and the following cannot be absorbed by funds already in the base.

a. To finance periodic step increases made in accordance with the Government Employees Salary Reform Act of 1964 and with prevailing practices in the wage scale	\$817,000
b. To finance wage raises for the manual employees in Panama and the wage grade, wage leader, and wage supervisor employees in the rest of the Smithsonian Institution.....	402,000
c. To finance the new positions granted by the Congress in FY 1972 on a full year basis.....	434,000
d. Reduction for two less work days in FY 1973.....	-198,000
	<u>\$1,455,000</u>

Periodic step increases are made in accordance with the Government Employees Salary Reform Act of 1964 and prevailing practices in the wage system. The apparent cost was determined through a position-by-position study and has been offset by the effect of employees leaving the Smithsonian and not receiving their within-grades and by employing new personnel at lower steps. In the past the amount was also offset by the effects of promotions of employees in their present positions. This has not been done this year because of the current controls on promotions in order to reduce the average grade.

The Smithsonian Institution employs over 700 wage board employees. These employees usually receive a wage raise in October or November of each year. The President's order prevents these employees from receiving a raise for at least three month's but they may be eligible after November 12, 1972, and a raise can be expected for them after that time. The most recent raise increase cost about \$525,000 annually. Because of the President's desire to hold down inflation, we are estimating that this raise when granted will be at a lower amount than the past year's experience. The manual employees at the Smithsonian Tropical Research Institute in Panama received a raise in July 1971 and are expected to receive another raise in July 1972.

When new positions are requested of the Office of Management and Budget and the Congress they are lapsed according to the expected employment dates. In the past we have absorbed the cost of annualizing these positions in the following year. Our base appropriation is not able to absorb these costs. Therefore we are requesting funds to annualize in FY 1973 the new positions authorized by the Congress in FY 1972.

FY 1973 will have two less work days than FY 1972 therefore these increases have been offset by the return of \$198,000 previously granted for this purpose.

SMITHSONIAN INSTITUTION
Necessary Pay and Related Benefits
(In thousands of dollars)

	<u>Periodic Step Increase</u>	<u>Wage Raises</u>	<u>Annual- izing</u>	<u>2 Less Work Days</u>	<u>Total</u>
National Museum of Natural History	147		50	(22)	175
Smithsonian Astrophysical Observatory	22			(4)	18
Smithsonian Tropical Research Institute	20	20	10	(4)	46
Radiation Biology Laboratory	20	10	3	(4)	29
Office of Environmental Sciences	18		13	(2)	29
National Air and Space Museum	15	1	2	(4)	14
Center for the Study of Man	4		16		20
National Zoological Park	50	50	240	(22)	318
National Museum of History and Technology	56			(12)	44
National Collections of Fine Arts	30		1	(6)	25
National Portrait Gallery	20		5	(4)	21
Joseph H. Hirshhorn Museum & Sculpture Garden	15		7	(2)	20
Freer Gallery of Art	4	1	1	(2)	4
Archives of American Art	5		4		9
National Armed Forces Museum Advisory Board	3				3
Anacostia Neighborhood Museum	6	1	11	(2)	16
International Activities	6		1		7
Performing Arts	4			(2)	2
Academic and Educational Programs	10		3	(2)	11
Documentation	45	2	3	(7)	43
Communication	99	10	30	(19)	120
General Administration	68	7	17	(14)	78
Buildings Management Department	150	300	17	(64)	403
TOTAL	817	402	434	(198)	1,455

SCIENCE

Discovering the history and development of natural phenomena and the characterization of natural events, especially as they relate to the evolution of man in response to his physical and social environment, represents the major scientific goal of the Smithsonian. If there is a single scholarly bond of interest among all the activities of the Institution, it is a common concern with history, the history of art, the history of technology, the history of science, and indeed natural history. Our staff of scientists is concerned with elucidating the interrelationships between organisms (including man), communities, and populations with the physical, chemical, and geological factors which play a role in forming the ecology of the earth now in past ages. More than seventy specialties are represented by the Smithsonian's community of scientists. Activities range from astrophysical investigations that contribute to our understanding of the origin and mechanics of the universe, through investigations on microscopic organisms in the ocean depths, to the development of man as shown by his artifacts and productivity.

There is a major change occurring now in the nation's general scientific effort. This change regards the type of input information more and more investigators view as necessary to further research on problems which are biological or physical in nature. While the change is a contemporary one, it is related in an important way to the basic and long-term activities of the Smithsonian and similar research institutes across the nation, and indeed the world. The change, simply stated, involves the following.

Ecological investigations concerned with identifying long-term factors affecting environmental balance increasingly are becoming dependent on analysis and information constructed around collections of objects. Systematic collections of biological and geological specimens contain standards for describing and measuring ecological changes. Unfortunately, as of now, not enough historical information has been extracted to create "bench-marks" of change which would give scientists accurate indices for speculating about ecological trends, and about man-made solutions to problems which would be in keeping with the natural evolutionary process.

This, however, is the type of work which the various scientific laboratories and museums of the Institution have been involved in for a century and a quarter. In recent times, systematics has not been considered one of the more fashionable of sciences. Even during the hey-day of federal support for scientific research, systematics did not receive the measure of support needed to maintain a level of involvement adequate to the nation's best environmental interests. But now the demands for taxonomic information are increasing rapidly as our national programs of science and technology are redirected to cope with environmental deterioration.

NATIONAL MUSEUM OF NATURAL HISTORY

<u>Program Categories</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Development & Dissemination of Basic Environmental Data <u>1/</u>	166	2,542,000	203	3,300,000	247	4,293,000
Resources of the Earth <u>2/</u>	61	998,000	68	1,263,000	82	1,627,000
Man in Nature <u>3/</u>	22	400,000	25	455,000	28	519,000
EDP Applications <u>4/</u>	6	129,000	21	343,000	36	598,000
Public Science Education <u>5/</u>	16	274,000	18	304,000	23	393,000
Total Operations	271	4,343,000	335	5,665,000	416	7,430,000

1/ Develop and Disseminate Basic Environmental Data - In FY 1971-1973, this activity is continuing curation, restoration, preservation and protection of the National Collections. Also included is basic research with the National Collections to explain the ecological relationships of organisms and their inter-action with their environments, past and present, to provide data to scientists in their search for the solution to current problems and the prevention of further deterioration of the environment.

2/ Resources of the Earth - Systematic field and laboratory research dealing with the evolution of plants, animals and minerals, the social organization of organisms, the study of the earth's structure and extraterrestrial bodies and other research designed to provide basic information to researchers in many institutions who are seeking to more fully understand, manage and husband natural resources.

3/ Man in Nature - Fundamentally, man's culture is the result of his efforts to adapt to his environment through time. These studies of past changes in climate, the environment and associated flora and fauna provide basic data which are essential to current ecological studies of man's modification of his environment and for the prediction of the future impact of man on his environment and it upon him.

4/ EDP Applications - The Museum began its application of computer technology to the National Collections in FY 1971. This program will be significantly expanded in FY 1972 through data entry on fossil marine organisms of geologic importance, plant specimens and various marine invertebrates. FY 1973 will bring computer technology to collections and research in all of the scientific disciplines which the Museum presently embraces.

5/ Public Science Education - Educational activities for the general public, primary and secondary school children and up to pre- and post-doctoral students. Includes a large volume of correspondence, tours, exhibits and seminars. In FY 1973 a mobile Museum would be constructed and used in educational programs at schools in Washington, D.C. and the surrounding areas.

NATIONAL MUSEUM OF NATURAL HISTORY

1971 Actual.....\$4,343,000
1972 Estimate.....\$5,665,000
1973 Estimate.....\$7,430,000

This Museum serves as a national and international center for the natural sciences. It maintains the largest reference collections in the Nation and conducts a broad program of basic research on man, plants, animals, fossil organisms, rocks, minerals, and materials from outer space. Its research is concerned with classification, distribution, analysis, and environmental and ecological relationships. Its fundamental studies in systematics and biology are providing new information required for the solution of major national problems of conservation and pollution, food production, improvement of medical knowledge, and for planning national and international programs leading to predictive ecology and environmental management. It engages in joint educational programs with universities by teaching courses, training graduate students, conducting science seminars, and providing leadership in the improvement of museum techniques, collections management, especially through the application of computer technology.

The NMNH has the legal responsibility (20 U.S.C. 59) to serve as the ultimate Federal repository of all collections and objects of natural history, archeology, and ethnology made by agencies of the Government when no longer needed for investigations in progress. Additionally, the NMNH has become the repository for numerous extremely valuable collections obtained from other sources, such as the scientific community, academic institutions, as well as many private individuals. Because the Museum is the national repository, it has responsibilities far beyond the research of its own staff. It assists both the layman and the scientist with identification, lends specimens for research, and safeguards the tangible results of research. As the National Museum, it has inherent responsibility to provide leadership for other museums and institutions. In the latter role through use of its collections, NMNH is a vigorous interdisciplinary, scientific organization devoting an increasing share of its resources of professional staff and unrivaled collections to research which is fundamental to the understanding, explaining, and coping with the multitude of environmental problems which beset humanity.

The Director of the National Science Foundation, Dr. William D. McElroy, stated the case for the importance of systematic collections in an August 1970 letter acknowledging receipt of a major national report on the importance of these materials 1/:

"The collections of natural history objects in our universities and natural history museums are, indeed, 'an essential resource,' and their proper usage and maintenance is vital to continued progress in the great work of organizing our knowledge of the natural world. At the present time in history, when ominous disruptions of our ecosystem threaten Man's very existence, the need for increased understanding of the working of this ecosystem and the diversity of organisms comprising it has never been more keenly felt nor widely appreciated. The systematic collections provide the fundamental basis for this understanding."

1/ The Systematic Biology Collections of the United States: An Essential Resource. A report to the National Science Foundation by the conference of Directors of Systematic Collections.

The National Museum of Natural History has in its collections approximately one-third of all the natural history specimens in the United States. There is no other single repository anywhere else in the world where there is so much documentary material for determining the composition of the biota in various parts of the world from millions of years ago to the present. For these reasons, the controlled acquisition, protection, and increased availability of the National Collections continues to occupy a high priority.

In addition to the caretaking the Museum staff provides for the collections, it also conducts a level of systematic, ecologic, and evolutionary research that is not approached elsewhere in this Country. The data resulting from this research constitutes a unique resource for the entire science community and particularly for environmentalists in government, industry, and institutions of higher learning involved in large-scale programs. The development of basic information on the complex interactions of plants and animals and the physical environment is critical to the establishment of rational standards for restoring a measure of environmental quality and to the management of natural resources in a technology-dominated world.

For FY 1973, the Museum is requesting an additional \$1,590,000 to further correct imbalances that exist between the levels of professional staff and support effort necessary for proper curation of the collections (\$886,000); to strengthen the Museum's ability to respond to national problems by expanding and intensifying its research efforts which are directly associated with its collections in ecological and biological areas (\$355,000) and resources of the earth (\$99,000); to continue the programmed expansion of the Museum's capability to extract and automate information on the collections (with this increase the Museum's EDP efforts would reach a level which would permit the most effective use of project personnel and efficient operation without an increase in the planning and supervisory personnel) (\$200,000); and to develop a new program in Public Science Education which will allow expanded scientific education of the public and permit inclusion in the museum's program some of the educational and informational activities formerly carried out by other Smithsonian units (\$50,000). An increase of \$175,000 is needed to cover necessary pay increases.

Although no amount is specifically allocated for the purpose, a portion of this requested increase would be used to employ under term appointment, if opportunity offers, two or three scientists who are authorities in their respective fields to curate those portions of the collections relating to their area of specialization. The national collections cover so many fields it is impractical for a number of reasons to consider the possibility of employing on a permanent basis all the scientists needed to conduct research and curatorial activities over the entire range of specimens. On the other hand, the collections contain many "type" specimens which serve as the basis for the accepted description of the species. The Museum is in a very real sense a natural history "bureau of standards" for scientists in this and other countries. Consequently, scientific competence, of the highest order, is required to curate and study this material. A program was begun in FY 1971 to employ recognized authorities under term appointments for one or two years to study this material and assure the accuracy of the data related to it. At present one such scientist, on sabbatical leave from the University of Miami, is engaged for a period of one year in curating and conducting research on the collection of Coelenterates (corals and related invertebrates). The Museum desires to have the funding flexibility available, when the occasions arise, to extend these activities.

Museum Support Deficiencies (41 positions; \$886,000)

The increased funding provided to the Museum in FY 1972 will permit continued phased correction of the curatorial and research support shortages relating to the museum's operations that were identified in the FY 1972 budget presentation. This is an essential effort necessary to making the museum more useful to institutions and agencies that need our expertise in the research for basic facts related to successful management of our environment. The FY 1972 appropriation will allow the establishment of a support staff/scientist ratio of 1.6 to 1.0. This is a major improvement over the completely inadequate and wasteful 1.1:1.0 relationship which existed in FY 1971 and will increase significantly the effectiveness and productivity of both the scientific and high level technical personnel. The FY 1972 projected improvement still falls well short of the goal of three support personnel (technical and clerical) for each professional employee recommended in May 1969 by the President's Science Advisory Committee and the Panel on Systematics and Taxonomy. The FY 1973 requested increase will permit the Museum, in a planned and phased fashion, to attain a support ratio of two technical and clerical personnel for each scientist (see Table I). Experience with staffing at this 2:1 level would then be evaluated before a request is submitted to permit establishment of the recommended 3-to-1 relationship.

The Smithsonian Council, an Institutional advisory body composed of twenty of the Nation's leaders in art, science, and history, at its meeting in April 1971 heartily endorsed the action of the President and the Congress which made available additional support funding to the Museum for FY 1972. That same body indicated it is in complete agreement with the Museum's plan to continue to rectify the support deficiency over several years and attain an optimum support-to-scientist ratio.

Of the proposed \$886,000 increase, \$347,000 is associated with the 41 technical and clerical personnel positions being requested, and \$539,000 is sought to continue to improve current levels of funding for travel, supplies and materials and equipment purchase, replacement, and maintenance.

Included in the \$539,000 support request is approximately \$125,000 for equipment items, which along with current base funding allowed in FY 1972 would place the museum's ability to acquire and replace needed museum and scientific equipment annually at a funding level of about \$325,000. A large part of these purchases are related to special scientific instrumentation needs. Such equipment is frequently complex and costly, but is essential to acquire if the research scientists are to keep abreast of the developing techniques of their specialties. The goal through FY 1975 is to increase the scientific purchase and replacement fund to an annual level of approximately \$500,000. Again, operating experience at this level would be evaluated and a report compiled indicating what might be a desirable and optimum fund level.

The balance of the increase or \$414,000, is directed at continuing to improve the drastically low levels of support which were available per scientist for field trips, normal supplies and materials and other centrally provided services. As mentioned earlier some amount will be earmarked, if possible, to curate special portions of the collections under term appointments.

Development and Dissemination of Basic Environmental Data (19 positions \$355,000)

Bone Biology (6 positions and \$75,000 for personnel costs; \$25,000 support funds) - The impact of the environment on previous generations of man is recorded in their skeletal remains which can provide important data

Table I

(National Museum of Natural History)

* Ratios of Man-Years of Effort Between Technicians/Scientists

Department	FY 1971		FY 1972 ^{a/}		FY 1973 ^{b/}	
	Support	Scientist	Support	Scientist	Support	Scientist
Anthropology	23	16	27	17	38	19
		1.44:1.0		1.59:1.0		2.0:1.0
Botany	15	17	27	18	38	19
		0.88:1.0		1.50:1.0		2.0:1.0
Entomology	17	11	22	13	28	14
		1.55:1.0		1.69:1.0		2.0:1.0
Invertebrate Zoology	20	18	33	18	38	19
		1.11:1.0		1.83:1.0		2.0:1.0
Mineral Sciences	10	10	15	10	22	11
		1.00:1.0		1.50:1.0		2.0:1.0
Paleobiology	24	18	34	21	44	22
		1.33:1.0		1.62:1.0		2.0:1.0
Vertebrate Zoology	<u>21</u>	<u>13</u>	<u>25</u>	<u>15</u>	<u>31</u>	<u>16</u>
		1.62:1.0		1.67:1.0		1.94:1.0
TOTALS	130	103	183	112	239	120
		1.26:1.0		1.63:1.0		1.99:1.0

* Ratios apply to personnel assigned directly to science support. They exclude EDP section and NMNH director's office.

^{a/} FY 1972 relationships anticipated assuming planned employment of personnel within allowed Congressional increase actually takes place.^{b/} FY 1973 reflects relationships which would obtain with full implementation of FY 1972 increases and full employment of personnel requested in FY 1973 increases.

for attacking present-day problems. For example, careful study of large samples of archeologically well-documented skeletons reveals the presence of syphilis, arthritis, anemia, cancer, rickets, scurvy, and tooth decay among early peoples. With the funds requested, the number of such samples would be increased by field collecting and a pathology registry would be established to bring together in one place all available information on bone disease processes, consisting of gross and microscopic specimens, X-rays, and photographs.

Bone functions intimately in the metabolism of food, minerals, muscles, and blood. In addition it provides the support for physical activity. Consequently, detailed studies of the microstructure of human bone reveal much about the population-structure of a society to which the individual belonged, its nutrition, its general health, and its reactions to stress factors such as nomadic mode versus the village life, or hunters versus gatherers. The bone biology research program currently underway would be expanded, and would include a biochemical study of bone-nitrogen dating of remains. Chemical dating of bone on the basis of bone-protein decay provides a valuable tool for assigning relative dates and, potentially, absolute dates to archeological skeletons.

Oceanic Biology and History (7 positions and \$81,000 for personnel costs; \$26,000 support funds) - Oceanographic resources have been viewed by many as that part of the biosphere offering the greatest hope for man's survival in the future. Yet our knowledge of the organisms in the world ocean, their identity, distribution, and interrelationships with each other and their surroundings, remains distressingly inadequate for constructing plans for the use and management of these resources. The biota of coral reefs, the most complex marine habitat in tropical areas, is very diversified but the corals themselves get scant research attention. A portion of this requested funding would be used to provide the kind of basic data needed by the ecologists and systematists in many institutions who are studying the world's reef system.

The creation of ocean basins by movement of great blocks of the earth's crust now appears to be an entirely likely theory. Supporting data are largely of a physical nature but the ancient organisms (now fossils) that lived in the developing basins left in the rocks a record of their environmental history and their evolutionary adaptations. The Atlantic Basin, the best known ocean in all respects, would be the site for systematic biological analyses, comparisons of evolutionary histories, and the environmental histories of fossil molluscs. These animals were the dominant and environmentally most sensitive coastal shelf organisms on either side of the Atlantic during formation of the Basin. The remainder of the requested funding would be applied to obtaining additional knowledge of this history which will be of great significance in the further discovery and utilization of important natural resources as food, fuel, and minerals.

Soil Biology (3 positions and \$34,000 personnel costs; \$7,000 support funds) - The understanding of soil ecological systems is potentially an area of enormous importance to agriculture, one of our Country's major industries. Fertility of the soil is in part dependent upon the activities of soil insects and related groups of arthropods. They are one of the most abundant organismal groups in soil, with a rich soil probably harboring more than 10,000,000 individuals per acre. Some are indispensable recyclers of organic debris; others are important as parasites or predators of other soil animals; many are sensitive to insecticides and herbicides, thus serving as pollution indicators. Despite their abundance, virtually nothing is known concerning their identity or behavior. The need to increase productivity in

the face of our growing population and diminishing agricultural land, and to reduce all forms of pollution, requires that increased attention be given to studies of these critically important components of the soil biota.

Migratory Bird Studies (3 positions and \$35,000 for personnel costs; \$17,000 support funds) - The Museum's research on migratory birds has demonstrated the probability that they act as long distance carriers of virus diseases affecting both man and animals. Our present knowledge of breeding cycles, migrations, population dynamics, and ecological interrelationships has resulted from research primarily on temperate zone birds. However, many tropical species which migrate to the temperate zones or come in contact with temperate-zone migrants remain poorly known. Expanded research in this project would concentrate on learning the identity, distribution, and ecology of birds in tropical Asia and Africa, where this kind of information is most needed and which are areas of great human misery. Studies in the Old World Tropics also will provide the opportunity for comparison of the data with that resulting from research in the Museum and at the Smithsonian Tropical Research Institute on birds of the Neotropics.

Physical Sciences Laboratory (\$55,000 support funds) - The Museum is proceeding to establish a general physical sciences installation which will be used by scientists working in many diverse fields. The principal unit required in the first phase, a Crystallography Laboratory, is a single crystal diffractometer which is being purchased from funds provided in FY 1972. This versatile instrument will provide the data needed to solve problems related to crystal structures. Materials that have crystalline structures which would be studied with this instrument include metals, minerals, chemicals, and many biological materials. This laboratory when completed will increase the scope and value of current programs such as the study of lunar rocks. Additional equipment needed for X-ray studies which would be purchased in FY 1973 include specialized single-crystal cameras, microscopes, and photomicrographic equipment. In addition, the acquisition of a modern solid-state calculating system would permit rapid data reduction, prevent the delays and errors associated with hand calculations, and avoid the problems and expense associated with conversion to computer operation of this rather intermediate scale of computations. A portion of the increase would be used, however, to purchase a small computer to completely automate the diffractometer and provide in-house computing capabilities vitally needed in a modern physical sciences laboratory. For example, necessary microprobe calculations could be performed within minutes of obtaining the raw data. Rapid data evaluation is critical where results provide a guide to, and are prerequisite for additional research.

Currently efforts are being made to increase the collection of synthetic (man-made) crystalline materials for both research and documentation purposes. Synthetics have a great bearing on the evaluation of natural processes and lead directly to involvement in solid state research. The proposed instrumentation would greatly strengthen the analytical power of existing museum facilities, thereby adding new and much greater dimensions to current and planned investigations at a minimum additional cost.

Resources of the Earth (5 positions, \$99,000)

Aboriginal and colonial cultures had in common the assumption that earth's resources are unlimited. We realize now that assets such as fossil fuel reserves are non-renewable and must be carefully husbanded, while others are renewable. In either case, detailed knowledge of the resources of the earth is mandatory to their careful use, conservation, or renewal.

Minerals (3 positions and \$37,000 for personnel costs; \$12,000 support funds) - Government agencies, academic institutions, mining, and other industries have long looked to the Museum to provide basic information on ores and mineral deposits. Although the Museum has an extensive collection of representative "suites" of minerals from many currently and formerly important mines, increasing concern with the future supply of mineral raw materials has resulted in greatly increased demands for samples to serve as standards. Therefore, it is imperative that the collections be augmented. The requested funds will be used for field collecting, identification and research, and improved documentation and accessibility of information.

Plants (2 positions and \$30,000 for personnel costs; \$20,000 support funds) - Of the renewable resources, plant life is perhaps more easily managed than any other. The grass family economically is the most important of all, including most of the cereal crops of the world. Among the 10,000 species in that family, the bamboos are one of the most important non-cereal groups. In most of Asia they are vital to the economy, providing a vast array of uses, including food, construction materials, and paper. Since the bamboos are the most primitive of the grasses, an improved understanding of all the family rests on better knowledge of this ancestral group, which remains least known. The museum proposes to undertake, vegetation studies of representative species because flower parts used in plant classification are generally not available in bamboos which sometimes flower only once a century. A survey of the leaf anatomy, coupled with analyses of the floral structures available in museum collections of each genus, will be the first step in understanding the evolutionary relationships within the bamboo subfamily, and a more perfect biological classification of the grass family generally. Such information is important to plant breeders seeking to improve cereal crops, or enhance the quality of forage and pasture grasses.

One cannot renew the native vegetation of a tropical island once it is destroyed but knowledge of its flora need not be lost to science. In the Caribbean, the island of Dominica has been the site of a Smithsonian study of the plant and animal life which is especially rich in this wet forested land. The floristic study of the vegetation is well advanced but its completion has recently become urgent in the face of new, major logging operations which are rapidly changing the island environment.

Part of the funds requested would support the capture of information which will be valuable long after the destruction of these lush forests for development of managed forest reserves in the New World Tropics. The United States has a natural interest in assisting economic development in this region and forest products, well-managed, may be its most valuable renewable resource.

Electronic Data Processing Applications (14 positions; and \$109,000 for personnel costs; \$91,000 support funds) - The Electronic Data Processing program of the Museum looks toward assisting in the Museum's responsibility of making the national collections more relevant to science and making its scientists more productive. The program has two goals: to bring the benefits of modern electronic data processing techniques to the traditional functions of the Museum and to stimulate new and deeper analysis of specimens and their environment in order to learn more of their evolution, distribution, and community structure.

Individual projects have been selected for inclusion in the program chiefly on the basis of the importance of the collections to be covered. In

FY 1971 information was computer recorded on about 10,000 fossil marine organisms, 15,000 modern mammals, 5,000 type specimens of plants, and 8,000 specimens of modern shrimp and related animals. This effort should be nearly tripled in FY 1972. Despite this excellent progress, however, it is clear that many years of work remain. There are roughly 55 million specimens already in the Museum's collections, perhaps a third of which are sufficiently critical to science to warrant computer entry.

Funds requested for FY 1973 would be used to intensify work in the Departments of Paleobiology, Vertebrate Zoology, Invertebrate Zoology, and Botany to the point where information on all new type specimens added to the collections will be computerized. In addition, projects will be initiated in the remaining three Departments (Entomology, Anthropology, and Mineral Sciences). Finally, about \$10,000 of the requested increase would be used to computerize information about specimens being used in current research projects involving nearshore marine environments.

All of the activities of the EDP program are based on the proposition that data about specimens are at least as important as the specimens themselves in the modern context of the life sciences. Improvement in our ability to handle these data has already begun to yield important dividends in the area of collection management. Much more valuable benefits remain to be reaped when data adequate for responding to scientific queries from researchers in government agencies, academic and research institutions, and commercial organizations begin to become available.

Public Science Education (2 positions and \$17,000 for personnel costs; \$33,000 support funds)

More than 3,000,000 people visit the Museum each year. A recent visitor survey showed that they come from every state (over 70% from outside the Washington area) and from many other nations. They are increasingly sophisticated, knowledgeable, and curious. The public need and demand for additional quality popular science education is steadily mounting. In order to improve its effectiveness in this area, a new program of public science education has recently been started. This program will consolidate, coordinate, and centralize the educational functions of the museum's public spaces. It includes the following goals: exhibits planning; testing exhibits for effectiveness of communication; conducting school groups through the museum; answering letters of inquiry from the public; writing supplementary literature and bibliographies; and sending exhibits to local schools in Washington and in the surrounding areas. The first step is to develop a master exhibits plan for the entire museum which details the scope, direction, arrangement, integration and breakdown of scientific subject matter. This plan will facilitate the rational and efficient restructuring of the museum exhibits. The funds requested would help provide the basic materials needed to initiate this step. The request would also provide a secretary to help answer the many inquiries from the public requesting information about the collections. In addition, the request includes funds to enable the museum to purchase, outfit, and operate a small paneled van with a teacher driver as a "mobile museum." This would bring the Museum's unique material resources for science education to schools many of which do not have the transportation facilities to bring children to the Museum.

SMITHSONIAN ASTROPHYSICAL OBSERVATORY

<u>Program Categories</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
The Earth As a Planet <u>1/</u>	8	368,000	9	406,000	10	589,000
The Solar System <u>2/</u>	17	635,000	15	587,000	15	641,000
Energetic Phenomena in the Universe <u>3/</u>	32	1,104,000	33	1,157,000	34	1,418,000
Multiple Mirror Telescope <u>4/</u>				500,000		750,000
Total Operations	57	2,107,000	57	2,650,000	59	3,398,000

1/ Studies are centered on the earth and its atmosphere. Man lives in a small and extremely fragile environment close to the surface of the earth. SAO is making major contributions to an understanding of man's surroundings by applying well-developed astronomical techniques to the study of the earth. The most precise laser and electronic techniques now available are used to monitor geophysical changes by observing the motions of artificial satellites in the earth's gravitational field. This can lead toward the prediction of earthquakes. Employing the same techniques developed for measuring satellite orbits, SAO also uses its world-wide observing stations to monitor temperature and density variations in the upper atmosphere.

2/ Studies of the solar system include the near-space neighbors of the earth, as well as the sun itself and its relationship to other members of this complex system. Theoretical, laboratory, and observational studies define the setting for the earth. For instance, laboratory studies of lunar samples and meteorites that have reached the earth provide vital clues to the composition, history, and radiation to which they have been exposed. Studies of cometary formation and behavior, using Baker-Nunn data, are yielding valuable clues to the formation and evolution of the entire solar system.

3/ Energetic phenomena studies are concerned with the sources of radiation, including the high-energy radiation, far outside the solar system. It is known that more energy is being emitted from the centers of galaxies and from quasars than can be explained by any physical processes now understood. The answers to these newest mysteries will be provided by the newest astronomical tools-radio, infrared, ultraviolet, gamma-ray, and advanced optical instrumentation. For instance, SAO scientists are now discovering chemical compounds not heretofore known to exist in space (acetaldehyde was discovered in 1971). This knowledge will help to answer basic questions concerning the creation of matter and anti-matter in the universe.

4/ Represents completion of two-thirds of design and construction of world's third largest telescope in FY 1972-1973.

SMITHSONIAN ASTROPHYSICAL OBSERVATORY

1971 Actual.....\$2,107,000
1972 Estimate.....\$2,650,000
1973 Estimate.....\$3,398,000

The Smithsonian Astrophysical Observatory (SAO) pursues a broad program of research in astrophysics and related space sciences. Established in 1890, the Observatory was reorganized in 1955 and moved to Cambridge, Massachusetts, where it works in close association with the Harvard College Observatory. In addition to some 50 scientists currently employed in Cambridge, Massachusetts, SAO maintains scientific facilities elsewhere in the United States and overseas. Included in these facilities are a multi-purpose observatory on Mt. Hopkins, Arizona; a world-wide network of Baker-Nunn camera and laser tracking stations; a camera network in the Midwestern United States for meteor studies and meteorite recovery; and joint use with Harvard College Observatory of an 84 foot radio telescope in Massachusetts. SAO has always emphasized pioneering research, striving to recognize and develop new or neglected fields of research before these topics have reached popularity and maturity.

The Observatory has made major contributions to international science in several of its program areas during the past few years. Indeed, the results of the Observatory's research have established the standards, both literally and figuratively, for other scientists engaged in similar investigations. Included in these accomplishments are publication of the Smithsonian Standard Earth, the most accurate representation of the earth's size, shape, and gravitational field ever produced; through observations, establishing limits on the frequency and number of micrometeoroids as hazards to space flight; production of the SAO Star Catalog and Star Atlas as standard references; and studies of maser process to help in measuring the motions of the earth, to test the theory of relativity, and to investigate those areas of the universe where vast natural hydrogen masers operate. A summary of other accomplishments and planned activity appears in Table I.

An appropriation increase of \$730,000 is requested to continue the development of a large optical telescope that will provide the kind of instrumentation essential to continued scientific achievement and to extend certain important research programs. In addition, \$18,000 is requested for necessary pay.

The Observatory conducts basic research in three major program areas: the earth as a planet; the solar system; and energetic phenomena in the universe.

The Earth as a Planet (1 position; \$129,000)

As the accuracy of astrophysical observations improves, both from ground and space stations, the need to understand the basic molecular and atomic processes in the creation, generation, and dissipation of energy becomes more and more essential. To comprehend the meaning of what they see through their telescopes, astronomers must rely on theoretical physicists to provide basic models of the physical properties of matter.

An SAO research group now working on the frontiers of theoretical physics and quantum mechanics has developed complex computer programs for constructing models of these basic atomic and molecular processes. This theoretical work is helping to establish the research parameters for the study of terrestrial and planetary atmospheres, as well as stellar atmospheres and the interstellar medium.

This group anticipates no major cost increases during FY 1972. However, because the molecular and atomic theorists provide fundamental data for all major research areas of SAO, the demand for solutions to theoretical problems is expected to grow, particularly as interaction between the atomic and molecular physicists and other stellar theorists increases. By FY 1973, then, these vital efforts that contribute so much to the basic pursuit of all astronomy will require the addition of one senior scientist and increased computer services. An increase of \$129,000 and one position is requested.

Energetic Phenomena in the Universe (\$200,000)

Intense sources of infrared radiation have been detected at the core of several galaxies, including our own Milky Way. Indeed, some astronomers have found this radiation so powerful that an unknown form of energy generation must be present to cause it. Some of this infrared radiation can be observed and analyzed by ground-based instruments such as the Multiple Mirror Telescope that SAO is developing. However, the longer wavelengths of the infrared band are absorbed, scattered, and reflected by the earth's protective blanket of atmosphere. This region of infrared light can be seen only by instruments in satellites, balloons, or rockets above the atmosphere.

Because space satellites are so expensive and rockets so limited, SAO has developed a small but expert team of researchers skilled in preparing experiments for balloon flights. Today's modern balloons are capable of carrying large, intricate instrumentation that can be easily monitored and controlled from the ground. Far less costly than satellites and far more productive than rockets, balloon experiments promise to provide an important means to astronomical discovery in this decade.

In FY 1972, SAO, the University of Arizona, and the Harvard College Observatory are building a 40-inch infrared telescope for a balloon-borne mapping of the galactic center. The preliminary design and cost analysis of this advanced instrumentation package have been completed, and the first balloon flight is scheduled for spring 1972. A subsequent flight in 1973, using improved optical and electronic equipment will investigate in more detail specific objects of interest. \$100,000 are needed for development of improved equipment and support of one or two flights.

The history of modern astronomy is really the history of opening new windows on the universe. For centuries, the only window open to man was the optical--that extremely narrow band of visible light. In the past three decades, however, rapid advances in science and technology have opened many new windows such as radio, infrared, ultraviolet, X-ray, and gamma-ray. The newest window is in the millimeter-wave region of the spectrum--that region between the micron-length waves of the infrared band and the centimeter-length waves of the radio band.

Drawing on recent technological breakthroughs in the development of detector devices, SAO is designing instrumentation to observe in the millimeter-wave range of the spectrum. In cooperation with Bell Laboratories, the University of Texas, and Harvard College Observatory, SAO is equipping a small millimeter-wave telescope. Research observations are

expected to commence in January, 1972. These observations are a critical extension of the astrochemistry research now pursued by SAO's radio astronomers for many of the complex molecules they are now discovering in deep space are known to emit millimeter waves (the latest SAO discovery, acetaldehyde, was announced on August 18, 1971).

In 1973, the phased expansion of this program will reach an expenditure level of about \$150,000 per year (a requested \$100,000 increase for instrumentation and equipment over FY 1972) with a peak of some \$300,000 occurring in 1974 or 1975.

Multiple Mirror Telescope (\$250,000)

Following the plan described in detail in A Large Astronomical Telescope at Low Cost, SAO will continue development and construction of a multiple mirror telescope during FY 1973. By that time detail designs will have been completed and major construction contracts will be let. This will result in a need for an increase of \$250,000, which will, according to the plan, be offset by a decrease in FY 1974.

General Support Requirements (1 position; \$151,000)

SAO has a critical need for increased funding to enable existing staff to apply their time and materials efficiently. For example, SAO faces substantial increases in the cost of space rented for its scientific laboratories and offices and in the cost of computer time so essential to both theoretical and experimental research. Furthermore the cost of laboratory supplies such as compressed gases has increased sharply over the past few years while SAO's non-personnel budget has been declining. The continuing development of modern, efficient instrumentation demands the services of a staff engineer, who will provide services to all program areas. An increase of \$151,000 and one position is required as an initial step in correction of these shortages in all programs.

TABLE I
SMITHSONIAN ASTROPHYSICAL OBSERVATORY

Highlights of SAO's Scientific Program

1971 Accomplishments

Publication of over 110 scientific research papers.

Substantial improvement of atmospheric models for the International Reference Atmosphere.

Full-scale operation of the newly commissioned Tillinghast 60-inch telescope at Mt. Hopkins, Arizona.

SAO scientists received the following distinguished awards in recognition of their outstanding work:

- a. The Rumford Medal, the oldest scientific prize on the United States.
- b. The Leonard Medal of the Meteoritical Society.
- c. The Distinguished Alumni Award of the University of New Hampshire.

1972 Planned Accomplishments

Initial phases of the development of the Multiple Mirror Telescope that will result in the construction of the world's third largest telescope.

Continuation of the search for new chemicals in space -- the first discovery of 1972 being acetaldehyde, CH_4CO .

Initiation of infrared observations from high-altitude balloons.

Initiation of millimeter-wave observations in the little explored region of the electromagnetic spectrum between infrared and radio waves.

Continuation of studies of man's environment through observations of the solid earth, earth motions, high atmosphere, and lower atmosphere particles and aerosols.

1973 Forecasted Activity

Continuation of construction of the Multiple Mirror Telescope.

Extension of procedures used in calculations of molecular structure to dynamic problems in terrestrial and planetary atmospheres.

Continuation and improvement of infrared observations from high-altitude balloons.

Continuation and improvement of millimeter wave observations in search of new molecules in space and in studies of pollutants in the earth's atmosphere.

Correction of some critical research and support shortages for increased efficiency in utilization of existing manpower and equipment.

SMITHSONIAN TROPICAL RESEARCH INSTITUTE

<u>Program Categories</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Behavior & Evolution <u>1/</u>	6	161,000	7	195,000	10	286,000
Environment & Evolution <u>2/</u>	4	71,000	4	80,000	7	173,000
Advanced Studies Support <u>3/</u>	9	96,000	10	105,000	15	163,000
Facilities & Program Management <u>4/</u>	26	311,000	31	440,000	37	513,000
Total Operations	45	639,000	52	820,000	69	1,135,000

1/ Studies of adaptive behavior as demonstrated through project research directed at specific species of animals, insects, and plants that inhabit the forests and waters of the tropics.

2/ Studies of environmental correlates exhibited by populations of tropical animals, plants, insects through investigation of distribution, reproductive cycles, migratory patterns and other characteristics.

3/ Technical support provided to the Behavioral and Environmental Programs.

4/ Costs associated with administration, maintenance and upkeep of programs and facilities on Barro Colorado Island, Naos Island, Galeta Point, Cali Station, and the mainland.

SMITHSONIAN TROPICAL RESEARCH INSTITUTE

1971 Actual.....	\$ 639,000
1972 Estimate.....	\$ 820,000
1973 Estimate.....	\$1,135,000

Established 25 years ago to foster understanding of the tropical environment as preserved on Barro Colorado Island, the Smithsonian Tropical Research Institute (STRI) has become a center of excellence for research studies by staff, advanced students, associates, and visiting scientists on the processes of survival and their relationship to the environment. These are essential questions for which the tropics are uniquely suited. In the tropics, diversities are greater, competitive processes and interactions more complex, new lines of adaptive radiation more pronounced, and year-round field study and experimental opportunities richer by far than in other climes.

Panama, easily accessible, offers an array of terrestrial and marine study habitats within immediate reach. The Isthmus is a land bridge for the biotic interchange of two continents and, at the same time, a continuing barrier to the biota of two oceans--separated by several millions of years, but only 50 miles apart. This affords an observational and experimental potential which cannot be matched elsewhere. The interdependence of ocean and continent is beginning to be publicly recognized. STRI has one of the few teams of scientists in the world organized jointly to pursue the biology of both realms.

Questions on survival, importance of diversity, the critical role of communications, mapping and influence of environmental change, invasions by new populations, partitioning of environmental resources on land and in the oceans--on these and many other fronts STRI progress is recognized by leaders in biology from around the world. The quality of STRI research can be readily verified by reviewing publications in the world's leading biological journals. In FY 1971 the ten permanent biologists published 29 articles. Non-permanent staff members contributed 32 publications. Many others were written by visiting scientists based on work at STRI. Twenty-eight important seminars were given at STRI in FY 1971.

The growth in visitors to STRI is testimony to its role in research in the tropics. In FY 1971, 795 men and women from 55 universities and 47 other institutions in 24 states and 20 countries mined the intellectual and environmental resources at STRI. STRI harbors five installations for studying tropical marine and terrestrial ecology in the forests and lakes, seashores, and mountains. Work is underway in forty different habitats on interactions between hundreds of different organisms and their environment. STRI provides a base of operations for pursuing fundamental questions in biology and for understanding the tropics--habitat for one-half of mankind. Concurrently, comparative studies elsewhere in the New and Old World tropics are magnifying the value of efforts at any one locale.

An increase of \$269,000 is requested to provide a balanced program of research and research support, facilities management, and administration adequate to keep pace with the accelerating demands on the Institute. In addition \$46,000 are sought to cover necessary pay for staff.

Behavior and Environment (6 positions; \$177,000)

Additions to the STRI staff will permit progress in comprehending the relationships between ecology and behavior in these two realms. Current studies will incorporate research of wide ecosystem scope including analysis of processes such as energy flow, productivity, nutrient cycling, and food webs. The increase would enable group attacks on key questions and would contribute to the foundation of fundamental research on which to build productive collaboration with others on determining the biological costs of climatic and other physical environmental changes. In addition to fitting precisely within STRI's overall research plan, six scientists would assist in helping STRI to meet the increased calls for advanced training guidance in the subject fields. At the heart of STRI's success has been the slow but steady and deliberate assembly of an outstanding corps of young scientists. The addition of 6 positions would allow a measured step of progress in servicing an area of growing need in biology. Salary needs are \$141,000; travel, household goods transportation, supplies, lab and office needs are \$36,000.

Advanced Studies and Facilities Support (11 positions; \$92,000)

World-wide biology is being enriched importantly by a belated but increasing focus on the tropics. STRI provides a base of operations for tropical research unique in this hemisphere and is acting increasingly as a work-ground and interchange point for collaborators from around the world.

This demand is greatly welcome and offers promise of concerted advances on urgent biological problems of the Seventies. The effect is that STRI is crammed literally to the rafters with staff, fellows, and visiting scientists. Immediate needs include two clerk typists to provide support to administrative and program areas, two game wardens (to stop commercial poaching on three points of land recently provided by the Canal Zone Government in Gatun Lake), three laborers or maintenance men (one each for Barro Colorado Island, Galeta Point, and the Cali Station), and a procurement officer for the general administrative offices. Personnel costs for these positions total \$41,000. In addition, in the latter part of FY 1972, STRI will receive a 65 foot surplus Navy vessel which has been converted to scientific use through the courtesy of the Naval shipyard at Annapolis. Costs of operating the vessel are \$18,000 for a captain and crew of two and \$19,000 for the first year's equipment and supplies.

Additional maintenance and support funds of \$14,000 are needed at the various installations to help STRI keep pace with some of the most crucial building needs. Because of the tropical environment and the age of many of the buildings, maintenance costs continue to increase. The added amount would raise the present funds available for general repairs to about \$39,000 per year. The requested increase would be distributed to the needs in the various installations as follows: Barro Colorado Island (\$4,000), Naos Island (\$3,000), Cali station (\$1,000), the Ancon and general headquarters building (\$6,000).

RADIATION BIOLOGY LABORATORY

<u>Program Categories:</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Regulatory Biology <u>1/</u>	11	266,000	11	267,000	16	478,000
Solar Radiation and Environmental Biology <u>2/</u>	8	125,000	13	235,000	13	240,000
Instrumentation and Carbon Dating <u>3/</u>	9	120,000	9	134,000	10	154,000
Facilities Maintenance <u>4/</u>	12	443,000	13	465,000	13	474,000
Total Operations	40	954,000	46	1,101,000	52	1,346,000

1/ Studies of light-controlled reactions, such as seed germination, flowering, photosynthesis; pigments that absorb light and transfer energy to produce responses; transfer of light energy from pigments to metabolic systems; electron microscopy of cells and membranes of plants and animals.

2/ Measurement of sunlight incident to the earth's surface, changes in quality of sunlight, as influenced by seasons of the year and latitude; correlation of light, temperature, humidity and nutritional effects on growth and development of plants and animals. Operation of stations to monitor and measure sunlight (at the Mall; Rockville, Maryland; Point Barrow, Alaska; Jerusalem, Israel). Maintenance of standard instruments used by organizations around the world.

3/ Determining the age of geological and archaeological artifacts of cultural significance for the Smithsonian Institution and for other U.S. and foreign institutions and universities; paleoclimatic studies of the United States; design and development of new instrumentation for the Laboratory and other Smithsonian research programs.

4/ Rent for the 50,000 square foot building (\$250,000 per year), payment of utility services (gas, water, electrical services and trash removal); custodial and skilled mechanical personnel for maintenance of the building; supplies, contractual services and replacement of wornout mechanical parts (motors, blowers, pumps).

RADIATION BIOLOGY LABORATORY

1971 Actual.....\$ 954,000
1972 Estimate.....\$1,101,000
1973 Estimate.....\$1,346,000

Light is a key controlling environmental factor for the development and growth of biological systems. The storage of solar radiation as chemical energy in photosynthesis is basic for all life on earth. However, the utilization of radiant energy and stored chemical energy is regulated by subtle changing signals of light quality, duration, and intensity. A primary objective of the Laboratory's efforts is to explain the influences of the various factors in the environment--light, temperature, humidity, and atmospheric content--on the growth and development cycles of plants and to characterize the mechanisms through which environmental signals eventually manifest their effects on the developmental processes in living organisms. This is accomplished by studying the problems in the Laboratory under controlled conditions using biochemical, biophysical, and physiological techniques and then verifying the importance of these processes in nature by monitoring the natural, dynamic environment. Such programs of research by their very nature are long-term and require the concerted team efforts of many scientific disciplines.

The research of the Laboratory consists of three principal areas: (1) Regulatory Biology, (2) Environmental Biology, and, (3) Carbon-14 Dating. From the initial charge that it be concerned with the effects of the sun's energy on earth's life, a major portion of the program of the Radiation Biology Laboratory has been devoted to the study of the responses of living organisms to various qualities and intensities of radiant energy.

Since its inception in 1928 the Laboratory has pioneered research on the influences of the spectral quality of visible light on plant growth and development. The present experimental program is of greater scope than in any other single laboratory in the country and perhaps in the world. The complexity of the problems studied is demonstrated by the number of disciplines within the program, which has a range through physiology, cytology, biochemistry, biophysics, physics, engineering, electron microscopy and morphology. The Laboratory has been credited with major contributions in the field of photobiology.

In FY 1973, an additional \$216,000 is requested to extend the research efforts in Regulatory Biology and to provide some supplementary support for the Carbon Dating effort. In addition, \$29,000 is being sought for necessary pay for staff.

The Laboratory has planned a three-year phased program toward completing the re-location facility. The most critical shortages exist in the regulatory biology program, a research area of major emphasis that is primarily concerned with light-controlled plant and animal responses. These responses, influenced by light signals of varying degrees, help to trigger major changes in the reproductive and life cycles of plants, and in the migratory patterns of birds and animals.

The current funding level for the laboratory does not permit installation of controlled light growth room facilities or temperature control of approximately 20 research rooms; the FY 1972 appropriation increase will provide about \$70,000 for planning and installation of one office prototype growth room. With this amount remaining in the FY 1973 base, an additional \$135,000 will be necessary to provide for three additional control rooms in that year. The fifth will be started in FY 1974. Attention will then be

directed to obtaining, installing and making operational the refined temperature apparatus needed in the balance of the laboratory's research areas.

Research programs have been seriously delayed by lack of laboratory equipment and outfitting owing to relocation. Each of the research rooms projected involves approximately 100 square feet of floor space. Each requires precision control of light quality, intensity and duration, relative humidity, gas content and temperature. The estimates for each room include an insulated shell, temperature control, humidity and gas exchange equipment, and lighting units capable of simulating subtle changes in spectral quality, intensity and photoperiods of natural daylight.

Completion of the controlled growth facilities as soon as possible is imperative, not only for the program of research in regulatory biology, but also for other areas of investigation in the Laboratory. In studies correlating influences of daily and seasonal changes in the quality of sunlight, it is indispensable to measure and control climatic conditions in which plants are grown, varying major environmental factors to show their interactions with each other and with the different wavelengths of sunlight that occur in nature.

Understaffing in the regulatory biology program area, which consists of about one-third of the total program of the laboratory in work projected, has seriously hampered progress. The required additional staffing, consisting of a biophysicist, a plant physiologist, an instrument specialist and three technicians, would provide an adequate number of investigators and technicians to strengthen current research. The balance of \$81,000 would be applied in this area and is indispensable to the FY 1973 plans.

Regulatory biology research in this Laboratory has produced significant information toward the understanding of fundamental photobiological processes and mechanisms. It has been shown that Neurospora, a fungus, synthesizes carotenoids in the presence of light--one of these carotenoids is the precursor of Vitamin A, required for human vision. Radiation Biology Laboratory investigators have already discovered that when neurospora is exposed to ultraviolet light, mutations are produced that cannot synthesize carotenoids. This laboratory group was also the first to isolate successfully and characterize a functional photosynthetic pigment complex, which as a primary absorber of solar energy enables organisms to grow at great depths in the ocean. Studies of the chloroplast structure and development have shown that one protein necessary for photosynthesis is made in the chloroplast while other proteins found in the chloroplast are made in other parts of the cell.

The solar radiation program has produced the only available long term data on ultraviolet light measurements. This information was used during this year by a Department of Commerce panel evaluating the impact of the SST program on the environment.

OFFICE OF ENVIRONMENTAL SCIENCES

<u>Program Categories</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Oceanography & Limnology Program <u>1/</u>	25	452,000	28	505,000	34	658,000
Ecology Program <u>2/</u>	5	99,000	5	121,000	7	187,000
Chesapeake Bay Center <u>3/</u>	4	68,000	6	128,000	9	209,000
Total Operations	34	619,000	39	754,000	50	1,054,000

1/ The Oceanography and Limnology Program basically operates and administers the Smithsonian Oceanographic Sorting Center in Washington, D.C. with federal funds and the Mediterranean Marine Sorting Center in Tunisia with foreign currency funds. Other activity in FY 1971 and FY 1972 includes the refurbishing of two oceanographic vessels and the completion of a research submersible using PL 480 and private funds. Provision of scientific direction through this program will enable nearly 100 scientists to engage in extensive oceanographic work. In FY 1973 the collections resulting from this activity will require increased personnel at the Smithsonian Oceanographic Sorting Center.

2/ The Smithsonian is a recognized leader in promoting scientific advances in the areas of remote sensing, biological control, and ecological preserves. Extension and intensification of this role is necessary in FY 1973 in ecology (as well as in oceanography and limnology) following the deliberations of the Stockholm Conference as well as other scientific initiatives.

3/ The Chesapeake Bay Center for Environmental Studies has developed a broad study concept for shared funding to learn how to do scientific management of a land-water (estuarine) system. Starting with funding for a minimum program in FY 1972, the Center will coordinate a major environmental study of the Rhode River Watershed beginning in FY 1973, mainly using resources of the University of Maryland, Johns Hopkins University, the Smithsonian, and many associated scientists funded by National Science Foundation, the Department of Interior, Atomic Energy Commission, National Aeronautics and Space Administration, Housing and Urban Development Agency, and private foundations.

OFFICE OF ENVIRONMENTAL SCIENCES

1971 Actual.....	\$ 619,000
1972 Estimate.....	\$ 754,000
1973 Estimate.....	\$1,054,000

The broad role of the Office of Environmental Sciences is to integrate the land, freshwater, and marine interests of the Smithsonian into cooperative scientific activities with other U.S. and foreign scientists. Individual projects are broad in scope and may involve hundreds of scientists; mostly supported by their own institutions. As an example, 350 scientists from at least 200 agencies and organizations receive specimens and coordinate their data production through the Oceanographic Sorting Center. Fifty scientists from nearly as many universities under Office direction are establishing guidelines for the measurement of the consequences of the construction of major engineering projects in five countries. Still another activity involves 12 scientists producing keys to freshwater organisms of importance to water quality. Two major ocean-going vessels are operated with monies from PL 480 funds and from private sources for biological and geological studies by perhaps 50 scientists. Studies in the biological control of non-agricultural pests are undertaken in the United States, Peru, Iran, Thailand, Ghana, and other countries. The Office is involved in national and international oceanographic and terrestrial expeditions and arranges participation for about 100 scientists each year. It reviews programs and provides environmental advice to many agencies and universities, including the National Oceanography and Atmospheric Agency, the Army Corps of Engineers, the Environmental Protection Agency, the Council for Environmental Quality, the Navy, University of Rhode Island, Woods Hole Oceanographic Institution, the Iran Foundation, the Link Foundation, and the Atlantic Foundation.

In response to the increasing need for useful information concerning environmental interactions with man, a major long-term study of environmental change is underway on the Rhode River Estuary of the Chesapeake Bay including land and water conditions as they are affected by man's activities. Studies by remote sensing and through a broad on-site data collection program are directed at obtaining information for immediate use in environmental management.

A program increase of \$271,000 is requested for FY 1973 for maintenance, technical support, and environmental studies of the Chesapeake Bay Center for Environmental Studies, and for the direction and supervision of the aquatic and terrestrial scientific programs. An additional \$29,000 is requested for necessary pay increases for staff.

At the Chesapeake Bay Center three positions (\$40,000) are being sought: a program administrator, a watershed scientist, and a laborer to assist with general maintenance of the land. Two positions, a research ecologist and a technician (\$25,000), are requested for the Ecology Program. Four positions are necessary to increase the Sorting Center's ability to handle a growing volume of collections from worldwide exploration, (\$33,000), and two personnel should be added to the Oceanography and Limnology program to accommodate the increased activity associated with vessel exploration and research (\$30,000). Other program support in the form of travel (\$5,000), equipment (\$21,000), supplies (\$55,000), and contractual services (\$62,000) should be increased.

NATIONAL AIR AND SPACE MUSEUM

<u>Program Categories</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Preservation, Restoration and Storage <u>1/</u>	21	187,000	21	266,000	37	549,000
Aeronautics <u>2/</u>	8	179,000	8	186,000	13	353,000
Astronautics <u>3/</u>	8	163,000	9	170,000	14	338,000
Spacearium <u>4/</u>	0	15,000	2	47,000	4	139,000
Information and Education <u>5/</u>	4	87,000	4	92,000	6	137,000
Total Operations	41	631,000	44	761,000	74	1,516,000

1/ FY 1971 efforts were directed toward the receipt, identification, and storage of air and space artifacts at the Silver Hill, Md. facility. In FY 1972 and subsequent years, this activity will be directed primarily at restoration of air and space craft for display in the new building.

2/ In FY 1971 Aeronautics activity was primarily engaged in maintaining exhibits in the Arts and Industries Building and the temporary Air and Space Building; researching the location and condition of artifacts; and performing research on engines, the Curtis collection, and other air material. All of this research will result in publication. From FY 1972 forward, emphasis will be placed on the development of exhibits to be tested and displayed in present facilities and then dismantled and stored for use in the new building. Substantial effort also will be given to supervising the restoration of aircraft to be displayed in the new building.

3/ In FY 1971 the major function of the Astronautics section was the collection, control, loan, and exhibit of space artifacts. Much exhibit work was done in museums outside the Washington area. The Astronautics Program will be engaged fully in activities directed toward exhibition in the new museum.

4/ Some equipment for a Spacearium was purchased in FY 1971. In FY 1972 and subsequent years, additional personnel and equipment will be added so that when the new building is opened a program "Bicentennial of Flight" will be ready for presentation to the public.

5/ In FY 1971 this consisted largely of answering inquiries from the general public, the Museum's own staff, and outside researchers using the NASM collection of books, periodicals, blueprints, photographs, etc. Efforts in 1972 and 1973 will be expanded and directed toward the development of a professional library system with an improved cataloging and circulation system, and control of subject files. Greater emphasis will also be placed on improved education programs.

NATIONAL AIR AND SPACE MUSEUM

1971 Actual	.....\$	631,000
1972 Estimate	.....\$	761,000
1973 Estimate	.....\$	1,516,000

By Act of August 12, 1946, the Congress established the National Air Museum as part of the Smithsonian Institution and later by Act of July 19, 1966, added the memorialization of space flight to its responsibility and changed its name to the National Air and Space Museum (NASM). The functions of the Museum are to memorialize the national development of aviation and space flight; collect, preserve, and display aeronautical and space flight equipment of historical interest and significance; and serve as a repository for documentary materials pertaining to the development of aviation and space flight.

In fiscal year 1972 an amount of \$1,900,000 was appropriated for the redesign of the National Air and Space Museum building which is to be constructed on the Mall and opened to the public in 1976, in time for the celebration of the American Revolution Bicentennial. This building will host over five million visitors a year, and will serve as the national focal point for the collection, exhibition, and historical research of aviation and space flight. The building will also house a Spacearium. This Spacearium is planned to be a domed audio-visual facility in which dynamic pictorial simulation of the stars as seen from the earth or space can be blended with still and cinematic full dome portrayals of space vehicle launch, rendezvous, planetary landing, and exploration. Presentations will range from conventional planetarium demonstrations to simulations of major space events. Further information on the building plans may be found in the construction request for this major new national museum.

To prepare for the opening of the new museum, it is essential to begin a major build-up of NASM program efforts in FY 1973. A program increase of \$741,000 is requested. In addition, \$14,000 are being sought for necessary pay for current staff. The pace of exhibits preparation required to meet the July 4, 1976 opening date makes it imperative that a sizable amount of the phased research and restoration work be started in FY 1973. The program request includes an increase of 30 positions (\$356,000). These personnel will be used to strengthen operations in four major areas:

Artifact Preservation, Restoration, and Storage (16 positions; \$126,000)

The present staff is hard pressed to keep up with the work at hand. Currently, there are 42 aircraft, 50 large space artifacts, and one hundred engines in outdoor storage at the Silver Hill facility. All of this material must be sorted, identified, preserved, and warehoused. New material arrives weekly.

Exhibits plans for the new building will incorporate the use of 50 major air and space craft. Of this number it will be necessary to restore 32 or an average of eight per year over the next four years. Our records show that each major artifact requires an average of three man-years to restore. Therefore, in addition to the normal ongoing receipt, preservation, and storage workload for the entire collection, it will require about 24 employees for artifact restoration specifically oriented to the exhibit collection. This work must be started in FY 1973 for completion in time for the FY 1976 opening.

Sixteen new positions at a cost of \$126,000 for the restoration process are requested. All of this staffing will be at the technician level (GS-4 to GS-7). The recruitment of a large number of lower graded personnel is possible because of the number of skilled mechanics already on the rolls. By recruiting at the lower levels it will be possible to free the present skilled staff from routine warehousing and other relatively non-skilled tasks and use them in the performance of difficult restoration work. The new lower graded personnel will be used in laboring, warehousing, and support capacity.

Professional and Curatorial Activities (10 positions; \$157,000)

The curatorial demands for the new museum will require a steady growth in the professional staff between now and the opening of the new museum. Current plans call for approximately 60 major and minor exhibit units ranging in content from Lindbergh's flight to space biochemistry. Experience shows that a major exhibit requires four to six months to prepare. This preparation includes the research and development of an overall exhibit concept, the preparation of unit scripts, outside review of the scripts, and the search, both in-house and outside, for appropriate artifacts.

In FY 1973, it will be necessary to increase the curatorial staff by six professional staff members and four technical support staff members. Two of the professional positions will be new Department Chairmen. The remaining four curatorial positions will be filled by specialists in fields related to the exhibition and historical research programs; for example human factors, propulsion, and electronics. Costs associated with these 10 positions are \$157,000.

Spacearium (2 positions; \$40,000)

FY 1971 saw the beginning of the development of the Spacearium. Plans were drawn up whereby this project would be housed over the next three years in the Arts and Industries Building. This Spacearium (or Experimentarium as it could be called) would provide a testing ground for equipment and exhibits programs which would be transferable to the new building. At the same time it would give the millions of visitors to the A&I Building an educational as well as entertaining exhibit and a preview of an important component of the new museum. A small amount of funds was expended in FY 1971 to purchase equipment. The project is being further developed with FY 1972 funds. It is requested that \$40,000 be made available in FY 1973 for two specialists who would be responsible for the audio-visual and electro-mechanical functions of the Spacearium.

Information and Education (2 positions; \$33,000)

It is requested that \$33,000 be made available for a librarian and an information-education specialist. These two positions are necessary to staff professionally the NASM library which now contains about 14,000 items related to air and space history. Currently, the NASM is not able to handle a growing number of inquiries from the public and professional organizations, or to develop an education program directed initially toward the Washington area school systems with emphasis on young persons in the inner-city.

Other Support Funds (\$385,000)

An amount of \$385,000 is requested for support of programs and exhibits which will move into the new museum. These funds will be used for a variety of purposes: contracts for restoration of selected aircraft and space craft (\$150,000); contracts for exhibit consultants and temporary employees who will be involved in exhibit planning and preparation (\$85,000); electromechanical and audio-visual equipment for the Spacearium (\$50,000); and other necessary support for travel, transportation, publication, and other expenses (\$100,000).

CENTER FOR THE STUDY OF MAN

<u>Program Categories</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
American Indian Program <u>1/</u>	5	121,000	8	168,000	10	246,000
Urgent Anthropology <u>2/</u>	1	15,000	1	16,000	1	17,000
Research Task Forces <u>3/</u>	1	17,000	1	18,000	4	69,000
American Indian Language Program <u>4/</u>					2	117,000
Total Operations	7	153,000	10	202,000	17	449,000

1/ Activity consists primarily of development of the Encyclopedia of North American Indians. In FY 1971 a meeting with the General Advisory Committee took place. Plans were reviewed and volume editors selected. The scope and contents have been established, and meetings of volume editors with their respective advisory committees completed. Chapter and section authors have been selected, and many writing assignments made. In FY 1972, writing assignments will be completed and manuscripts will begin to arrive in the editorial office. In FY 1973 the editing and revision of manuscripts will take place.

2/ Identifies projects and funds small grants for the investigation and documentation of geographical areas of the world where rapid change is modifying or eliminating cultures and subcultures. The program funds some 15 grants a year ranging from a few hundred dollars to one or two thousand dollars each.

3/ In FY 1971 plans for 1st Task Force were developed. A small planning meeting was held and selected papers were given. The topic selected was differential population fertility as a crucial worldwide problem. In FY 1972 a large workshop is scheduled for the development of a research guide for studying population problems. A large number of monographs is planned. The 2nd Task Force on environmental depredation will be organized and a study meeting planned. Plans for 3rd Task Force on education have also begun. In FY 1973 the papers and monographs of the fertility population task force are to be published. The environmental task force workshop meeting will result in writing and research assignments. The workshop meeting for education task force will be held in FY 1973.

4/ In FY 1972, plans were made for implementing the program. In FY 1973 a linguist will be hired and an advisory committee will be selected. It is intended that the Center will provide assistance to at least six tribes in the initial year for preparation of orthographies and training of native speakers in linguistics techniques.

CENTER FOR THE STUDY OF MAN

1971 Actual.....\$153,000
1972 Estimate.....\$202,000
1973 Estimate.....\$449,000

The Center for the Study of Man coordinates research and development on a series of important anthropological programs. The American Indian Program is presently concerned primarily with the development of the 20 volume Encyclopedia of North American Indians. Another aspect of this program is the development of a system for providing scholarly educational materials concerning Indians to individuals, schools, and Indian communities. In addition the Center helps to coordinate educational intercommunication among Indians themselves, with scholars, and with appropriate government and private agencies.

The Urgent Anthropology Program identifies, publicizes, and finances, by means of small grants, needed research in geographical areas that are undergoing rapid environmental change as a result of urbanization, improved communications, better transportation, and other factors. The objective is to salvage and preserve information in selected rapidly changing areas before time and events erase our ability to understand the cultures that existed.

The Task Force Studies Program is coordinating the efforts of numerous anthropologists and other human scientists in developing new, comparative information on population, environmental, and educational studies. As the results of these studies begin to appear in monographs, the Center will undertake to interpret them for the general public through an exhibits program.

The American Indian Language Program is directed at meeting a long standing need of American Indian tribes; namely, the study and preservation of their languages many of which are in danger of disappearing.

A program increase of \$227,000 is being requested for FY 1973 for the above programs. In addition, \$ 20,000 is sought for necessary pay for staff.

American Indian Program (2 positions; \$60,000)

An increase of \$60,000 for the continued development of the Encyclopedia will be used to hire two editors and to pay the expenses of volume editors and contributors. Manuscripts will begin to arrive in late FY 1972, and by FY 1973 they will be coming in large numbers. The editors must prepare the manuscripts for final publication and their work will carry over into FY 1974. Target date for issuing the Encyclopedia is the Bicentennial year 1976.

Research Task Forces (3 positions; \$50,000)

Efforts to assemble "Task Forces" have been highly successful. More than 20 anthropologists and demographers are presently working on a worldwide population fertility project. Research is taking place at a number of different levels and a manuscript to assist scientists in studying population around the world is close to completion. A number of papers will be generated and published during FY 1973 by various organizations and institutions (at no expense to the government) through this effort. A second task force on environmental control consisting of a dozen well-known scientists has now been established. They are in the beginning stages of research and it is anticipated that important papers will result from this work by FY 1974. A third task force on the cross-cultural study of education will be organized in FY 1973. Although much of the expense of the task force studies will be borne by other organizations, appropriated funds are requested for a program coordinator and a typist for general overseeing of work and to pay for certain of the expenses

of the scientific investigations. In addition, a social scientist position is requested to interpret the results of the task studies through popular education means, such as museum exhibits. This scientist will be used also to strengthen the Institution's capabilities to adapt itself to changing conditions and to meeting new needs in the behavioral and social science disciplines which are increasingly influential in shaping research and exhibit views of man and society. The cost of these three positions and for related program support is \$50,000.

American Indian Language Program (2 positions, \$117,000)

The American Indian Language Program is in response to urgent requests from tribes for help in the study and preservation of their native languages. As part of the activities of the Center for the Study of Man, the Language Program will be related to the Encyclopedia efforts and it will supplement other programs of a non-curatorial sort in which the Center coordinates research and community needs. To develop this activity, \$117,000 are requested in FY 1973, a major portion of which will be devoted in initiating cooperative work with about one-half dozen tribes across the country. It is hoped that the program will include ten tribes in FY 1974, and about fifteen tribes in FY 1975.

For nearly a century research on American Indian languages has been a responsibility of the Smithsonian. The Institution is generally regarded to be the center for such research. It is assumed that such research is now being conducted but there has not been a linguist on the Smithsonian staff since 1970. In the past, a significant proportion of the research and publication on Indian languages was conducted by Indians - native speakers of the languages concerned - both on the Smithsonian staff and elsewhere. In recent decades there has been a marked decrease in the number of Indian linguistic scholars. Yet linguists agree that important advances in their science depend upon the knowledge which a native speaker brings to bear in the study of his own language. American Indian languages have a great deal to contribute to our understanding of languages in general. In order to ensure that this contribution will be made, it is essential that a significant number of American Indians be enabled to engage in the study of their own languages. In recent years there has been parallel growth in awareness in Indian communities of the importance and value of Indian languages and in the necessity for their formal study and teaching. The interests of the Institution and of Indian communities coincide. Awareness of this shared interest has begun to be evident. Tribes whose members are known to be interested in research and training in their language include the following. This number will increase.

<u>East</u>	<u>Midwest</u>	<u>West</u>
Passamaquoddy	Crow	Navajo
Miccosukee	Cree (Rocky Boy)	Eskimo
Mohawk	Sioux	Tlingit
Cherokee	Cheyenne (Northern)	Hupa
Choctaw	Chippawa	Diegueño
Micmac		Luiseno
Fenobscot		Cupeño
		Keresan
		Pomo
		Ute
		Makah

To meet this need, the Smithsonian proposes a long-term program to support research on North American Indian languages at the local level and mainly by linguists who are themselves native speakers of the languages. On the basis of initial inquiries and correspondence, the program will consist of: (1) assistance for training of native Indian linguists; (2) the preparation of materials on the native languages, which would be useful for the teaching of literacy and literature, and for the continued use of Indian languages in education beyond the elementary level; (3) the preparation of accessible linguistic resource materials on these languages for future use by both American Indian communities and the scholarly world. The program will be directed by a linguist who will be added to the staff of the Center. An Advisory Board will be appointed, to consist of approximately ten persons, half of them academic linguists and the other half native Indian specialists in language.

Funds for the support of these programs would be expended as follows: a linguist and secretary (\$28,000); research support (\$4,000); cooperative language research projects for six tribes at approximately \$10,000 per tribe (\$60,000); preparation of linguistic materials for six tribes at approximately \$3,000 to \$4,000 per tribe (\$20,000); and for the convening of the advisory board (\$5,000).

NATIONAL ZOOLOGICAL PARK

<u>Program Categories</u> 1/	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Research Program on Animals	14	210,000	22	335,000	27	422,000
Education and Exhibits	77	1,003,000	83	1,113,000	84	1,420,000
Foreign Zoo Grants, Training, And Breeding Farm Development		0		0	3	179,000
Operations and Facilities Management	156	1,950,000	181	2,361,000	201	2,952,000
Total Operations	247	3,163,000	286	3,809,000	315	4,973,000

1/ Descriptions of program activities are included within the text of the justification because of the diversity of the Zoo's operations.

NATIONAL ZOOLOGICAL PARK

1971 Actual.....\$ 3,163,000
1972 Estimate.....\$ 3,809,000
1973 Estimate.....\$ 4,973,000

The National Zoological Park was founded in 1889 for the "advancement of science and the instruction and recreation of the people." To accomplish this, the Zoo exhibits a broad collection of animals from all parts of the world in natural surroundings; maintains an information and education program for the benefit of the visiting public from all over the United States; and promotes scientific research, including bio-medical programs, for the advancement of science and the benefit of the animals so that visitors can enjoy them in prime health. The Zoo is organized in three departments: Office of the Director; Operations and Maintenance; Department of Zoological Programs. The number of visitors increases annually. In 1971, over 5,100,000 people visited the Zoo. A significant number of these visitors are in organized school groups from the metropolitan area and more distant points. The Zoo is increasingly used as a teaching site by teachers of biology and other natural sciences. The increased visitor load intensifies requirements for patrols, trash clean-up, washroom sanitation, first aid, and other services.

Continued improvements have been made in the collection of animals, which is one of the world's largest. As the collection evolves, the Zoo will present exhibits of greater visitor interest and, at the same time, give greater emphasis to species and groups which effectively demonstrate significant points of animal adaptations and behavior. Greater emphasis will be given also to increasing zoo births by pairing unmated animals and maintaining breeding groups. Not only is this good conservation practice, but it is essential in view of the increasing scarcity of many species and the high prices that must be paid to acquire them.

A program increase of \$846,000 is requested for FY 1973 to: continue the phased staffing of the Hospital - Research Building and to meet other research needs (\$72,000); improve the animal care and educational aspects of the Zoo (\$269,000); provide assistance to foreign zoos in underdeveloped countries and to establish a rural annex for the maintenance of breeding herds (\$179,000); and for general maintenance of the physical plant and equipment (\$326,000). An additional \$318,000 is requested for necessary pay for currently authorized staff.

Research Program on Animals (5 positions; \$72,000)

The Department of Zoological Programs consists of scientific research projects and associated scientific education. Included in the scientific research projects are studies related to lead poisoning in many species, vitamin E deficiency in fowl, antibody response to animal panlucopenia vaccine in exotic felidae, aid-fast organisms in the great apes, and many others. This program also provides training and research opportunities for graduate students.

The Scientific Research Division undertakes studies of animal behavior, reproduction, and nutrition. The Zoo collection is a major scientific resource. For this reason, facilities and assistance are often provided to scientists from federal agencies such as the National Institutes of Health as well as from universities. The Zoo's own scientific studies add to man's understanding of the living world. Investigations undertaken in the Zoo and in the field have yielded numerous scientific publications. The work of the Scientific Research Division results in improved care of animals in the collection, as reflected in their well being and reproduction. This work is also of benefit to other zoos and animal collections.

The new Hospital-Research Building provides facilities for extensive research necessary for caring and rearing of animals in captivity. The research personnel using this facility will include guest investigators and graduate students from those laboratories and universities coordinating their research program with the National Zoological Park. One wildlife biologist is requested for extensive research in behavior, reproduction, and nutrition of the large carnivora group of vertebrates, (\$17,000). Four secretarial positions are requested to aid the four staff scientists in their research. The workload of manuscripts, correspondence, daily reports, etc. has increased. Secretarial services will release the scientists, supervisors, and technical staff to concentrate their full efforts on demands of the collection (\$37,000).

Publications are costly. Most professional journals now charge page costs for publication and the demand from all professional journals to cover publication costs has increased. Since the scientific productivity of the National Zoological Park is increasing and, further, since it is desired to begin publishing technical manuals concerned with animal husbandry, funds are requested to cover costs of publication both within the Smithsonian Press and with respect to those articles sent to outside journals (\$6,000).

Funds are requested to cover the costs of contracting various portions of research projects to professionals working with this institution. Rather than acquire permanent staff members, thus locking the scientific research program into a fixed pattern, it is deemed desirable to retain flexibility by contracting with technical personnel for services performed as the need arises. Prior experience with research has indicated the desirability of such a flexible system. Some programs cannot be executed without the availability of funds for contracting services by professionals to perform certain preliminary stages of research which could then be taken over by permanent staff members (\$8,000).

Additional funds are required to provide for the increased cost and usage of research supplies, equipment, and contractual services (\$4,000).

Education and Exhibits (1 position; \$269,000)

Education of the public is accomplished by presenting one of the largest and most varied collection of exotic animals in existence. To support this collection, an animal care program involving feeding, cleaning of cages, and exhibition is conducted. The staff scientists and head keepers collaborate with the Divisions of Animal Health, Scientific Research, and Pathology to improve the medical treatment of animals, collection of medical data, evaluation of medical programs, and development, investigation and support of various research programs.

Included in the animal care program are pest control efforts to eliminate insects and rodents and a commissary program for ordering, receiving, storing, preparing, and delivering animal food, as well as raising special food items. In the past, many food items have been acquired either through gifts or at greatly reduced costs. The free rat and mouse supply has been discontinued. This necessitates buying on the open market. Other sources of gifts and below cost items could be cut off at any time. Additional funds are requested to meet steadily rising food prices, as well as to purchase other necessary items to maintain a healthy collection of animals (\$58,000). The replacement prices for sundry supplies and uniforms and equipment also have risen sharply. Funds are requested to cover the increased cost and usage of these items (\$29,000).

The Office of Information and Education is responsible for disseminating general information to the public; preparing press releases; assistance with TV coverage; documenting unusual and important events occurring within the Zoo; aid and assistance to free-lance, staff, press, and movie photographers; and for labeling the entire collection.

The Zoo's interpretive and educational exhibits have thus far consisted chiefly of cage labels. The Zoo does not have an exhibits shop to fabricate the kinds of educational exhibits needed to interpret its living collection of animals to visitors. Cage decoration thus far has been largely improvised by animal keepers, using branches, rocks, mosses, and other materials to meet the requirements of animals for perching, climbing, privacy, shade,

etc. In modern zoos, materials such as molded fiberglass are extensively used to simulate rocks, tree stumps, and plants. The Zoo has no plans to install the special and costly facilities required to fabricate exhibits with these materials. Funds are requested, however, to provide for contract design and fabrication of exhibits similar to those seen in visitor centers and at other points in national parks, as well as in many modern zoos (\$150,000).

With the addition of animal managers (wildlife biologists) and the growth of the professional-research-medical staff, the requests for informational labels, scientific books and journals, and film reproduction have increased. One exhibit specialist, and funds for books, supplies, and services are requested (\$19,000).

Funds are requested to meet the cost of printing a two-color guide to the Zoo (\$13,000). The text has been prepared for an attractive, eye-appealing brochure and designers are making preliminary sketches. With an annual attendance of over five million people, an initial printing should not be less than 100,000 copies. In an attempt to fill the need for the thousands of requests that this office receives for information on the Zoo and its collection, a mimeographed hand-out entitled "Highlights of the National Zoo" is furnished. The "Highlights" however, does not take the place of a well designed brochure which can be used to fill Congressmen's needs for material for their constituents' requests for information on the city of Washington. Nor does it qualify as the proper material to fill the requests for information from travel organizations, chambers of commerce, the Metroliner, etc.

Foreign Zoo Grants, Training, and Breeding Farm Development (3 positions; \$179,000)

The Zoo staff is frequently called on for assistance from foreign zoos and wildlife parks. There have been on-site consultations in many cases. Often these zoos, or their parent organizations, can meet the expenses of this assistance. This is not the case with regard to the several hundred zoos in underdeveloped countries. Use of the funds would be limited to supplement the advice and assistance that is now rendered to a few zoos. Examples: Ghana (Accra and Kumasi); Brasilia; Santiago (Chile); Surabaja (Indonesia); etc. Funds are requested for the following two items (\$5,000):

- Books and periodicals: In many of the nations visited, the zoos have been unable to get dollar exchange to buy the most fundamental reference books. Funds would be used to provide zoos with basic kits of the ten most-needed standard books, supplemented by special volumes appropriate to their needs.

-Travel and subsistence: In many cases, it would be far more valuable for a foreign zoo director or veterinarian to come to the United States for a few weeks than to have a Zoo staff member visit him. His government would often be able to pay transportation costs (in its own currency), and the grant would supply the basic subsistence and local travel costs in the United States.

Funds are requested to finance training expenses of Zoo employees. This includes course fees, travel and subsistence when training is out of town, books, films, manuals, and other training materials for use in-house, and fees for individuals brought here as specialists for in-house training courses (\$5,000).

The rural annex has been in planning for six years. It would be 500 acres or more, chiefly for the maintenance of breeding herds or groups. It is anticipated that the land will be available without cost.

The imperative need for such an annex is recognized by most zoos today and annexes have been obtained by zoos in New York, Chicago, San Diego, Miami, Oklahoma City, and elsewhere. The primary reason for such annexes is that city zoos are, unavoidably, consumers rather than producers of wildlife. Deaths exceed births. At present, collections are maintained by new acquisitions of wild-caught stock, but this is fast becoming almost prohibitive in cost, and where species are rare or endangered, prohibited by conservation laws. Especially for the larger animals, city zoos cannot provide space for herds. Large zoos have collections which average 3 to 4 individuals per species. This is too small a number to assure the presence of compatible pairs of breeding age.

No zoo will attempt to breed more than a few species in its annex, and responsibilities for different species are worked out cooperatively. Thus if the National Zoo maintains a herd of 30 to 50 Pere David's Deer, it will produce a surplus which can be exchanged with other zoos for other species. The National Zoo hopes to develop an annex which will maintain herds of 6 to 10 species of large animals, such as deer and antelopes, with a number of smaller species as well.

Since it is not intended that these facilities will be open to the public, both development and operating costs will be far lower than in a public zoo. Farm-type structures will be used.

The FY 1973 appropriations request of \$169,000 is based on the expectation that the land will be obtained (through federal surplus procedures or use agreements) during that year. These funds will be sufficient to make initial improvements and establish small groups of animals in enclosures. It is anticipated that the land obtained will be sufficiently close to Washington for the operation to be serviced by the Zoo's existing administrative and animal health personnel. The three new employees requested are a maintenance worker, an animal keeper, and a farm laborer.

Once the operation is established and breeding herds begin increasing, the animal population of the annex will be brought up to certain target numbers, such as 50 for a deer herd. Operating costs are expected to increase over a five-year period. The anticipated maximum will not exceed 10 percent of the National Zoo's current operating budget.

The production of animals represents a return on this cost. For example, a herd of 50 Pere David's Deer might be expected to produce 10 to 15 viable offspring per year, worth about \$4,000 each at current market prices.

Operations and Facilities Management (22 positions; \$326,000)

Office of the Director

The Office of the Director plans and directs all Zoo programs. It also coordinates the activities and functions of the Planning and Design Office; directs the protective service program; develops and maintains the Zoo's educational program; and furnishes general administrative services. The animal acquisition program is under the direction of this office. Administrative services include budget, fiscal, supply, and procurement functions.

In FY 1973 the Zoo hopes to resume its interrupted program of reconstruction. Planning and construction funds are requested elsewhere in this budget. As new facilities are designed and construction begins, complex arrangements must be made to prepare these facilities for use. These arrangements affect every part of the Zoo organization. They include cage decoration, preparation of educational exhibits, scheduling transfers or purchases of animals, revision of directional signs, maps and guides, redeployment of keepers, instruction of maintenance and service men, stocking of supplies, estimating of utilities costs, etc. Since all departments are involved, no one department can be assigned the coordinating responsibility. To assist the Director in the coordination task, one special assistant and one secretary position with support funds are requested (\$25,000).

As the number of personnel in the Zoo increases and programs expand, the demand for utilities, supplies, contractual services, and equipment increases. Funds are requested to meet the rising cost and usage of these items (\$21,000).

The many diets that are required throughout the Zoo are well founded and tested but fall into broad general categories not recognized by evolution. Some diets do not meet the specific requirements of some animals. From time to time special problems arise requiring training and knowledge not found in the present staff. Regardless of a veterinarian's qualifications and experience, he can never by himself have the expertise to treat every species or correctly diagnose every symptom associated with nutritional deficiencies. It is requested that funds be made available for consultants fees when outside help is required (\$10,000).

The visitor rate climbs steadily higher, intensifying park traffic problems and requiring all patrolmen be assigned to traffic duty during peak periods. This leaves no patrolmen in the visitor areas during these periods. Crimes against persons are on the increase. Two police positions are requested to protect the visitor areas (\$28,000).

Operations and Maintenance

The Operations and Maintenance Department has responsibility for all plant maintenance and supporting services. These include:

- Operational services: automotive maintenance; operation of trucks and heavy equipment; trash collection; sweeping of streets and walks; snow removal; and janitorial services.
- Maintenance and construction: maintaining and repairing 15 major buildings and a wide range of cages and other facilities. This unit also performs renovation and minor construction, and builds nest boxes, shipping crates, exhibits, and other needed items.

-Grounds: maintaining and improving the 156 acres of trees, lawns, shrubs, flower beds, and indoor plantings.

-Air-heating: maintaining all heating plants and air conditioning in the buildings throughout the Park.

1. Operations and Maintenance Management

Typing of forms, ordering supplies and equipment, personnel actions, and time keeping have increased in this division. A clerk-typist will alleviate the workload of the division foreman, secretary, and production clerk of minor duties to permit efficiency in operations. One clerk-typist is requested (\$7,000). Funds are also requested to meet the increased costs of uniforms and other support (\$2,000).

2. Maintenance and Construction

The wear and deterioration of the facilities from the action of time, elements, visitors, and animals create a heavy corrective maintenance workload, leaving little time for preventive maintenance. Many of the facilities are in a state of disrepair and deterioration and there is a large backlog in the various trades. The existing backlog (man-hours) is as follows:

<u>Trades</u>	<u>Minor</u>	<u>Major</u>	<u>New Work</u>	<u>Total</u>
Carpenter	3769	3784	1864	9417
Electrician	3566	9040	1180	13786
Masonry	450	6800	1050	8300
Painter	240	360	890	1490
Pipefitter	4500	4000	900	9400
Sheetmetal Worker	576	2590	580	3746
Welder	750	3652	931	5333

Examples of backlogged work are as follows:

1000 pieces of skylight glass to be cleaned and recaulked
clean and repair drip gutters on all skylights
check and repair flashing on skylights
build up roof areas to allow proper drainage
Build forms for concrete flooring
Repair and replace shelves throughout Park
install and maintain outside flood lights on buildings and parking lots
maintain incubator room at the Bird House. (daily-reset thermostat, replace woofers, etc.)
install approximately 2,000 ft. of guardrails throughout the Park.
install gates in holding yards at the Hardy Hoof Stock area
repairs to trucks, trailers, jeeps, scooters, sedans, and other vehicles
repair work on exhibit cages, inside and outside.

One welder, one carpenter, one electrician and two maintenance journeymen with funds for building supplies are requested (\$71,000).

3. Tree and Garden Maintenance

By FY 1973 this division expects to have a backlog of 30,000 man-hours of tree maintenance, landscaping, and gardening. Kudzu and honeysuckle vines around the perimeter fences (one-third completed) must be cleared to control bees and insects.

Sections of woodland require approximately 40,000 man-hours or three years to eliminate trash trees and debris that have accumulated, choking out trees and ground coverings. Since much of the work is seasonal, the use of temporary employees is of tremendous value to the program. Additional funds are requested to permit an increase in temporary employees (\$5,000).

Seasonal work:

Bare root planting	March and April
Fertilization periods (5 applications)	May, September, October, November, and December
Seeding	August 15 to September 15
Liquid fertilization of tropical plants	every 4 weeks
Liquid fertilization of new trees	every 6 weeks

With the expansion of botanical species in the Park, there is a continuous need to control ornamental pests, test pesticides for safety, and apply liquid fertilization to plants. The new environment concepts and the selected use of pesticides by U.S.D.A. will require a trained gardener (pest control expert) in this field to keep a continual watch and operate an eradication program (\$9,000).

Shade trees in the Zoo provide beauty, comfort, purification of air, and foliage feed for the animals. A tree maintenance survey of public trees was made in the past fall and again in the spring. There was a backlog of approximately 26,000 man-hours of tree maintenance or 6-years of work. The two grounds worker positions granted in FY 1972 will allow for more actual climbing work, thereby cutting the backlog to 5-years of work. One tree maintenance worker (climber) is requested to assist in reducing the backlog of tree maintenance (\$11,000), permitting the tree section to schedule cycles of preventive maintenance and insure the safety of visitors, employees, and animals.

Funds are requested for supplies and to purchase a tractor with backhoe. The tractor needed will be a turf type designed for operation on lawns with a minimum amount of damage to the turf. The sickle bar mower and bush hop attachments are necessary to mow the Hospital Center area, paddocks, and woodlands. It has been necessary in the past to borrow a tractor from another government agency during the seasons for planting of trees, evergreens, etc. During the spring and fall landscape periods of two months, a tractor is needed eight hours per day five days per week. Valuable plants are lost due to delays in planting. (\$23,000).

4. Air-heating Services

Good tight surveillance of operating conditions in buildings during all seasons is necessary to prevent over heating or extreme chilling that might cause the loss of valuable and/or irreplaceable animals. One boiler plant operator is requested to bring the manpower up to standards for the safety of personnel and animals and effect maximum operating efficiency of the boiler plant and buildings (\$10,000).

There is an extensive web of steam and return lines, over 5,000 feet, located in buildings attached to the Central Heating Plant. There are a great many hand valves, automatic valves, traps, and other controlling devices. Many have been in use for twenty years or more, with nothing more than break-down emergency maintenance being accomplished. Obsolete radiator valves in public areas must be replaced to insure the safety of the visitors.

Approximately 3,000 feet of steam and return lines should be insulated which would help conserve heat. Many of the branch lines are in need of covering and replacement. One steamfitter position is requested to accomplish the backlog of work (\$12,000).

One clerk-typist is requested to assist the chief engineer and the assistant chief with routine paper work and record keeping. This would allow the two supervisors to spend valuable time in inspecting buildings and steam-lines for malfunction and needed repairs, as well as instructing and training apprentices in the shop (\$7,000). Funds are also requested to meet the increased costs of supplies and equipment (\$5,000).

5. Operational Services

The motor pool is responsible for furnishing transportation and pickup and delivery service to all departments. It must dispose of ashes and debris twice daily. Out of town trips (average one weekly) and trips to the three local airports (average four weekly) to pickup and deliver animals, require the services of vehicle operators. When these and other requests have first priority, the pickup and delivery services for the departments often fall behind schedule. One additional vehicle operator position is requested to aid in carrying out the work that is assigned to the motor pool (\$8,000).

At present there are one lead foreman, two auto mechanics, and two junior mechanics to maintain a fleet of 26 trucks, 3 station wagons, 4 jeep-type vehicles, 13 scooters, and 9 pieces of other equipment. Some trucks are on the road seven days a week and others have been in service for ten years or more. One junior mechanic position is requested to augment the present staff assigned to maintaining all zoo vehicles (\$11,000). An additional \$3,000 is required for gasoline, parts, and sundry items.

An amount of \$10,000 is requested to increase the vehicle replacement allotment. The cost of a truck or station wagon has increased 18 percent in the past two years. There are thirty vehicles in the Zoo fleet with an average age of 6 years. Every effort is being made to establish a sound replacement schedule, budgeting to replace each vehicle on the basis of life expectancy. This schedule makes no provision for replacement of vehicles or equipment which are damaged or destroyed prior to their scheduled replacement. This year, for example, one 2 1/2 ton truck was lost in a fire, and a police car was heavily damaged in a collision.

An amount of \$6,000 is requested to purchase two salt and sand spreaders. Since salt can only be used in outlying areas throughout the Park, it is not an economical practice to clean a spreader when roads must be made safe for traffic.

The labor force is responsible for assisting mechanics in performance of their duties, moving furniture and equipment, maintaining the fifteen major buildings, twelve public restrooms and sixteen employees' restrooms in a clean, presentable and sanitary condition, and removing trash left by visitors over the 156 acres of Park grounds. The walkways in the eight public buildings are scrubbed with detergents and disinfectant once a week and swept once a day. As the number of visitors increases, the number of available laborer and janitor positions is not sufficient to maintain a seven-day per week schedule requirement. An increase of two laborers and one janitor is requested. A labor leader and a janitor leader also are requested to insure proper supervision. Funds are also requested to meet the rising costs of custodial supplies and equipment (\$42,000).

HISTORY AND ART

The Smithsonian possesses an unequalled array of resources, both material and human, for the understanding and illumination of our country's history through its material culture, its technology, and its art. No other Institution has a greater and more exciting opportunity to demonstrate and celebrate what Americans--all Americans--have accomplished.

As the custodian of national collections comprising literally millions of historic objects and works of art, it is our responsibility to make sure that these collections are used as effectively as possible for the benefit of all. We must care for these collections, we must make them available to scholars both from our own staff and from the broader academic community, and we must use them intelligently and imaginatively to help tell the story of American civilization to our millions of visitors and, through publications and traveling exhibitions, to an even wider audience. It is also our responsibility to seek the continued growth of these national collections; as we are the beneficiaries of the foresight of past generations, so must we be the benefactors of future generations, passing on to them the fruits of our stewardship.

With two exceptions, the Joseph H. Hirshhorn Museum and Sculpture Garden, the Museum of History and Technology, the budget requests in the area of history and art are modest, reflecting our determination to fulfill our obligations and to realize our opportunities as economically as possible. The funds requested for the Hirshhorn Museum are required to equip and furnish the building when it is turned over to us by the contractor. Postponement of these non-recurring expenditures would inevitably delay the public opening of this great new museum. The substantial increase requested for the operation of the Museum of History and Technology is the first since its opening in 1964. The budget of this, the most popular museum in the world, has remained almost static over the years; its staff has grown by only five positions in the last five years (1968-152, 1972-157). In order to serve its 6,000,000 visitors each year, to care for its ever-growing national collections, and to fulfill its responsibilities as a center for the study of American civilization, the Museum of History and Technology now requires additional resources.

Although many history and art bureaus of the Smithsonian have received no increases in operating funds during the past two or three years, and although inflation has caused many of them to suffer in effect a decrease in funds, we have sought insofar as possible, to meet our needs out of existing resources. To this end, we have undertaken to terminate some activities and to reduce others drastically--for example, the International Art Program, the Smithsonian Journal of History, and temporary exhibition programs in all our museums. We shall continue to scrutinize all our activities with a view to maintaining a strong sense of priorities. At the same time, with the enthusiastic cooperation of our museum and bureau directors, we have encouraged cooperative efforts among our history and art bureaus in the name of efficiency and economy; shared library and conservation facilities, for example, serve the National Collection of Fine Arts and the National Portrait Gallery better and more cheaply than would separate ones.

Despite these efforts, which will continue, certain real needs hamper the effective operation of many of our history and art bureaus and prevent us from deriving the full benefits from the investment that has been made in them. The requested increases that follow represent, in our judgment, the minimum amounts needed to correct the most pressing of these shortages.

NATIONAL MUSEUM OF HISTORY AND TECHNOLOGY

<u>Program Categories</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
National Collections <u>1/</u>	52	677,000	47	647,000	61	1,150,000
Exhibits Research and Planning <u>2/</u>	8	119,000	12	178,000	12	373,000
Scholarly Research & Higher Education <u>3/</u>	46	780,000	44	723,000	46	885,000
Public Information and Education <u>4/</u>	44	566,000	38	565,000	40	804,000
Bicentennial Activities <u>5/</u>	8	100,000	16	327,000	16	372,000
Total Operations	158	2,242,000	157	2,440,000	175	3,584,000

1/ The MHT still takes the lead in acquiring and caring for the nation's historical treasures, although this has been more difficult due to increasing competition with private collectors and other museums. While the NMHT has received many important collections as gifts in FY 1971, a restricted budget has precluded an adequate level of curating important objects.

2/ During FY 1971, 28 temporary and permanent exhibits opened in NMHT; substantial work was completed on nine more. Examples: "Music Machines, American Style," revealing how American inventiveness influenced the production and consumption of music in the U. S. A.; and "Do It The Hard Way," an exhibit of the influence of technology on American life taking off from the work of Rube Goldberg. Photographs of these exhibits, as well as the planned Post Office-General Store, appear at the end of the justification. The Museum has an obligation to interpret American civilization to the American citizen through a comprehensive program of special exhibits. Additional resources are required to develop new exhibits without sacrificing other activities.

3/ At a time of rapidly changing technology and national self-doubt, there is an urgent need to help the nation discover and appreciate its special achievements. This imposes a heavy obligation on the NMHT which must continue to expand and develop its research function, attracting the highest quality of scholars and students.

4/ In addition to being the national repository and a major research center, NMHT provides a vast range of public information and educational services on historical subjects. In FY 1971, staff members answered over 60,000 public inquiries related to American history and culture. Lectures and seminars have been given to an increasingly large audience. Technical and professional advice has been provided to other museums and historical societies. Orientation tours, lecture, and docent programs have been offered to visitors and groups. In FY 1971, tour programs were expanded and new orientation devices installed. In the future, it will become more difficult to devote enough staff time and money to such programs, since the press of up to 50,000 visitors per day heavily burdens existing resources.

5/ Increasingly, NMHT base resources are being devoted to Bicentennial programs. During FY 1971, much staff time was spent planning many important B. A. R. exhibits, among them, "A Nation of Nations," NMHT's major B. A. R. exhibit, and smaller exhibits on two heroes of the Revolutionary period, Benjamin Franklin and Thomas Jefferson. Important objects were collected. From the present until 1976, resources will be increasingly devoted to the B. A. R. effort; by 1976, 75 per cent of staff time will be devoted to B. A. R. projects.

NATIONAL MUSEUM OF HISTORY AND TECHNOLOGY

1971 Actual.....\$2, 242, 000
1972 Estimate.....\$2, 440, 000
1973 Estimate.....\$3, 584, 000

The National Museum of History and Technology occupies a unique position among the great museums of the world. As the repository of the national collections documenting the historical and technological achievements of the American people, the Museum has responsibility for over 16,000,000 objects related to all facets of the American experience. Each of these objects must receive the highest level of professional care and preservation.

As the most visited museum in the world, the National Museum of History and Technology was host to almost 6,000,000 visitors during fiscal year 1971. It is anticipated that this figure will double by the Bicentennial year, 1976.

As a center for the scholarly study of the history of American civilization and the history of science and technology, the National Museum of History and Technology continues to support and encourage basic research and publication in a multitude of subject fields, ranging from early exploration to studies of contemporary American culture.

For FY 1973 the NMHT requests an additional \$1,100,000, of which \$441,000 is to correct existing shortages(\$50,000 for new positions, \$391,000 for other expenses) and \$659,000 is to fund new programs (\$169,000 for new positions, \$490,000 for other expenses). An amount of \$44,000 for necessary pay also is requested.

Correction of Existing Shortages (7 positions; \$441,000)

During the seven years since the NMHT opened to the public in 1964, it has endeavored to fulfill its responsibilities to the American people in a variety of ways:

-It has provided a variety and richness of public exhibits seen by over 35,000,000 visitors.

-It has provided a steadily increasing range of public information services such as public lectures, concerts, tours, and responses to public inquiries.

-Its collections have provided the historical documentation for countless scholarly monographs and general works of history, many of which have been produced by the Museum's own staff.

With the approach of the Bicentennial celebrations, even more attention will be focused upon the NMHT's unique collections of the nation's historical treasures. Citizens, visitors from abroad, scholars, researchers, and collectors will be more than ever drawn to the Museum.

While the responsibilities of the NMHT have grown substantially during its seven years of existence, the staff has not. Insufficient staff has prevented the completion of the cataloging, preservation, and interpretation of the millions of invaluable objects in the national collections. By providing more adequate care of donated and purchased materials, the Museum will continue to attract the important historical treasures which it must have to meet its responsibilities. A total of \$441,000 is requested to correct present Museum deficiencies in the following areas:

Computerized Inventory of the National Historical Collections (\$71,000 support funding) - A computerized, descriptive catalog of the national collections is urgently needed and long overdue. Much of the material in the collections was acquired before systematized methods of cataloging were developed, making it difficult to locate individual objects or to discern if certain classes of specimens are included in the collections at all. The number and diversity of the objects in the collections, ranging from miniature postage stamps to a 140,000-pound electrical generator, makes it essential to have a standardized inventory of the Museum's resources. Using present non-computerized methods of cataloging, less than half of the almost 1,000 new specimens acquired by the NMHT in FY 1971 could be cataloged. A fully computerized inventory system will permit the NMHT for the first time to reduce its present backlog of cataloging and to keep pace with current acquisitions. Preliminary studies of various inventory systems have already been made by the Museum and several pilot inventories of particular collections have been completed. With the \$71,000 requested, the NMHT could begin to expand its inventory program to encompass the entire national collections by contracting for computer time and software.

Prevention of Deterioration of Objects in the National Collections (3 positions; \$23,000 personnel funding) - In several areas of the national collections, specifically numismatics, costume and furnishings, and musical instruments, there is not sufficient staff to provide adequate care to the objects presently in the collections. Three museum technicians are requested (\$23,000) to prevent further deterioration in these collections.

Refurbishing Public Exhibit Areas (\$120,000 support funding) - Another serious concern of the NMHT is the condition of its public exhibit areas. Since the Museum opened in 1964, there have not been sufficient resources to maintain adequately the exhibit halls, many of which have badly deteriorated. Moreover, many specimens on display have suffered considerably from public exposure, especially those which are part of operating exhibits (such as the Machinery Hall, Transportation Hall, and Petroleum Hall). At present, expensive curatorial time must be devoted to housekeeping chores in order to maintain the exhibit halls to even a minimum level of appearance and operation. In order to free this valuable curatorial expertise from housekeeping duties, \$120,000 is requested to refurbish and upgrade existing exhibit areas to a proper museum standard.

Additions to the National Collections (\$200,000 support funding) - An additional \$200,000 is requested to allow the NMHT to acquire new specimens of extraordinary historical importance to fill serious deficiencies in the national collections. For example, there are in the Robert Gilbert collection of patent models a number of specimens which are a unique historical record, documenting in a vivid and dramatic way the range of American inventiveness during the nineteenth century. If individual models from the collections cannot be purchased in FY 1973, the models will be dispersed by sales to private collectors and this invaluable collection of objects will be lost to the American people.

Curatorial Support (4 positions; \$27,000 personnel funding) - In order to relieve professional staff from performing necessary clerical functions (such as typing responses to the thousands of public inquiries received each year), four clerk typists are requested.

New Programs (11 positions; \$659,000)

Research, Scholarship, and Interpretation (10 positions and \$158,000 personnel costs; \$146,000 support funding) - Until now, the vast resources--the collections, the scholarly and technical personnel--of the National Museum of History and Technology have not been fully and adequately brought to bear on our understanding of distinctive American ways of life and the American Standard of Living.

The attention of historians has been primarily devoted to political history, while the roles of science and technology, of business enterprise, and of voluntary community organizations, has been inadequately explored. The National Museum of History and Technology is uniquely equipped and ideally situated to aid all Americans--educators, scholars, scientists, technicians, businessmen, labor groups, and government officials--to a wider and deeper understanding of the American achievement.

The Museum proposes to take the lead in enlarging our knowledge and understanding of the full range of American civilization, how it has come into being, where it is heading. This will eventually produce scholarly and popular works interpreting neglected aspects of American civilization (especially those concerning food, shelter, clothing, communications, transportation, education, and the quality of community life), new kinds of museum exhibits, and a wider and more imaginative definition of American history as it is taught in schools and colleges. A first step is the program proposed for FY 1973. A total of \$304,000 is requested to fund the program. This program, under a qualified project director, will carry out the following:

-Develop programs of exchange with universities and research institutes. Members of the Museum's professional staff with specialized knowledge of neglected aspects of American civilization will spend brief periods lecturing and supervising research in leading universities; selected members of college and university faculties (three in the first year) will be brought to the Museum. The Museum staff, while enlarging their qualifications for their Museum work, will help awaken scholars elsewhere to neglected aspects of American civilization, while visiting scholars will become aware of the broader interests encouraged by the Museum (\$60,000 to fund three one-year appointments for distinguished historians; \$29,000 for a project director).

-Plan a Conference-Symposium each year, focusing national attention on a neglected area in which the collections and personnel of the Museum are especially rich. The first conference, to be held in the spring of 1973, will be on "Invention: Causes and Consequences." Scholars and leading public figures will be brought together from universities, learned societies, research institutes, industry, labor, business, and government. The program will include a series of public lectures resulting in a volume surveying the present state of our knowledge of the processes and consequences of invention, and the implications for the quality of American civilization (\$20,000 for conference expenses, \$20,000 for support of publications emanating from the conference, and \$10,000 for public lectures and seminars).

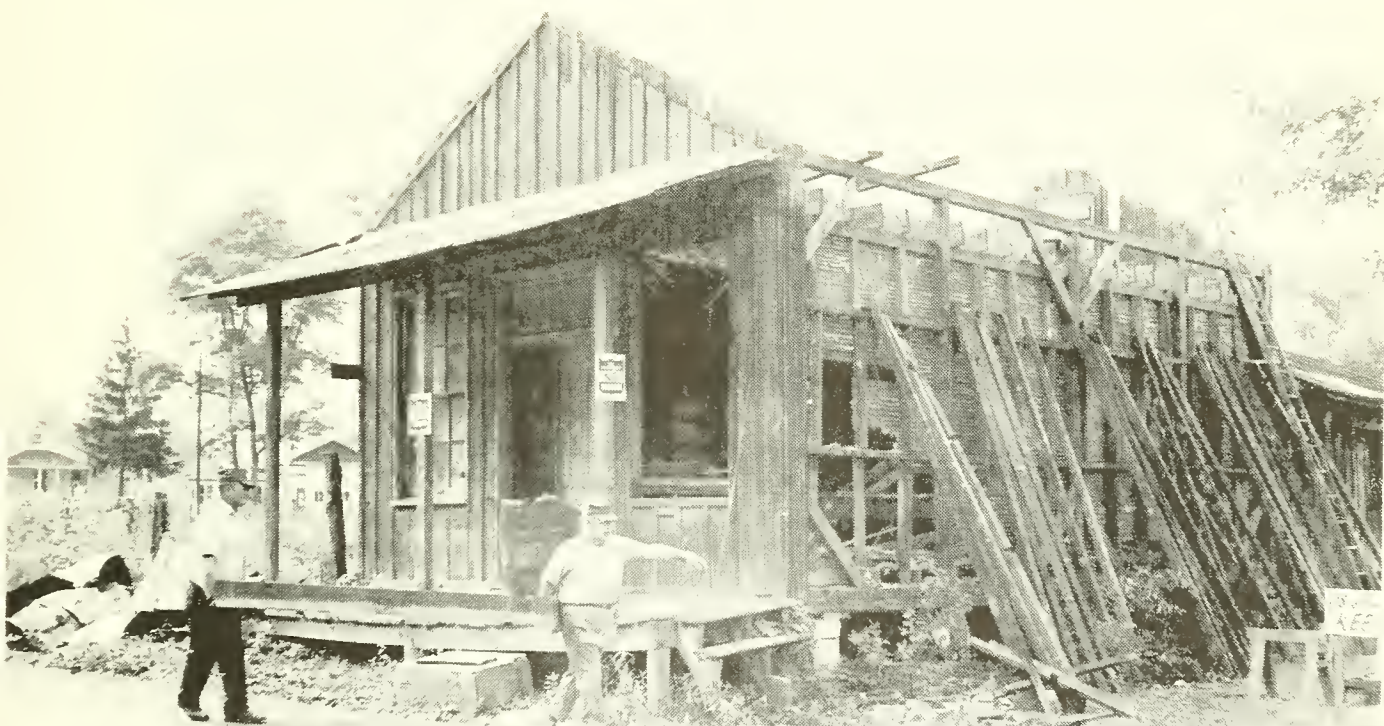
As part of this effort, the NMHT will develop closer relations with government agencies, learned societies, trade associations, business, and labor groups to encourage the inventory and exchange of their information, and to encourage their use of the research and exhibit resources of the National Museum of History and Technology. Efforts will be made to encourage these groups to set their historical records in order and to preserve crucial specimen objects of their history and the development of their technology, as their contribution to the Museum's studies.



"MUSIC MACHINES AMERICAN STYLE"
EXHIBIT



"DO IT THE HARD WAY"
Exhibit



Post Office - General Store from Headsville, West Virginia, Installed in the National Museum of History and Technology in Fall 1971 as an operating Post Office.

Also, the NMHT will develop new areas of research and collecting. The research program designed when the Museum opened is not adequate to the present needs of the American people. Never before has the nation more urgently needed the full range of historical understanding. To meet this need the NMHT proposes to establish a number of new research and collecting areas particularly important to an enlarged understanding of our times. Specifically, the NMHT requests positions for five new permanent historians (\$98,000) who will develop and explore such new areas of scholarship as mass communications, food technology, the roots of America's cultural pluralism and ethnic diversity, and the development of the American standard of living. An additional four secretary positions (\$31,000) are requested to provide support services for the new historian positions; \$26,000 is requested to equip new office space, and \$10,000 is requested for travel.

Mass Communications Exhibit Area (1 position and \$11,000 for personnel costs; \$344,000 support funding) - In an age of mass communications, the NMHT has an obligation to interpret more adequately to its millions of visitors the meaning of the newest developments in American communications technology. An orientation area adjacent to existing exhibits related to mass communications (Photography, Postal History, Graphic Arts) will demonstrate through innovative techniques the historical development of the versatility and range of mass communications in America.

An important focus to this exhibit area is the new Hall of News Reporting. This exhibit will display the evolution of one of America's most important and unique institutions: a free press. Period settings, important objects, and operating examples of communications technology will highlight the interpretation of the gathering, compilation, and distribution of the news to the American people. A total of \$355,000 is requested to complete the Hall of News Reporting and the Orientation Area; of this amount \$11,000 is requested for one new museum specialist position.

NATIONAL COLLECTION OF FINE ARTS

<u>Program Categories</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Collections Management & Use <u>1/</u>	38	504,000	38	586,000	42	706,000
Exhibitions (Including Renwick Gallery) <u>2/</u>	22	368,000	22	458,000	25	602,000
Public Education <u>3/</u>	6	97,000	8	110,000	10	146,000
Research & Training <u>4/</u>	4	67,000	4	90,000	4	115,000
Total Operations	70	1,036,000	72	1,244,000	81	1,569,000

1/ This activity includes the selection, acquisition, and care, including conservation, of paintings, sculptures, prints and drawings, photographs, and archival materials.

2/ Under this heading is the permanent and temporary exhibits program in the Fine Arts and Portrait Galleries Building (FAPG) and in the Renwick Gallery. It also includes the domestic and international traveling exhibit programs.

3/ This includes the production and distribution of educational materials and the tour program for school children. Plans call for the extension of educational services in the Renwick Gallery, the development of additional workshops, and the creation of an introductory gallery in the FAPG to complement the special children's gallery.

4/ Program activity in this category includes support to scholars at the graduate and post-graduate level to research and interpret various areas of the collections. Their studies generally result in publications including materials for use in connection with exhibitions.

NATIONAL COLLECTION OF FINE ARTS

1970 Actual	.....	\$1,036,000
1971 Estimate	.....	\$1,244,000
1972 Estimate	.....	\$1,569,000

The National Collection of Fine Arts (NCFA) is the custodian of an increasing national heritage of valuable acquisitions and deposits of American Art both of the past and the present. Some 13,000 paintings, sculptures, and decorative objects are included in its exhibits and reference collections. To meet responsibilities assigned by law (20 U.S.C. 76c), the museum provides a repository for Government art; carries on an active program of conservation and conservation research; lends art to the White House and cabinet offices; promotes the public appreciation of art through publications and by permanent and special exhibits in its gallery, and by sponsoring traveling exhibits within the United States and abroad through the Smithsonian Institution Traveling Exhibit Service.

The museum's expanding education program is being developed in close association with school curricula to provide material and study programs both in Washington and throughout the country. In addition, with its varied collections, library, photographs, and archives, the NCFA provides a research center for students and scholars devoted to the study of American art. The recent addition by the Smithsonian of the Archives of American Art, a rich repository of source information for research purposes, greatly enhances its overall capabilities in this area. The NCFA is responsible for the developing activities of the Renwick Gallery to be devoted to American arts and crafts design and shares photographic and conservation laboratories and library facilities with the National Portrait Gallery.

The requested program increase of \$300,000 will be directed at strengthening the exhibits programs, the educational, scholarly, and curatorial support activities and preparing for the opening of the Renwick Gallery. An additional \$25,000 are requested for necessary pay for existing staff.

Collections Management and Use (4 positions; \$107,000)

High market prices have prohibited the NCFA from acquiring important additions to the collections. Funds have been inadequate when desirable works have become available. Although private donation continues to be a necessary and gratefully received source (gifts of art amounted in value to over \$350,000 in FY 1971), key works for a proper presentation of United States art are often not available from donors. While there is no intention to duplicate holdings in other Washington collections, it is important that those areas of art, best represented in the NCFA, be as complete as possible. It is requested that NCFA be allowed an increase of \$50,000 for this activity in FY 1973, making available \$125,000 for purchases.

Catalogs and other publications are an important aspect of the NCFA's program. In addition to supplementing exhibitions, they provide a lasting record available to scholars and researchers. In FY 1971,

three major studies were published as well as a large number of free leaflets and pamphlets on other exhibitions. This publications activity is increasing and will be augmented by research and documentation efforts on the study collections which are being reorganized and made more accessible for use. To keep pace with these research and exhibition efforts, an assistant editor is requested to augment the two-man staff of the publication's office (\$9,000).

Various functions in those areas jointly sponsored by the National Portrait Gallery and the NCFA need support. The conservation laboratory needs to add an assistant conservator for paper (\$9,000) and additional funds of \$4,000 are required to set up proper facilities for the care of the growing collection of prints and drawings.

The collection of photographs accumulating rapidly in the library, an essential part of the NCFA's research material, is badly in need of systematic organization and care. Added to this will be photographs acquired by further research projects (including the Bicentennial Inventory of American Painting) and the Juley archive of approximately 150,000 negatives. In order to give proper care to this research resource, a photo librarian (\$12,000), and \$15,000 for the proper installation and care of the photograph and negative collection are required. In addition, the library needs a technician (\$8,000) to manage the growing collection of colored slides which forms an essential part of the educational program.

Exhibitions (3 positions; \$132,000)

For the full operation of the newly opened Renwick Gallery, presenting historical and educational exhibitions on American design and craft, additional funds of \$90,000 are required. These exhibitions, planned and installed by the staff in close association with craft and design organizations throughout the country, will serve both as introduction to United States accomplishments in this area and as education in the "visual language" of craft and environmental design. In addition, a curator of exhibits and an exhibits specialist are needed, both to work in association with NCFA's department of exhibition and design (\$21,000).

In order to furnish more exhibitions which are more representative of Smithsonian activities in science and the arts to areas of the country which might otherwise be deprived of contact with such material, the Smithsonian Institution Traveling Exhibition Service (SITES) needs support, particularly in the area of mounting, packing, and shipping exhibitions. In FY 1971 the service circulated some 110 exhibitions which were shown in 750 locations. In FY 1973 it is planned that the service will expand to 160 exhibitions, many produced locally and all closely supervised as to content and presentation. These will be sent to some 1100 installations. The size of the public thus served, many in outlying areas, far exceeds that reachable through local museum exhibitions.



The rising costs of preparation and shipping has made the sponsorship of exhibitions by small institutions in remote areas increasingly difficult, and many other exhibition sources have had to suspend operation. It is intended not only to expand coverage, but to prepare exhibitions that can meet the needs of all areas, including the most modest. It might also be noted that, because of their coverage and excellence, SITES' exhibitions are now being requested also for overseas showings, thus supplementing the already existing international exhibition program of the NCFA.

To accomplish these goals, this important national function of the Smithsonian needs support of \$10,000 for the operation of shops now set up at NCFA for the expert mounting and packing of traveling exhibitions at the least possible cost, as well as for the supervision on the road of exhibitions not originating here. To handle the preparation of a greater range of exhibitions drawn from Smithsonian activity, an exhibition specialist (\$11,000) is needed.

Public Education (2 positions; \$36,000)

The objective of the National Collection of Fine Arts' education program is to discover the way in which schools and museums can best work together to make real to children and adolescents the creative freedom and expressive satisfaction which comes from the serious study of works of art. During the first year of operation, FY 1971, the NCFA's department of education inaugurated a program working in an imaginative and effective way with school children and adults which, because of its importance and success, demands additional funding. In all, over 1000 tours were conducted by members of the staff and a carefully selected corps of docents for some 16,000 people. Almost 13,000 of these participants were from schools. The program is being expanded to include an introductory gallery for the adult public (to complement the special children's gallery) and areas of the crafts and design represented in the Renwick Gallery. Also, the trial workshops in graphic arts for high school age young people which have proved very successful, need further support for an expanded use. The program of furnishing materials directly to the schools, in Washington and elsewhere, developed as a pilot program, now needs firm support. These programs, insertable in courses of history, art, or literature, make use of slides, tapes and written material, all based upon the NCFA collections.

For FY 1973, an additional general education specialist (\$11,000) is requested who would be able to extend the public education program to the Renwick Gallery, using similar creative educational techniques in the areas of craft and design. A clerk-typist, (\$8,000) is badly needed to allow the very dedicated professional staff to devote their full time to the substantive aspect of the program. For the department's expanded program of educational exhibitions and direct school programming, an additional \$17,000 is needed.

Research and Training (\$25,000)

The program of scholarship in American art, begun in FY 1971, has proved of value both to the cause of recovery and reevaluation of American art and to the vital operation of other museum programs. Definitive studies have been conducted on government sponsored art of the 1930's, earlier American mural painting, the works of past American artists (at least two of these studies will be published in 1973), and others. In order that this program, supporting scholars at both graduate and post-graduate level, can continue to utilize the extraordinary facilities of the Collection and of other Washington institutions, \$25,000 is requested.

NATIONAL PORTRAIT GALLERY

<u>Program Categories</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Expansion and Care of Collections <u>1/</u>	11	271,000	11	301,000	12	466,000
Research and Training <u>2/</u>	6	81,000	7	150,000	9	204,000
Catalogue of American Portraits <u>3/</u>	7	92,000	7	126,000	9	179,000
Production and Public Use of Exhibits <u>4/</u>	14	338,000	14	348,000	17	397,000
Total Operations	38	782,000	39	925,000	47	1,246,000

1/ This program includes activities resulting in acquisitions -- location and authentication of portraits and preparation of reports for the NPG Commission -- and the conservation, photography, record keeping, storage, and display of portraits acquired for the permanent collection, and of items borrowed for exhibition and study.

2/ This program includes all iconographical and biographical research leading to the publication of exhibition catalogs, independent monographs, and additional interpretive materials for use in connection with the permanent collection and special exhibitions; and various work-study opportunities at the Gallery for interns and fellows at the undergraduate, pre- and post-doctoral levels.

3/ This is a reference facility which will eventually contain computerized documentation gathered by its staff on thousands of American portraits in public and private collections throughout the country. Each file contains information on the location of the portrait and biographical data on the sitter and the artist, accompanied by a photograph. Cross-referenced published and unpublished computerized indexes to sources of information on portraits (the "minifile") will also be kept. Finally, the Graphics Collection is an iconographic study file of some 30,000 original American portrait prints primarily of 19th Century notables.

4/ This category of activity includes the assembling, installation, and maintenance of loan exhibitions from the point at which the research on them has been completed; installation of the permanent collection and revisions in its organization; preparation and utilization of public spaces in the Gallery; and through the efforts of the education department, public instruction for both adults and young people on American historical portraiture and biography through special programs featuring interpretive materials, talks, and classes conducted in the Gallery and, for the younger audience, in the schools as well.

NATIONAL PORTRAIT GALLERY

1971 Actual.....	\$ 782,000
1972 Estimate.....	\$ 925,000
1973 Estimate.....	\$1,246,000

The National Portrait Gallery (NPG) is a unique national museum of American history responsible for collecting, exhibiting, and studying portraiture in painting and sculpture of the men and women who have contributed significantly to the formation and development of the United States. Open to the public only since October 1968, the Gallery is still building its collection, staff, and programs in historical research and education to offer a wide range of public services.

The Gallery's current activities can be grouped into four major categories: (1) the care and expansion of the collection; (2) public education through programs with schools and through exhibition of the permanent collection and specially researched and organized loan exhibitions illustrating particular subject areas of American history and portraiture; (3) the research, publication, and national distribution of catalogs of these exhibitions, as well as other studies, both scholarly and popular in nature, related to American history and portraiture; and (4) the compilation of a definitive Catalogue of American Portraits to be a comprehensive data bank and national information service on American history and biography comprised of entries on all portraits of historically significant Americans. The summary following the justification shows some of the Gallery's accomplishments and plans.

A program increase of \$300,000 is being sought to augment the acquisitions fund and for conservation (\$160,000); to develop research projects leading to Bicentennial exhibits (\$50,000); to increase input to the Catalogue of American Portraits (\$50,000); and to develop exhibits for school use (\$40,000). An additional \$21,000 is requested for necessary pay for current staff.

Expansion and Care of the Collections (1 position; \$160,000)

No other museum of American history focuses as extensively as the NPG on the role significant persons have played in the story of this country, not primarily as participants in social, economic, or political movements, but alone as individuals. It is a new museum, building a collection for future generations at a time when there is a premium on collecting American art. Chiefly, its first three years open to the public have been spent developing essential staff and facilities. These goals have been largely accomplished, with the expansion of the exhibits staff in FY 1970 and FY 1971, the establishment of an education department in FY 1971, and the initiation of a history department in FY 1972.

This emphasis on personnel and facilities development has placed a considerable strain on the Gallery's ability to acquire portraits at a rate necessary to build an important permanent collection. Although some of the staffing, especially in the Catalogue of American Portraits, will be of invaluable assistance in locating and encouraging the donation of desired portraits before they reach the open market, many portraits essential to the collection will have to be purchased when they come on the market if they are to be preserved for future free public display and study. To enable the Gallery to compete on the market, it is seeking increased funding for acquisitions in FY 1973; \$150,000 is requested which will provide an

acquisitions fund of \$250,000. During the next several years acquisition activities will emphasize locating and purchasing portraits of particular interest because of their subject's connection with the Bicentennial.

Through the efforts of the Catalogue of American Portraits and the curatorial staff we expect to uncover numerous portraits of great significance to our national history. Since we will wish to borrow many of these for exhibition, it is mandatory that they be in satisfactory condition. Inasmuch as this may not be the case, we will feel it incumbent upon ourselves to do the necessary restoration--because of our own immediate needs, as well as from the point of view of the proper preservation for posterity of these national treasures. Our present lab staff cannot provide these urgently needed additional services.

A conservation lab technician is required to assist in the treatment and restoration of the expanding collections and of items we may wish to borrow for exhibitions (\$10,000).

Research and Training (2 positions; \$50,000)

The arrival of a professional Historian in FY 1972 to supervise the development of research and training programs under the History Department make FY 1973 the appropriate time to bolster these activities. The exhibit staff and facilities of the Gallery have been prepared in the last few years to accommodate a variety of special exhibitions. Now, short term, rotating assistance is needed to research and prepare exhibitions and related publications of greater historical depth and complexity than hitherto attempted, many related to the Bicentennial series, the first of which, "Prologue to Revolution", is scheduled to open in Fall of 1973.

Funds for short term interships and fellowships (\$34,000) will enable the NPG to undertake research for such special exhibitions, and to perform overdue biographical and historical research on subjects represented in its growing permanent collection, as well as make available its unique reference facilities for the study of American history, iconography, and biography to scholars whose projects relate to the Gallery's general goals. Interns will be selected largely on the basis of how their field of concentration (Revolutionary War Period, Post Civil War, etc.) relate to projected Gallery exhibits. They will provide research assistance to the Gallery while gaining on-the-job experience in applying visual materials to traditional historical methodologies and will work for a three year period after which their research will culminate in exhibits or publications, and then they will be qualified for positions on staffs of other history museums. This program allows the NPG to apply its extensive resources in answering a critical national need for historians trained in museum exhibition techniques and approaches, while solving its own needs for research assistance on various planned projects. While the fellows at the pre and post-doctoral level work independently for one year and are not trained to the extent the interns are, they are selected because their own research projects and fields of specialization relate to NPG interests in American history and iconography with particular reference beginning in 1973 to specific aspects of its Bicentennial exhibit series.

For typing manuscripts and answering the various other clerical needs, a clerk-typist is required (\$7,000) to supplement the one secretary presently in the history department and a reference librarian is requested to meet researchers and scholars requirements for library's services (\$9,000).

Catalogue of American Portraits (2 positions; \$50,000)

Now that CAP computer programs for entering and retrieving data have been formulated, support is required for the major task of systematically collecting data on American portraits scattered to increase its reference capabilities for individual owners of portraits, university researchers, writers, museums and other users as well as our own staff in assembling exhibitions and developing our collection. CAP information services will be increasingly demanded as the Gallery generally becomes better known. The data must now be collected to be made available centrally so CAP can respond to these anticipated requests.

The CAP requires \$35,000 for contracted costs of collecting portrait data in the South Atlantic states. The funds cover a year's salary of a field researcher (\$12,000), his travel and per diem (\$4,000), costs of photography (\$5,000), and on site clerical assistance and research materials (\$4,000). In addition, \$10,000 is budgeted for residual costs of photography, research, and data collection by local museums, university, and archival staffs who will continue to gather and forward portrait data to the CAP after the field coordinator has enlisted their aid. While we take considerable pains to secure voluntary local assistance, there are inevitably photographic and special research expenses which must be reimbursed. To handle the processing and cataloging of increased amounts of information in Washington, and to service public requests, a cataloger and a clerk-typist will also be required (\$15,000).

Production and Public Use of Exhibits (3 positions; \$40,000)

The portrait collections, historical reference materials, and trained staff make the Gallery particularly qualified to explore methods of applying museum resources to the educational needs of school children. Its efforts involve far more than tours and visits, which traditionally in museums have been little more than outings for students. The Gallery's paid staff (as opposed to volunteer college-level and adult docents) is fully occupied consulting with teachers to arrange tours in the museum and staff visits to classrooms tailored to the specific curriculum needs of classes. Publications containing visual and historical information related to the special exhibitions and permanent collection of the Gallery are prepared and disseminated by gallery staff to encourage teachers to incorporate relevant historical resources of the Gallery into their activities. Visits by the Gallery staff to schools have resulted in productive visits to special displays where students have learned the history of a period through study of a particular individual's involvement in it. Museum visits are reinforced back in the classroom through use, by the teacher and NPG staff, of publications, slides, and other materials provided according to the needs of the class.

These special publications and other aids to school groups and the general public alike require additional funds, if they are to be made available to a wider national audience. In FY 1973, the Gallery requests \$15,000 for the research, production, and distribution of publications, traveling exhibits, and accompanying audio-visual materials. An educational assistant is required to serve as liaison with teachers using these materials both in this area and across the country, and a clerk-typist is also needed for support (\$17,000). Development of these extension services will permit the products of our comprehensive future programs to have a wider national impact.

To facilitate administrative operations of all the Gallery's programs, an administrative assistant in the Office of the Director will be required to relieve the director and the program management officer of many minor but necessary administrative assignments (\$8,000). The administrative office of the Gallery presently consists of the above two persons supported by two secretaries.

NATIONAL PORTRAIT GALLERY

Brief Summary of Accomplishments and Plans FY 1971 through FY 1973

Expansion and Care of Collections

FY 1971 - Added 53 portraits through gift, purchase, and transfer. Compiled an initial reference checklist on the entire permanent collection of approximately 500 portraits for publication. Storage areas for portraits and sculpture were reorganized and all stored items arranged alphabetically for easy location.

FY 1972 - Set up NPG shipping and receiving room adjacent to basement loading dock. Accumulate data on locations throughout the country and perform research on portraits needed for projected Bicentennial exhibition and publications programs.

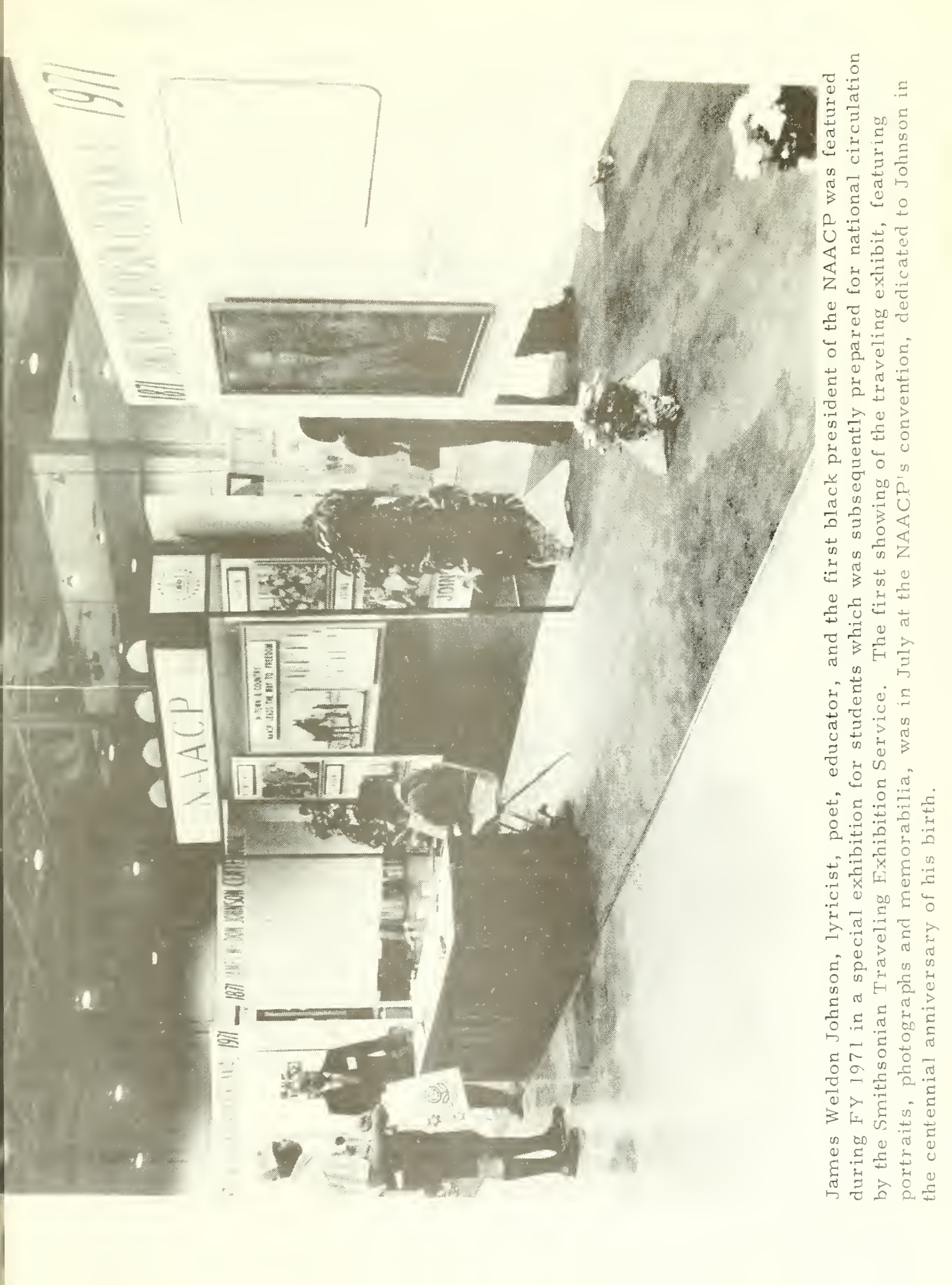
FY 1973 - Inaugurate automated access system for curatorial records of the permanent collection. Expand acquisitions fund to \$250,000. Augment conservation staff to preserve paintings located by the curatorial staff and the CAP and needed for exhibition.

Research and Training

FY 1971 - Research was conducted leading to exhibitions, catalogs, and related interpretive publications on: Portraits by Revolutionary War period American artist Henry Benbridge; portraits of major figures of the American Stage, 1771-1971 (in connection with the opening of the Kennedy Center for the Performing Arts); and portraits of historically important American Negroes from the American Revolution to World War II. The iconographical and biographical and historical materials assembled on the latter subject will remain part of NPG's research resources.

FY 1972 - Perform background research on which to base a projected series of Bicentennial portrait exhibits focusing on individuals whose lives and contributions best illustrate the ideas and events of the Revolutionary War period, 1763-1783. Perform research for an exhibition of portraits and a publication on the historical contributions of unsuccessful candidates for the American presidency. Research for a special exhibition in connection with the meetings of the American Academy for the Advancement of Science on portraits and contributions of the Lazzaroni, a group of 19th Century scientists who founded the AAAS. Add a work-study intern for a pre-doctoral historian to provide research assistance to the Gallery while gaining on-the-job experience in applying visual materials to traditional historical methodologies. Interns will work for a three year period.

FY 1973 - Perform research for catalog and exhibit of American Folk Portraits scheduled for spring of 1973 and for the fall 1973 show, "Prologue to Revolution", featuring portraits of key contributors to ideas and events of the period immediately preceding and leading up to the Revolutionary War. Add an additional work-study intern and fellows to assist with major research for Bicentennial period exhibition and publication projects.



James Weldon Johnson, lyricist, poet, educator, and the first black president of the NAACP was featured during FY 1971 in a special exhibition for students which was subsequently prepared for national circulation by the Smithsonian Traveling Exhibition Service. The first showing of the traveling exhibit, featuring portraits, photographs and memorabilia, was in July at the NAACP's convention, dedicated to Johnson in the centennial anniversary of his birth.

Catalogue of American Portraits

FY 1971 - Finished, for each of its major research file systems, most of the programs needed to enter, manipulate, and print out data. Computerized an index to 5,000 of its portrait graphics as well as 5,000 entries into the mini-file. Developed and tested in the Richmond, Va. area, procedures for gathering information on portraits in the field, and located, photographed, and cataloged 1,875 portraits. Contacts were made with Richmond museums, universities, and groups to assure a continuing flow of information to the CAP about the locations, sitters, and artists of portraits.

FY 1972 - Field researcher to collect portrait data in the Carolinas and publish a by-product of the Richmond effort, a compilation of sources, which will also serve as guide for further research on significant Virginians.

FY 1973 - The CAP will contract with a second researcher to help collect portrait data from remaining South Atlantic states. The CAP will also publish lists, indexes, and other research aids, establish local contacts to assure continuing flow of data, and complete preliminary computer entry of backlog of some 20,000 portrait records.

Production and Public Use of Exhibits

FY 1971 - A ten room Gallery area was prepared to accommodate special exhibitions. Two major loan shows, The Life Portraits of John Quincy Adams and the Portraits of Henry Benbridge, were installed in the area, accompanied by interpretive popular educational publications to supplement scholarly catalogs. Three small scale shows with related publications prepared in the education department were used primarily by students--on conservationist John Muir, educator and civil rights leader, James Weldon Johnson, and several black musicians and poets, including Louis Armstrong and Langston Hughes. The Gallery brochure was produced, for national distribution, providing the first full description of the goals, activities, and services of the Gallery.

FY 1972 - A two part student show will be installed on the History of the District of Columbia planned to relate to D. C. curriculum. Contacts and staff involvement with local school history teachers and classes will increase. Major loan shows will be Portraits of the American Stage: 1771-1971, coinciding with the opening of the Kennedy Center for the Performing Arts, and a spring exhibition on candidates who unsuccessfully sought the American presidency, dealing with their contributions to American history, both installed in the special exhibition area prepared in FY 1971 and expanded into an adjacent 8-room area in FY 1972. The vestibule and adjacent first floor areas will be equipped for better public orientation to the Gallery, its activities, and purposes. Exhibits production facilities, silk screen laboratory and exhibits shops, will be merged with NCFCA in building areas originally designed for these purposes. In-house capacity to produce exhibitions will facilitate a more ambitious exhibits program.

FY 1973 - Major loan exhibits will be assembled and installed on the history of the Black in America (fall) and on American Folk Portraiture (spring). In December 1972 an exhibition dealing with the Lazzaroni, a group of 19th Century scientists who founded the American Association for Advancement of Science will be held to coincide with the meetings of the AAAS in Washington. Experiments with traveling components of visual and written materials from these shows will be made in an effort to extend the results of the exhibits program.

JOSEPH H. HIRSHHORN MUSEUM AND SCULPTURE GARDEN

<u>Program Categories</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Restoration and Conservation <u>1/</u>	6	150,000	6	264,000	20	281,000
Curatorial Research and Exhibition Planning <u>2/</u>	12	235,000	15	360,000	23	1,939,000
Total Operations	18	385,000	21	624,000	43	2,220,000

1/ This includes the ongoing preparation of approximately 1,000 outstanding paintings and pieces of sculpture for the opening exhibition. About 600 paintings have already been examined, selected and prepared for exhibition. Final selection of sculpture to be exhibited will be completed in FY 1972. In FY 1973 it is planned to accomplish necessary restoration and conservation by using in-house facilities.

2/ This includes research and documentation for the opening exhibition as well as continuing the cataloging of the vast collection and the Museum's present public services such as making loans, answering photographic requests and research queries, and giving tours. (A total of 294 organizations and individuals were served in FY 1971.) A pre-installation mock-up of the opening exhibition of 1,000 items is being developed to facilitate installation of the exhibition in the completed museum and enable meeting projected completion and opening dates. FY 1973 total includes funds for one-time procurement of furnishings and equipment for the building and the sculpture garden.

JOSEPH H. HIRSHHORN MUSEUM AND SCULPTURE GARDEN

1971 Actual	.....	\$ 385,000
1972 Estimate	.....	\$ 624,000
1973 Estimate	.....	\$2,220,000

The Hirshhorn Museum and Sculpture Garden, now under construction on the Mall, will house a magnificent gift to the nation of more than 7,000 paintings and sculptures. The world-renowned sculptures in the collection range historically from antiquity to the present. The depth of representation of major sculptors of the nineteenth and twentieth centuries is unique. The paintings in the collection are primarily twentieth century. Beginning with such precursors as Thomas Eakins and Winslow Homer, the course of American painting is extensively covered. Complementing the American section is a strong group of significant European paintings of the past three decades. For museum officials, scholars, students, and publishers, the Hirshhorn collection continues to be a major source of documentation in the field of modern art.

The Act of November 7, 1966, authorized construction of the Museum and designated the Mall site. Building construction began in March 1970, and the estimated completion is October 1972. All phases of the work are presently geared to prepare for the opening of the Museum and to place it in operation by the end of 1973. See Table I for the schedule of major activities.

Fiscal year 1973 will see the completion of the museum building and sculpture garden. The requested operating program increase of \$1,576,000 is required to continue preparing for the opening exhibition and to complete the furnishing and equipping of the building interior. An additional \$20,000 is sought for necessary pay for current positions. Table II summarizes current and projected operating and non-recurring costs through FY 1974.

Preparing for the Opening and Operating of the Museum (22 positions;\$110,000)

Approximately 1,000 outstanding paintings and pieces of sculpture are being selected for the opening exhibition. About 600 paintings have already been examined, selected, and prepared. Work is well into the selection of sculpture and final selection will be completed by the end of FY 1972. While selection is going on, a pre-installation mock-up of the opening exhibition is being developed through the use of scale models of the galleries and photographs to scale of paintings and sculptures. This advance planning will facilitate installation in the completed museum and enable meeting projected completion and opening dates.

A continued phased buildup of staff is required to permit the Museum to operate in its new building and to conduct research, exhibition, education, and technical support programs. The requested 22 additional personnel

in the FY 1973 budget are primarily technical and support staff and include museum specialists, technicians, and aides; clerical personnel; and personnel to staff conservation, photography, and framing shops. Also included are professional level personnel to supervise the exhibits and education programs. Many of these persons will be hired to coincide with the completion of the building. The Museum is seeking additional funding of \$78,000 for the 22 new positions. To supplement this funding, approximately \$160,000 will be available in the operating base appropriation, since the initial conservation and restoration work will be declining as shown on Table II.

An additional \$32,000 are requested for other contractual service costs related to the collections, the rental of working space and services, photography to document the collections for exhibits and research purposes. Funds have also been included in this request for transportation and movement of household goods of personnel transferring with the collection to Washington, D. C. as well as for essential travel of senior administrative and curatorial personnel.

Furnishing of the Building Interior (\$1,466,000)

Approximately \$1,466,000 of furnishings and equipment not included in the original construction contract must be obtained and installed to insure efficient functioning of the museum. Construction costs of \$16,000,000 (\$15,000,000 appropriated by Congress and a \$1,000,000 gift by Mr. Hirshhorn) will provide the Institution with a basic Museum building, including necessary utility equipment. This amount does not permit the Museum to be completed to the point necessary for public exhibition and public service educational programs. It does not provide storage facilities for the collection nor furnishings and equipment for exhibit galleries, public areas, or administrative and laboratory spaces. To insure a prompt opening to the public after completion of construction, it is essential that procurement and installation of furniture, furnishings, moveable equipment, and other items be provided in FY 1973.

The need for furnishings and equipment in FY 1973 is self-evident. The interior furnishings such as drapes, carpeting, lighting, etc., are mandatory for the opening and continued functioning of the museum. Furniture for museum personnel is a necessity for efficient operation of the curatorial, technical, and administrative staffs. Garden benches and gallery furniture must be in place to accommodate the anticipated crowds attending the opening show and the continuing exhibitions. Such items as work sinks and tables for the various shops must be installed if the Museum is to perform the necessary preparation, maintenance, and protection of the collections. An itemization of the \$1,466,000 by function is shown on Table II.

TABLE I
 JOSEPH H. HIRSHHORN MUSEUM & SCULPTURE GARDEN
 Schedule of Major Activities - FY 1972-1973

FY 1972				FY 1973				
Jul		Jul		Oct		Apr	May	Jun
Buildings Construction				▲				
Mock-up Installation and Hanging of Exhibition - Opening Show								▲
				Equipment - Furnishings for Interior				▲
Catalog of Opening Exhibition								▲
				Transfer of Collection				
Inventory of Collection								

▲
 Scheduled
 Occupancy

TABLE II
JOSEPH H. HIRSHHORN MUSEUM AND SCULPTURE GARDEN

<u>Operating Costs</u>	<u>FY 1971</u>	<u>FY 1972</u>	<u>FY 1973</u>	<u>FY 1974</u>
Positions	18	21	43	60
Staff Costs (including benefits)	\$185,000	\$185,000	540,000	\$692,000
Conservation & Restoration	140,000	140,000	40,000	0
Supplies, Materials and Equipment	15,000	15,000	39,000	47,000
Other (Exhibits Planning, travel, education program)	<u>45,000</u>	<u>45,000</u>	<u>135,000</u>	<u>166,000</u>
Subtotal, regular operation	\$385,000	\$385,000	\$754,000	\$905,000
<u>Non-recurring costs</u>				
Storage Display Screens			400,000	
Coatroom furnishings & area lights			8,000	
Gallery furnishings			210,000	
Lamps and partitions			32,000	
Fourth Floor furnishings			205,000	
Photography Lab			27,000	
Library Shelving			50,000	
Registrars office and staff				
Lunchroom			19,000	
Stone pedestals			95,000	
Security systems			50,000	
Exterior lighting			50,000	
Examination Lab			38,000	
Conservation Lab			65,000	
Auditorium furnishings			67,000	
Tour guides			60,000	
Sales room			50,000	
Painting, Framing and Carpentry shops			<u>40,000</u>	
Subtotal, non-recurring costs			1,466,000	
TOTAL	\$385,000	\$624,000	2,220,000	\$905,000

FREER GALLERY OF ART

<u>Program Categories</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Conservation and Research <u>1/</u>	2	8,000	3	23,000	3	61,000
Reference Collections <u>2/</u>	1	16,000	1	20,000	4	53,000
Exhibits, Maintenance, and Operations <u>3/</u>	4	33,000	4	38,000	7	71,000
Total Operations	7	57,000	8	81,000	14	185,000

1/ Includes the care, preservation, and study of the collection of over 10,000 works of art. An integral part of this program is the operations of the Technical Laboratory for analysis and conservation.

2/ The Freer Gallery of Art is world known for public service of a scholarly nature provided to all. Local, national and international interest continues to escalate. The expanding number of library users and volume of requests for slide and photographic archival material require personnel to staff these operations.

3/ Includes the housing, care, storage, maintenance, and preparation of objects for exhibitions. Also included are the records and files and administrative duties pertaining to efficient museum operations.

FREER GALLERY OF ART

1971 Actual\$ 57,000
1972 Estimate\$ 81,000
1973 Estimate\$185,000

The Freer Gallery of Art houses one of the world's most distinguished collections of Oriental Art of over 10,000 objects. Including works of art from China, Japan, Korea, India, and the Near East, the collection covers paintings, sculptures, and other objects in stone, wood, lacquer, jade, pottery, porcelain, bronze, gold, and silver. Items not currently on exhibition and the library of 40,000 volumes are available and used extensively by the Gallery's staff and numerous visiting scholars and students from throughout the world. The two-fold program envisaged by the founder involves the continuing search for works of the highest quality that may be added to the collections and the continuing study of these works of art as keys to understanding the civilizations that produced them.

An appropriations increase of \$100,000 is requested to provide basic support to programs of conservation and research, reference collections management, building operations, and exhibition. Additional funds in the amount of \$4,000 are requested for necessary pay for current positions.

In 1973 the Freer Gallery of Art will celebrate its 50th anniversary as the major research institution in Far Eastern art studies in the Western World. In the Freer Deed of Gift executed by the Acting Secretary on behalf of the Board of Regents of the Smithsonian Institution on May 5, 1906, paragraph 4 reads as follows:

"4. The said building, when constructed, and the objects, when delivered, shall be cared for and maintained perpetually by the second party, or its successors, at its own expense."

Over the years the Smithsonian has provided but a portion of this expense. The Buildings Management Department has provided basic services; however, the overall cost of gallery operations was borne largely by the private funds of the Freer Gallery of Art, contrary to the terms of the Deed of Gift.

In the past, this imbalance of support was permitted to exist since Freer private funding (now averaging about \$700,000 a year from dividend and other income) was sufficient to permit the Gallery to maintain its services to the scholarly and public world. This situation has drastically changed over the past few years and the Freer's private funds are no longer able to sustain the Gallery's programs even at their current level. The following information summarizes the problem (see also Table I):

- In FY 1965, private income was \$634,000 and expenses were \$590,000 thus enabling the Gallery to add about \$44,000 to its reserve which then totaled approximately \$550,000.
- In FY 1971, private income was \$743,000 but expenses had increased to \$967,000 and the reserve had declined to \$211,000. It is anticipated that the reserve will be eliminated by the close of FY 1972.
- The growth in private expenses has not been the result of staff growth or the initiation of new programs. Indeed, the Gallery has fallen behind in terms of the public service and scholarly demands placed on it.

Employment has increased only from 28 to 30 since 1965 yet salaries and benefits costs soared from \$260,000 to \$403,000 largely as a result of pay comparability with federal salary scales. Art acquisitions have increased from \$205,000 to \$272,000 yet fewer works can now be purchased since prices for objects have increased several-fold over this six year period. Inflation has greatly affected other areas of the Gallery's operations including conservation supplies and equipment, exhibition materials, and publications acquisition and printing.

Careful reviews show little, if any, areas for private budget cost reductions without serious curtailment of an already limited program. It is now urgent to begin a phased program of additional federal fund support and thus meet the Institution's obligation that it assumed in 1906. Such action, if taken, will permit the Freer Gallery of Art to maintain its status as the "Bureau of Standards" of Far Eastern art in the Western World and as a highly specialized major research arm of the Smithsonian Institution.

Over the next three fiscal years, the Smithsonian requires an additional \$300,000 for recurring care and maintenance of the building and of objects in the collection. Of this amount, \$100,000 are requested in the FY 1973 budget for the following operating purposes. The six positions requested are all conversions of current private roll employees. An additional approximate \$100,000 are requested in the Restoration and Renovation of Building account for one-time expenses associated with the building.

Conservation and Research (\$37,000 for support)

The Technical Laboratory is responsible for research in connection with the analysis, preservation, and identification of objects in the collection and other related material. Necessary techniques include wet and instrumental chemical analysis, microscopy, electron microscopy, X-ray, and X-ray diffraction. The work done by the laboratory is for the basic purpose of gaining a better understanding of physical and chemical nature of the objects with a view to preserving them and contributing to the knowledge of how they were made in ancient times. To support this essential work, an improved X-ray program is required. An amount of \$37,000 is requested for equipment including an X-ray diffraction unit and associated equipment and supplies.

Reference Collections (3 positions; \$32,000)

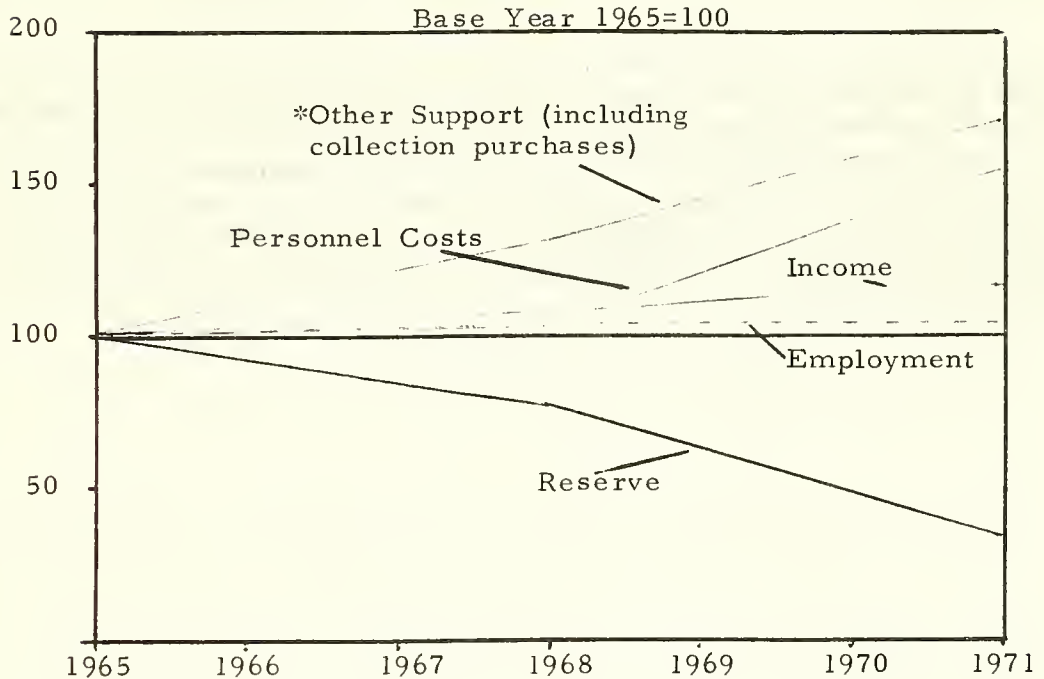
The Freer Gallery of Art Library specializes in materials related to the art and culture of the Far and Near East. Books, periodicals, photographs, slides, maps, and archival material on all phases of the Freer Collection come within its jurisdiction. It is open to the public and is widely used by scholars doing research on all aspects of oriental art. In addition the Library personnel takes part in the cataloging and documentation of objects in the collection and provides information about the collection on an international basis. Because about half of the titles in the Library are in Chinese and Japanese and other oriental languages, it is important that some of the personnel have a working knowledge of one or more of those languages. Two librarian positions are requested (\$19,000) and funds for machine rental (\$2,000).

The basic function of the Photographic Laboratory is to record the objects in the collection, working always toward a complete photographic documentation of the Gallery's holdings. In addition, it provides photographic materials for the use of research scholars and for the conservation laboratory. Photographs, color transparencies, and slides are produced on order for the use of scholars, educational institutions, and the general public. One photographer is requested (\$11,000).

Exhibits, Maintenance and Operations (3 positions; \$31,000)

Building operations include mounting, mending, and restoring art objects, especially stone and wood sculpture; construction of storage facilities; designing and constructing exhibition cases, pedestals, bases, and other mounts and supports; construction of wood cores and panels which are essential to the restoration and preservation of Chinese and Japanese paintings and screens, and of the frames necessary to exhibit them. A carpenter and a painter helper are requested for these purposes (\$18,000). An illustrator is also required to make all exhibition labels; do matting and hingeing of objects that require it; mount photographs on catalog cards; and produce drawings required for illustrations in Gallery publications (\$13,000).

Table I --Relative Change in Income, Expenditures, Reserves and Employment, FY's 1965-1971



*Because of timing irregularities associated with collections availability and their purchase, funding flow based on actual expenditures has been smoothed over 1965-1971 to better demonstrate trends.

Interpretive Note: If growth changes since 1965 had been proportionately the same in all indicated areas, all lines would fall horizontally along 100. Inflation in prices of art and other support areas has necessitated application of a large part of reserves. The rate of growth between non-personnel and personnel expenses is narrowing; 1968 was the beginning of major changes in legislative governmental salary scales. The necessity of adhering to Institutional pay comparability policies has further affected Gallery's flexibility. Reserves have been drastically reduced.

ARCHIVES OF AMERICAN ART

<u>Program Categories</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Collecting and Processing of Archival Material Related to American Artists <u>1/</u>		175,000	11	200,000	12	234,000

1/ Funding collectively provided by the National Portrait Gallery and the National Collection of Fine Arts. Program activity includes the location, acquisition, cataloging, and preservation, of archival materials pertaining to the history of American visual arts from the Revolutionary War period to the present and making these materials available to researchers. The Archives contains approximately five million original items, another three million on microfilm, 30,000 photographs, and some 20,000 printed items, catalogs, and reports.

ARCHIVES OF AMERICAN ART

1971 Actual.....	\$175,000
1972 Estimate.....	\$200,000
1973 Estimate.....	\$234,000

The Archives of American Art, founded in Detroit in 1954 and a bureau of the Smithsonian Institution since May 1970, is committed to aiding research and scholarship in the history of the visual arts in this country from prior to the Revolutionary War period to the present time. It acts to achieve this goal by acquiring, organizing, and preserving the primary documentation needed by historians -- the correspondence, diaries, business papers, and photographs of painters, sculptors, critics, dealers, and collectors, and the formal records of galleries, museums, and art societies. These collections of paper are cataloged, microfilmed, and made available to scholars.

The processing and chief reference center of the Archives is now located in Washington, D.C. in space provided by the National Collection of Fine Arts and the National Portrait Gallery library. Added to the library, and to the archival material already possessed by these two museums, the Archives ~~will make~~ the old Patent Office Building the major center for the study of American Art. In order to make its holdings accessible to scholars throughout the country and to develop a systematic collecting program, regional centers are currently maintained in Boston, New York, and Detroit.

The organization anticipates income from private funds in excess of \$115,000 in fiscal year 1972. This income is used to support Archives' activities, such as quarterly publication and distribution of the Archives' Journal, and specialized acquisitions. It supplements on a matching basis activities supported by federal appropriations such as cataloging, information retrieval, and reference services. The National Portrait Gallery and the National Collection of Fine Arts helped to offset initial costs in FY 1970 and FY 1971 by providing facilities and earmarking some of their funds to supplement the Archives' own resources. A separate appropriation was received in FY 1972

This year's requested increase is \$25,000, an amount which reflects a modest increase over the estimated FY 1972 level of funding. In addition, \$9,000 is being sought to cover necessary pay for staff. The past year, FY 1971, was the first spent by the Archives of American Art as a bureau of the Smithsonian Institution. It was a period of establishing residence, organizing a Washington office staff, and working out new procedures in the handling of both administrative and archival details. By July 1971 it had become an integral part of the Smithsonian's research facilities and its resources were being intensively used by staff and fellows of the National Collection of Fine Arts, the National Portrait Gallery, the National Gallery of Art, faculty and graduate students across the country, and by scholars from such places as Chicago, London, Munich, New Orleans, New York, Paris, Seattle, San Francisco, Stockholm, and Tokyo.

Among significant collections of papers received by the Archives during the year are those of John Taylor Arms, Arthur G. Dove, Guy Pene DuBois, Charles Freer, G.P.A. Healy, Hiram Powers, J. Alden Weir, two major New York dealers, the Kootz Gallery and the Howard Wise Gallery, and the Corcoran Gallery in Washington, D.C.

The Archives also continued its oral history project under a grant in FY 1971 from the New York State Council on the Arts. This collection,

consisting of approximately 2,000 taped interviews, is the largest art-related collection in existence. Extended tape recorded interviews were conducted with ten art administrators and ten printmakers, photographers, and craftsmen from the New York area. Individuals participating in this project were Leo Castelli, Ralph Colin, Huntington Hartford, August Heckscher, James Thrall Soby, and E. M. M. Warburg. A similar grant has been received for FY 1972.

The year was also marked by the establishment of a New England branch office in Boston where researchers from the many academic institutions in the area regularly consult Archives' resources duplicated on microfilm.

Regional offices are also the chief means of acquiring collections of artists' and dealers' personal papers. The Boston office will serve as an important source of archival records from New England which, after being organized and filmed at the Washington center, are offered to scholars on a national basis. FY 1972 will be spent nourishing the activities of that office. Plans call for the creation of a western office in the following year. In FY 1973, efforts should begin to establish the first center for the study of American art history on the west coast and activate a program to preserve documents related to our cultural heritage in art.

The FY 1973 request will provide for an administrative officer for the western office, contractual services including microfilming, and office supplies (\$25,000).

NATIONAL ARMED FORCES MUSEUM ADVISORY BOARD

<u>Program Categories</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Bicentennial Park <u>1/</u>	5	108,000	3	79,000	3	90,000
Dwight D. Eisenhower Institute <u>2/</u>	2	34,000	2	38,000	5	85,000
Collections Management & Preservation <u>3/</u>	1	12,000	1	11,000	1	12,000
Total Operations	8	154,000	6	128,000	9	187,000

1/ Activity during FY 1971 included initiation of legislative action to establish Bicentennial Park and to authorize negotiations with the Department of the Interior for joint use of park sites. Prepared brochure describing concept and programs. During FY 1972 legislative action will continue and staff will conduct research necessary for planning the Park including the compilation of data regarding the nature of the Continental Army and other aspects of the Revolution. In FY 1973 emphasis will be on the coordination and supervision of comprehensive planning for the Park's construction and on continuing research to insure authenticity of Park activities.

2/ During FY 1971, the effort was on classifying and cataloging a large Collection of published materials for the nucleus of the Eisenhower Institute Library. Detailed planning will take place in FY 1972 to include consultation with other bureaus and agencies and continued development of collections of published materials for the Institute Library with emphasis on the American Revolution. In FY 1973 the Institute will be activated.

3/ Includes minimum necessary preservation of armed forces history collections, most of it in outdoor storage.

NATIONAL ARMED FORCES MUSEUM ADVISORY BOARD

1971 Actual.....\$ 154,000
1972 Estimate.....\$ 128,000
1973 Estimate.....\$ 187,000

The National Armed Forces Museum Advisory Board, established by Public Law 87-186 (approved August 30, 1961), advises and assists the Board of Regents of the Smithsonian Institution on matters relating to establishment of a National Historical Museum Park, to be known as Bicentennial Park, and a study center to be designated the Dwight D. Eisenhower Institute for Historical Research.

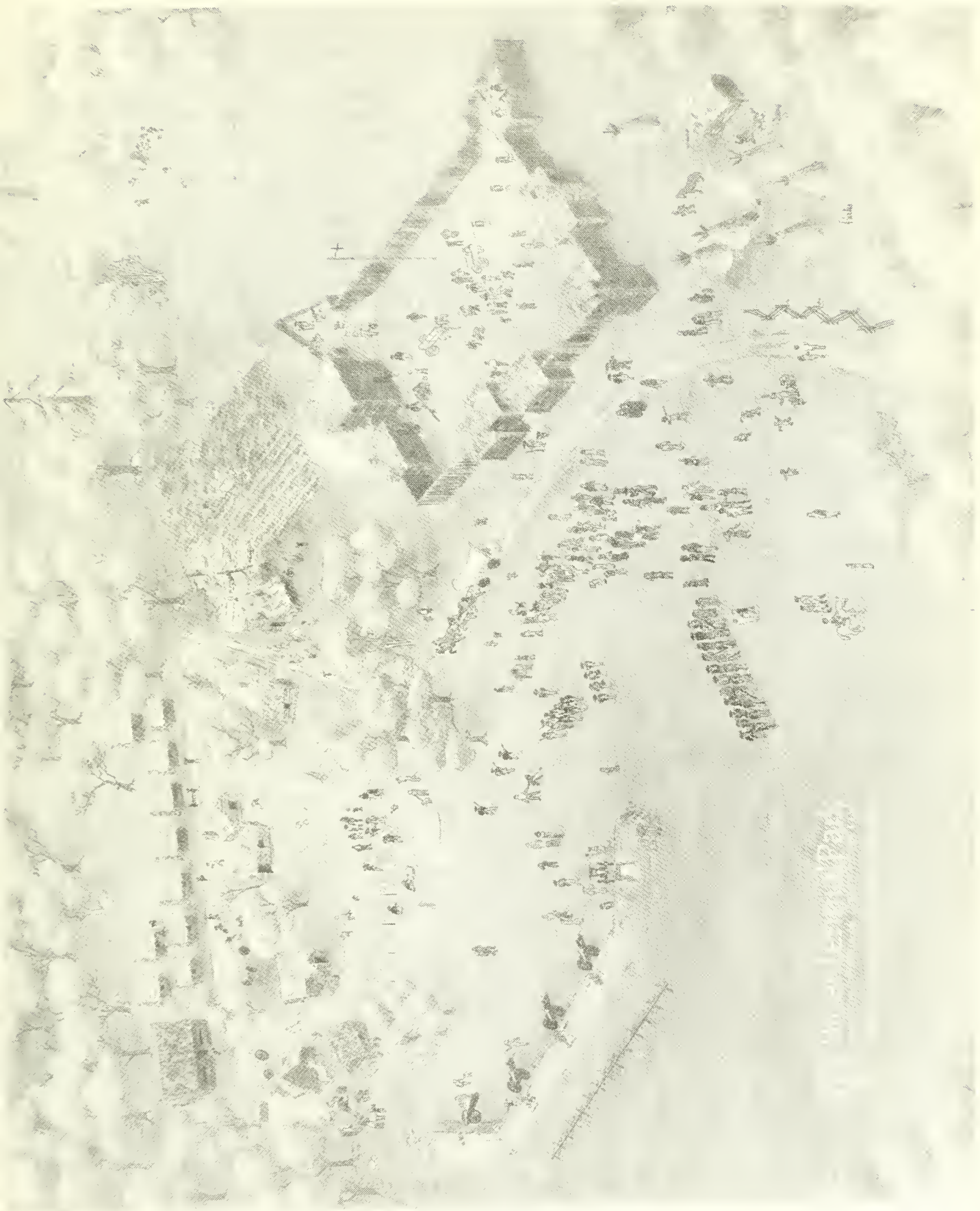
For FY 1973, a program increase of \$56,000 is requested for Bicentennial Park planning and for Eisenhower Institute activation. An additional \$3,000 is required for necessary pay for current staff.

Bicentennial Park Planning and Related Preservation of Collections (\$10,000)

Pending legislation in the form of S.2153 and H.R. 10311 seeks authority to establish Bicentennial Park at two sites on the Potomac River, Fort Foote in Prince George's County, Maryland, and Jones Point, Park, on the southern edge of Alexandria, Virginia, both now in federal ownership under the jurisdiction of the Department of the Interior. Endorsed by the American Revolution Bicentennial Commission in its Report to the President of July 4, 1970, Bicentennial Park is designed as a living outdoor museum re-creating in authentic detail the daily camp life of the patriot soldier of the American Revolution. Construction planning funds are requested elsewhere in this budget. The attached photograph portrays one highlight of the Park's planned activity. Additional details are in the booklet Smithsonian Institution: American Revolution Bicentennial Programs 1971-1976. An amount of \$10,000 is requested for program planning and supervisory expenses related to construction planning and for the preservation of collected objects many of which will be used at Bicentennial Park.

Dwight D. Eisenhower Institute Development (3 positions; \$46,000)

The Advisory Board also has conducted preliminary planning for the Dwight D. Eisenhower Institute for Historical Research, authorized by the Act of August 30, 1961, and soon to be activated. The Institute, through its programs of research and publication, will promote understanding of the historic role of the armed forces in context with the whole history of American civilization. During the Bicentennial period, the programs of both the Institute and of the Park will be oriented especially to providing deeper insight into and understanding of the background of our Continental forebears and their struggle to establish the world's first modern republic. An executive officer, librarian, and secretary are requested to provide essential staffing. Approximately \$40,000 are requested to cover personnel costs and \$6,000 to purchase necessary supplies, materials, travel, and equipment.



PUBLIC SERVICE

The Institution has not allowed itself to rest with static presentations and exhibits of collections directed at only those persons with sufficient motivation, time, or money to visit its centrally located galleries and museums. In order to be successful in conveying the richness of the nation's heritage to a wider public, and to offer additional opportunities for appreciation of its growth and development, the Institution has sought to expand its public reach. It has achieved this in a variety of ways over the last several years.

The experimental development of a neighborhood museum in Anacostia has shown that museum operations may be carried out in the crucible of the inner city, that children may learn with delight and advantage, and that the residents of the area will treat with respect what they regard as their own center for learning and recreation. The story of the Anacostia Neighborhood Museum and its usefulness stands as one of the outstanding achievements of the Institution in recent years.

The activities of the other public service units have been no less important. There is the Folklife Festival on the Mall, sponsored annually by the Division of Performing Arts, and increasing significantly in popularity with all age groups of the nation. The world-wide character of the programs of the Office of International Activities serve to bring this nation closer to the ideal of a world community through research and the dissemination of knowledge.

ANACOSTIA NEIGHBORHOOD MUSEUM

<u>Program Categories</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Urban Problems and Community Relations <u>1/</u>	5	76,000	5	96,000	9	143,000
Exhibits and Education <u>2/</u>	7	86,000	10	128,000	10	165,000
Total Operations	11	151,000	15	204,000	19	308,000

1/ This includes supplementary administrative and operational federal efforts at supporting the successful research and community activity Carnegie Corporation initially funded through a grant. It includes community meetings, discussions, interviews with residents, and other efforts to involve citizens in awareness programs which, through self-help, may alleviate some of the crime, drugs, educational, and employment problems.

2/ This represents approximate levels of effort directed at producing exhibitions; it also includes related classroom instruction provided to community residents in developing arts and crafts skills, and exhibits training on urban problems.

ANACOSTIA NEIGHBORHOOD MUSEUM

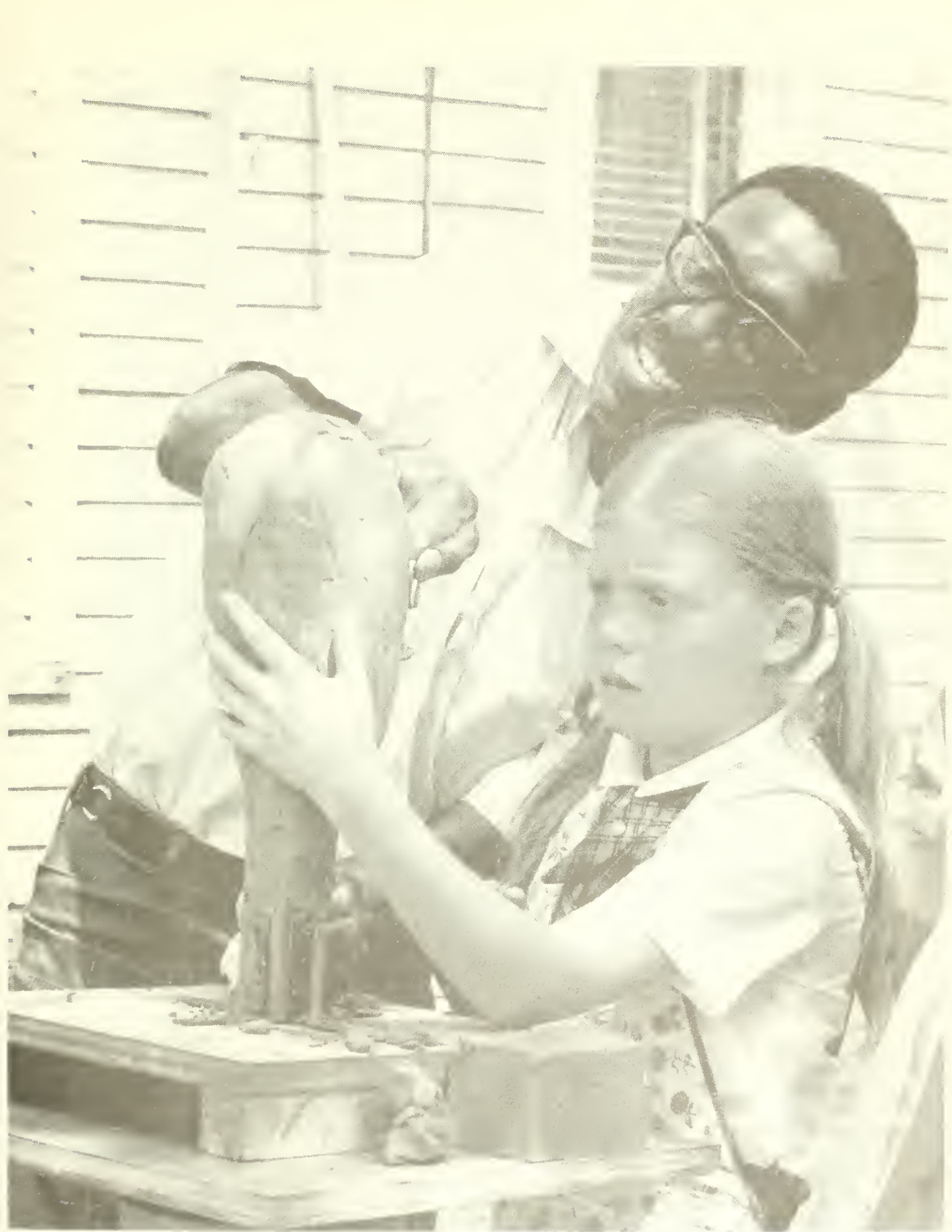
1971 Actual.....\$151,000
1972 Estimate.....\$204,000
1973 Estimate.....\$308,000

The Anacostia Neighborhood Museum was established to reach out to new audiences who are unaware of museum resources, physically too far from them, or, as inhabitants of low-income population density centers, do not see the interest or relevance of museums. Starting in 1966, the Smithsonian sought out community reaction to the concept of a permanent neighborhood museum in the inner city. Reaction was most favorable and the desire for community involvement appeared strongest in Anacostia. The Museum was founded entirely by private donations and was opened in September 1967. Exhibits concentrate on visitor involvement and classes in sculpture, leathercraft, clay modeling, drawing, and painting have been held. A photograph of such a class appears on a following page. In subsequent months, the Museum, in close collaboration with its Neighborhood Advisory Council, began to present exhibits which the community requested, primarily in the field of Negro history. In each case, the exhibit served as a backdrop for school programs, lectures, and concerts. Four years later, the Museum has entertained and instructed about 200,000 visitors and offers a widening array of classes and youth programs. Anacostia has linked its activities directly to the needs of the community and has assured a fresh, nontraditional approach to the role of the museum.

In FY 1973 the Museum is seeking an additional \$88,000 to further its efforts in the Anacostia Community by strengthening activities devoted to demonstrating the solutions to various urban problems, and by creating an exhibits training center which would productively serve the growing number of neighborhood museums around the country. In addition, \$16,000 are sought for necessary pay for staff.

Urban Studies (4 positions; \$63,000)

Because the Museum has been successful, museums in many sections of the country are considering how they might also develop neighborhood museums. With regard to this effort, the American Association of Museums received a grant of \$50,000 from the Department of Housing and Urban Development to do a study of neighborhood museums and other urban projects. Since the Anacostia Museum has been the successful forerunner in this area, the director of the Anacostia Museum was selected as co-chairman of a nationwide committee to undertake this project. The basic reason for this Museum's success has been its recent involvement in urban problems. Its first exhibition on rat infestation which covered the history and solution to this very pertinent problem, coupled with related films, community discussions, and dramatic presentations, catapulted this Museum into the area of urban problems. Through its exhibits and related education programs, the Anacostia Museum is concentrating on an awareness approach to demonstrating in Washington and other cities methods of community self-help and improvement. Part of the effort is directed at bringing about a better historical understanding of the importance of the Anacostia community to the past development of the city. The Carnegie Corporation, through a two year grant, is funding the initial work in this area to research a set of problems and produce a community history of Anacostia. With regard to this, 52 interviews of Anacostia residents have been taken by Museum staff working with graduate students in urban studies from Howard University and the University of Maryland. The interviews capture the viewpoints of the older



One of our exhibits specialist, Jim Campbell, Helping a child in Arts & Crafts.

residents and their perspectives on the historical community changes that have taken place over more than three-quarters of a century. This information will be utilized, along with other documentation from old newspaper files, articles, and books, to produce a community history which will integrate the impact of political and social events on the citizens of the neighborhood, and provide a better understanding of the causes and sources of contemporary urban problems. Carnegie funds will expire in FY 1972, but it is imperative that the Museum continue this and related projects. Funds are requested to transfer four private positions to federal employment (\$40,000) along with \$23,000 for necessary supplies, equipment, and travel. The group is actively working with members of the Museum staff for the creation of better exhibitions, discussions, and demonstrations regarding community crime, drugs, housing, employment, and education problems.

Exhibits Training Center (\$25,000 support funds)

Currently the Museum and Institutional administration are negotiating with a large foundation for the establishment of a training center in Anacostia to serve the practical exhibit and educational needs of museums across the country. The Foundation has indicated it would be willing to operationally support such a venture if the Federal Government will supply, on a matching basis, physical facilities and partial operating funds. A request for \$200,000 which will locate and house the training center is presented in the Bicentennial of the American Revolution section of the Institutional Budget. To help obtain consulting services for developing a program curriculum and to provide start-up support for supplies and materials, \$25,000 are being requested. The Center's objective is not only to provide productive training in a needed area of museum operations, but to help fill the demands for exhibits that would extend the concept of the Anacostia Neighborhood Museum to various other communities across the nation.

OFFICE OF INTERNATIONAL ACTIVITIES

<u>Program Categories</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Coordination and Administration of Smithsonian Institution Overseas Programs <u>1/</u>	3	55,000	3	67,000	3	72,000
Administration of the Foreign Currency Program <u>2/</u>	5	83,000	6	78,000	7	100,000
Total Operations	8	138,000	9	145,000	10	172,000

1/ In conjunction with the Office of the Assistant Secretary for Science and the Office of Environmental Sciences, this Office is concerned with the world-wide environmental and conservation interests of the Institution. In conjunction with the National Collection of Fine Arts and the Smithsonian Traveling Exhibition Service, the Office is coordinating a new program to supply exhibits for distribution and showing abroad by the U. S. Information Agency. The Office is also involved in cooperative international museum programs. The Office organized and sponsored a major Indian-American Ecology Conference in New Delhi in February, 1971, which is expected to result in a major program of "environmental assessment" in India. The office is also currently working with the National Academy of Sciences and the Smithsonian Astrophysical Observatory on appropriate programs to commemorate the Five Hundredth Anniversary of the Polish astronomer Copernicus who originated the theory that the earth revolves around the sun.

2/ Perhaps the principal single role of the Office is to administer the Institution's Special Foreign Currency Program, which awards grants both to Smithsonian scientists and to American institutions of higher learning to perform research in those countries where the United States holds local currencies in "excess" to its needs. The fields of research in which awards are made broadly constitute the fields of the Smithsonian's own interest and competence, and include: Archeological and Related Disciplines, Systematic and Environmental Biology, Astrophysics and Earth Sciences, and Museum Programs. Since 1965, the Program has awarded slightly more than \$13 million dollars' worth of "excess" foreign currencies in the form of 307 separate grants benefiting American scientists and institutions all over the country.

OFFICE OF INTERNATIONAL ACTIVITIES

1971 Actual.....\$ 138,000
1972 Estimate.....\$ 145,000
1973 Estimate.....\$ 172,000

The Office of International Activities was established in 1965 to coordinate the Smithsonian's many scientific and cultural activities abroad. In this capacity, the Office assists members of the Smithsonian staff working, or contemplating work, overseas. It is the Institution's point of liaison with the Department of State, American embassies and U.S. research institutes abroad, and foreign diplomatic missions in Washington. It handles international visitors to the Smithsonian, many of them programmed by U.S. Cultural Exchange programs, and administers training programs for foreign museum technicians at the Institution. In addition, this Office administers the Smithsonian's Special Foreign Currency Program (SFCP). Further details on the activities of this Office are shown in the program table on the facing page.

The program increase of \$20,000 requested for FY 1973 is in support of the SFCP and includes one position for an overseas coordinator and additional travel funds to enable a new Advisory Council in Astrophysics and Earth Sciences to hold meetings. \$7,000 are requested for necessary pay.

Management of the SFCP is made more difficult by the different sets of rules for American scientists that have to be followed in the various "excess" currency countries. This problem has become particularly acute in South Asia now that the recent Indian-American Ecology Conference held in New Delhi has laid the groundwork for a major cooperative program of "environmental assessment" in densely populated and developing India. American scientists generally will participate in this work sponsored and coordinated by the Smithsonian. In order to develop the necessary cooperation and arrangements for the various projects which would collectively constitute the projected Indian "environment assessment," and which would be supported by Foreign Currency Program grants, a coordinator is needed to spend at least part of the year in the field. He would also manage the problems of the Smithsonian-sponsored projects going on now. Up to this time, the Foreign Currency Program has been averaging up to 10 active projects in India at any one time; this number will increase greatly with the advent of the "environmental assessment" program. This coordinator would be stationed in India (where the greatest amount of "excess" currency exists), but would be free to travel on rupees, at great savings to other countries, to coordinate other scientific programs, especially in Burma, Ceylon, and Pakistan. His ability to reach other countries from India would often obviate the necessity of program-related travel from the United States. A major research undertaking is still going on in Ceylon, and prospects remain good to develop further research in Pakistan.

Additional travel funds are required in order to enable the Foreign Currency Program to organize an Advisory Council in Astrophysics and Earth Sciences. All proposals submitted to the Program undergo scientific review by the best qualified scientists regardless of where they are located. The Advisory Councils in Archeology and Related Disciplines and in Systematic and Environmental Biology currently meet several times yearly to consider proposals. Up to now, proposals in Astrophysics and Earth Sciences have had to be reviewed by an in-house committee or by mail. With the increase of \$2.5 to \$3.5 million in "excess" currencies in FY 1972, however, a proportionately larger share of funds should be allocated to Astrophysics proposals. It is necessary to be able to convene an Advisory Council in Washington in order to do justice to proposals in this field submitted by the American scientific community.

DIVISION OF PERFORMING ARTS

<u>Program Categories</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Folklife Festival and Mall Activities <u>1/</u>	7	201,000	7	221,000	10	361,000
College Theater Festival <u>2/</u>	0	14,000	0	25,000	0	30,000
Ethnomusicology and other Programs <u>3/</u>	0		0		2	50,000
Total Operations	7	215,000	7	246,000	12	441,000

1/ Chief focus of the Division activities involves the highly visible and successful demonstrations of folk craft presented annually during the Fourth of July. In July 1971 800,000 people attended over a five day period. Indians of the Northwest and the folk traditions of the state of Ohio were the featured highlights. Also included is the supervision of the puppet theatre, touring performances, and other activities.

2/ Provides box office management assistance and some production effort in relation to presenting the annual ten best college dramas.

3/ Funds required to adequately support major efforts directed at obtaining accurate historical information on music of American ethnic groups and integrating this information into Smithsonian presentations.

DIVISION OF PERFORMING ARTS

1971 Actual.....\$ 215, 000
1972 Estimate.....\$ 246, 000
1973 Estimate.....\$ 441, 000

The Division of Performing Arts is responsible for the presentation of programs dealing with our national aesthetic expressions, particularly as they evidence themselves in oral, music, or dance forms, and relate to the collections of the museums. By staging such events as the annual Festival of American Folklife the Division undertakes to extend and enliven the Institution's educational services to the public.

The Division offers a wide variety of programs in addition to the Festival. It sponsors, along with the John F. Kennedy Center for the Performing Arts and the American Educational Theatre Association, the American College Theatre Festival which brings to Washington the ten best collegiate dramatic productions as rated by regional committees. Programs in jazz and modern dance, both particularly American in nature and development, provide a deeper view of our creative past and present and are presented at the museums by the Division. The resident puppet theatre provides an educational experience to 150,000 children and adults a year, and focuses on material central to America and its culture. A Touring Performance Service makes available to colleges, universities, and other organizations across the country a wide variety of programs similar to those presented for the Washington audience. The Division also supports presentations by outside organizations within the museums. The National Symphony Orchestra, military bands and orchestras, and colleges offering productions using HEW Title Three funding are examples. The staging and administration of these operations is complex and time consuming. For the past two years no request has been made for additional funding for the Division, but the scope, number, and variety of responsibilities and activities have accelerated enormously over the period. This has been due largely to the increasing recognition of the Division's reputation as a center for quality performances, and to the growth in interest by state governments, federal agencies, unions, and other institutions to use the Division as an administrative and organizing focus for their performing arts interests.

The additional amount requested for FY 1973 is \$193,000 and is largely directed at meeting the increased costs associated with producing the Folklife Festival and establishing an American ethnomusicology program. In addition \$2,000 is sought for necessary pay.

Folklife Festival and Mall Activities (3 positions; \$138,000)

The major portion of this request is to meet a forecasted increase in the need for federal support to develop and produce the annual Festival of American Folklife on the Mall. In the years since the inception of the Festival, support from private sources has been gratifying, enabling the Festival to grow in scope and impact. For example, in July 1971 the folk arts and history of the State of Ohio were highlighted in major exhibits and demonstrations. To help cover the costs of this portion of the Festival, the State Government and various Ohio foundations allocated to the Smithsonian

about \$70,000 for travel, lodging, and other expenses of participants, production of exhibits, and other necessary costs. Four labor unions (representing the nation's iron workers, meat cutters, glass bottle blowers, and bakers) provided about \$15,000 to help cover the expenses associated with exhibits and displays devoted to their trades.

Outside interest such as this is growing and undoubtedly in future Festivals costs associated with particular aspects of festival activities will be borne in part by outside groups. But the success of the annual Festivals has placed a serious burden on the Division which must be rectified. Inflationary costs have made inroads into the Division's ability to fund, from its own base, basic planning, production, and housekeeping expenses of the festival which are borne through federal appropriations. The Division is losing its ability to attract outside support by being in a position to offer "matching funding" at a level equal to State and private contributions. In addition, while these outside groups are willing to support the direct costs of artisans and performers, they are not interested in funding the more prosaic, but essential, costs of production services.

For these reasons, three positions (an audiovisual technician, administrative assistant, and operations officer) at a cost of \$38,000 are requested and \$100,000 are sought in the form of support funds for additional travel, supplies and materials, contractual services, and equipment.

College Theatre Festival (\$5,000)

An increase of \$5,000 is requested in order to support a Symposium on Collegiate Theatre which will be an integral part of the annual Festival.

Ethnomusicology (2 positions; \$50,000)

Smithsonian programs, such as the Festival of American Folklife and consultation to other government agencies, both Federal and State, and institutions require the basic gathering of information and data on the state of the arts in the United States. The Division believes it important to initiate a program of American Ethnomusicology. The results of research grants provided by this program will yield information vital to scholarly planning for Smithsonian presentations and will substantially support contributions to an American Ethnographic Atlas. Initiation of this program will require funding of \$50,000 for two positions (a historian and research assistant) and related support costs.

SMITHSONIAN INSTITUTION SPECIAL PROGRAMS

This group of activities is considered to be of particular importance in implementing desired growth in the Institution's activities over the next several years. Some supplement program activities of the museums and galleries. For instance, opportunities are provided for outstanding pre- and post-doctoral investigators from across the nation to be selected for work under the supervision of the Institution's professional staff. External education services are provided by means of popular museum tours for school children and other education services. Other special programs provide the basis on which the Institution affects dramatic changes in its exhibits and research efforts. The exhibits program request is geared to produce three exhibits of unusual significance and timeliness in the Natural History, History and Technology, and Air and Space Museums. The Bicentennial of the American Revolution request is most necessary to advance the Institution's efforts to celebrate and portray the first two-hundred years of American history and what they may mean for the future. The environmental science program request speaks to the third year of a coordinated Institutional effort to shed light on ecological problems in the nation, and the research awards request will enhance the Institution's ability to fund especially meritorious work of its professionals. The National Museum Act request is directed at strengthening the nation's museums by means of training and improved conservation, cataloging, and exhibits techniques.

AMERICAN REVOLUTION BICENTENNIAL PROGRAM

FY 1971 Actual.....	\$ 400,000
FY 1972 Estimate.....	\$ 400,000
FY 1973 Estimate.....	\$1,000,000

The Smithsonian Institution is preparing to play a central and major role in the celebration of the Bicentennial of the American Revolution. The Bicentennial presents an opportunity for a wide-ranging and creative use of the Smithsonian's great capabilities and resources, which are of a nature ideally suited to the occasion and the times. We welcome the challenge and believe that our program, which has as a theme The American Experience, will meet all expectations. We will offer imaginative and exciting events and, at the same time, we will make contributions that will continue to reward the general public and the scholarly community for many years to come.

The Bicentennial undertaking at the Smithsonian will involve almost every department, and range from an entire new museum building (the National Air and Space Museum) to such minor, but often crucial, matters as the cost of the services of a single consultant. Many of these costs are not encompassed here, in this request. They will be paid for, as far as possible, out of regular appropriations, and in some instances, the National Museum of History and Technology, for example, virtually all of the regular budget received between now and 1976-77 will go increasingly into Bicentennial related activities as is indicated in its budget statement. The amounts requested in this special appropriation over the next few years will be used to make the extraordinary effort, above and beyond the Institution's normal level of operations that is called for by this special occasion. These appropriations will be used exclusively for activities that could not otherwise take place. Permanent commitment of personnel and other additions to the various Bureaus' and Museums' appropriations bases are avoided. The program will phase out after 1976, but it is designed to produce accomplishments which will remain for an extended period of time, or in perpetuity, for the use of the citizens. For this reason, the description of FY 1973 commitments totaling \$1,000,000 (or an increase of \$600,000 over FY 1972 federal appropriations) are summarized as though they may not extend beyond FY 1973. The amounts indicated for FY 1973 activities have been subject to intense internal management review, and are considered to be logical extensions of activity started in FY 1971 and FY 1972, or needed additions to bring about the desired national result by FY 1976. A summary breakdown of the requested FY 1973 funding is presented in Table I.

With the support of the FY 1971 and 1972 appropriations for this purpose, and with every possible commitment of the Institution's regular budget, we have completed an overall plan (Smithsonian Institution: American Revolution Bicentennial Programs 1971-1976) submitted as a supplement to

this budget and have made a strong beginning on the program itself. The work must be spread out over the intervening years, allowing lead time for the research, design, collecting, and construction which go into the production of major exhibitions, and for the nationwide information-gathering that will go into the Bicentennial Survey of American Art. Phased scheduling will assure completion of the various program components by the Bicentennial year.

This special Bicentennial funding serves dual purposes: it will normally pay for projects that are complete in themselves; and, in some cases, it will expand a special Bureau exhibit, or enrich it, for example, by the acquisition of unusual objects, or by enabling it to reach a wider national audience.

In FY 1973, a total of \$1,000,000 is sought to permit the accelerated pace which must take place as the year 1976 draws near.

Bicentennial Exhibition Construction and Facilities (\$490,000)

Under this appropriation are the two pivotal, major, Bicentennial exhibitions on the Mall.

A Nation of Nations will be located at the National Museum of History and Technology. The purpose of this exhibit is to show how groups of immigrants created a new nation with a new identity. To minimize visitor inconvenience due to closed-off exhibit space, this exhibition is to be constructed in three phases. The first will deal with the wave of immigration in the 17th and 18th centuries; the second, with the basic life experiences that were common to each group (giving special attention to the experiences of native and minority groups); and the third, with the contributions of American political ideals, attitudes, technologies, and popular culture which formed a stable, but flexible, world community.

The concept, shape, and content of this exhibition have been determined, spatial requirements have been specified, some objects have been purchased, and experimental modular units are now being constructed.

During F'Y 1973, \$350,000 will be needed for detailed planning and for some initial reconstruction of space. A "Nation of Nations" will be more than four years in the making--a period of time not unusual for an exhibition of this scale and originality. This exhibit will remain for years after the celebration ceases as a major focus for NMHT visitor attention. It is being designed so that modifications can take place periodically to update and modernize the content.

A second facet of the exhibition effort on Bicentennial themes in Smithsonian museums by 1976 will constitute the National Museum of Natural History exhibit Ecology-USA/200. This will be, in effect, one large multifaceted exhibition of unusual depth and richness. It will present the background of our present environmental dilemma. Designers, working closely with the Museum's scientific staff, have completed preliminary studies which promise a highly interpretive exhibition presenting a historical perspective of the various changes that have occurred such as: agriculture developing in response to the needs of our growing population; the effects of technological development upon our natural surroundings as America emerged as the principal industrial nation; and the impact on the country of urbanization. The special Bicentennial funding will pay for preparatory planning and design services, the acquisition of objects (which, of course, will become permanent additions to the national collections), and the production of traveling versions and filmed versions for national circulation (which will also record for posterity our 200th anniversary). In FY 1973 this exhibition will require \$60,000 to carry forward architectural planning and detailing and to construct and test exhibit units.

In addition to funds for these two major exhibits, \$80,000 are requested to supplement the regular costs of Bicentennial exhibitions at the National Museum of History and Technology, the National Collection of Fine Arts, and the National Portrait Gallery (see listed exhibit activities in the Institution's plan American Revolution Bicentennial Programs 1971-1976, pp. 18-34).

Bicentennial Survey of American Art (\$250,000)

We are at the end of two centuries of growth. We have an established record of achievement in technology and the sciences. But there are some large gaps and unrecognized achievements in our nation's knowledge of American cultural attainments and resources. This is not surprising in a nation as young as ours, that has been scientifically and technologically "on the move." Only our foremost thinkers acknowledge that our technology and our arts have a common breeding ground--the crafts and skills that have been woven into our diverse national character since 1776. The Bicentennial Survey of American Art will take stock of achievements on a national scale, enlisting the aid of organizations and individuals in every state. The Survey will be conducted by four Smithsonian bureaus--the National Collection of Fine Arts, the National Portrait Gallery, the Archives of American Art, and the Division of Performing Arts. Using the abilities of these offices to make a concerted effort, the Survey will point to the full scope of 200 years of cultural accomplishment, and reveal as never before the fusion of great talent that was necessary to create this country.

The National Collection of Fine Arts' Bicentennial Inventory of American Paintings Executed Before 1914 is a program to search for and record the whole range of American painting from the earliest years of our history to the present century. It will significantly extend the available resources for continued study of American art and history, and enlarge and deepen our understanding of both. The focus in the earlier years must be on obtaining paintings; recording raw data on paintings; locating other works; enlisting collector and organizational commitments to initiate search and record programs; and providing assistance to these projects. Concentration will then shift to processing the data accumulated into final record form.

The Inventory got off to a good start in FY 1971, when it issued the first of a series of mailings to 3,800 small museums, historical societies, and state and local arts councils inviting active participation. About 700 initial responses were received furnishing information about collections and promising all possible cooperation. Of these, some 300 are potential survey agents. In FY 1973 it is estimated the Inventory will need \$55,000 for operating expenses and temporary appointments of personnel.

The National Portrait Gallery is assembling The Catalogue of American Portraits (CAP). This is a research resource which eventually will contain photographs and documentation on thousands of American portraits in public and private collections across America. It is developing in close cooperation with the National Collection of Fine Arts Inventory. During the Bicentennial years, the Catalogue will complete documentation on portraits of Americans living between 1770 and 1790. An experimental program in Richmond, Virginia in FY 1971 discovered a great many hitherto unknown portraits and developed methods of investigation that are presently being used in other states. In FY 1973 CAP will have field researchers at work in the Carolinas, Georgia, Kentucky, and Tennessee, and \$120,000 will be utilized to supplement their activity.

The Archives of American Art has as its sole Bicentennial project a Bibliography of American Art, a comprehensive reference work in three volumes. The Archives also is working closely with the National Collection of Fine Arts and the National Portrait Gallery in developing this effort. It will make available an in-depth and scholarly listing not only of major works on American art, but also of important non-book materials. A temporary staff has been set up and contributors are assigned sections of the bibliography. Each bibliographer is a specialist in the field of American art and will deal with an area directly related to his particular interest. In FY 1973 this special staff will require support of \$50,000.

The Roots of American Folk Culture program of the Division of Performing Arts is a systematic survey of folk traditions in music, dance, storytelling and crafts throughout the United States. This survey will cover urban as well as rural areas, and the contributions of indigenous as well as immigrant groups. The first results were seen in the 1971 Festival of American Folklife on the Washington Mall when Bicentennial funds allowed thousands of visitors to enjoy Northwest Coast Indian music, dance, arts and crafts. These performances were recorded on film. As part of the Roots effort, \$25,000 will continue services and research through FY 1973.

National Outreach (\$260,000)

The Smithsonian Institution Traveling Exhibition Service (SITES), administered by the National Collection of Fine Arts, will produce and circulate a total of 45 Bicentennial exhibitions during the period up to and including the Bicentennial year. These will be expressly for the Bicentennial celebration, in addition to SITES' normal annual activities. The objective of this plan is to make these exhibitions available at the lowest possible cost, in an effort to reach populations not normally served by touring exhibitions. SITES is therefore requesting funds to subsidize the production and the transportation costs involved. Each exhibition, when fully booked, will visit 12 locations during a two-year tour. Forty-five exhibitions have a potential of 540 installations; at this point the Bicentennial audience cannot be estimated, but will encompass a substantial portion of the Nation's population.

The subject matter will provide an overview of American history, science, technology, and art. Present planning calls for exhibitions organized into interrelated curricular units conceived around such central themes as "200 Years of American Transportation" or "A Nation of Builders -- A Visual History of American Engineering." In FY 1973 three experimental exhibitions, probably in an edition of more than one, will be produced and started on tour at a cost of \$10,000.

One of the more unfortunate defects of museum "outreach" programs has been a failure to offer nationally useful and meaningful services to disadvantaged and minority populations. Now, of all times, the Smithsonian almost providentially has been endowed with a capability whereby this deficiency can be corrected. The Smithsonian's Anacostia Neighborhood Museum has pioneered the production and national circulation of exhibitions to these groups by dramatically involving them in the portrayal of minority contributions to American culture. "The Frederick Douglass Years" and "The Rat -- Man's Invited Affliction" are notable examples. Both can be termed community projects, and this museum now proposes to create an

entirely new and appropriate kind of facility as a way for minority group members across the country to participate directly in expressing themselves through exhibits and related materials concerning problems which must form an important part of the Bicentennial program and the contemporary American scene.

The Anacostia Neighborhood Museum's Exhibits Production Center will be both an exhibits workshop and a vocational training facility. A preliminary design study, commissioned and completed in FY 1971, developed the concept to the point where an architect may now go to work on final specifications. This process will be unusually simple because the Center will be housed in a pre-engineered "systems building" similar to those now being constructed for schools and light industry, providing the desired space at a substantially lower cost than conventional buildings. An extremely popular concept, the Center will produce exhibitions for nationwide circulation on such subjects as urban problems and the historical contributions of America's minorities. Some exhibitions will be designed for museums; others will be capable of reproduction in sets, for use in community centers, store-fronts, and other non-museum settings. One large private foundation is very much interested in this project, but because of the national economic importance and interest being placed on new ways to channel human productivity, it desires federal recognition and support. Matching funds will be employed for equipment, vocational training, and general operations. Preliminary discussions with the National Capital Parks Commission have resulted in a tentative agreement on a site four blocks away from the Neighborhood Museum's main building.

The Smithsonian will use this facility for the production of some of its Bicentennial exhibition units. To continue with project and facility development \$200,000 are requested to match potential private funds and put the Center in operation.

An Exposition for the Nation's Capital

There will be a great increase in the number of visitors who will come to Washington during the year of the Bicentennial. They will encounter a bewildering variety of exhibitions, performances, and other activities. The Smithsonian will be the focal point, and proposes to work closely with the National Park Service, the government of the District of Columbia, and all other interested agencies and institutions, on ways to unify and render coherent these multiple experiences; \$50,000 are requested to begin cooperative planning.



TABLE I

SMITHSONIAN INSTITUTION

SUMMARY OF PROPOSED CENTRALIZED
BICENTENNIAL OF AMERICAN REVOLUTION ACTIVITIES
FY 1973Bicentennial Construction and Facilities and Major Exhibitions

"A Nation of Nations" (National Museum of History and Technology)	\$ 350,000
"Ecology-USA/200" (National Museum of Natural History)	60,000
Supplementary Funding for National Museum of History and Technology, National Portrait Gallery, National Collection of Fine Arts planned Bicentennial Exhibits	80,000

Bicentennial Survey of American Art

Inventory of American Art Executed Before 1914(National Collection of Fine Arts)	55,000
Catalogue of American Portraits (National Portrait Gallery)	120,000
Bibliography(Archives of American Art)	50,000
Roots of American Folk Culture(Division of Performing Arts)	25,000

Outreach

Traveling exhibitions, SITES (National Collection of Fine Arts)	10,000
Exhibits Production and Training Center (Anacostia Neighborhood Museum)	200,000
Exposition for the Nation's Capital; Inter-Agency Planning, Administration	<u>50,000</u>

TOTAL	\$1,000,000
-------	-------------

ENVIRONMENTAL SCIENCES PROGRAM

<u>Program Categories</u> 1/	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Marine Shallow Water Ecosystems.	2	100,000	5	180,000	9	480,000
Deciduous Forest Ecosystems	1	50,000	3	95,000	6	295,000
Total Operations	3	150,000	8	275,000	15	775,000

1/ In FY 1971, Congress authorized \$150,000 for coordinated environmental research at the Smithsonian. This support enabled the separate bureaus of the Institution for the first time to develop jointly a plan to assemble and analyze biological and physical data on specific important ecosystems, hopefully to predict the consequences of environmental change. The experience of the scientific staff and the accumulated collections of natural history specimens make the Smithsonian specially competent for this kind of research which is absolutely necessary for making the best decisions concerning the management of our environment. Harmful ecological changes have often been attributed to man's influence, whereas research has sometimes shown that variation in natural cycles could be the cause. Thus, attempted remedies have been counter productive. The FY 1971 amount was directed toward three activities: (1) the organization of an interdisciplinary program and establishment of a continuing mechanism for its operation; (2) the selection of sites of highest priority for study; and (3) the implementation of interrelated studies of these sites.

In FY 1972, the Smithsonian Institution was appropriated \$275,000 to conduct its environmental program. The research activity consists of two parts: one, a long-term comparative study of marine shallow-water systems, temperate and tropical and two, a corresponding study of a deciduous forest ecosystem. The planned activity is closely related to and consistent with the recommendations of the International Biological Program. In so doing, the Institution is following the intent of Congress as expressed in Public Law 91-438.

In FY 1973, the Smithsonian Institution is requesting an additional \$500,000 to intensify its environmental program.

ENVIRONMENTAL SCIENCES PROGRAM

1971 Actual.....\$150,000
1972 Estimate.....\$275,000
1973 Estimate.....\$775,000

The Smithsonian Institution has unique capabilities including experienced personnel, the largest collections of plants and animals in the world, with detailed distribution and abundance data. This provides the basis for an effective global environmental monitoring system. The Smithsonian has the capability to measure natural and man-induced variation in the characteristics of solar radiation reaching the earth and the causes of such variations. The Institution is studying, as a function of time, various biological correlates. These studies are facilitated because it has permanent and protected field-research sites in both temperate and tropical zones. In addition, the Smithsonian enjoys particularly favorable relations with its scientific colleagues and institutions in virtually every country of the world.

Environmental Sciences Program activity during FY 1971 was limited to such priority items as monitoring rates of biological and physical change and using plants and animals as benchmarks and bioindicators in the establishment of environmental standards. The major objectives of the FY 1972 program are to study selected tropical and temperate areas to understand the factors contributing to the fluctuations in populations. This will be done in the following manner:

- a. by monitoring and evaluating the physical and chemical environments of selected study sites;
- b. by studying the biology and quantitative distribution of principal organisms at these sites; and
- c. by studying the inter-relationships of the environment with these organisms and man.

FY 1972 Activities:

The Radiation Biology Laboratory site at Point Barrow, Alaska, has been in operation since April 1971, measuring the total short wave solar radiation incident there. The purpose of this site is to determine the influence of latitude, season, and the atmospheric influence on the color quality of the light received at the earth's surface. This information is to be used to help understand plant and animal responses to daylight change by comparing the incidence of arctic light with that recorded from other stations. In this way, we can begin to determine how light affects the reproductive and other physiological processes in plants and animals. This data will be of direct concern to the Tundra Biome Project, a part of International Biological Program, and to the National Oceanographic and Atmospheric Agency which will correlate the SI spectral quality measurements with the atmospheric particle measurements. This will enable them to determine how the particulate matter in the atmosphere influences natural daylight.

A project was continued to compare phosphorus metabolism of algae under heterotrophic and autotrophic conditions in order to be able to develop models which would be useful in understanding the problems created by the pollution of lakes, rivers, and estuaries with high levels of organic materials and phosphate. This is a laboratory study which is supplemented and coordinated with field studies at the Chesapeake Bay Center for Environmental Studies.

The Smithsonian Astrophysical Observatory will examine and model the relationships between variations in the insolation variables and atmospheric variables that may be responsible for insolation change. They will also explore requirements and determine instrumentation for measuring those atmospheric parameters in addition to variations in insolation, which are pertinent parameters in the interdisciplinary investigation at the prime sites of Smithsonian environmental studies. The Astrophysical Observatory at Mt. Hopkins, Arizona, has sufficient equipment so that relatively little equipment need to be added to the site to allow a broad investigation of the causes of the insolation variations. The Radiation Biology Laboratory plans to install a solar monitoring detection unit at Mt. Hopkins.

The National Zoological Park, in coordination with the Smithsonian Tropical Research Institute, is conducting a radio tracking study in Panama to compare, among populations of two sympatric species of sloth, the relationship between energy utilization and social organization. This project will continue for two years and extend radio tracking to include the iguana as well. Sloths, howler monkeys and iguanas represent the dominant vertebrate biomes in the neotropical rain forest. Since all three genera are primary herbivores, an understanding of their numbers, spacing, recruitment, and turnover is essential for an interpretation of the neotropical rain forest ecosystem.

A cooperative long-term study of environmental fluctuations on Barro Colorado Island, Panama, involving measurement, experimentation and modeling of the ecosystem has been initiated. This study is one segment of a larger program which will generate meaningful comparisons between various environments being monitored under this and other programs. There is also a Tropical Marine Environmental Monitoring Project in Panama. This project monitors the physical fluctuations of the Pacific and Atlantic offshore environments in Panama Bay and the Caribbean at specific points, continuously, and in identical manner over a number of years. Also involved are the Atlantic and Pacific intertidal zones, to compare physical stability and predictability with that of the offshore environment. Biological monitoring of intertidal organisms will determine if these can be correlated to the physical perturbations of their immediate and or more generalized surrounding.

In FY 1973, an additional \$500,000 is sought to extend these activities. The Institution will continue to concentrate on the two subprograms during FY 1973:

The comparative study of shallow water marine environments at those sites selected for continuing study.	\$300,000
The forest environments at the selected sites.	200,000

Of the \$500,000 increase, it is estimated that \$100,000 is necessary to expand the instrumentation activity at Pt. Barrow, Mt. Hopkins, and Panama; \$100,000 would be required to broaden the research activities at Chesapeake Bay Center for Environmental Studies by supporting selected projects in land-water ecological problems; \$300,000 would be needed to increase the scope of work presently being conducted at the Smithsonian Tropical Research Institute and to support specific projects relating to the study of the environment. These projects utilize Smithsonian scientists from every unit, and when needed, experts in various physical and biological

disciplines from national and international institutions. These people are given term appointments for the duration of the studies.

This interdisciplinary and team plan of work is given high priority by the Smithsonian and is consistent with the recommendations of the International Biological Program and with Public Law 91-438.

MAJOR EXHIBITIONS PROGRAM

<u>Exhibitions</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
"World of Living Things"	0	0	0	525,000	0	250,000
"Earthbound Benefits from Flight"	0	0	0	0	0	463,000
"Of the People, By the People, For the People"	0	0	0	0	0	535,000
Total Program	0	0	0	525,000	0	1,248,000

MAJOR EXHIBITIONS PROGRAM

1971 Actual	0
1972 Estimate	\$ 525,000
1973 Estimate	\$1,248,000

The Smithsonian's base appropriation for exhibits, primarily in the Office of Exhibits, is largely absorbed by the maintenance and upgrading of existing exhibits, the design of new exhibits, and a modest program of changing special exhibits. This appropriation has remained relatively static for the last several years growing only by pay supplements to meet part of the costs of legislated pay raises. Absorption of a part of higher pay costs by the office, combined with the greatly increased costs of supplies, materials, printing, and contractual services required to produce exhibits, has virtually halted the Smithsonian's ability to continue the development of its permanent exhibits program. New permanent exhibits, space for which exists in present Smithsonian buildings, will require new nonrecurring funds for construction and installation.

The brochure submitted with the Smithsonian budget requests for fiscal year 1973 identifies and describes two new proposed permanent exhibits of unusual timeliness, significance, and public interest. These are titled "Of the People, By the People, For the People" (an exhibit which will be developed in the National Museum of History and Technology) and "Earthbound Benefits from Flight" (to be prepared for the National Air and Space Museum).

In addition, funds are being requested to complete the exhibit which was approved in fiscal year 1972, "The World of Living Things."

The World of Living Things, began in FY 1972 with \$525,000 of appropriated funds, will require \$250,000 to complete in FY 1973. The exhibition should be ready for public opening the latter half of FY 1973. This is a major effort to interpret the "laws of nature," and will include both an introduction to ecology and the exposition of worldwide environmental balances and imbalances.

The Earthbound Benefits from Flight is proposed as a major exhibition directed at two important goals: to exemplify the many applications on earth of the extensive knowledge generated in the course of developing air and space flight; and to communicate to the visiting public the possibilities for future applications. Estimated costs: \$423,000.

Of the People, By the People, For the People, a major exhibition program proposed for FY 1973, is a new Hall of Political History and Government to replace the present hall and Costume Hall. Estimated cost: \$500,000.

With relation to its changing exhibits, the Smithsonian has been strongly urged to strengthen its popular publications program. The funds requested for the exhibits themselves will provide for excellent educational presentations for the visitor at the exhibit. To provide adequate orientation materials, film strips, printed catalogs, pamphlets, and related educational materials, an additional \$75,000 are requested.

NATIONAL MUSEUM ACT

<u>Program Categories</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Documentation, Conservation and Cataloging . <u>1/</u>	0	0	0	195,000	0	385,000
Training of Museum Personnel <u>2/</u>	0	0	0	185,000	0	307,000
Exhibits Development (Techniques, Communication and Publication) <u>3/</u>	0	0	0	140,000	0	232,000
Support and Adminis- tration <u>4/</u>	0	0	3	80,000	3	76,000
Total Operations	0	0	3	600,000	3	1,000,000

1/ Includes studies and development of programs to improve the quality and accessibility of data relating to museum collections. Also includes the development of regional museum laboratory centers to provide commonly needed services and support on a cost-sharing basis to the museums of a geographical area.

2/ Includes training of museum personnel at the professional and the technical levels.

3/ Includes research in museum techniques and the preparation of manuals of instruction covering a wide range of topics such as conservation, exhibits preparation, security, and administration.

4/ Includes general administration of the program.

NATIONAL MUSEUM ACT

1971 Actual.. . . .	\$	0
1972 Estimate... . .	\$	600,000
1973 Estimate.... .	\$	1,000,000

Public Law 91-629 approved December 31, 1970, reauthorized appropriations for the National Museum Act through FY 1974 and funding of \$1,000,000 to the Smithsonian Institution each year. Of this amount \$600,000 was granted by the Congress for FY 1972. Funding at the full \$1,000,000 will permit the Smithsonian Institution to support fully all aspects of the National Museum Act as conceived and requested in FY 1972.

The requested total funding would be used to meet the following basic needs of the nation's museums:

Cataloging and Data Access

Studies have begun on the development of programs and technology to catalog museum holdings in science, history, and art on a national level. Museum professionals and the scientists, historians, and other scholars who use museum collections in their research are much concerned with the need to make museum collections more accessible through more comprehensive cataloging. All are concerned that the systems determined upon will be adaptable to computer storage compatible with systems used in all part of the United States and other countries and that the computer program will be responsive to the needs of students, scholars, writers, and administrators, and be equally usable for those concerned with the circulation of collections and the production of traveling exhibitions.

Museum Laboratory Centers

To meet a number of the described needs of museums for conservation, for exhibitions, for museum-school materials, for television and radio productions based on collections and activities, it has been proposed that museum laboratory centers be established in various locations throughout the United States. These laboratory centers would be supervised and supported in part by groups of museums or by regional conferences of museums to provide services and work on a cost-sharing basis.

Training of Museum Personnel

The most frequently expressed need of America's museums is for trained personnel at both the professional curatorial level and the museum technician grade. Three categories of training require funding. One includes the several varieties of combined museum-university courses for graduate students preparing to enter museum work in curatorial positions in science, art, or history. Another category of training is required for upgrading the skills of museum career personnel already serving in curatorial positions in smaller museums who would be brought up-to-date on the latest doctrines and techniques of museum work through work training in more advanced museums. The third category is for the work training of museum technicians in science, history, or art, and in conservation, exhibition, museum education, and in the management of museum collections and library and archival resources. Training in these categories and subjects will vary in time from 3 to 12 months with an estimated average cost of \$5,000 a trainee including the support of the trainee and the expenses of the museums and universities providing the training.

Research in Museum Techniques

Systematic and imaginative research is required to improve the performance of museums. Inquiry is needed into means to improve the public visitors' museum experience; to make exhibits more effective in communicating with the viewer; to enable museums to be of greater use to schools, colleges, and universities; to make museum resources available to disadvantaged people and communities; and to experiment, develop, test, and evaluate all of the museum's varied functions.

Manuals of Instruction

A great need exists for manuals of instruction on the design and preparation of exhibits, on conservation of museum objects, on museum lighting, on museum education, on museum security, and on museum administration. The opportunity to publish manuals will stimulate experts in the field to contribute manuscripts based on their experience and knowledge.

Funds appropriated to the Smithsonian Institution for the implementation of the National Museum Act will be made available, primarily by grants and contracts, to individuals, museums, and professional associations. Such funding will be made in concert with the National Museum Act Advisory Council appointed for this purpose by the Smithsonian Institution. The membership of the Advisory Council encompasses the principal museum disciplines--art, science and history--and is broadly representative of all regions of the United States. The Council will advise and assist the Secretary in determining priorities and assessing the quality of individuals and programs seeking support under the Act. The first meeting of the Council is scheduled for November 1971 at which priority guidelines will be established and requests for funding (perhaps totaling as much as several million dollars) will be reviewed. At the working level the Smithsonian Institution and the Endowments, through their respective Offices of Museum Programs, will regularly consult and review program support in order to avoid overlap.

ACADEMIC AND EDUCATIONAL PROGRAMS

<u>Program Categories</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Elementary & Secondary Education <u>1/</u>	13	138,000	17	190,000	21	356,000
Academic Studies <u>2/</u>	4	440,000	4	448,000	5	647,000
Seminars <u>3/</u>	1	18,000	1	23,000	2	49,000
Total Operations	18	596,000	22	661,000	28	1,052,000

1/ Includes Institutional coordination, supervision, and directional development of docent and tour programs involving elementary and secondary school systems; directional guidance for preparation of teaching guides, audio-visual aids and other educational material directed at pre-college students. Conducts teacher workshops and provides centralized focus for inquiries concerning various museum projects and activities affecting elementary and secondary school groups.

2/ Currently coordinates the application, selection, funding, and administration of approximately 25 post-doctoral and 14 pre-doctoral appointments annually, in approximately a dozen academic disciplines. The disciplines reflect Smithsonian interests and expertise, and the fellows are under the direct supervision of Smithsonian scientists and historians.

3/ Plans, coordinates, and carries out special programs such as the Smithsonian series in international symposia (proceedings of fourth symposium are to be published in FY 1972), the Institution's 125th anniversary observance (September 1971), and seminars in selected contemporary topics involving a variety of museums, foundations, federal agencies, and academic institutions.

ACADEMIC AND EDUCATIONAL PROGRAMS

1971 Actual.....	\$ 596,000
1972 Estimate.....	\$ 661,000
1973 Estimate.....	\$1,052,000

A major Smithsonian objective is to make its learning resources available to the formal educational community at every level and to the general public. At the level of higher education, the Institution develops and coordinates fellowship and study programs through a variety of cooperative educational agreements with the nation's universities. The program offers research opportunities and advanced training and study to young scholar-teachers and doctoral candidates, and short periods of training in science and history for undergraduate and graduate students to supplement their university courses of study. Support is offered for the development of seminars to enhance the study and research of members of the Institution's professional staff and visiting investigators.

Formal educational activities below the university level are also a responsibility of the Smithsonian's educational programs. These include the popular escorted tours for schools, and the preparation of teaching guides, lectures, and audio-visual materials. Consultative services providing a direct link between school professionals and the museum's education staff personnel are carried on in the form of teacher workshops. From these lines of communication, programs are fashioned that respond to the increasing demand for new ways whereby the Institution can enrich the learning experience which schools seek from the museums.

The Smithsonian also has a vigorous program in advanced studies. Through a series of international symposia and other major colloquia, distinguished scholars join those at the Institution to explore a single theme of present common interest and concern, particularly implications of new knowledge for public education. Papers are made available in published form. Supplementary interdisciplinary lecture series are developed annually in close association with the Institution's professional staff to further strengthen the Smithsonian's role as an intellectual forum.

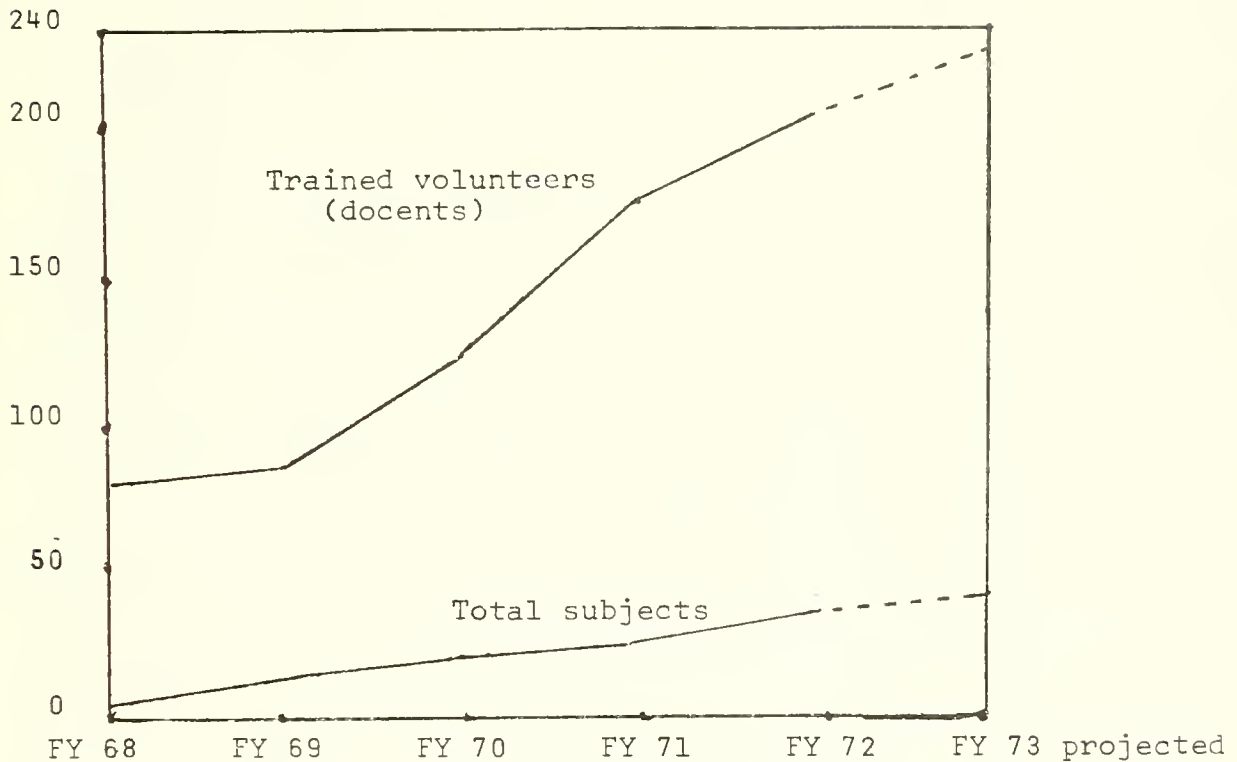
Public use of the educational facilities of the Institution is growing rapidly each year at all levels of training and scholarship. The Smithsonian is considered a significant supplementary educational resource by colleges and universities, by elementary and secondary school systems, and by the scholarly world.

For FY 1973, a funding increase of \$380,000 is requested to continue the development of a balanced educational program: \$160,000 for elementary and secondary education; \$195,000 for academic studies; and \$25,000 for seminars. An additional amount of \$11,000 is required for necessary pay of staff associated with these three programs.

Elementary and Secondary Education (4 positions; \$160,000)

Four positions and \$39,000 are being sought to continue to expand the personnel for the school services program (2 staff associates, a script writer, and a secretary) related to the provision of tours and educational materials to elementary and secondary school children; \$36,000 additional are requested for a variety of supporting needs to develop kit materials, take home materials, filmstrips, and other supplies. While program development as it relates to specialized subject matter and exhibit halls existing in the

Figure 1 -Growth of subject matter tours and trained volunteers



Institution must rely on staff expertise and knowledge available only in the various museums,, this request will supplement efforts to create three new tours for the National Museum of History and Technology. For the Natural History Museum, efforts will be directed to the development of the Junior National Science Library through selection and preservation of various materials to be used by children in a classroom situation remote from their own facilities. Activities are increasing elsewhere within the Institution, such as the National Portrait Gallery and the National Collection of Fine Arts. A portion of the expanded activity would be addressed to these emerging areas in an effort to make available to the area and national school systems the educational potential of the Institution.

The expansion will result in greater opportunities for students to learn through museum experiences. The funding will enable the numbers of school tours to increase, as well as numbers of students directly served by tours, numbers of trained volunteers (docents) and the subjects for tours (see the accompanying figures 1, 2, and 3). Increased numbers of volunteers and staff associates will see that much more effort is expended to update and vary the tours, and to involve greater experimentation with new techniques. Without increases in personnel and funding resources the Smithsonian will fall short in its obligations to respond to increasing demands for external educational services. The demands are present for more direct contact with teachers as well as students in the school communities.

Figure 2 -Number of students serviced by elementary and secondary school tours

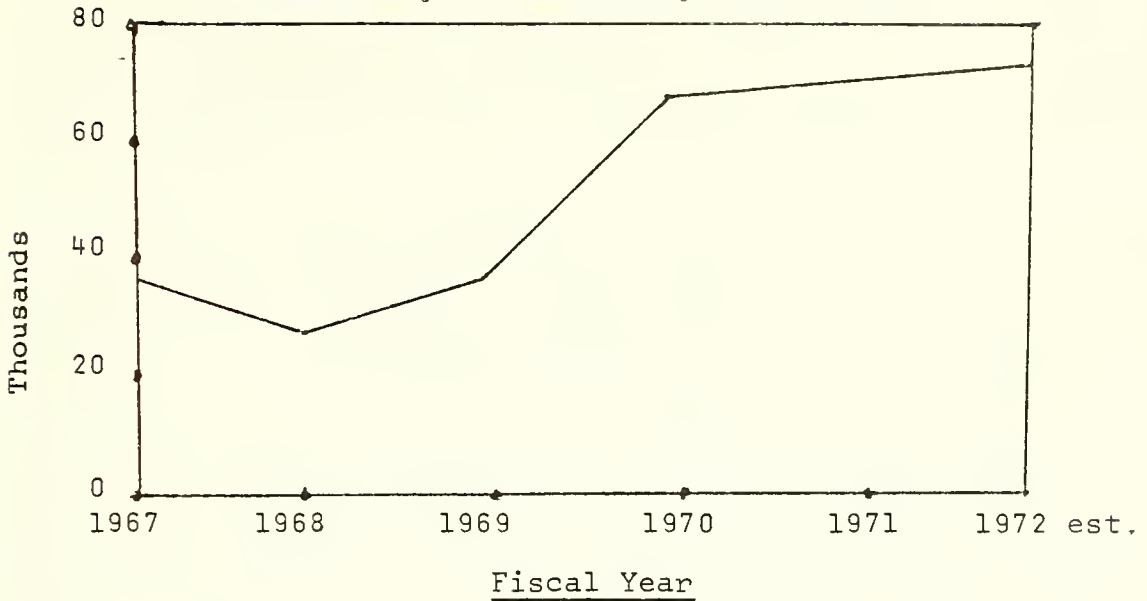
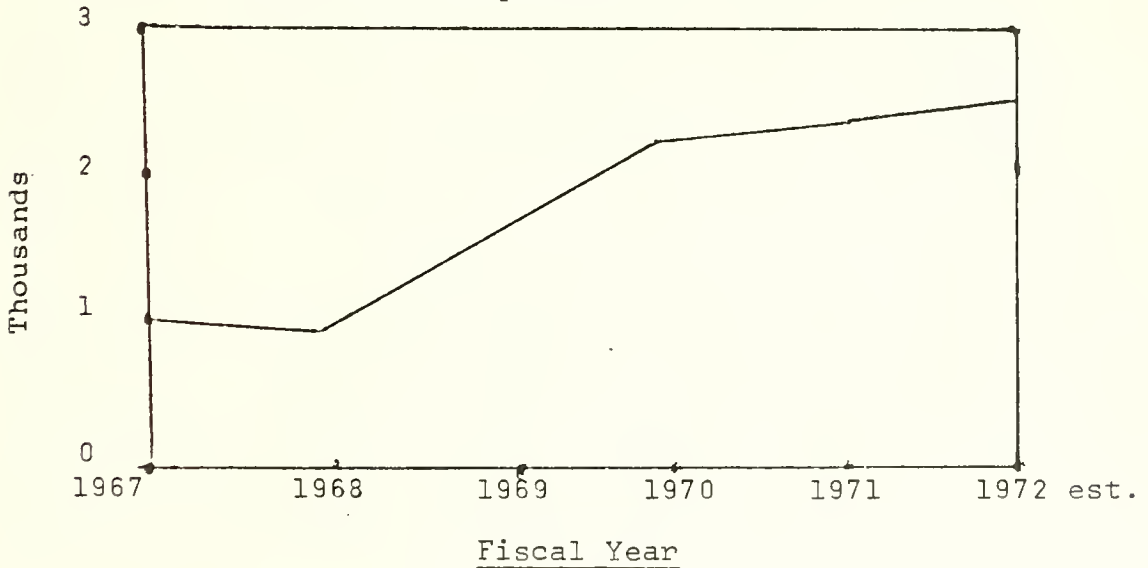


Figure 3 -Number of elementary and secondary School tours provided



Beyond these staff associates and their support, which represent the heart of the Smithsonian's people-to-people educational efforts, the Institution would like to make a high priority request for funds and personnel to take advantage of a new technological medium which private industry experts consider the Smithsonian's most important challenge for the future in both school and home education. The medium is the cassette, the full half-hour or hour-long visual cassette which projects color or black and white, sound, motion, and stills on home television sets. These visual cassettes, now just appearing on the market, will soon have improved high speed advance-rewind features which will permit the viewer to have quick access to a desired section or single frame of the film. They thus will in effect be the audio-visual equivalent of books, with chapters and "pages" by individual frame counts.

The Institution has long thought and industry has encouraged us to prepare for this medium by planning what might be called a "Smithsonian Visual Encyclopedia"; that is, a series of book-like cassettes on well defined subject areas of Smithsonian strength, which schools can employ widely as supplementary course material and the general public as authoritative and entertaining reference works for their home libraries. An example might be a cassette tracing the entire history of flight, not by static technical presentations, but by combining the National Air Museum's superb collections with dynamic sound and motion picture footage. The possibilities in natural history and the environment are particularly challenging. In this field the Institution would plan authoritative reference cassettes for each of the major sub-divisions of the plant and animal kingdoms. The interest of such cassettes would be enormous to the amateur ornithologist, to take but one example. Instead of cross referencing with bird field guides, recordings of songs, migratory route maps, breeding sites, seasonal differences in plumage, and differences of appearance in flight and at rest, one hour long cassette on the birds of North America can give all this information in a most convenient and dramatic package.

To meet this challenge, the Institution requests the sum of \$85,000 for six term appointments to form a small task force or cassette planning unit. Private industry experts have advised us to include in such a unit as a minimum an outstanding popular science-history writer, a science film maker, two acquisitions specialists, and two junior grade researchers. Such a team can begin the comprehensive task of inventorying Smithsonian collections and checking out accuracy of accompanying data (junior researchers), planning series subjects built around the collections (science-history writer), preparing production ready scripts (science-history writer and film maker), and searching out the best possible film footage from sources within and without the Smithsonian (acquisitions specialists; one with knowledge of film copyright law, the other with knowledge of film archives and other source centers).

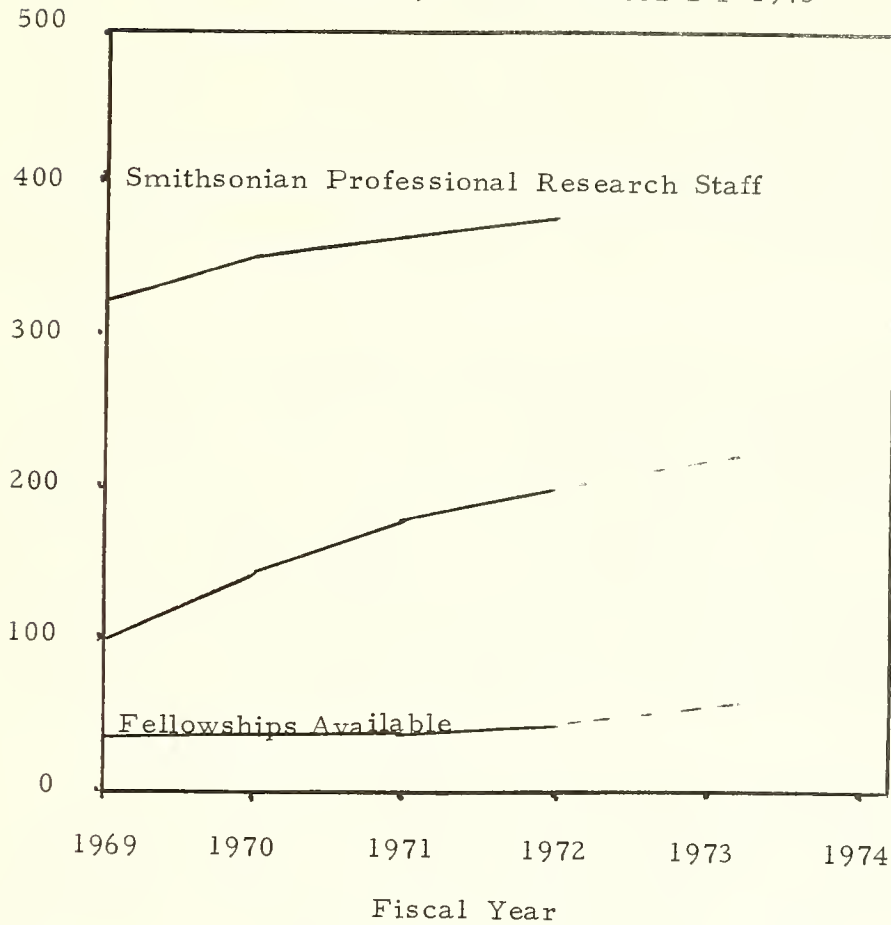
With such a unit beginning work this year, the Institution can have enough resources to launch a cassette series in two or three years, at which time both the technological advances described above and the home cassette market will be ready. The Institution will not seek any actual production (filming, editing) expenses. Rather, the requested unit will carry its work to assemblage of footage and production ready scripts. At this point the Smithsonian will contract out actual production to private industry, where interest is already high. The unit can then be phased out. This request, therefore, is for a pilot developmental unit which need not be carried more than two or three years.

Academic Studies (1 position; \$195,000)

Since 1965 the Smithsonian has offered support under its programs in higher education to 93 Ph.D. candidates and 83 postdoctoral investigators to

Figure 4

Growth in Fellowships Desired By and Available
to Professional Research Staff
FY's 1969-1972, and Estimated FY 1973



enhance their ability as scholars and teachers through collaboration and study with the Institution's research staff. Over 50 undergraduates and first- and second-year graduate students have been offered the opportunity to consult the Institution's research staff and collections for short periods. The Institution hopes to expand its programs in higher education to support twice the present number of Ph.D. candidates and postdoctoral investigators. It is also planned to maintain small programs under which undergraduate students and young graduate students may visit the Smithsonian for short periods.

The Institution's capacity to supervise visiting investigators has increased at an accelerating rate over the last few years, but the number of stipends available has remained about the same (see figure 4). The shortage of fellowships is keenly felt both by the Institution's research staff and by the nation's scholarly and scientific community. This community depends upon the Smithsonian to offer training to young scholars pursuing careers in disciplines where the Institution has unique resources for their study and research. It also depends upon specialized institutions like the Smithsonian to offer to younger students, including particularly talented undergraduates

and first- and second-year graduate students, the opportunity to confront the rich variety of resources and perspectives available for productive research in scientific and humanistic endeavors. Smithsonian research training augments the formal academic study of students and young researchers. It is most effective in close cooperation with the nation's universities and colleges. These schools welcome the opportunity to send their students to the Smithsonian for specialized training in disciplines which require resources not usually found in colleges and universities (A list of current fellows, their schools, and their projects are presented in Table I). The continuing increase in numbers of fellowships requested by the Smithsonian research staff reflects their belief that awards recipients bring an infusion of knowledge and vitality into the research efforts of the Institution. Each year many more highly meritorious applications are received than can be supported.

With present funds, only 20 Ph.D. candidates can be supported each year, so that the average staff member can expect to supervise a dissertation only once in 17 years. The severity of this shortage is illustrated by the requests of 230 members of the staff that they have the opportunity to advise at least one Ph.D. candidate each year. Only 19 postdoctoral appointees can now be supported each year, while 225 members of the research staff have requested that they have the opportunity to advise at least one post-doctoral investigator each year. Stipends for these appointments are allocated in accordance with scholarly discipline. There are only five for the Institution's 83 systematic biologists, only two for the Institution's 28 specialists in the environmental sciences, and similar shortages through eight other areas of study.

To insure that the Smithsonian is able to maintain its contribution to quality training in scarce specialties the higher education program should be expanded. Based on the present size of the research staff the program should be increased to serve at least twice as many Ph.D. candidates and postdoctoral investigators as is now possible. With future increases in staff the program should be expanded proportionately. To begin to correct this shortage an increase for FY 1973 is requested in the amount of \$145,000 for stipends; \$36,000 of this sum is urgently required to supplement the stipends now offered. To avoid reducing the number of awards offered the Institution has been forced to reduce the stipend amounts for these fellowships during the past five years. The reduced stipends are no longer sufficient to support the recipients and thereby endanger the Institution's ability to attract the most highly qualified individuals. \$8,000 is required for an additional typist.

In addition, \$30,000 are requested to support younger graduate students. It is crucial to these students who have not begun their dissertations that they be offered the opportunity to consult the Smithsonian's research staff and the national collections. Also, \$20,000 are requested to support summer studies of undergraduate students. Sources of outside support for these students have been reduced so greatly during the last two years that the program may be discontinued unless this increase is granted. The Smithsonian is continuing to develop a system of "cooperative fellowships" whereby participating universities contribute to their students' expenses while at the

Institution. This principal of cost-sharing is a further guarantee of the cooperative character of Smithsonian programs in higher education.

Seminars (1 position; \$25,000)

The major activity of Office of Seminars for 1973 will be related to preparations for an international symposium to celebrate the 500th anniversary of the birth of Copernicus and the impact of his thinking on subsequent discoveries leading to the present exploration of outer space and earthly problems of environmental quality. With the co-sponsorship of the National Academy of Sciences and the cooperation of UNESCO, the Smithsonian will exploit the opportunity of the Copernican anniversary to examine the processes of discovery in various fields of thought and inquiry.

In a period when Americans are re-examining national priorities and our self-image, American children and adults will be enhanced by new reminders of the historical interdependence between science in the United States and scientific efforts in older societies, on whose intellectual patrimony we are still dependent. We could not have put men on the moon without a long series of contributions which preceded scientific efforts of the United States. Copernicus needs to be rediscovered to improve our perspective on the life of the mind today.

Traditionally the Smithsonian has been a research institution, and the International Symposia Series serve as an exciting auxiliary to learning more of man, his fellow creatures, our life together, the processes of continuing change, and the origins and diversity of life. A brief history of past International Symposia is attached (see Table II). A primary objective of this series is to seek new and more effective ways to communicate such specialized knowledge to the citizen-layman. In this way, the Smithsonian is engaged in a more difficult and challenging task than the management of scientific congresses or scholarly meetings where savants address their peers. By providing an open forum it is made apparent that Washington is the capital of a Nation that places special emphasis on the enlightened application of man's wisdom to the arts of government and the solution of common problems.

For the 1973 effort a "Copernican volume" is being planned in collaboration with the National Academy of Sciences. Copernican challenges to the Ptolemaic belief that the earth is at rest and at the center of the universe have implications for education today. The symposium, for example, will remind modern audiences of the long delays in acceptance of new discoveries (76 years elapsed between Copernicus' work and Kepler's laws which paved the road for the achievements of Newton). Such delay may be "explained" by the weight of dogma and poor scientific communication during the early infancy of modern science. However, the lesson of Copernicus is contemporary. Modern science and technology can be achieved only through critical examination of customary premises and rejection of those conflicting with evidence.

During the 1973 symposium it is hoped that related exhibits will be available for use. For example, the Spacearium in the National Air and Space Museum, will show how people viewed the relationships between the

earth and celestial bodies before and after Copernicus. The Smithsonian's Astrophysical Observatory and the National Museum of History and Technology are devising an exhibit with computers to show post-Copernican advances in the study of epicycles in mathematics.

In addition to organizing the major international symposia, Office of Seminars funds also are required to support internal interdisciplinary seminars in the Smithsonian, particularly those requiring costs of travel for invited speakers from other institutions. The greatest impact and success in all these activities comprising the Smithsonian's seminars program relies heavily on a continuism of staff and effort. To assist in the handling of correspondence, the preparation of manuscripts in finished form, and orderly execution of the office's responsibilities, the addition of a clerk-typist (\$7,000) is urgently needed. At present the support staff consists only of a full-time secretary. The balance of \$18,000 will enable the office to more fully carry out its share of the Smithsonian's purposes and contributions.

TABLE 1

SMITHSONIAN VISITING RESEARCH ASSOCIATES, *1971-1972

Name & University	Research Title
PROGRAM IN EVOLUTIONARY AND SYSTEMATIC BIOLOGY:	
<u>Thomas D. Eichlin</u> Auburn University <u>Richard U. Gooding</u> University of Washington	A revision of the lepidopterous family Aegeriidae of North America Studies of animals associated with shallow-water diademid sea-urchins in the Pacific and Western Atlantic
<u>Douglas Lorenz</u> Northwestern University	Population paleobiology of the Trepomatous bryozoan genera <u>Heterotrypa</u> and <u>Dekayia</u> of the Ohio Valley
<u>Chong Kun Park</u> University of Nebraska	Research in the genera and species of the Pterodectinae (Acarina: Proctophyllodidae)
<u>Rudolf Schmid</u> Rice University <u>Adam Urbanek</u> Warsaw University	Comparative floral anatomy of the Myrtaceae, subfamily Myrtoideae Research on ultrastructure of peridermal derivatives in Graptolithina and Pterobranchia and studies on modern evolutionary theories and their application for fossil material
<u>Norris Williams</u> University of Miami	Systematic anatomy of the subtribes Laeliinae, Cyrtopodiinae, Catasetinae, Stanhopeinae, Sygopetalinae and Oncidiinae (Orchidaceae)
<u>Richard Winterbottom</u> Queen's University Storrs Olson	The phylogeny of stomiatoid fishes as evidenced by their myology A study of the history, adaptations, and relationships of the fossil Rallidae
PROGRAM IN ENVIRONMENTAL SCIENCES:	
<u>Clarke Brooks</u> University of Chicago	Analysis of algal biliproteins
<u>Stephen I. Rothstein</u> Yale University	An experimental investigation of host preferences in the brown-headed cowbird
<u>Edward DeFabo</u> George Washington University	A study of biphasic response in the inactivation of some microorganisms by ultra-violet light
<u>C. John Ralph</u> Johns Hopkins University	Research on the migration of birds
PROGRAM IN EVOLUTIONARY AND BEHAVIORAL BIOLOGY, TROPICAL ZONES:	
<u>Madeline Andrews</u> University of Kansas	An insular-continental comparison of Anolis ecology
<u>Jeffrey B. Graham</u> Scripps Inst. of Oceanography	Studies in the biology of the amphibious clinid, <u>Mnierpes macrocephalus</u>
<u>Annette F. Hladik</u> University of Paris	Comparative studies of tropical forests

*Postdoctoral Associates underlined

James R. Karr
University of Illinois

James W. Porter
Yale University

Wayne L. Smith
S. U. N. Y., Stony Brook

Joseph G. Strauch, Jr.
University of Michigan
Bernice Tannenbaum
Cornell University

PROGRAM IN PHYSICAL SCIENCES:

Andrew L. Graham
Manchester University

Stanley A. Mertzman
Case Western Reserve Univ.

PROGRAM IN ANTHROPOLOGY:

James Rauh
Tulane University

Cathleen C. Papadopoulos
Harvard University

PROGRAM IN HISTORY OF ART AND MUSIC:

Lena Lee
Harvard University

Sonya Monosoff
Julliard Graduate School

Francis V. O'Connor
Johns Hopkins University

Peter Bermingham
University of Michigan

Richard N. Murray
University of Chicago

PROGRAM IN AMERICAN HISTORY:

Paul Kleppner
University of Pittsburgh

Allison W. Saville
University of Washington

Patrick H. Butler, III
Johns Hopkins University

Comparisons of structure of avian communities in selected tropical areas
Structure and diversity of Panama coral reefs with particular emphasis on those of the eastern Pacific

Population studies of the mysid Heteromysis actiniae Clarke living symbiotically with the sea anemone Bartholomea annulata Leseur
Communal behavior of the Crotophaginae

The adaptive significance of social behavior in neotropical bats

Studies on the major element composition of Meteoritic Chondrules

A study of the geology, petrology, and geochemistry of Lake Yohoa volcanic field, northeastern Honduras

Investigation of interrelationships of the Borgia group of Mexican manuscripts and the Maya Codex Madrid

Patterns of total skeletal involvement in hypertrophic bone response

A new study to the problem of the identity of the so-called "Pratyeka Buddha" images in Chinese Buddhist Sculpture

Research in the history and development of violins and bows

Research in the history of American art during the 1930's

A study of Barbizon art in America: its influence on American painting, 1850-1890

A study of American figurative painting, 1880-1920

Symbols of American politics, 1860-1892

American submarine technological development, 1919-1941

A study of attitudes toward death and afterlife in the colonial Chesapeake Bay Region as determinants in social, political and cultural behavior

Arthur C. Townsend
University of Kansas

Pattern and change in the material culture of Junction City, Kansas, between 1890 and 1922, as seen through the life and lens of Joseph Judd Pennell, photographer

PROGRAM IN HISTORY OF SCIENCE AND TECHNOLOGY:

Bert S. Hall

University of California

German technological manuscripts in the age of Leonardo da Vinci

Emilie S. Smith

University of Wisconsin

An investigation of the Galenic origins of early Islamic writings on the anatomy of the eye, theories of vision and the treatment of certain pathological conditions of the eye

John D. Kazar

University of Massachusetts

A study of the United States Navy and scientific exploration, 1837-1860

Clay McShane

University of Wisconsin

Studies dealing with the reaction of large American cities to the automobile, 1900-1930

Robert Post

Univ. of California, LA

Research and study of the career of Charles Grafton Page

HISTORY OF INTERNATIONAL SYMPOSIA

Table II

FY 1966-The inauguration of the series. The First International Symposium was the observance of the two hundredth anniversary of James Smithson's birth held in September 1965. The President addressed the opening ceremonies on the Mall, following an academic procession of some seven hundred scholars and guests of honor from all over the world. Official proceedings were published by the Smithsonian Press as Annual No. 1, Knowledge Among Men.

FY 1967-In February 1967 the Second International Symposium addressed the quality of man's environment. Chaired by the Right Honorable Jennie Lee, M.P., Minister for the Arts in Great Britain, it sought to understand how man and his surroundings interact upon each other, with special focus on the aesthetic needs of the spirit versus the technological and social revolutions in urban life. The proceedings were published as Smithsonian Annual No. 2, The Fitness of Man's Environment.

FY 1969-The third in the series followed in May 1969, and explored the similarities and differences between "homo sapiens" and his near and not-so-near relatives, their interdependencies, and the forming of cultural patterns and their evolution in primates. The proceedings were published as Smithsonian Annual No. 3, Man and Beast: Comparative Social Behavior.

FY 1971-Cultural styles and social identities comprised the fourth in this series, held in November 1970. The contemporary scene, its challenges and phenomena, were examined by some of our foremost writers, social historians, and men of public affairs. Widespread attention was given to these meetings, which have further stimulated the planning for a theme of a 1972 seminars series on "Ethnicity and Cultural Pluralism". The symposium proceedings will be published as Smithsonian Annual No. 4, The Cultural Drama: Interpretations of Protest and Change, and will be available in 1972.

RESEARCH AWARDS PROGRAM 1/

<u>Distribution</u>	<u>FY 1971</u>		<u>FY 1972</u>	
	<u>Projects</u>	<u>Amount</u>	<u>Projects</u>	<u>Amount</u>
National Museum of Natural History	27	282,000	32	300,000
Radiation Biology Laboratory	3	33,000	2	10,000
National Museum of History and Technology	3	6,000	2	18,000
Smithsonian Astrophysical Observatory	2	26,000	4	52,000
Smithsonian Tropical Research Institute	4	43,000	2	45,000
Information Systems Division	1	10,000	0	0
Total	40	400,000	42	425,000

1/ The Research Awards Program funds worthy research projects not funded either by the regular plans of operation of the Smithsonian's science bureaus or by outside agencies. Since its inception in FY 1966, 276 proposals have been funded and there have been more than 200 publications in the fields of biology and anthropology directly attributable to this support. The program also has enabled Smithsonian scientists to engage in productive field research with colleagues from other institutions. An additional \$50,000 is requested to help fund multiyear awards for better stability, continuity, and planning of research. This additional sum will also help to combat the higher costs of basic research brought about by past inflation in the costs of laboratory supplies, equipment, and services.

RESEARCH AWARDS PROGRAM

1971 Actual.....	\$400,000
1972 Estimate.....	\$425,000
1973 Estimate.....	\$475,000

Prior to FY 1966, the Smithsonian Institution received funds from the National Science Foundation (NSF) for research projects of individual staff members. In the FY 1966 appropriation, the Congress prohibited the NSF from making grants for scientific research to other Government agencies. The NSF instituted a further limitation that it would no longer make grants to any agency or institution receiving direct federal appropriations. The Research Awards Program was begun in FY 1966 by an appropriation of \$350,000 to the Smithsonian Institution for the purpose of financing new or continuing research projects formerly eligible for support from the NSF. Funding for the program increased to \$400,000 in FY 1967 and in FY 1972 it was increased to \$425,000.

Proposals are submitted each year by members of the Smithsonian Institution staff to support new and innovative research. All proposals have undergone a careful scientific or scholarly review in their respective bureaus before they are reviewed by an Advisory Committee of scientists from outside the Institution. Projects are selected on the basis of their showing an imaginative and exciting approach to research and scholarship efforts that could not normally be carried out with regularly budgeted departmental funds.

For FY 1973, an increase of \$50,000 is requested to help fund multi-year awards and offset inflation in the cost of supplies, materials, and other items.

In FY 1972, members of the Smithsonian staff submitted proposals for funding up to three years in order to provide for better stability, continuity, and planning of research. There were 75 proposals received for FY 1972 amounting to \$1,674,382, of which 42 were funded in the amount of \$425,000. Advance commitments have been made for \$296,671 to second-year funding and \$106,972 to third-year funding. Thirty-three proposals were rejected. Many were deemed worthy, but funds were not sufficient to fund them.

The Research Awards Program is intended to cope with a serious problem confronting many scientists who wish to undertake non-routine fundamental research of the kind normally undertaken by university research scientists but which cannot be supported from the federal "Salaries and Expenses" appropriation. The large number of worthwhile proposals that were not funded in FY 1972, and in previous years, is of grave concern to the Institution. This concern is based on the fact that the work supported by the Research Awards Program is often the best of the Institution's productivity and the reason for acquiring scientists of the highest competence and imagination. If the Smithsonian cannot provide this kind of support, it might not attract high caliber scientists, nor retain them. Further, the program serves as an important means whereby scientists of the Smithsonian Institution may engage in collaborative field research with colleagues located in other institutions. Many opportunities for participation in expeditions and other field projects would be lost were it not for the Research Awards Program providing modest but essential, research assistance. The problem affects all the research bureaus.

DOCUMENTATION AND CONSERVATION

<u>Program Categories</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Improve the Documentary Data Base <u>1/</u>	9	149,000	9	226,000	13	416,000
Consolidation and Inventory of the Documentary Records <u>2/</u>	10	113,000	10	217,000	22	555,000
Preservation of Documentary Collections <u>3/</u>	55	614,000	57	730,000	61	1,132,000
Conservation and Analysis <u>4/</u>	11	162,000	13	189,000	19	294,000
Total Operations	85	1,038,000	89	1,362,000	115	2,397,000

1/ Includes largely the acquisitions efforts for historical documents in the libraries, archival, and registral areas.

2/ Approximates current efforts in consolidating, referencing, and inventorying the photographic, historical, archival, and registral records.

3/ Includes current efforts at filing and preserving rare documents, books, photographs, and other records of the Institution.

4/ Indicates levels of conservation and analytical services provided to the museums by the Conservation Analytical Laboratory.

DOCUMENTATION AND CONSERVATION

1971 Actual..... \$1,038,000
1972 Estimate\$1,362,000
1973 Estimate\$2,397,000

Museum collections, including artifacts, specimens, and works of art, are primary resources in the functions of exhibits display and research. As the curator of the national collections, the Smithsonian houses the greatest and richest array of these resources in the nation. But there are other elements related to these resources which are important to the public and scholarly understanding of what the collections reveal about man, his technology, culture and environment. These elements also must be identified, conserved, cataloged and documented. The data and information obtained in the process must be banked in such a way that it may be retrieved for study in conjunction with the objects. These elements consist of related photographic documentation, acquisition and archival information, and historical facts, as well as physical and chemical characteristics.

The departments within the Smithsonian whose principal functions are to document and conserve these elements are:

- The Smithsonian Institution Libraries which provide cataloged and indexed collections of published materials that help to identify artifacts, objects and specimens, and to describe the environment and the ideas they exemplify.
- The Smithsonian Archives which serves as the official memory of the Institution, charged with locating, identifying and arranging for the handling, care and use of the official records, correspondence and other material relating to the Smithsonian and its programs.
- The Conservation Analytical Laboratory which determines, through scientific analysis, the physical and chemical nature of objects, adds this dimension to the knowledge of the objects, and guides the various museums in their conservation and preservation methods.
- The Registrar's Office which maintains the basic records on the details of acquisition of the collections and their provenance.
- The Photographic Services Division through whose services a visual record of appearance and conditions of objects can be studied, preserved and presented in books, documents, and exhibits throughout the world.

The Smithsonian's goal in singling out this activity over the next few years is to reach a level of funding that allows for major improvements to be made in the performance of conservation and documentation duties. The request is geared to initially strengthen the documentation processes, from acquisition on through photographing and microfilming of the collections and records. The second major phase, which will be presented in next year's FY 1974 budget submission, will be the establishment and implementation of improvements in the area of conservation of the collections. As regards conservation, present investigations indicate that space devoted to conservation work should increase by about 60,000 square feet, and annual operational funding by about \$750,000 to constitute an adequate program for improved care of the national collections. This present request incorporates only minor funding increases for conservation personnel and equipment replacement, and represents a holding action until the Institution's space and equipment needs can be more thoroughly examined, and until some progress has been made in correcting the deficiencies related to the first step in the collections management process; i.e., the acquisition and documentation responsibilities.

The request that is presented here will help to:

- Centralize the data and information on collections, including files consolidation, and the preservation of basic pictorial documentation.
- Extend the Institution's information storage and retrieval systems capabilities on collections and records particularly the computer based files, the union catalogs of library and archival materials, and the refinement of various guides to collections.
- Modernize the operations in preserving historical records related to acquisitions, through the initiation of major microfilming and photographic efforts.

In FY 1973, a high priority of the Institution is to begin a major push forward in this area by requesting \$ 992,000 in additional support. This will enable the Smithsonian to begin to solve a number of problems in the area of documentation. In addition, \$43,000 is being sought for necessary pay for staff.

Improve the Documentary Data Base for Work on the National Collections
(4 positions; \$190,000)

In the Institution there has been new emphasis on interdisciplinary research in ecology, and national origins and development, based on the national collections. This has created the need for additional historical and research materials never before collected by the Institution. As the chief agent in acquiring and arranging for the use of these documentary materials, the Smithsonian Libraries has been faced with a vast annual world output of literature (about 350,000 titles worldwide) and continuously inflating prices (between 4 and 10 percent for journal publications). In addition, competition from private collectors and organizations has forced the Libraries to consider the acquisition, by purchase, of special collections, such as the papers of the late Willy Ley, which relate to subjects contained in the national collections. The Libraries are operating with only about one-third of the acquisition funds required by the curators. This shortage is widely felt throughout the Institution, and should be covered. An increase of \$150,000 for the purchase of books, journals, and documents is contained within this request, along with 4 positions for library clerks and \$40,000.

Consolidate and Inventory the Documentary Collections (12 positions; \$338,000)

The Smithsonian desires to inventory and relocate many of its documents and records for more efficient usage and more secure storage. Of primary concern is the program to locate original Smithsonian archival materials among the various offices of the Institution, to identify them, and to begin to preserve them and centralize the records for future needs. These papers, many in a very fragile state, represent a record of national achievement by prominent citizens in many areas of American science, art, and history. Over 4,000,000 Smithsonian archival documents are presently recognized as having major historical and research value. These include letters from historical personages, and notes of importance from luminaries in science, history, and art. Also, included are perhaps as many as 1,000,000 photographic negatives of Smithsonian objects which exist in dispersed files and must be located, retrieved and systematized. Only 15 percent of these are currently available for documentary use. In addition, the libraries are in the process of reducing the number of physical locations of their collections. This effort is only minimally staffed and should be augmented.

The requested increase will serve to:

- Help the Photographic Services Division, Archives, and the Registrar's Office, by working through the Information Systems Division, to develop and test terminology for construction of a common set of index terms for rapid recall of location and information concerning records and documentation related to collections. The Information Systems Division will modify currently developing locator systems in use for some of the collections objects themselves, for application to related historical and documentary materials.
- Reduce the time lag of about six months in library cataloging to about six weeks. Inventory the holdings of branch and bureau libraries in the Smithsonian which maintain independent systems, and incorporate about 60,000 records into the growing central file. Accelerate the physical consolidation process and reduce the number of branch systems.
- Augment the personnel available in the archival and photographic areas for search work with curators and other museum staff to develop input information relevant to collection material.

For this portion of the integrated effort, 12 positions (\$145,000) for a variety of technical support staff are requested (5 photographic technicians, 7 reference and data clerks for the library and archives). \$193,000 are requested in support funds to purchase computer time and necessary software (\$65,000), equipment (\$65,000), supplies and materials (\$43,000) and outside contractual services for consultants (\$20,000).

Preservation of Records (4 positions; \$364,000)

Valuable manuscripts and records in the Smithsonian Archives, and much library material, is subject to irreparable damage and deterioration through aging and use. It is imperative that the Smithsonian, in relation to its documentation and conservation activities, begin a major effort to microfilm important records and documents. This will make these materials easier and safer to use (for internal and external circulation) and more readily available for reproduction for public and scientific purposes. As such, the effort is an integral part of the creation of a centrally indexed reference file. The requested increase will be used:

- To begin microfilming about 4,000,000 records and documents in the libraries, archives, and registral areas.
- To replace the hand-operated obsolete photographic equipment with modern, automated equipment, and to add color capability to this division.

For this portion of the total effort, 4 positions (\$45,000) are being requested (a photographer, 2 microfilm operators, and a reference clerk). In addition \$319,000 are sought for the purchase of photographic and microfilming equipment (\$237,000), and contractual services for some outside effort (\$82,000).

Extend Conservation Services (6 positions; \$100,000)

As a first step in a long range expansion of the Institution's conservation facilities and efforts, this request will be used to replace bulky equipment with space-saving miniaturized units and with other more effective instrumentation. The Conservation Analytical Laboratory will purchase an Ebert Spectograph to double its productivity, and a solid-state detector for the X-ray fluorescence unit that will record all of the chemical elements in an object simultaneously instead of sequentially. Within the requested amount, \$65,000 will be utilized in the purchase of new equipment for extended analytical conservation services. Prior to a major expansion of conservation facilities, and in anticipation of minor amounts of additional space made available to Conservation Analytical Laboratory operations, 6 urgently needed conservation technicians are needed to fill the mounting demands of the museums in artifact preservation and conservation, and to add to the analytical capability of the laboratory \$35,000.

It is estimated that the Institution has a backlog of about 14,000,000 non-biological artifacts which need conservation work. It is also estimated that minimal conservation attention to new (annual) artifacts and other objects would require at least 32 man years of effort to stay abreast of the workload generated by the non-biological objects. The Laboratory is not in a position to keep the backlog from continuing to mount. The Institution's focus in future years on the conservation area is based on desperate need,

COMMUNICATION

<u>Program Categories</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Publication Preparation and Distribution <u>1/</u>	34	817,000	34	887,000	38	1,178,000
Exhibits <u>2/</u>	162	2,412,000	159	2,603,000	164	2,863,000
Exploit Information Resources <u>3/</u>	42	526,000	46	736,000	61	1,061,000
Expand Information Processing Systems <u>4/</u>	14	235,000	14	289,000	25	516,000
Communication of Current Events <u>5/</u>	13	314,000	15	364,000	20	503,000
Total Operations	265	4,304,000	268	4,879,000	308	6,121,000

1/ Includes editorial, preparation, publication, and distribution services of the Smithsonian Press; and the mailing and shipping activities of the International Exchange Service.

2/ Basic services provided by the Office of Exhibits involving the design, installation, and maintenance of permanent, temporary, and traveling exhibits.

3/ Library efforts to provide basic services such as search, verification, processing, cataloging, and shelving to the various branches, most of which are now labor intensive operations.

4/ Includes largely the Information Systems Division efforts to provide automatic data processing services to management and program units of the Institution.

5/ Involves public communications efforts of the Office of Public Affairs, and the scientific reporting activities of the Center for Short-Lived Phenomena.

COMMUNICATION

1971 Actual.....\$4,304,000
1972 Estimate.....\$4,879,000
1973 Estimate.....\$6,121,000

Communication is the technique of transmitting information by a process in which meanings are exchanged between individuals through a common system of symbols. Within the Institution's credo to "increase and diffuse knowledge among men" lies the task of exchanging information in many ways through various forms of communication. The Smithsonian Institution is dedicated to the processes of communication in the functioning of its programs because of its mandate to diffuse knowledge. Its communications operations serve both its own staff, through the dissemination of data and information regularly and on demand as they need it in their work, and the public, because the Smithsonian has an obligation to report results of studies and analyses.

In an era of frequent and often spectacular national and international developments in communication, the Institution has a further obligation to contribute its own expertise and resources to these developments, and to exploit information technology in its communication programs. The computer, radio, television, film, publishing industries, and the disciplines of psychology and education, offer the Institution ways to communicate information that resides in the national collections or is the result of basic scholarly studies. Although the Institution has been in the forefront in a number of developments in information science among museums, it has barely scratched the surface of these opportunities, and operates at considerably less than its potential in this area.

In the Institution there are specialized activities whose main functions are to provide for the communication of information to, within, and from, the Institution by various methods:

- The Press through its publication program is considered as a fundamental extension of the basic research programs of the Smithsonian's museums, galleries, and research laboratories.

- The Information Systems Division through the use of automatic data processing systems gathers, organizes, and disseminates information for administrative, curatorial, and research activities.

- The libraries through their acquisition, reference, circulation, and information services are in support of the research and education programs of the Smithsonian.

- The International Exchange Service through its foreign exchange system for publications services the U.S. Government, colleges, universities, museums, libraries and individuals here and abroad.

- The Center for Short-Lived Phenomena communicates information on unusual geological, ecological, astrophysical, and biological events throughout the world to governments and to the international scientific community.

-The Office of Public Affairs provides services to visitors to the Institution and the public at large by communicating special event activities, conducting visitor orientation, coordinating public inquiries, working with the public communications media, and cultivating community relations.

-The Office of Exhibits in their presentation of facts of history, science, and technology to the public helps to "create the museum" and public involvement by means of visitors to Smithsonian exhibits and by traveling exhibits.

An illustration demonstrating the interrelatedness of these activities in the Institutional communications effort is shown in Table I.

A high priority of the Smithsonian Institution in FY 1973 is to achieve timeliness in its communication of events and projects, particularly as they serve to exploit the national collections and to extend the output of the facilities and offices which operate in this vital area. In FY 1973, an additional \$1,122,000 is being sought for these purposes. In addition, \$120,000 are requested for necessary pay for current staff.

Reduce Backlog in Publications Production and Dissemination (4 positions; \$268,000)

The Smithsonian Institution Press spends about two-thirds of its efforts on publishing the result of studies performed in various Institutional laboratories and museums, and one-third on printing leaflets, pamphlets, and catalogs for use by the public. A backlog of major manuscripts from Smithsonian scientists and historians has been continually accumulating over the past few years. At the close of FY 1971, 23 major manuscripts or monographic publications went unpublished for lack of funds for editing and printing. In recent years, the Smithsonian has placed added emphasis on research in its role as an educational facility. As a result, an increased public and scholarly demand for printing research and instructional materials has been created. Increased funding will be utilized to reduce this backlog, and to stay abreast of the growth in demand (3 positions; \$250,000).

Many Smithsonian publications, and all federal government documents going overseas on official exchange with other governments, as well as many research publications from private U.S. organizations are gathered and shipped by the Smithsonian's International Exchange Service (IES). This service also routes publications coming from foreign points in exchange to American libraries. This office is the official international exchange bureau representing the United States in a network of over 100 such facilities in other lands. As such the Smithsonian handles the exchange for official publications, such as the Congressional Record and Federal Register.

In this age of the so-called "information explosion", the amount of material published here and abroad has a direct impact on the Exchange Service's ability to perform its important task of improving the world's libraries. Part of its work can be viewed as helping developing nations that are striving to build their educational systems and knowledge resources. The IES level of service has been reduced one-third in the past four years due to increased costs for staffing and shipping services. In FY 1967, 1.24 million pounds of materials were shipped. In FY 1972 approximately .80 million pounds will be shipped. Pressures from higher salaries and mailing costs have been absorbed by reducing programs and by using more selectivity among agencies exchanging library materials. If we are to serve the national interest and assist countries in these vital areas, then funds should be provided to help us begin to restore the former level of activity (1 position; \$18,000).



To summarize, a request for 3 additional editors and a shipping clerk (\$39,000) is being sought to strengthen operations in these areas. In addition, \$229,000 in support funding is needed (\$190,000 for printing, and \$39,000 for a variety of supplies, materials, and other support).

Eliminate Exhibits Shortages and Extend Basic Services (5 positions; \$214,000)

The Office of Exhibits is a key unit in the process of communicating the information that resides in the national collections. It works in close collaboration with museum scientists and historians to prepare and install exhibits in the Smithsonian museums and occasionally provides services to develop traveling exhibitions. The Office worked on 200 projects last year. Through these exhibits, more than any other medium, the public, numbering about 14,000,000 people a year, senses and appreciates more fully the value of history and science and the country's rich cultural heritage. Exhibits must continue to utilize materials, techniques, and other design elements that are durable and that contribute to a sense of realism. The Smithsonian has pioneered in freeze-drying techniques for the preparation of specimens for exhibits, and in various audio-visual projects that enliven the public's experiences in the Museums. Many of these materials and techniques are expensive and all have been increasing drastically in cost. In addition, pressures to extend basic services to new efforts will begin to materialize in FY 1973. Notable among these is an essential requirement to give an increasing level of exhibits design, production, and installation services to the new National Air and Space Museum to meet its July 1976 opening date. For these reasons, funds are sought for 5 production technicians (\$64,000) and to help adjust to inflated prices that have taken place in recent years in materials such as lumber, plastics, glass, and fabrics (\$150,000).

Exploit Information Resources (15 positions; \$300,000)

Few of the Smithsonian Institution bureaus have personnel directly assigned to them for information and communications services. Most of the library, archival, and photographic media housed in the bureaus are untended and are difficult to mobilize and to mine for information relevant to ongoing projects. In particular, the Smithsonian's library system offers few of the information services that are normal to comparable agencies, such as the libraries and information centers of Atomic Energy Commission, National Aeronautics and Space Administration, National Institutes of Health, and the Department of Agriculture. The Institution's libraries are unable to respond to any requests such as alert services for new literature, the preparation of bibliographics and translations, and the performance of lengthy information verification.

Pertinent bibliographical and information services normally used by libraries are now available in computer tapes, but none are used by the Smithsonian Institution. Over 800 library information services have been identified, with at least 20 of them of potential value to the Smithsonian's interests. Some will be examined and tested, both on our own computers, and in service bureaus, and the highly relevant ones incorporated into the Smithsonian's communication program. To begin this effort within the libraries, 15 positions (\$142,000) for information specialists, reference librarians, and technicians are requested; \$158,000 are also sought for computer time, contractual services, and related support.

Expand Information Processing Systems (11 positions; \$217,000)

The Information Systems Division was established in 1966 in response to a growing awareness that the Institution had to take advantage of computer technology not only in its management areas but to automate the masses of research data and information associated with its collections. Computer specialists, mathematicians, and support personnel are now working in conjunction with curators, historians, scientists, and management personnel in developing and maintaining computer systems that can be used to assist them in their assigned tasks. Currently, the Division is comprised of an information retrieval section, a mathematical computation section, a software and maintenance section, and a management systems section.

Initially much of the Division's efforts were devoted to management support functions; i. e., the development of improved payroll, personnel, and accounting programs. Now there is a need for a concentrated increase for research support and information retrieval in the communications and documentation areas through the use of data processing techniques.

In FY 1971 and 1972 approximately 70 percent of the Division's resources are in support of research and collections management. The remainder is used to support the management areas. A portion of effort will necessarily remain in the management area, but a phased increase in the order of magnitude of support provided to the curatorial and research areas, and to the Institution's documentation and communications activities, is requested.

Staffing and related support costs since 1966 have been very moderate considering the Division has the responsibility for developing, maintaining, and coordinating the use of automatic data processing services and equipment for the Institution. In recent years, a better scientific understanding of the computer's potential in relationship to the total Institution has evolved and some progress has been achieved in many research areas. The goal of the Division is to be able to provide the systems, programming, and related services throughout the Institution on a moderate growth basis over the forthcoming years. Presently computer systems pertaining to national collections and scientific computations are being developed in such a way that they can be utilized in several scientific areas with only minor modifications when new collections and activities of the Institution are involved.

The FY 1972 level of funding provides for a minimal staff of 14, some of whom must work on systems design and information handling for as many as ten projects in the various bureaus. The Division at this level of workload, cannot offer much more at times than a brief demonstration of computer capability in the records documentation and communications areas. Detailed systems, with computer programs to help automate them, must wait for increases in professional staff in the Division. A recent study in the Smithsonian identified nearly fifty massive data-handling projects, only a few of which are automated. Additional staff are needed to automate more of these projects, and to extend the major systems and programs developed for work with the national collections. Through the Information Systems Division, the libraries will establish selective dissemination of information services to cover new journal literature of interest to the professional staff of the Institution. This will augment the libraries' service to announce newly acquired publications. An effort also will be made to join the facsimile network of the National Agricultural Library, formerly one of the Smithsonian's major sources of literature when it was located on the Mall.

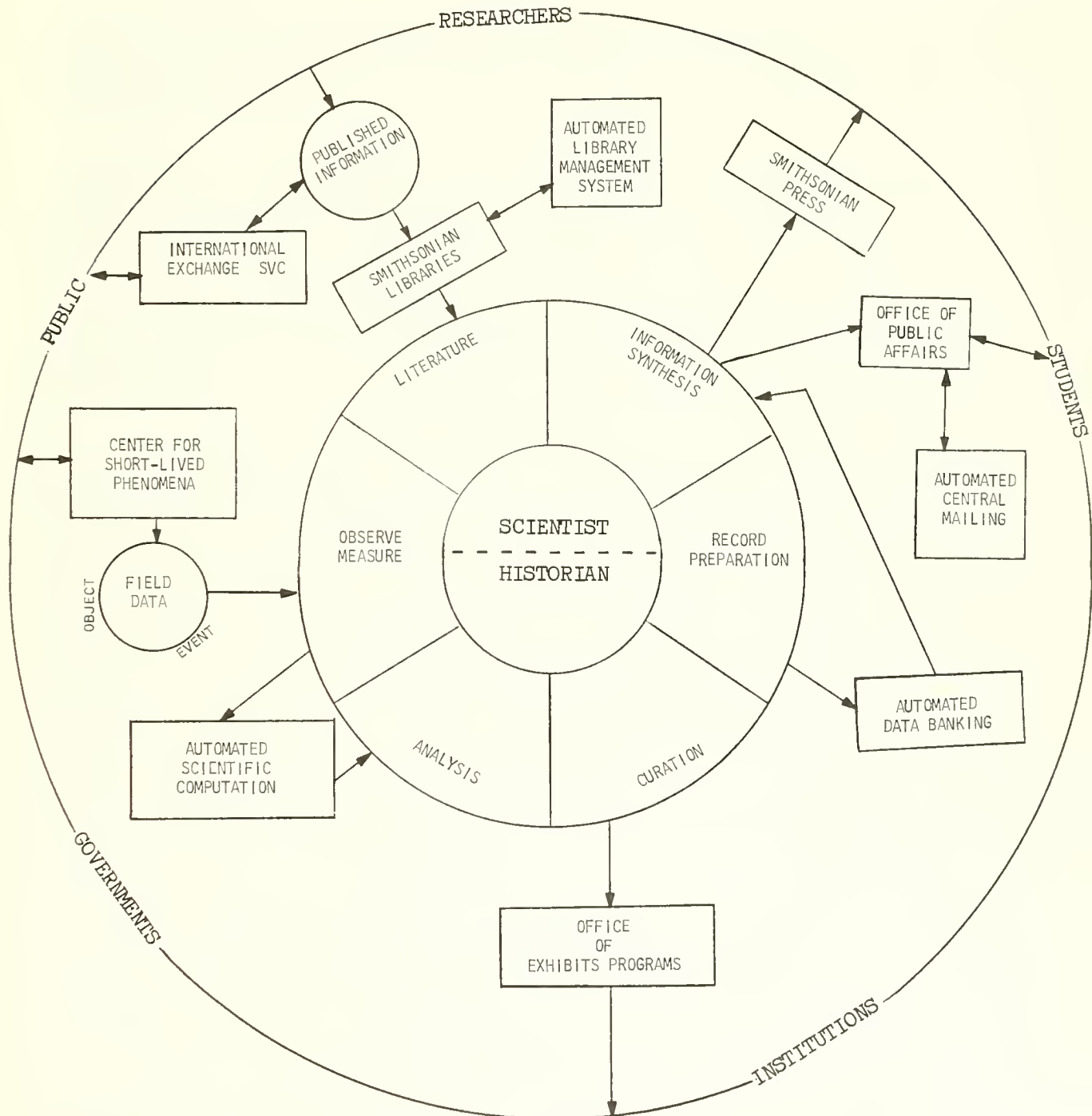
To implement these efforts 11 technical support positions (\$150,000) for reference clerks, data analysts, and machine operators are required; \$67,000 are also sought for materials, supplies, and equipment.

Communications of Current Events (5 positions; \$123,000)

This request will improve the timeliness and the effectiveness of the dissemination of information concerning Smithsonian programs. The demand for services from the general public, the scientific community, and the expansion of the Smithsonian's educational role have created the need to strengthen this function. The Office of Public Affairs is primarily responsible for communicating current events to the general public through various media. In the educational process, it utilizes radio, television, press releases, documentary films, the TORCH newspapers, the Smithsonian Calendar of Events, Dial-a-Museum, and general informational pamphlets and publications. The public expects to have rapid access to information as it develops. The Office of Public Affairs will employ a media specialist to develop and promote the use of proper mediums and to inform the public of major program events as rapidly as possible. A portion of the requested increase (\$30,000 for a media representative, and \$45,000 for printing costs (especially of building guides and other visitor orientation materials) supplies, and materials would be directed at this effort.

The Center for Short-Lived Phenomena is an early alert communication system and clearinghouse for the reception and dissemination of information on short-lived natural or man-made events. The Center alerts scientists, agencies, and research institutions to major short-lived events occurring anywhere in the world. The Center's global communication system and reporting network has grown to 2,600 participating scientists and 148 scientific field stations all over the world. The time period available for notification and observation of a short-lived phenomenon is always critical if scientists are to take advantage of these research opportunities while environmental changes are occurring. Since 1968, 402 major events have been reported. This additional funding will allow for extended reporting, more detailed analysis relating to events, and pertinent guidance to scientists in observing, reporting, and understanding the more critical events. The request is geared to provide to the Center 4 additional positions (2 reporting specialists, and 2 clerical personnel for \$30,000) and \$18,000 for additional supplies, materials, computer time, and communications costs.

TABLE I
 COMMUNICATION OF INFORMATION PRODUCTS
 FROM SCIENTIST/HISTORIAN TO PUBLIC VIA SI COMMUNICATIONS PLEXUS



GENERAL ADMINISTRATION

1971 Actual.....	Positions 165;	\$2,766,000
1972 Estimate.....	Positions 171;	\$3,186,000
1973 Estimate.....	Positions 193;	\$3,912,000

Included in this group are the basic administrative offices of the Institution: the Office of Museum Programs, Supply Division, Duplicating Services, Office of Personnel Administration, Administrative Systems Division, Office of the Treasurer, Office of the General Counsel, Office of Audits, the Assistant Secretaries' Offices, and the Offices of the Secretary and Under Secretary.

The total increase being requested for these units is \$648,000, including the costs of 22 additional positions. These units provide the administrative support and policy guidance necessary for the success of the Institution's program operations. In addition, \$78,000 are sought for necessary pay increases for staff.

In our society, a measure of how successful any organization or institution is in controlling its program direction is the degree to which it acquires new resources to develop its activities, delegates authority and decision-making in a manner which channels these resources into useful and productive areas, and holds central administrative growth and control at a minimum. This is not only true in those sectors of our society which provide economically measureable and consumable products but also those segments (such as museums and higher institutions of learning) which help to construct the moral and intellectual fabric of future generations, and provide the less measureable products which nourish the quality of the country's human spirit.

The historical funding patterns of FY's 1965-1971 reveal that the Institution in its program operations has substantially strengthened its history, art, and science functions. It has embarked on several new ventures in public service and education. It has acquired, exhibited, and protected thousands of new collection items. While pursuing these objectives, it has not allowed administrative costs to increase disproportionately to program growth. The proportion of total Institutional program resources devoted to administrative functions was 11 percent in FY 1965. It is 11 percent today, and it has averaged 11 percent over the six year period. When semi-support functions, such as the libraries, the press, the exhibits office are included in this area, the proportion of total operations devoted to program support over the years is closer to 20 percent, but the needs of these units are presented in the "Communications" and "Documentation and Conservation" requests. In the general public's interest, it is the Institutional managements desire to keep administrative costs at a minimum and to continue to provide as many resources to program operations as possible to insure the quality of the Institutions diverse products in exhibitions, education, research, tours, and other public services.

The requests contained in this section are specifically geared to carry this out. Seven of the positions, along with \$115,000 are for the Office of Personnel Administration to improve its services to employees and potential employees, and to strengthen its operations in the area of labor-management operations. Included in the amount is \$18,000 for support costs associated with equipment, computer time, travel, and training.

Another 15 positions and \$200,000 for salaries are needed in the executive policy offices and a variety of support units. Three are necessary for fiscal operations pertaining to development of automated data programs and transactions varification, two are needed to begin to supervise our

developing exhibits in the science and Bicentennial areas, four are requested to continue to improve our audit procedures and to relieve the rapidly growing workload of the legal section. Also included are six clerk and secretarial positions for the travel services, duplicating, and forms management operations.

In addition \$205,000 is requested to provide additional non-personnel support needs. Of this amount \$75,000 is directly associated with the recent price increases for mailing and postage indicia. Another \$130,000 is required to meet additional costs generated by increased management usage in such areas as automatic data systems (\$80,000), duplicating services (\$25,000), and forms production (\$25,000).

These are necessary costs which must be covered if the Institution is to continue to modernize its management apparatus consonant with the objective of keeping its overall administrative procedures, paper work, filing, and other formerly labor-intensive chores to a minimum.

The balance of the request (\$128,000) is a minimum required for support costs such as contractual services (\$25,000), the orderly development, purchase and repair of equipment in the duplicating and automatic data processing areas (\$28,000), replenishment of central supplies (\$54,000), and travel (\$11,000).

BUILDINGS MANAGEMENT DEPARTMENT

<u>Program Categories</u>	<u>FY 1971</u>		<u>FY 1972</u>		<u>FY 1973</u>	
	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>	<u>Pos.</u>	<u>Amount</u>
Protection <u>1/</u>	311	3,000,000	328	3,379,000	425	4,421,000
Buildings Services <u>2/</u>	261	2,543,000	266	2,834,000	369	4,065,000
Mechanical Services <u>3/</u>	196	3,740,000	199	4,176,000	214	4,873,000
Total Operations	768	9,283,000	793	10,389,000	1,008	13,359,000

1/ This division is responsible for the physical security and protection of the Smithsonian's museum and art gallery buildings, exhibits, the National Collections of the Institution, and for the safety of the visitors, employees, and visiting students and researchers. These services must be furnished for eight major Smithsonian buildings and four other research, collection, and service facilities, seven days a week, 24 hours a day.

2/ The Buildings Services Division is responsible for cleaning the exhibit areas, offices, workrooms, laboratories, restrooms, and public lounges, with a total floor area of 3,656,000 square feet; maintains and operates 55 elevators; and furnishes elevator operators. This division furnishes motor vehicles for transportation of people and objects; provides communications services, grounds maintenance, and related services. It provides logistical support to the many programs of the Smithsonian, including moving collections and museum objects, and relocation of offices. During FY 1971 approximately 14 million persons visited the Smithsonian's museums and art galleries.

3/ The Mechanical Services Division is responsible for inspecting, operating, servicing, and repairing the present 9,850-ton capacity environmental control equipment, used for air conditioning, refrigeration, heating, and humidity control purposes, seven days a week, 24 hours a day. These systems are essential to the conservation and preservation of approximately 62 million objects in the National Collections. This division provides utilities (electricity, steam, gas, water, and compressed air). The skilled trade and craft employees give a varied range of assistance in support of such activities as the installation of special exhibitions and presentations in science, history, and art; make repairs to the buildings to prevent deterioration; and also make improvements, alterations, and restoration within the buildings.

BUILDINGS MANAGEMENT DEPARTMENT

1971 Actual.....\$ 9,283,000
1972 Estimate.....\$10,389,000
1973 Estimate.....\$13,359,000

The Buildings Management Department provides essential services to the program units and helps them accomplish the Institution's goals. These responsibilities include the protection, operation, and maintenance of eight major buildings. These include the original Smithsonian Institution Building, the History and Technology Building, the Natural History Building, the Arts and Industries Building, the Freer Gallery of Art, the National Air and Space Building, the Fine Arts and Portrait Galleries Building (housing the National Portrait Gallery and the National Collection of Fine Arts), and the Renwick Gallery. The Department performs various combinations of these functions for nine other research, collection, special purpose, and support facilities, including the Chesapeake Bay Center for Environmental Studies, the Oceanographic Sorting Center, the Belmont Conference Center, and the Silver Hill Facility (which provides for the restoration and preservation activities of the National Air and Space Museum, and houses reference collections of aircraft, and other objects of science, technology, art, and natural history). Services will be extended to include two additional museums in FY 1973; i. e., the Joseph H. Hirshhorn Museum and Sculpture Garden and the Cooper-Hewitt Museum of Decorative Arts and Design. The total floor space of all the Smithsonian buildings is 3,656,000 square feet, and includes 18 different sites in the Washington Metropolitan Area, and one in New York City.

This Department provides utilities, and the servicing, repairing, and operating of refrigeration, heating, temperature and humidity control systems. It furnishes transportation and communications services and performs improvements and alterations to the buildings. Among the Department's responsibilities are safety, physical security, and disaster programs, as well as engineering, architectural services, construction management, space management, feasibility studies, and other professional services.

The FY 1973 requested increase is \$2,567,000 for increased provision of the above services, to meet price increases in various areas, and to begin services in new building space. In addition, \$403,000 are being sought for necessary pay increases of current employees.

New Building Space (\$824,000)

Joseph H. Hirshhorn Museum and Sculpture Garden (42 positions; \$594,000)

The Joseph H. Hirshhorn Museum and Sculpture Garden is scheduled for initial occupancy by the Smithsonian Institution in the latter part of calendar year 1972. The Buildings Management Department must service the building while the final construction work is being completed. Included in this final phase is the installation of equipment, heating, and air conditioning and humidity control systems which must be activated prior to the opening of the Museum to the public.

During the last half of FY 1973, an initial staff of 42 positions (21 man-years) will be required to give minimal protection, custodial and laboring services, and mechanical operation and maintenance to the plant, on a 24-hour basis, seven days a week. Funds in the amount of \$177,000 are

required to provide an adequate staffing level of 22 guards (sufficient to man 4 to 5 posts around the clock), 10 mechanics, and 10 laborers. Funds are also requested for related expenses such as utilities and communications (\$121,000), the installation of security and fire detection systems and miscellaneous contract services (\$86,000), custodial supplies and materials (\$60,000), and equipment items (\$150,000). This is a requested increase of \$594,000 for the initial protection, operation, and maintenance costs of this new museum facility.

Cooper-Hewitt Museum of Decorative Arts and Design (26 positions; \$230,000)

The Cooper-Hewitt Museum of Decorative Arts and Design is located in New York City. This building contains approximately 80,000 square feet of floor space. It is anticipated that the Buildings Management Department will be required to extend its services to the Museum for part of FY 1973. This Department will give initial basic services to safeguard the building and its contents, including guard protection, custodial and laboring services, and mechanical maintenance to the heating and ventilating systems.

The additional positions required to provide an adequate staffing level during part of FY 1973 are 12 guards, nine custodial and laboring employees, and five mechanics (\$150,000); \$80,000 are also requested for related expenses such as communications, utilities, installation of some security and fire detection systems, custodial supplies and materials, and a small amount for equipment. A total increase in the amount of \$230,000 is requested for the building operation costs of this new art activity.

Utilities and Communications (\$250,000)

In FY 1971, the Buildings Management Department spent \$1,600,000 for utilities and communications. Present information on higher unit costs and additional use indicates that this mandatory expense will increase to \$1,850,000 in FY 1973. This amount includes \$130,000 to fund the increase in price of steam which has increased approximately 40% since 1970. In FY 1970, the Department was paying about \$1.55 per thousand pounds. For a period of time in FY 1971 the price was \$2.40. The announced price for FY 1972 is \$2.05 per thousand pounds.

Also included in this amount is \$115,000 to provide for the increased electricity and steam usage resulting from the addition of several second floor decks in the high ceiling courts areas of the Arts and Industries Building, which will provide additional offices, exhibits areas, and other public service purposes. An additional \$5,000 is required to cover the Federal Telecommunications Systems intercity telephone services based on a projection by the General Services Administration.

Protection and Surveillance Shortages in New Exhibit Halls and Galleries (63 positions; \$568,000)

The present protection staff of approximately 328 guards and supervisors provide physical security for the Smithsonian's museums, art galleries, and collection areas, and for the National Collections, and property housed therein. This vital staff is also responsible for the overall control and security of all persons using these facilities, including general public visitors, staff, and visiting students and researchers.

Thirty-seven additional guards (\$308,000) are requested to provide adequate security to the exhibits in the new halls and galleries which have recently been opened or are to be opened to the public. Among them are Philately and Music Halls, Machine and Cloth Halls, Civil Engineering and Electricity Halls, Growth of the U.S., and the Southside Hall, all located in the History and Technology Building, and the World of Living Things and Physical Geology exhibitions in the Natural History Building. The increase is needed since present areas are inadequately covered, and existing posts are too large for proper surveillance.

Twenty additional guards (\$162,000) are requested for improved security at the public entrances for proper surveillance of individuals entering the buildings, and to patrol the non-public areas such as offices, workshops, reference collections, and libraries for the protection of the occupants and the prevention of theft and pilferage. The recent increase in bomb threats to the Smithsonian and other Government buildings as well as theft of personal and Government property attests to the immediate urgency for complete coverage of these areas.

Six additional guards (\$49,000) are requested for necessary security outside the Smithsonian buildings. During the past year there have been several serious attacks on employees and visitors on the grounds of the Smithsonian buildings. These additional guards are required to prevent such incidents.

Support funds of \$49,000 are also requested for service charges on additional installation of protection systems, and for supplies and materials, and equipment for the additional guards.

Shortages in Custodial and Building Services (84 positions; \$665,000)

The present buildings services staff of 266, including janitors, laborers, telephone operators, vehicle operators, and supervisors, etc., provide building services for approximately 3,656,000 square feet of floor area, and perform regular custodial services for employees of the Smithsonian and approximately 14 million visitors. These services include cleaning restrooms, public lounges, offices, workrooms, laboratories, and exhibit areas. These employees provide many special requested services in connection with public service and educational programs during regular hours and on weekends and holidays. These employees are also responsible for office moves, transporting museum objects, operating 55 elevators, and pest-control measures.

Based on cleaning standards developed from the General Services Administration, private industry, and actual operating experience, the Smithsonian has established standards for the maintenance of its museums and art galleries. Primary consideration has been placed on cleaning exhibit and public areas which comprise about 60 percent of the total net floor area. Work frequency rates are considerably higher in these areas because of the millions of people crowding through the buildings each year and special care must be exercised in performing work because of the presence of valuable museum objects and extensive special finishes.

The application of the cleaning standards in the Smithsonian buildings has revealed a severe shortage of custodial employees. Eighty-four additional janitors and laborers are required to provide adequate cleaning in all areas (\$555,000).

Support funds of \$110,000 are also requested for supplies and materials, and equipment for the custodial employees, and worn-out and obsolete equipment, which would be more economical to replace than to have repaired.

Space rental (\$260,000)

New space is unavailable on the Mall for approved growth of public programs and necessary support services. In many cases exhibition space must be curtailed in order to preclude intolerable compaction of support staffs. In the Fiscal Division Accounting Section, for example, average worker space considering all files and business equipment is 96 square feet per person. Other essential support services functions are severely compressed. Business functions are fragmented in ill-designed space. The only solution is the acquisition through GSA of suitable rental space, in the absence of no-cost space surplus to the needs of other agencies. An estimated 25,000 square feet of additional office space is needed. Vehicular shuttle services will be provided to efficiently tie in the new site with main offices and buildings on the Mall. Relocation costs are included, as are minimal expenses for tenant changes. For these purposes \$260,000 are sought.

Tab B

SCIENCE INFORMATION EXCHANGE

SCIENCE INFORMATION EXCHANGE

1971 Actual.....	0*
1972 Estimate.....	\$1,300,000
1973 Estimate.....	\$1,800,000

The Science Information Exchange, (SIE), which has been in operation for 22 years, has been conducted by the Smithsonian since 1953 at the request of, and on the behalf of, the federal agencies. As of July 1, 1971, the Smithsonian took over the funding of SIE for basic input by seeking direct Congressional appropriations. Prior to that, from FY 1965-1971, such funds were provided by the National Science Foundation. To achieve most efficient operation of the Exchange it was incorporated as a non-profit corporation in the District of Columbia in mid-June 1971. This plan was determined to be the most effective way of operation because of the complexities of charging for services which make up the remaining funds required for overall SIE operation. The management of SIE is accomplished by means of a Board of Directors and an Advisory Council. The latter is made up of Federal Agency, industry, foundation and fund raising agency, and university user representatives who are responsible for advising the Board of Directors on (a) the value and effectiveness of the Exchange, and (b) potential improvements that might be made in the Exchange to improve both input and output services. This Council in recent session (August 1971) reaffirmed the value and usefulness of SIE.

The SIE data bank receives and processes about 100,000 one-page records (2.5 to 3 million data elements) of research planned or in progress annually. About 80 percent of the input comes from federal agencies and 20 percent comes from private foundations, universities, state and local governments, industry, and some foreign sources. From this data bank, SIE answers questions from the national science community about who is currently working on what project(s), where, when, and with whose support. The purpose of this national service is to help investigators and administrators avoid unwarranted duplication and unnecessary overlap of complex programs and to assist in more efficient planning and management of research projects and programs. It is one to three years from the time a project is planned and started until the time it is completed and reported. Efficient planning and management requires the earliest information about what others are doing. The draft report (August 1971) of the General Accounting Office on its review of the effectiveness of the Exchange states that inasmuch as the annual federal expenditures for research total about \$5 billion, the Exchange could serve a useful purpose by providing information from one convenient central source if it contained current and complete information on all the research efforts supported by Federal agencies. The draft report further states, however, that the SIE cannot effectively fulfill its responsibility unless the agencies which support research work cooperate by providing information on their research activities.

For fiscal year 1973, the Exchange is requesting an appropriation of \$1,800,000 (see Table I). The Exchange was funded at a level of \$1,600,000 by the National Science Foundation in fiscal year 1971 (at the monthly rate of \$140,000 for ten months because of the difference in SIE's fiscal year). Federal appropriations are used for the collection, processing, and storage of the data as a national repository and a national service. Since December 1968, non-federal users have paid for retrieving, synthesizing, and packaging the requested information. All users have paid for such services since July 1969. Table II shows income by type of use and user for fiscal years 1970 and 1971. The fiscal year 1972 appropriation was approved at

*Funded by contract with the National Science Foundation.

\$1,300,000 but \$1,600,000 is required in the current year to cover the cost of collecting, processing, and storage of data. The additional \$300,000 must be obtained on a one-time basis through other sources than direct appropriation in order for the SIE to remain in existence after mid-fiscal year 1972. This emergency funding if obtained will not be available in fiscal year 1973.

Table III presents revenue, expenditure, and related data from fiscal year 1966* up through and including projections for fiscal year 1972. Comparison of the data for those two years reveals the following:

- Although staff size was reduced by 47 percent over the period, the rising cost of salaries and fringe benefits result in a projected fiscal year 1972 dollar outlay 5 percent greater than actual costs incurred in FY 1966.
- The staff reduction over a period of increasing input processing volume was partially offset by increasing technological sophistication, an increase reflected by the 51 percent rise in projected outlays for ADP equipment. The balance of the effect of the staff reduction was absorbed by an erosion of the quality of the SIE data base.
- As a result of significant reductions in personnel and operating expenses other than those related to ADP equipment, costs projected for fiscal year 1972 exceed those incurred in fiscal year 1966 by only 7 percent.
- Funding at a level of 1.3 million for fiscal year 1972 represents a decrease in Federal support of 32 percent from the fiscal year 1966 level.
- Revenues from SIE sales are projected optimistically at \$398,000 for fiscal year 1972, an increase of nearly 42 percent over the previous year. It is not reasonable to anticipate a greater rate of growth which might provide funds to offset input costs.

Additional funding over the fiscal year 1972 level has been requested in two major areas: \$400,000 to maintain input data flow into the SIE system and in the further development of the data base manipulation techniques necessary to insure a system which will be responsive to the needs of SIE users. Maintenance of a national data bank of ongoing research activity requires a clearly identifiable level of funding support below which it becomes no longer practical to attempt to update the data base. This minimum level of operations is constrained by the necessity for technical skills in a variety of scientific disciplines to evaluate and process input data, the requirements for maintenance and update of the automated data entry, search and retrieval system and certain minimum, fixed operating expenses. Where inadequate staff support is available for processing incoming material, significant delays occur in entering administrative and subject indexing data into the computer. Such data cannot be recovered and included in material sold to users, thus decreasing the value of the material provided. Considerable man-hours are required to work out and maintain effective input as government reorganization and turnover of personnel necessitate repeated contacts with agency representatives. SIE will not be able to maintain this liaison without the supplemental \$300,000 obtained in fiscal year 1972 from sources other than appropriated funds. SIE will continue to develop improvements in both the input process, storage and search capabilities of the system. New computer system improvements are being considered and will be developed to provide

*Fiscal year 1966 was selected as a base year in that it covered a period of peak activity, i. e. activity at a maximum level above that required for sustenance of basic operations.

for more efficient operation. An additional \$100,000 will be required for this service in fiscal year 1973 because of an overall increase in personnel salaries and other expenses.

A second major area in which additional funding is requested is new input: \$100,000 is requested as an additional cost to cover input from new sources which will be sought primarily in two new major areas. Input from state governments will be actively sought following pilot projects developed with the help of the Office of Intergovernmental Science Programs at NSF and the National League of Cities. These projects are both geared to improving input and use of SIE by state and local governments. Contact has already been made with all state governments to familiarize them with SIE and its services. In addition, knowing the importance of international research on such broad problems as environment and other urban problems, SIE expects to further input of foreign research by reciprocal agreements with various foreign research information programs already established for ongoing research. Input from these programs is expected to result ultimately in an increase of some 15,000 projects.

About 65 percent of the output service goes to the federal agencies and an additional 20 percent to their grantees and contractors. Their requests range from retrieval of records (at one dollar each) to the preparation of printed annual catalogs of 1,500 pages (at \$25,000) describing the current national research effort, for example in water resources, marine sciences and environmental quality. Table IV shows input and output volume statistics for fiscal year 1971. Table V lists catalogs and other publications prepared by the SIE. The total cost of all output products in fiscal year 1971 was \$231,000. An increase in income from user charges has been slow due to an almost constant federal R&D budget in the face of rising research costs. It is quite obvious that early and adequate information is more essential than ever to efficient planning and management, in research as well as in any other enterprise. At the present, the increasing demand for services is expected to result in a user income of approximately \$400,000 in fiscal year 1972.

The SIE data bank is the only one of its scope and size in the world that deals with information about current research activities applicable to planning and management purposes. It is the only source of coherent and comprehensive information that can quickly define and describe the broad multidisciplinary and multiagency (government and private) programs of immediate national importance.

TABLE I
SMITHSONIAN SCIENCE INFORMATION EXCHANGE, INC.
PROPOSED BUDGET FY 1973

	<u>TOTAL COST</u>	<u>DATA BANK COST*</u> (Federally Appropriated Funds)	<u>OUTPUT COST</u> (User Charges and Other Income)
Personnel	\$1,734,139	\$1,341,100	\$393,039
Salaries	1,534,636	1,186,814	347,822
Benefits	199,503	154,286	45,217
Contract Services			
Travel	10,000	7,800	2,200
Transportation of Things	3,000	2,340	660
Rents			
Telephone	9,000	7,020	1,980
IBM	240,038	187,230	52,808
Xerox	12,000	9,360	2,640
Building	98,500	76,830	21,670
Other	10,000	7,800	2,200
Printing	5,000	3,900	1,100
Other Services			
Equipment Maintenance	4,000	3,120	880
Other	55,000	42,900	12,100
Supplies	20,000	15,600	4,400
Acquisition of Capital			
Equipment	12,820	10,000	2,820
TOTAL	<u>\$2,213,497</u>	<u>\$1,715,000</u>	<u>\$498,497</u>
SI Services	100,000	85,000	15,000
GRAND TOTAL	<u>\$2,313,497</u>	<u>\$1,800,000</u>	<u>\$513,497</u>

*Previous year (FY 1972) input costs of \$1,600,000 were met by \$1,300,000 in Federally Appropriated Funds and one-time funds of \$300,000 from other sources.

TABLE II
Income for SIE Services
by Type of Use and User

Government Fiscal Years (1 July - 30 June)

Fiscal Year	Months	Federal Users			Non-Federal Users			Grand Total	% Federal Income
		User Charges	Contract Income	Total	User Charges	Contract Income	Total		
1970	12	61,733	70,473	132,206	68,538	--	68,538	200,744	65.8%
1971	12	80,033	77,610	157,643	73,444	--	73,444	231,087	68.2%

TABLE III
SSIE Revenues & Expenditures
(1966 - 1972)

SSIE Fiscal Year	Staff Size		Staff Salaries and Benefits		ADP Equipment Expense		Other Operations Expense	
	Actual	% Increase (Decrease)	Actual (1,000)	% Increase (Decrease)	Actual (1,000)	% Increase (Decrease)	Actual (1,000)	% Increase (Decrease)
1966 (Base Year)	164	--	1,364	--	171	--	331	--
1967	155	(6%)	1,380	1%	178	4%	313	(5%)
1968	139	(15%)	1,427	5%	217	27%	331	-0-
1969	134	(18%)	1,330	(2%)	246	44%	382	15%
1970	88	(46%)	1,396	2%	254	49%	368	11%
1971*	87	(47%)	1,363	-0-	250	46%	309	(7%)
1972**	87	(47%)	1,439	5%	258	51%	301	(9%)

SSIE Fiscal Year	Total Cost of Operations		Direct Federal Support		SIE Revenues		Input Processing Volume	
	Actual (1,000)	% Increase (Decrease)	Actual (1,000)	% Increase (Decrease)	Actual (1,000)	% Increase (Decrease)	Actual	% Increase (Decrease)
1966 (Base Year)	1,866	--	1,902	--			75,800	--
1967	1,871	-0-	1,850	(3%)			84,400	12%
1968	1,976	6%	2,000	5%	173		95,700	26%
1969	1,958	5%	1,800	(5%)	212	--***	91,200	20%
1970	2,018	8%	1,707	(10%)	241	14%	88,000	16%
1971*	1,921	3%	1,680	(12%)	398	88%	90,000	19%
1972**	1,998	7%	1,600	(16%)			94,000	24%

* 10 month fiscal year projected on a 12 month basis

** Projection based on current minimum requirements

*** 1970 was selected as a base year for comparison of revenues as cost recovery program covered only a portion of FY 1969

TABLE IV

I Volume Statistics for July 1970-June 1971

INPUT			OUTPUT (BILLED)								
TOTAL INPUT THIS PERIOD 96,601			P-2	P-3	P-4	P-5	P-6	P-7	P-8	P-9	
DISTRIBUTION OF CURRENT FILE			Routine Invert. (# of Quest.)	Standard Rpt'd (# of Reports)	Negotiated Requests (# of Requests)	Investigator Searches (# of Names)	Accession No. Retrieval # of Numbers	Quarterly Mailings (# of Quest's.)	Automatic Distribution (# of NRPs)	Historical Searches (# of Reg's.)	
FEDERAL	FY 70	FY 71	FY								
Agriculture	12,767	10,690		56	2	1		2			
AEC	1,283	1,930		8			689		91		
Commerce	1,861	1,260		22				2		1	
Congress											
D O D	12,336	10,821		283							
Air Force	3,979	2,918		23						1	
Army	4,241	3,803		210			3			2	
Navy	2,815	3,298		20						1	
Other	1,301	802		30							
HEW	18,256	10,604		173	2	23	1,025	829	44	19,981	
HUD	72	6				1					
Interior	5,767	4,829		29		2			3	96	
Justice	140	69		1					3		
Labor	301	70		2							
NASA	652	774		2			36				
NSF	6,867	5,317		24	1		1,829		4		
Smithsonian	556	607		4							
State	93	85						144			
TVA	38	37									
Treasury	4	7									
Transportation	1,648	69		3							
VA	4,994	2,570		134			99	25	12,809	2	
Other	288	851		49	1	4	158	10	64	1	
TOTAL FEDERAL	67,923	50,596		790	6	31	3,780	1,077	97	33,041	
NON FEDERAL	20,028	13,382		909	2	30	388	214	109	20	
GRAND TOTAL	87,951	63,978		1,699	8	61	4,168	1,291	206	33,041	
No. of NRPs 254,547 (includes 5,158 (Documents) historical)				1,777	576	3,232	4,999	1,230	29,164	33,041	5,158

TABLE V

List of Catalogs and Other Publications Relating to Ongoing Research
Prepared by the Smithsonian Science Information Exchange

1. "Environmental Research Catalog" (In preparation). Prepared for the Environmental Protection Agency, Washington, D.C.
2. "Water Resources Research Catalog". Prepared in 1965, 1966, 1967, 1968, 1969, 1970 (1971 in preparation) for Office of Water Resources Research, Department of the Interior. Superintendent of Documents, Government Printing Office, Washington, D.C.
3. "Marine Research" - FY 1968 (Prepared for Executive Office of the President, National Council on Marine Resources and Engineering Development) Superintendent of Documents, U. S. Government Printing Office, Washington, D.C. 20402
4. "Outdoor Recreation Research". Prepared in 1966, 1967, 1968, 1969, 1970 (Prepared for Bureau of Outdoor Recreation, Department of the Interior) Superintendent of Documents, Government Printing Office, Washington, D.C.
5. "Current Population Research 1966, 1967, 1968, 1969". (Prepared annually for National Institute of Child Health and Human Development, National Institutes of Health, HEW, Bethesda, Maryland 20014) Published by U. S. Department of Health, Education and Welfare.
6. "Recent Research in Public Administration - A Reference 1969". (Prepared for Office of Metropolitan Development, U. S. Department of Housing and Urban Development, Washington, D.C. 20410) Superintendent of Documents, U. S. Government Printing Office, Washington, D.C. 20402, 1969.
7. "Recent Research in Intergovernmental Relations 1968". (Prepared for Office of Metropolitan Development, U. S. Department of Housing and Urban Development, Washington, D.C. 20410) Government Printing Office, 1969.
8. "Recent Research in Planning 1968". (Prepared for Office of Governmental Relations and Planning Assistance, U. S. Department of Housing and Urban Development, Washington, D.C. 20410) Government Printing Office, 1969
9. "Research on U. S. International Trade". (Prepared for Export Strategy Staff, U. S. Department of Commerce, Washington, D.C.) Government Printing Office, 1970.
10. "Neurological Disease and Blindness Catalog 1969". (Prepared for National Institute of Neurological Disease and Blindness, National Institutes of Health, HEW, Bethesda, Maryland 20014) Published by Government Printing Office, 1970.
11. "Sustaining University Program, NASA, 1969". (Prepared for Office of University Affairs, National Aeronautics and Space Administration, Washington, D.C. 20546) Government Printing Office, 1970.

12. "Catalog of Federally Funded Housing and Building Research and Technology". (Prepared for Office of Urban Technology Research, U. S. Department of Housing and Urban Development, Washington, D.C. 20410). Superintendent of Documents, U. S. Government Printing Office, June, 1970.
13. "Food Distribution Research Projects in Progress 1969". Food Distribution Research Society, Hyattsville, Maryland, February 1970.
14. "Dental Caries Research FY 1969". (Prepared for National Institute of Dental Research, National Institutes of Health, Department of Health, Education and Welfare, Washington, D.C.) Superintendent of Documents, U. S. Government Printing Office, Washington, D.C., 1971.

Tab C

SPECIAL FOREIGN CURRENCY PROGRAM

SMITHSONIAN INSTITUTION
MUSEUM PROGRAMS AND RELATED RESEARCH
(SPECIAL FOREIGN CURRENCY PROGRAM)

1971 Appropriation	\$2,500,000	}	Equivalent in "Excess" Foreign Currencies
1972 Appropriation	\$3,500,000		
1973 Estimate	\$6,000,000		

An appropriation of \$6,000,000 in foreign currencies determined by the Treasury Department to be in "excess" to the normal needs of the United States abroad is requested for Fiscal Year 1973. The appropriation will be used to continue a program of grants to United States institutions for field research in those countries where "excess" local currencies accumulated from commodity sales under PL-480 are available. The research will be performed in areas of Smithsonian Institution interest and competence according to the following general program areas:

Commitment of Funds by Program Area

	<u>FY-1966-71</u> Cumulative Commitments	<u>FY-1972</u> Estimated Commitments	<u>FY-1973</u> Appropriation Request
Archeology and Related Disciplines	7,563,357	1,500,000	2,400,000
Systematic and En- vironmental Biology	4,905,044	1,300,000	2,200,000
Astrophysics and Earth Sciences	727,391	500,000	1,100,000
Museum Programs	153,500	180,000	260,000
Grant Administration	61,690	20,000	40,000
	<u>13,410,982</u>	<u>3,500,000</u>	<u>6,000,000</u>

For the past two years, grants awarded to American institutions by the Program have been exceeding the annual appropriation. In FY-70 there were program commitments of \$3,566,249 equivalent in "excess" foreign currencies against an appropriation of \$2,316,000; FY-71, commitments of \$2,860,337 against an appropriation of \$2,500,000. These commitments absorbed all "carry over" from previous years, and, by the end of FY-70, and during the first half of FY-71,

some approved research had to be delayed and rescheduled in order to be funded.

The FY-72 increased appropriation of \$3,500,000 should enable the program to meet its commitments during the current fiscal year. However, the development and expansion of regular programs, as well as the opening up of important new research possibilities, especially in India and Poland, have resulted in a rising demand for "excess" research monies which makes an increased appropriation in FY-73 necessary.

A joint Indo-American Ecology Symposium held in February, 1971, resulted in plans for a major program of "environmental assessment" studies to be carried out jointly by Indian and American scientists and institutions; the basic scientific data expected to be developed by this program will not only contribute to the solution of environmental problems in developing India but will add vital data on the environment of use to American scientists and institutions working on U.S. environmental problems.

Similarly, a high-level visit in the Spring of 1971 by the Chairman of the Polish Committee for Science and Technology has opened important new possibilities for joint American-Polish research by which American scientists and institutions can take advantage of highly sophisticated Polish facilities and experience without the expenditure of hard research dollars to perform comparable research in this country.

These major new opportunities for research follow similar opportunities in Yugoslavia and Pakistan described in last year's appropriation request. The general projection for continued valuable work in all of these countries is expected to remain high for as long as "excess" currencies are available. At the same time, the American institutions performing research in Israel under Smithsonian sponsorship are now phasing out the major effort, with many accomplishments, which the Program has financed there in the past six years; Israel is expected to be removed from the Treasury's "excess" currency list on June 30, 1972; consequently, FY-72 will be the last year in which the Program will commit funds there, but the funds formerly committed to Israel will be more than absorbed by the new opportunities opening up elsewhere.

In addition to the need for an increase brought about by these new opportunities, the increase in FY-73 is essential to support continuing field studies in the

Smithsonian's traditional disciplines of systematic and environmental biology and anthropology which today are recognized as basic to an understanding of the problems of environmental quality and cultural change.

The increase is essential also to ensure support for new and on-going research which contributes to United States national programs under, for example, the International Biological Program under Public Law 91-438, the International Decade of Ocean Exploration, the National Aeronautics and Space Administration, the National Academy of Sciences, the United States National Museum and the Department of Interior's cooperative programs abroad under the Endangered Species Conservation Act.

Finally, the increase is essential to permit, in some cases, multi-year obligation of funds for research in those "excess" currency countries, like Tunisia and Morocco, where the excess designation by the Treasury Department is subject to termination at any time because "excess" accounts are small. Failure to obligate funds for a reasonable number of years for projects in such countries could prematurely terminate worthy studies by United States institutions without receiving full value from funds already expended. The Smithsonian appropriation has never been adequate to permit obligation of funds for more than one year of research at a time. Ceylon, where multi-year research has been underway, was removed from the "excess" currency country list at the end of fiscal year 1970. The Institution was only able to provide for orderly completion of the research going on there by making multi-year obligations against monies originally committed for research in other countries. The Program will, of course, continue to require annual Advisory Council review to determine satisfactory research progress of these and other multi-year studies prior to authorizing disbursement of each successive year's funds.

USE OF FOREIGN CURRENCIES SAVES HARD DOLLARS

Special Foreign Currency Program appropriations are an advantageous source of research monies. This is so because they are not new appropriations of tax dollars and because delay in the use of the "excess" accounts means continuing losses to the United States Treasury as these accounts lose value through inflation and devaluation. Moreover, these appropriations do not add significantly to the President's budget total because the Commodity Credit Corporation reduces its appropriation request by an amount equal to the amount of foreign currencies expended.

At the same time, Special Foreign Currency Program appropriations contribute to essential national research objectives abroad without contributing to a balance of payments deficit. Moreover, Smithsonian Foreign Currency grants frequently serve as dollar-saving supplements to the dollar grants of both public and private agencies like the National Endowment for the Humanities, the National Science Foundation, the National Institutes of Health, the National Aeronautics and Space Administration, the World Wildlife Fund, the National Geographic Society, the John D. Rockefeller III Fund and the Wenner-Gren Foundation. In such cases, the foreign currency grants cover costs in the host country; the dollar grants are expended in the United States for equipment not available in "excess" currency countries, for American salaries, laboratory fees and the like.

OUTSTANDING ACHIEVEMENTS OF RESEARCH SUPPORTED BY SMITHSONIAN FOREIGN CURRENCY GRANTS

The following are merely examples of some of the outstanding results achieved by American scientists and institutions working under grants from the Program:

1. Smithsonian - Yale Arborvirus Laboratory collaboration has demonstrated that contrary to previous scientific opinion, migrating birds can transport infective viruses between continents. Some of these viruses, which can also cause fevers in man, are very serious health problems in temperate zones. Such fevers as West Nile, Kemerovo and Sindbis have been identified in migrating birds captured by Smithsonian field teams in Egypt.
2. Yale University students of fossil remains of man's earliest ancestors have found the skull and jaws of the common ancestor of all higher primates, including apes and man. This creature lived about 28,000,000 years ago. This discovery is considered the most important find in the last fifty years, bearing on man's evolution and on that of the apes.
3. The Smithsonian Astrophysical Observatory has, in collaboration with Tel Aviv University in Israel, successfully demonstrated that the basic principles and techniques emerging from the study of atomic particles are also applicable to the heretofore unexplained motions of groups of stars and of galaxies, opening important new fields for study of man's universe.

4. The Hebrew Union College, Cincinnati, Ohio excavation at Gezer, Israel serves as a principal field training ground for American biblical scholars and archeologists. This city was given by Pharaoh Shishak as a dowry to his daughter who became King Solomon's queen. These excavations have furnished conclusive proof of the city's destruction by Nebuchadnezzar.

5. Smithsonian studies in collaboration with Hebrew University in Jerusalem of the movement of marine life through the man-made, sea-level Suez Canal show that the majority of commercially valuable fish taken in the Eastern Mediterranean originated in the Red Sea. These studies have saved the United States thousands of hard research dollars because one result is a tested model for studies being prepared by the National Academy of Sciences in connection with a possible sea-level canal at Panama. Taken together with studies of the movement of marine-life, particularly predators, through the Erie and Welland Canals into Lake Erie, the Suez Canal studies provide dramatic evidence of the consequences of man's modification of his environment.

6. The University of Pennsylvania museum, by applying modern computer methods to the scattered stones of the Egyptian Temple of Akhnaten dismantled in antiquity, has reconstructed for modern eyes the facade of this historic temple. This project has been given extensive publicity by publications such as Life, the National Geographic, the New York Times, and the Washington Star, and a definitive book on the project will soon be published.

MUSEUM PROGRAMS AND RELATED RESEARCH
(SPECIAL FOREIGN CURRENCY PROGRAM)

Commitment of Funds by Country

Fiscal Years 1971, 1972 and 1973

Country	1971 Actual	1972 Estimate	1973 Estimate
Burma.....	\$ 1,000	\$ 2,000	\$ 5,000
Egypt.....	388,253	420,000	780,000
Guinea.....	--	--	10,000
India.....	885,340	1,085,000	2,270,000
Israel.....	856,736	665,000	--
Morocco.....	90,813	105,000	180,000
Pakistan.....	80,813	103,000	235,000
Poland.....	94,615	140,000	420,000
Tunisia.....	114,615	385,000	960,000
Yugoslavia.....	348,253	595,000	1,140,000
	<u>\$2,860,438</u>	<u>\$3,500,000</u>	<u>\$6,000,000</u>

Tab D

CONSTRUCTION

SMITHSONIAN INSTITUTION
BUILDING PROGRAM
PLANNING, RESTORATION, RENOVATION, AND CONSTRUCTION
FY 1973

This request is for high priority improvements and additions to the physical plant and facilities of the Smithsonian Institution. In presenting these projects for consideration, the Institution has singled out those projects which would increase the usefulness of existing building spaces and areas or would meet clearly identified current or future needs for exhibit and public service facilities, space for research, or for the adequate housing and protection of reference materials.

All requests for planning, restoration, renovation, and construction total \$54,439,000. Many of these projects are meant to enhance the Smithsonian's participation in the 200th anniversary of the nation's independence. The requested building program projects are:

- \$8,000,000 for the National Zoological Park for planning future facilities (\$600,000); for planning and construction of parking and service facilities (\$7,000,000); and for preventive maintenance and repairs to existing facilities (\$400,000).

- \$5,664,000 for the Restoration and Renovation of Buildings including the following projects: storage building for the National Air and Space Museum at Silver Hill, Maryland (\$125,000); Mt. Hopkins, Arizona, Observatory road and power improvements (\$220,000); National Portrait Gallery third floor renovation (\$250,000); Chesapeake Bay Center for Environmental Studies laboratory and visiting research improvements (\$50,000); Smithsonian Tropical Research Institute laboratory building and repairs (\$190,000); Library collection and work spaces (\$100,000); general building repairs and improvements (\$879,000); and Arts and Industries Building airconditioning and renovation (\$3,500,000); Museum of History and Technology library addition planning (\$250,000); and feasibility studies, especially for visitors' parking (\$100,000).

- \$40,000,000 for the construction of the redesigned National Air and Space Museum to permit a public opening by July 4, 1976.

- \$275,000 for construction planning of Bicentennial Park.

- \$500,000 for construction planning of a National Museum of Natural History Research Center.

Amounts requested for each item are justified in the following sections of the budget.

CONSTRUCTION AND IMPROVEMENTS
NATIONAL ZOOLOGICAL PARK

1971 Appropriation.....\$ 200,000
1972 Appropriation.....\$ 200,000
1973 Estimate.....\$8,000,000

An appropriation of \$8,000,000 is requested for the capital improvement program and for the renovation and repair of existing facilities at the National Zoological Park (NZP). The NZP modernization program has not received new funding since FY 1967 and its resumption is of high priority. The Zoo staff, using funds appropriated for repair projects, has done a good job of keeping old facilities open and available to the public, but this is simply a "holding action". Adding to the urgency is the certainty that the Zoo must enlarge and improve its capacities to extend hospitality to the additional millions of visitors expected in the Washington area during the period of the Bicentennial celebration. As described in Smithsonian Institution: American Revolution Bicentennial Programs 1971-1976, the NZP proposes to have ready by January 1, 1976, the following major new facilities in the revised Master Plan now being developed.

1. Parking facilities for 2,500 cars including service complex.
2. Connecticut Avenue visitors center including administration, resturant, and educational facilities, and bus parking.
3. New lion and tiger exhibits including demolition of the existing 1890 lion house.

Funds are requested in the following categories:

Planning

Funds in the amount of \$600,000 are requested to cover architectural-engineering fees for design planning of the large cat exhibit; Connecticut Avenue visitor center, restaurant, and bus garage; and parking and service facilities.

Construction

Funds in the amount of \$7,000,000 are requested for the first priority of the Master Plan based on the need to deal realistically with the NZP parking problem and needs in the area of service facilities. Currently the surface parking lots are inadequate to accommodate the traffic generated at peak visitation periods to the Park. There are some 50 days a year when parking requirements cannot be met. The possibility of increasing surface parking lots has been explored and it has been determined to be an impossible solution to the parking problem within the confines of the Zoo. Accordingly, the new Master Plan envisions tiered parking structures built into the sides of the hill flanking the main road through the Zoo, connecting Connecticut Avenue and Harvard Street. Ingress and egress to this facility would be via Connecticut Avenue, Klinge Road, Beach Drive, and Harvard Street. The total improved parking facilities would accommodate 2,500 vehicles, more than double the present capacity and release valuable flat land (presently used for parking) for badly needed animal exhibit space. This budget request is for the first stage of improved parking facilities.

The lower levels of the parking facility would include the NZP service facilities - shops, garage, greenhouse, etc. Existing service facilities lack

adequate space and this cramped operation leads to inadequate maintenance and a disorderly appearance in the service yard area. Buildings vacated by shops and garage may be converted to commissary, supply, and warehouse functions which currently are cramped and not functionally efficient.

Repairs

Funds in the amount of \$400,000 are requested to continue a several-year program of renovation and repair of existing facilities. In part, this work is required to keep the old portions of the Zoo in use. There is an immediate need, for example, to rebuild the interior of the Monkey House. The funds are used also to replace small exhibits, such as outdoor bird cages, when they are past the point of repair. Renovation and repair money is also essential to modify and keep in good condition new buildings, such as the Bird House and Flight Cage and the Delicate Hoofed Stock buildings. Repair funds are also required for road and walk maintenance, the purchase of essential building equipment such as sliding doors for animal enclosures and major landscaping projects. The present backlog of renovation and repair projects is estimated to cost \$600,000.

It is anticipated that the revised Master Plan will be ready for submission to the National Capital Planning Commission and the Commission of Fine Arts in early calendar year 1972. Approval of the plan would permit planning and construction to begin in FY 1973 if the requested funds are appropriated.

RESTORATION AND RENOVATION OF BUILDINGS

1971 Appropriation.....\$1,725,000
1972 Appropriation.....\$ 550,000
1973 Estimate.....\$5,664,000

An appropriation of \$5,664,000 is requested for the following projects designed to increase the utility of Smithsonian buildings and facilities for research, collections management, and public exhibition purposes:

Storage building for National Air and Space Museum use at the Silver Hill Facility.....	\$125,000
Mt. Hopkins, Arizona, Observatory road and power improvements.....	220,000
National Portrait Gallery third floor renovation.....	250,000
Chesapeake Bay Center for Environmental Studies laboratory and visiting research improvements.....	50,000
Smithsonian Tropical Research Institute laboratory building and repairs	190,000
Library collection and work spaces.....	100,000
General building repairs and improvements	879,000
Arts and Industries Building airconditioning and renovation.....	3,500,000
National Museum of History & Technology library addition planning.....	250,000
Parking feasibility studies.....	100,000

Storage Building for the National Air and Space Museum

An amount of \$125,000 is requested for the construction of a 20,000 square foot Butler storage building to be located at the National Air and Space Museum, Silver Hill, Md., facility.

At present there are 42 aircraft in outdoor storage at Silver Hill. Of this number, 26 are crated in 97 large boxes. In addition, there are 50 large space artifacts and approximately 100 aircraft engines in outdoor storage. This material must be placed under cover to halt deterioration.

Although the building will not completely solve the outdoor storage problem, it will provide space for those items needing immediate care and for those items on which restoration work must begin for display in the new building.

Mt. Hopkins Observatory Road and Power Improvements

As the Smithsonian Astrophysical Observatory's Mt. Hopkins Observatory develops, the electrical power load and traffic on the access road increase. For protection of the expensive and sophisticated electronic instrumentation now coming into use, as well as for its effective use, the primitive electrical

power distribution system on the mountain must be improved. For the safety of its staff SAO must also begin improving the pioneer access road. Adequate during initial construction of the observatory, the road now presents a daily hazard with its narrow hairpin turns, poor surface, and inadequate drainage. A total of \$220,000 is requested for these improvements.

In FY 1971 SAO initiated engineering studies to determine the optimum power system for Mt. Hopkins. During FY 1972 a final system design will be completed, enabling installation to be undertaken in FY 1973. Preliminary estimates from a local power company suggest a cost of approximately \$120,000.

Initial improvements to the Mt. Hopkins road will consist of replacement of gravel in badly worn areas, hard topping of selected sections where dust or moisture is particularly troublesome, and widening and regrading of narrow turns and areas where drainage problems exist. To start correcting these serious deficiencies \$100,000 are requested.

National Portrait Gallery Third Floor Renovation

The \$250,000 requested for the third floor renovation of the National Portrait Gallery in the Fine Arts and Portrait Galleries Building will be used to prepare space needed to exhibit the expanding permanent collection, to store items not on display, and to provide additional space for research undertaken by the History Department, visiting fellows and by interns working on exhibitions and publications related to both Bicentennial and other projects.

The NPG Commission is particularly anxious that this vast and magnificent space no longer continue to be almost completely wasted when the public interest in this historic chamber and the Gallery's need for its effective use are so apparent. The figures estimated are based on a study made in 1969 by a lighting consultant to the American Association of Museums, who was responsible for much of the lighting done in the White House, the U.S. Capitol, and, more recently, in the new wing of the Museum of Fine Arts in Boston.

Chesapeake Bay Center for Environmental Studies Laboratory and Visiting Research

An appropriation of \$50,000 is requested to improve the facilities at the Chesapeake Bay Center for staff and visiting scientists.

In order to provide critically needed research space, CBCES must renovate the existing two-story, roofless calf barn. This renovation would consist of the following. Provide electrical, sewage, and water services. Repairs to the building would include a new roof, stairway, interior partitions, resilient tile flooring, lightings, doors and hardware, interior and exterior painting, and installation of a heating and ventilation system. Special needs would consist of purchase and installation of sinks, base and wall cabinets, and wall surfaces suitable for general laboratory usage. The estimated cost of this renovation is \$30,000.

It is also necessary to begin construction of a dormitory facility in order to house temporary junior researchers and visiting senior researchers. Presently this is accomplished in an inadequate manner by preempting space in the main office building that must be used for administrative functions.

The construction of a modular type prefabricated building of approximately 1,400 square feet of floor space with the interior design predicated towards a dormitory-type environment would consist of the following. Provide electrical, sewage, and water services and site development to suit. Place the building on a pre-constructed foundation and connect to the aforementioned utility services. Special needs would consist of kitchen equipment, furniture, and furnishings suitable for a dormitory building. The estimated cost is \$20,000.

Smithsonian Tropical Research Institute
Laboratory Building and Repairs

An appropriation of \$190,000 is requested to continue a phased program of laboratory improvements and building repairs to the Smithsonian Tropical Research Institute's facilities. Funds were appropriated in FY 1970 (\$125,000) and FY 1971 (\$25,000) for this purpose.

When the Panama Canal Co. hospital abandoned its laboratory building four years ago, the STRI was able to rent it at a very reasonable rate. The building located in Ancon was at that time adequate for both administrative offices and mainland laboratories. It was constructed in 1916, however, and is becoming more costly to maintain each year (about \$7,000 for FY 1972). Its floor plan is grossly inefficient. Most important, it has become extremely overcrowded with both scientists and administrators. Both administrative and mainland laboratory space must be expanded without delay.

STRI research is field intensive rather than laboratory intensive--its laboratories need neither be large nor elaborately equipped. An appropriation of \$155,000 would allow construction of a small single story cement building, including permanent laboratory furnishings, of about 5,000 square feet. All mainland laboratories would be concentrated in this building, leaving the entire Ancon building for administrative offices. Construction of the new building would be such as to allow a later addition to house the administrative offices.

A building site will be determined after current treaty negotiations between Panama and the United States have been concluded. Possibilities are Naos Island, Ancon, Summit Gardens, and Frijoles Point.

For over 40 years a number of frame buildings have been maintained on Barro Colorado Island to provide work space and living and eating facilities for scientists working on the island. Despite modern methods of wood treatment, partial replacement of these facilities has been an almost continual process due to termite and ant infestation in the humid forest environment. Area use of insecticides would be anathema to much research done on the island.

Despite logistical problems, future construction on the island will be mainly of cement blocks. Nevertheless, an appropriation of \$30,000 is needed for catching up on necessary renovations to existing buildings to continue their useful life. An additional \$5,000 is requested for renovation of the large marine research pier at the Naos Island installation.

Library Collection and Work Spaces

An appropriation of \$100,000 is requested to continue a program started in the FY 1971 budget to improve spaces in Smithsonian Institution buildings for the proper care and accessibility of library materials. In FY 1971 \$50,000 were appropriated for such improvements in the Natural History Building and in FY 1972 \$25,000 for the Lamont Street Building.

The FY 1973 funding would be used for three projects with approximate allocation as follows:

- \$60,000 for the double-decking, remodeling, and outfitting of reference and reading space in the Natural History Building to complete the project initiated with the FY 1971 appropriation. Double-decking of cataloging space will be accomplished with that appropriation. This is the Central Library as well as the library for the National Museum of Natural History.
- \$20,000 for refurbishing space in the History and Technology Building stacks and reading area, and
- \$20,000 for providing space and built-in and other equipment in the Arts and Industries Building or other preferable area for rare books.

These improvements would create additional research service areas for the use of Smithsonian staff as well as for better service to visiting researchers, students, and the general public.

General Building Repairs and Improvements

An appropriation of \$879,000 is requested for several Smithsonian buildings and facilities to make improvements and repairs to prevent further deterioration, insure public safety, enhance appearance, and to facilitate the program operations of the museums and galleries in these buildings.

History and Technology Building

An appropriation of \$180,000 is requested to repair the roof of the building; reroute a defective eight-inch sanitary sewer line; repair granite stonework around the second floor terrace to correct a serious leak; and install storm windows to prevent further damage due to the presence of excessive condensation.

Natural History Building

An appropriation of \$110,000 is requested to repair and clean the interior and exterior stonework; repair the stone retaining wall (for safety purposes); install drinking fountains in public areas; repair and resurface an area which includes the floor surface from the east side ambulatory to the east door and loading docks; and paint exhibit and work spaces.

Smithsonian Institution Building

An appropriation of \$207,000 is requested for additional restoration and renovation of the Smithsonian Institution building and grounds. With funds previously appropriated, the first major interior restoration of this

historically important and well-known building, originally constructed in 1855, has been completed. It was necessary, however, to forego many necessary planned improvements to reduce costs. Some of the improvements which were deferred include the installation of a humidification system; repairs to the exterior stonework; painting and waterproofing; window repairs and replacements; and the installation of fire detection and extinguishing systems.

Freer Gallery of Art

An appropriation of \$99,000 is requested for the following projects: provide solar protection in the sky light area of the exhibit halls to prevent damage to the many priceless objects and paintings; construct an X-ray equipment room for the conservation program; install storm windows to control condensation and water damage; install handrails on the public stairs as a safety measure; replace antiquated electrical panels; install special security, fire detection and extinguishing systems; replace wall coverings and paint four galleries; and install a lawn-sprinkler system for the landscaped areas to conserve manpower and improve the appearance of the grounds.

Fine Arts and Portrait Galleries Building

Funds in the amount of \$204,000 are requested to accomplish several improvements originally included in the plans for remodeling the Fine Arts and Portrait Galleries building, but which were deleted in order to reduce costs.

Of this amount, \$65,000 is requested to renovate an unimproved area of approximately 20,000 square feet on the first floor of the building. It was believed that this space could be reserved for future expansion, but is now urgently required for museum purposes and must be rehabilitated for offices, collection, and work space. This work includes heating, ventilating, air conditioning, lighting, flooring, repairs, and plastering and painting. An amount of \$22,000 is requested to restore, point-up, and replace damaged or deteriorated interior and exterior marble and stonework.

There are also several projects necessary for the improvement of the protection and mechanical operations of the building, including the installation of fire detection and extinguishing systems; installation of an emergency electric power generator and a standby booster pump for the domestic water system; partial replacement of the hot and cold water line risers not replaced during remodeling; and the replacement of heavily corroded aluminum fin coils throughout the building.

The following additional projects will enhance the appearance of the building and contribute to the safety of the visiting public and employees; rebuild the exterior stone steps at the 9th Street entrance to conform to the D.C. Building Code; fabricate and install gates to match the existing fence at the 7th and 9th Street entrances; improve the inner court and install metal grating over the entire moat to prevent future accidents from occurring.

Smithsonian Silver Hill Facility

An appropriation of \$79,000 is requested for necessary improvements and expansion at the Smithsonian Silver Hill Facility. An additional 20,000 square feet of storage space is planned by the construction of a steel mezzanine and installation of electrical systems in Building 22. Required improvements include the installation of restrooms, a sewage disposal system, and surface-water drainage systems. Also urgently needed is the renovation of Building 1A for an automotive repair shop to accommodate the repair of motor vehicles, as well as forklifts, material handling equipment, lawn equipment, and small electrical and gasoline powered machines.

Arts and Industries Building

An appropriation of \$3,500,000 is requested for the major restoration and improvement of the Arts and Industries Building for use for "The Year of the Centennial". This will be a major exhibition recreating in all its details the distinctive flavor of American life at the time of the Centennial Exposition of 1876. As described in Smithsonian Institution: American Revolution Bicentennial Programs 1971-1976, the Smithsonian will develop an exhibition, using many of the objects acquired after the Centennial Exposition in Philadelphia in 1876, to evoke the world of 1876, the atmosphere and style of our nation midway between its founding and its 200th birthday. It is projected that four million persons would visit this building in the Bicentennial year.

The building, described as Modern Romanesque, was constructed in 1880. It has been declared a "Landmark of Importance" by the Joint Landmarks Committee of the National Capital Planning Commission and the Commission of Fine Arts. It is a one story brick structure with 163,000 square feet of floor space. Basement, second, and third floor levels exist in pavilions at the four corners. Partial second floor levels have been installed and a mezzanine borders the east, west, and south halls. Four additional second floor areas are to be installed during FY 1972 using funds appropriated in the FY 1971 budget. The four main halls are in the form of a cross with the rotunda located at the center. These main halls combined with the adjoining smaller exhibit spaces on the main floor provide 80,000 square feet of extremely adaptable space with ceiling heights ranging from 14 feet under the galleries to 42 feet in the main halls.

The large open areas of the building, free of structural or architectural interferences, combined with high ceilings, arched openings, and the general feeling of spaciousness, establish the "Exposition" character of the structure. The decision of the Board of Regents of the Smithsonian to continue using the major portion of this building for exhibition purposes furnishes an unparalleled opportunity to present industrial, technological, architectural, scientific, and other large-scale exhibits and similar presentations which cannot be accommodated in other museum buildings. The location of this significant and unique building on the Mall adjacent to other buildings of the Institution provides a convenient and accessible facility for the visiting public.

The funds requested will be used for the installation of heating, ventilating, air conditioning, and humidity control systems for the entire building. This will provide major improvements for the comfort of visitors and staff. The proper preservation and conservation of museum objects for the future cannot be satisfactorily accomplished except by the installation of the proposed systems.

The rotunda and four main exhibition halls will be restored to the 1876 appearance; much needed public restrooms will be installed; obsolete and hazardous electrical and utilities systems will be replaced; the west entrance will be opened to connect to the visitor area south of the Smithsonian Institution Building; and related improvements will be made to provide convenience, utility, and safety.

The cost estimate includes the following items:

<u>Estimated Construction Costs</u>		<u>Amount</u>
Construction contract and contingencies		\$2, 694, 000
Reservations (special furniture, floor coverings, decorative treatments, and lighting, etc.)		545, 000
<u>Estimated Services (GSA)</u>		
GSA design contract review	\$12, 000	
Duplication, bids, etc.	20, 000	
Engineering and design completion	75, 000	
Construction supervision	<u>154, 000</u>	<u>261, 000</u>
Total Construction Cost		\$3, 500, 000

With this appropriation, the project can be started at the beginning of FY 1973 and the work can be completed in sufficient time for the installation of the special exhibitions for the Bicentennial Celebration in 1976.

National Museum of History and Technology Library Addition Planning

The amount of \$250,000 is requested for architectural plans for additional library space in the National Museum of History and Technology. The steady growth of MHT collections, and the intensification of the museum's research programs, have made its present library facilities inadequate to the needs of its staff and of the many visiting scholars it receives each year. It is clear that this problem will become more and more severe in the years ahead; good management requires that the Institution begin now to plan for its solution.

In addition to this urgent general need, the Institution wishes in particular to provide appropriate facilities for a great collection of rare books in the history of science and technology that may be offered as a gift. This collection, which was brought to our attention several months ago by the Office of Science and Technology, has been appraised conservatively at substantially more than a million dollars. Its acquisition by the Museum of History and Technology would very greatly strengthen our already important and distinguished Department of Science and Technology, and would make the Smithsonian a truly national center for the history of science.

The original architect of the Museum of History and Technology has designed a sixth-floor addition that would tastefully and economically meet both the general and the particular need for added library space. Based upon a GSA estimate, we calculate that it could be constructed, equipped, and furnished for approximately \$4, 000, 000.

Feasibility Studies

An appropriation of \$100,000 is requested to prepare feasibility studies to determine the essentiality, priority, scope, location, alternatives, and possible range of costs of projects to meet the oncoming needs of the Smithsonian Institution. The goal is to assure the most effective distribution and aggregation on and off the Mall of service and support operations essential for the conduct of public programs in research, education, and inspiration.

It is of paramount importance to tackle effectively and at the soonest opportunity the problem of visitor parking. In ever increasing numbers, visitors journey from afar to the Nation's Mall and to its constellation of public museums and galleries only to be trapped in a hopeless traffic jam. Countless numbers of them must either abandon their hopes for parking or must park illegally in order to visit their Nation's treasurers. Without action the situation can get only worse. Underground parking has been studied but remains a distant prospect. Off-the-Mall, or fringe parking, with assurance of suitable connecting transportation, may provide the only practicable interim solution.

A program of study of this alternative would be initiated in concert with all good associated cooperation by the General Services Administration and the National Park Service. If the public is to be served efforts must not be delayed.

my

CONSTRUCTION
NATIONAL AIR AND SPACE MUSEUM

1971 Appropriation.....\$	0
1972 Appropriation.....\$	1,900,000
1973 Estimate.....\$	40,000,000

The Act of August 12, 1946, established the National Air Museum as a bureau of the Smithsonian Institution. The Congress included provisions for selecting a site for a National Air Museum building to be located in the Nation's Capital. By the Act of September 6, 1958, the Congress designated a site for a building to be on the Mall from Fourth Street to Seventh Street, Independence Avenue to Jefferson Drive. At present, no structure exists on this federal land.

In 1966, the Congress enacted legislation authorizing the construction of the National Air and Space Museum but deferred appropriations for construction until expenditures for the Vietnam conflict had shown a substantial reduction. Construction plans and specifications for the proposed museum building were completed and were accepted by the Commission of Fine Arts and the National Capital Planning Commission. The cost of the building, built to those plans and specifications, was estimated to be \$40 million dollars in 1965. Unfortunately due to the rising costs of labor and materials, this same building would now cost between \$60 million and \$70 million.

The space program, with its Mercury, Gemini, and Apollo flights, has caused a considerable increase in the public's interest in aeronautical and aerospace matters. During FY 1971, almost 3.5 million visitors were counted in the Arts and Industries Building and the Air and Space Building, both of which are used to house temporarily a very small portion of the collections and exhibits of the National Air and Space Museum. With the additional space available in the new building, the National Air and Space Museum will be able to use a wide range of the more than 200 aircraft and thousands of aerospace objects in the collections to interpret the historical and technological progress of aviation and aerospace science to the millions of visitors that will come to the Museum annually. It is estimated that 5 million visitors will come to this major new museum in its first year.

The Air and Space Museum already has in its collections such historically significant aircraft as the original Wright Brothers Flyer, Lindbergh's "Spirit of St. Louis," the NC-4 (the first to fly the Atlantic), the Bell X-1 (first to exceed the speed of sound), as well as Alan Shepard's Freedom 7, John Glenn's Friendship 7, and the Apollo 11 Command Module, Columbia, to name a few.

To demonstrate and exhibit technological progress, the Museum can choose from simple rotary engines built at the turn of the century to the huge Saturn F-1 engine which produces 1 1/2 million pounds of thrust. This collection of aeronautical and aerospace items, the finest in the world, must have a new Museum to be displayed properly to the public.

This building, in addition to being a showcase for historic machines, will also encompass a wide variety of exhibits concerned with the new science and technology of the Space age. The public will be able to see gathered together under one roof, for the first time, an explanation of how man has used a broad range of disciplines to achieve flight, and how he may extrapolate these into the future. The impact of flight upon our environment and our culture will

be investigated and exhibited to the public using the latest multi-media techniques. A planetarium chamber will be included, but in addition to viewing the conventional star show, the visitor will be able to "travel" through space to the surface of the moon or the planets. Another important adjunct will be the Historical Research Center, providing not only an aerospace library and film center, but facilities for research scholars as well. This center will make available the Museum's vast resources of photographs, drawings, technical manuals, films, and other documentary and archival materials.

During a Symposium on the National Air and Space Museum held on January 18, 1971, Senator Barry Goldwater, Dr. Wernher von Braun, Congressman Frank T. Bow, and Congressman James G. Fulton jointly proposed the following resolution be presented to the Board of Regents of the Smithsonian Institution:

- That the Smithsonian Institution should press for construction of the authorized National Air and Space Museum Building;
- That a study of changes in the original approved design should be undertaken immediately in order to determine the feasibility of lowering construction costs;
- That a firm date of July 4, 1976 should be established for the opening of the new museum building as a major element of the Smithsonian Institution's contribution to the commemoration of the Bicentennial of the American Revolution;
- That consideration be given to constructing a major underground parking facility beneath the Mall in order to alleviate the increasing problem of automobile parking in the vicinity of the Mall;
- That consideration of the joint venture by the National Park Service and private capital be explored. This action would complement the requirement for parking facilities as a significant factor in construction of the National Air and Space Museum.

In consideration of the rising costs of the building and the increased public interest in air and space activities, an appropriation of \$1,900,000 for planning and redesign, and for the specifying of programs, facilities, and installations was approved by the Congress for FY 1972. With the splendid cooperation of the General Services Administration, the firm of Hellmuth, Obata, and Kassabaum, Inc. has been selected and the redesign is underway using the latest design, construction, and exhibit techniques to lower the cost of the building to \$40 million without sacrificing the intent of the building to serve as a great center, on the Mall, for public education and enjoyment and scholarly research. This is the same architectural firm that performed the original design. Based on their familiarity with program needs, it is anticipated that the redesign will proceed quickly and that the award of a construction contract will be possible in mid- FY 1973. An appropriation of \$40 million is requested in FY 1973 to meet this construction schedule and permit the Museum to be opened by July 4, 1976.

CONSTRUCTION
BICENTENNIAL PARK PLANNING

FY 1971 Appropriation.....	\$	0
FY 1972 Appropriation.....	\$	0
FY 1973 Estimate.....		\$275,000

Approval of now-pending legislation (S. 2153 and H.R. 10311) would authorize establishment of Bicentennial Park at two federally-owned sites on the Potomac--Fort Foote in Prince George's County, Maryland, and Jones Point, on the southern edge of the city of Alexandria, Virginia. Pending legislation also would authorize formal negotiations with the Department of the Interior for joint use of these sites, which have been offered informally for such use.

Preliminary planning for Bicentennial Park initially embraces development of facilities at Fort Foote Park having special significance to the national observance of the 200th anniversary of the American Revolution. These facilities would include a modest visitor center, parking areas, a parade ground, a continental encampment, a palisaded fort, a naval ordnance park, and a boat landing. Additional details are provided in the booklet Smithsonian Institution: American Revolution Bicentennial Programs 1971-1976 submitted as a supplement to this budget.

It is essential that the above facilities be completed so as to be in full operation, open to the public, on July 1, 1976. Comprehensive, detailed construction planning should be sufficiently well advanced by the close of FY 1973 to insure adequate time for actual construction during FY 1974-1975 to meet the planned opening date. Approximately \$3,000,000 will be required for construction.

It is estimated that funds in the amount of \$275,000 will be required to cover the costs of construction planning during FY 1973.

CONSTRUCTION
NATIONAL MUSEUM OF NATURAL HISTORY RESEARCH CENTER PLANNING

1971 Appropriation.....\$	0
1972 Appropriation.....\$	0
1973 Estimate \$	500,000

By 1967, the research collections of the National Museum of Natural History and its staff of scientists engaged in research based on the collections had outgrown the space designed for this program in the Natural History Building on the Mall (despite the two wings added to the original building during the early 1960's). Since then the collections of scientific specimens have continued to grow, of necessity. Public exhibition halls have been converted to provide collections and personnel space, and the collections have spread into stairwells and corridors. Working conditions are intolerably poor and the crowded conditions of the collections are wasteful of the time of the staff scientists and of the visiting scholars who use the collections for research, for identification, and for other practical services to biologists, ecologists, and resource planners in Federal, state, and private agencies throughout the country and the world.

By far the largest collections and programs involved are those of the systematic and taxonomic sciences, which are increasingly employed in the studies, training, and planning for a better environment. In a report to the National Science Foundation by the Conference of Directors of Systematic Collections, January 1971 (The Systematic Biology Collections of the United States: An Essential Resource), it is said,

"The health of the world ecosystem depends squarely on keeping as much diversity in the natural world as we possibly can. Because knowledge of the kinds of creatures in our world is fundamental to real understanding of their interaction, the great specimen collections are the very cornerstones to studying, comprehending, and living within the world ecosystem. This nation must recognize the critical character of this absolutely essential national resource---and---support its maintenance and use."

In the past, elements of the Smithsonian systematics program have been separated and relocated but this has proved detrimental to the unified and cross-disciplinary functioning of the work. All experience points to the need to provide facilities to accommodate all of the interlocking elements of the program in one place with room to develop the capability to meet the growing demands for national services. It is not possible or indeed desirable to provide additional space for these collections and programs on the Mall. The Mall facilities should be developed for maximum service to the accelerating public attendance in the exhibition buildings.

In 1968, the Board of Regents of the Smithsonian Institution approved the submission to the Congress of proposed legislation to authorize the planning and construction of support and depository facilities. The bill introduced by Senators Anderson, Fulbright and Scott was passed, with amendments, by the Senate on July 17, 1970. This legislation as passed by the Senate is in process of being reintroduced in the 92nd Congress.

In anticipation of the enactment of the legislation to authorize funds for preliminary planning and design, request is made for \$500,000 estimated to be required for the preliminary planning and design of adequate and efficient facilities for the research collections and research programs of the Natural History Museum and for related biological and environmental functions of the Smithsonian. Included will be site development master plan, initial phase planning, construction management capability, and detailing of objectives and plans for long-term use of resulting Mall space.

For preliminary planning of facilities for the National Museum of Natural History Research Center and related studies of Smithsonian space utilization:

Contractual services to conduct studies and prepare a detailed report on the requirements for the research programs of the National Museum of Natural History and related programs of biological and environmental research and services of the Smithsonian Institution.	\$55,000
--	----------

Contractual services to accomplish a construction management capability to assure most efficient and economical project accomplishment; contractual services to develop a long-term site development and utilization plan for the project site; and contractual services for architectural studies of systems of buildings and construction to meet the requirements of programs and to prepare plans of initial construction phases.	390,000
---	---------

Contractual services for studies of options to expand the scope of exhibits, conservation and public service programs in the Natural History Building including the most effective approaches to exhibits to promote the public understanding of science and of our surroundings.	<u>55,000</u>
	\$500,000

SMITHSONIAN INSTITUTION LIBRARIES



3 9088 01683 0705