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Senate Hearings

Before the Committee on Appropriations

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Department of the Interior and Related Agencies Appropriations

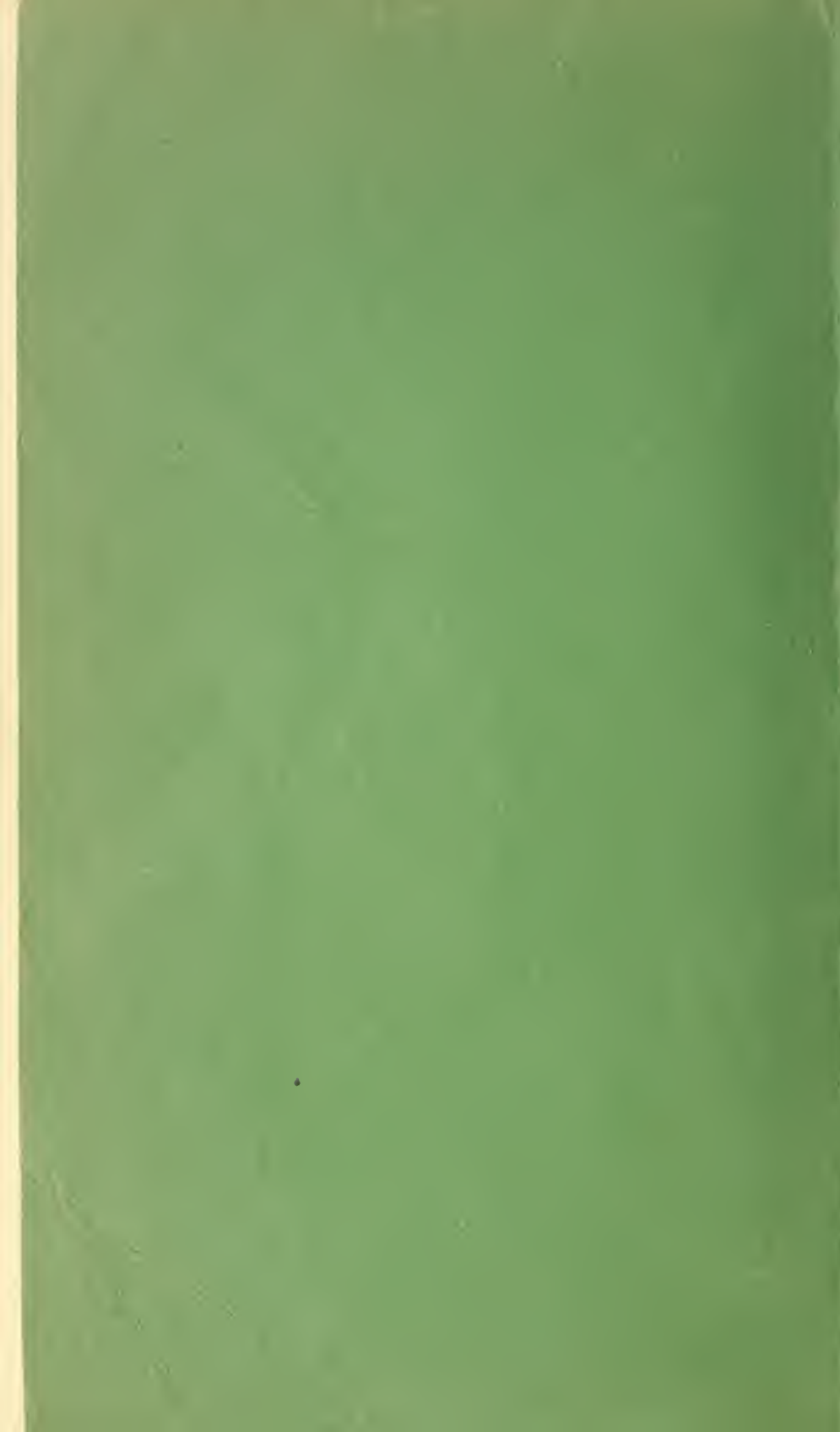
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TUESDAY, MARCH 12, 1968.

SMITHSONIAN INSTITUTION

STATEMENT OF S. DILLON RIPLEY, SECRETARY

ACCOMPANIED BY:

JAMES BRADLEY, ASSISTANT SECRETARY

SIDNEY R. GALLER, ASSISTANT SECRETARY (SCIENCE)

CHARLES BLITZER, ASSISTANT SECRETARY (HISTORY AND ART)

WILLIAM W. WARNER, DIRECTOR OF INTERNATIONAL ACTIVITIES

T. AMES WHEELER, TREASURER

EDWARD H. KOHN, DIRECTOR, OFFICE OF PROGRAMING AND BUDGET

PREPARED STATEMENT

Chairman HAYDEN. We will next hear from the Smithsonian Institution.

Mr. RIPLEY. Good morning, Mr. Chairman.

I would like to introduce Mr. Bradley, Assistant Secretary; Dr. Galler, Assistant Secretary for Science; Mr. Blitzer, Assistant Secretary for History and Art; Mr. Warner; Mr. Wheeler, and Mr. Kohn—all members of the Smithsonian party this morning.

Chairman HAYDEN. Good morning. There will be placed in the record the general statement submitted with the budget justification of the Smithsonian Institution, together with a number of other statements containing information about the Smithsonian.

(The statements follow:)

GENERAL STATEMENT

The Smithsonian Institution is devoted to public education, basic research, and national service in science, learning, and the arts. The Institution, with its wide array of research and education facilities for both the scholar and the general public, is richly endowed with many of the resources that can create a fuller and more meaningful life for the American people. The Smithsonian for well over a century has been concerned with the nature of man, the organization of life, and the nature of the physical universe in dedication to the high purposes of its founder.

The Institution maintains public exhibits representative of the arts, American history, the sciences and technologies; preserves for reference and study purposes 60 million of valuable objects of scientific, cultural, and historic interest; conducts research in the natural and physical sciences and in the history of cultures, technology, and the arts in the United States and in many foreign countries; and participates in the international exchange of scientific literature and art. The Smithsonian is also responsible for an extensive program of classification and study of marine organisms collected in connection with the Government's expanded oceanographic program.

The Institution administers 3 museums, 5 scientific programs, 4 art galleries, the Armed Forces Museum Advisory Board, and associated international programs. It is responsible for the operation and maintenance of 7 main exhibition buildings: the Astrophysical Observatory in Cambridge, Massachusetts; the Tropical Research Institute in the Canal Zone; the River Basin Surveys in Lincoln, Nebraska; and 7 other research, storage and service facilities.

Recognizing the need for the most rigorous economy in this difficult year, the Smithsonian Institution has limited its request for increased appropriations to the bare minimum required for the effective discharge of its present commitments. Under the "Salaries and Expenses" appropriation, which finances the continuing operations of the Smithsonian, funds are sought in the amount of \$27,130,000, an increase of \$2,745,000, including \$741,000 for pay increases.

Throughout the Smithsonian, austerity has been the key word underlying the conduct of our operations. Our component bureaus have responded fully with carefully developed economy plans. Many programs and activities of national value and for which strong demand and core capability exist are being deferred in the face of current national priorities. Through a careful and continuing study of the Institution's operation we have sought to make the best possible use of our existing resources. We have requested increases only in those cases where modest additional funds can lead to substantially greater benefits for those who look to the Smithsonian for information and for enlightenment. We seek to safeguard the many years of Public investment of funds into professional, collection, and exhibits resources by those increases that will keep these resources from eroding at a time when interest and need for their effective use grows. In short, we have sought to achieve the true economy that consists in getting the most out of what we have.

In pursuing this goal, we have relied upon three primary strategies.

The first consists of providing more nearly adequate support and facilities for our research staff in order that they may be free to do the work for which they are being paid. It is uneconomical for a scientist who is being paid \$15,000 a year to spend his time on routine tasks that could be performed by a technician earning one-third of his salary. It is uneconomical, in an even larger sense, to pay the salary of this scientist when the results of his research cannot be made available because of the lack of a typist or of adequate publication funds.

Our second strategy is designed to ensure the greatest possible use of the priceless collections of the Smithsonian by scholars, scientists, and students from other institutions of learning and from Government agencies. Only when collections are properly cared for and cataloged can they be effectively used. A deteriorating collection or a disorganized collection of unidentified objects represents a wasted investment of time, space, and money. The Smithsonian is responsible for ensuring that the collections entrusted to its care will be used as intensively and as extensively as possible.

To illustrate with but one continuing area of responsibility, the national biological collections and staff of experts of the Smithsonian may be viewed as an intelligence bastion on the environmental battlefield, where prey and predator are identified. In striving for adequate support we are not seeking expansion—nor reduced burdens on our professional staff, but simply the means to carry out effectively this urgent task that only the Smithsonian can do.

Our third strategy consists in achieving the most effective use of all the Institution's resources for public enlightenment through exhibition. The Institution's collections, its staff of scholars and scientists, and its highly specialized and skilled exhibits staff give it an unparalleled capability in the field of visual education and communication. The millions of visitors to our museums on the Mall are the immediate beneficiaries of this capability, and their very numbers make the cost of our exhibits per-visitor gratifyingly small. Nevertheless, it is clear that through modest additional expenditures this same capability can be extended to a far wider audience, reducing still further the cost per viewer, while at the same time involving citizens who in the past have not been reached

because of geographical remoteness or cultural deprivation. Again, this is an area in which we are persuaded that modest amounts will greatly increase the return on the funds presently invested in our exhibition program.

New museum and gallery exhibition programs that have been authorized and are in preparation are less than proportionate to the increasing visitor flow. Seven million visitors in 1959, 15 million in 1968, and 20 million projected for 1972, describe a climbing workload for the Smithsonian that we must accommodate. A substantial majority of all visitors to the Nation's Capital seek out the Smithsonian's Museums and Galleries for enlightenment and education on their National cultural, historical, and scientific heritage.

The visitor flow can be expected to accelerate further with the Commemoration of the Bicentennial of the American Revolution. We seek increased funds in order to provide for this need with adequate lead-time.

Numerous program needs have been sacrificed. To list but a few, we have deferred from seeking adequate support for the following valued activities:

Museum guide program; training of museum technicians; support to national museums; traveling exhibits program; maintaining our permanent exhibits schedules; development of historic studies capability; revitalizing current exhibits of National Air and Space Museum, and progressing on full development of exhibits for its future building; launching the development of the National Armed Forces Museum; meeting the demand for adequate growth for the International Art Program and for the development of exhibits for the Renwick Gallery; a second Neighborhood Museum; increased visiting research appointments; collaborative dollar support programs for American research programs abroad; the full scale of modernization programs in central services that, through automatic data processing, could yield future economies. The National Collection of Fine Arts and the National Portrait Gallery programs have been scaled down. The National Portrait Gallery opening was deferred into fiscal year 1969. In countless areas the contributions of the professional staffs have been constrained and limited as have the more effective and creative use by others of our collective resources.

Our request for construction funding for the restoration and renovation of existing buildings has been scaled down to one-fifth of the present need, 40% less than the 1967 level. It is necessary that we defer on projects affecting the direct comfort of millions of visitors. Only severe public and work area problems can be rectified within the amounts requested.

At the National Zoological Park execution of the improvement program is being deferred in the current year and in 1969. Authorized projects totaling 4.5 million dollars have been deferred. In 1969 funds are sought only to assure planning continuity, rectify an air pollution problem and remedy the serious deterioration of public walks and roadways.

Construction of the National Air and Space Museum has been authorized by the Congress, plans have been completed, but we are withholding a request for construction funding in deference to economy requirements.

Construction funding for the Joseph H. Hirshhorn Museum and Sculpture Garden is sought to house the gift to the nation of this priceless collection of paintings and sculpture that has been valued at upward of \$50,000,000. On May 17, 1966, the Congress did enact legislation to authorize acceptance of this great gift under the terms that necessary appropriations be obtained before the end of the 90th Congress. The Congress has appropriated \$803,000 for planning which is being completed on schedule.

Provision has been made in the 1969 estimates of appropriations for an expanded Special Foreign Currency Program to accommodate the strong interests of American institutions in the conduct of biological and historical projects overseas through the advantageous use of foreign currencies. Since this program contributes in no way to the balance of payments concerns, it assumes proportionately greater importance as an alternative to the conduct of highly valuable studies with dollar resources.

SALARIES AND EXPENSES

REPORT ON THE NUMBER OF PERMANENT POSITIONS BY ORGANIZATION UNIT

	1967 actual	1968 estimate	1969 estimate	Increase 1969 over 1968
U.S. National Museum.....	204	206	219	13
Museum of History and Technology.....	152	152	155	3
Museum of Natural History.....	253	263	271	8
National Air and Space Museum.....	37	41	44	3
National Armed Forces Museum Advisory Board.....	7	7	7	0
Freer Gallery of Art.....	5	6	7	1
National Collection of Fine Arts.....	45	57	62	5
National Portrait Gallery.....	19	27	31	4
Joseph H. Hirshhorn Museum and Sculpture Garden.....	0	3	5	2
Smithsonian Astrophysical Observatory.....	51	53	56	3
Smithsonian Tropical Research Institute.....	21	21	29	8
Radiation Biology Laboratory.....	25	31	36	5
Office of Ecology.....	5	5	8	3
Office of Oceanography and Limnology.....	18	18	26	8
Buildings Management Department.....	723	799	845	46
Office of Education and Training.....	10	13	17	4
International activities.....	15	15	18	3
Administrative and central services.....	202	229	261	32
Grand total.....	1,792	1,946	2,097	151

REPORT OF OBLIGATIONS BY OBJECTS

	1967 actual	1968 estimate	1969 estimate	Increase or decrease (-) 1969 over 1968
11 Personnel compensation.....	\$13,856,000	\$15,195,000	\$16,563,000	\$1,368,000
12 Personnel benefits.....	1,005,000	1,119,000	1,243,000	124,000
21 Travel and transportation of persons.....	233,000	263,000	312,000	49,000
22 Transportation of things.....	165,000	135,000	169,000	34,000
23 Rent, communications, and utilities.....	1,317,000	1,427,000	1,648,000	221,000
24 Printing and reproduction.....	458,000	480,000	562,000	82,000
25 Other services.....	2,968,000	3,299,000	3,742,000	443,000
26 Supplies and materials.....	908,000	894,000	1,036,000	142,000
31 Equipment.....	1,777,000	1,572,000	1,850,000	278,000
42 Insurance claims and indemnities.....	0	1,000	5,000	4,000
Total obligations.....	22,688,000	24,385,000	27,130,000	2,745,000
Appropriation adjustments:				
Receipts and reimbursements from Federal funds....	-32,000	0	0	0
Unobligated balance lapsing.....	+42,000	0	0	0
Appropriation or estimate.....	22,699,000	24,385,000	27,130,000	2,745,000

¹ Includes anticipated supplemental of \$472,000.

EXHIBITS PROGRAM, MUSEUM OF HISTORY AND TECHNOLOGY, FISCAL YEARS 1967 THROUGH 1969

A. Halls Installed and Opened to the Public as of June 30, 1967:

1. Flag Hall
2. First Ladies Hall
 - Everyday Life in the American Past :
3. 17th Century Furnishings
4. 18th and 19th Century Furnishings
5. Historic Americans
6. American Costume
7. Light Machinery (Timekeeping, Typewriters, Phonographs, and Locks)
8. Tools
9. Farm Machinery
10. Autos and Coaches (partial)
11. Railroads
12. Temporary Exhibits Gallery (first floor)
13. Civil Engineering (Bridges and Tunnels)
14. Watercraft
15. Philately and Postal History
16. Glass
17. Graphic Arts: Hand Processes
18. Graphic Arts: Photomechanical Processes
19. Graphic Arts Salon
20. and 21. History of the Armed Forces I (through Civil War)

EXHIBITS PROGRAM, MUSEUM OF HISTORY AND TECHNOLOGY, FISCAL YEARS 1967
THROUGH 1969—Continued

- A. *Halls Installed and Opened to the Public as of June 30, 1967*—Continued
22. Ordnance, and the gunboat Philadelphia
 23. Special Exhibits (third floor)
 24. Medicine, Dentistry, and Pharmacy (Medical Sciences)
 25. Physics
 26. Ceramics
 27. Electricity I
 28. Heavy Machinery
 29. Petroleum
 30. and 31. Growth of the United States (through 1851)
 32. Numismatics
- B. *Additional Halls To Be Installed and Opened to the Public by June 30, 1969:*
1. Textiles
 2. Electricity II
 3. Armed Forces, III

RENOVATION OF EXHIBITS

In 1969 the Smithsonian will continue its program of revitalizing the exhibits in the Museum of Natural History.

- A. *Completed and Opened to the Public in 1967:*
1. Osteology Hall
 2. Meteorite Section of Physical Geology Hall
- B. *Halls to be Completed and Opened to the Public by the End of 1968:*
1. Peoples of Asia and Africa Hall (Completion)
 2. Anthropology Halls—Refurbishing 125 exhibits units
- C. *Construction Partially Completed by the End of 1968:*
1. Fish Section of Cold-blooded Vertebrates Hall
 2. Physical Geology Hall
 3. Life in the Sea
- D. During 1968, drawings for the Hall of Insects will be partially completed and contracts will be awarded for certain individual cases and units for this hall.
- E. During 1969, contract will be awarded for the Hall of Insects, and the production work will begin on the Hall of Ice Age Mammals.

TEMPORARY AND SPECIAL EXHIBITS, FISCAL YEARS 1968 AND 1969

FISCAL YEAR 1968

Early Chicago Architecture	Tuculescu's Paintings
Copp Textiles	Metal (Germany)
Photography and the City	Contemporary Art (Armed Forces)
Presidents' Pastimes	Rhode Island
Alexander Graham Bell	Childrens Art Show (Nat'l. Library Week)
Slavery Exhibit Part I	Encyclopedia Britannica
A Panorama on the Arts and Crafts	Political Cartoons
Tunisian Mosaics	Glass Cup Plates
Peruvian Silver	Townshend Act
Mexican Prints	Naval Paintings (American Revolution)
Recent Acquisitions	Florida Art
History of Computers	N.C.F.A. Special Exhibit
Trotters	Vanishing Species
Railroad Photography	Brazilia—Children's Art
Halem Ceramics	12 Days of Christmas
Danish Glass	History of American Organs
Colonial Art of Ecuador	
English Architectural Prints	

FISCAL YEAR 1969

Political Campaigning	Berlandier Show
Warsaw Exhibit	Art Forms in Biology
Costume Prints	Laser Technology
Slavery Exhibit, Part II	Commodore Peary
N.P.G. Special Exhibit	The Concerned Photographer
American Medallie Art	

GRANTS TO THE SMITHSONIAN INSTITUTION, FISCAL YEAR 1967

Granting agency	Title of grant	Actual amount
Department of Defense	Ecology of tropical delta forest	\$85,000
	Miscellaneous	24,000
Total, Department of Defense		109,000
National Aeronautics and Space Administration	Study of meteorites	40,000
	Satellite tracking program	6,880,000
	Prairie Network	202,300
	Miscellaneous small grants	72,000
Total, National Aeronautics and Space Administration		7,194,300
National Science Foundation	Undergraduate research program	29,000
	Observation of comets	15,000
	Antarctic biology	42,000
	Neotropical phanerogams	31,000
	Joseph Henry papers	60,000
Total, National Science Foundation		197,000
Department of Health, Education, and Welfare	Information storage and retrieval system	292,927
Total grants, fiscal year 1967		7,793,227

RESEARCH BY THE SMITHSONIAN INSTITUTION ON CONTRACTS, FISCAL YEAR 1967

Contracting agency	Research field	Actual amount
Atomic Energy Commission	Plant physiology	\$90,000
Department of Defense	Astrophysics	50,000
	Zoology	250,000
	Ecology	82,000
	Miscellaneous	90,000
Total, Department of Defense		472,000
National Science Foundation	Science Information Exchange	2,160,000
	Miscellaneous	256,000
Total, National Science Foundation		2,416,000
National Aeronautics and Space Administration	Celescope	2,500,000
	Miscellaneous	120,000
Total, National Aeronautics and Space Administration		2,620,000
Department of Health, Education, and Welfare	Zoology	90,000
Department of the Interior	Miscellaneous	56,000
Total, research contracts, fiscal year 1967		5,744,000

GRANTS TO THE SMITHSONIAN INSTITUTION, FISCAL YEAR 1968

	Estimated amount
Granting agency and title of grant:	
National Aeronautics and Space Administration:	
Study of meteorites	\$68,000
Satellite tracking program	5,000,000
Miscellaneous small grants	300,000
Total, National Aeronautics and Space Administration	5,368,000
Department of Health, Education, and Welfare, miscellaneous grants	250,000
National Science Foundation, estimated miscellaneous grants	50,000
Total grants, fiscal year 1968	5,668,000

RESEARCH BY THE SMITHSONIAN INSTITUTION ON CONTRACTS, FISCAL YEAR 1968

	Estimated amount
Contracting agency and research field:	
Atomic Energy Commission, plant physiology	\$90,000
Department of Defense, various research projects	650,000
National Science Foundation, Science Information Exchange	2,000,000
National Aeronautics and Space Administration, astrophysics	4,000,000
Total research contracts, fiscal year 1968	6,740,000

SCHEDULE OF BUILDING PROJECTS

	Fiscal year								
	1962	1963	1964	1965	1966	1967	1968	1969	1970
Remodeling of Civil Service Commission building (for art galleries).	Planning appropriations received, \$400,000.		Appropriations received, \$3,463,000.	Appropriations received, \$1,000,000.		April 1967 completion.	May 1968 opening (N.C.F.A.).	September 1968 opening (N.P.G.).	
			Planning appropriations received, \$511,000.	Remainder of planning appropriations received, \$1,364,000.					
National Air and Space Museum building.									Request construction appropriation, \$44,300,000.
Construction and improvements, National Zoological Park.	Planning appropriations received (District of Columbia) \$85,000.	Appropriations received, \$1,275,000.	Appropriations received, \$1,275,000.	Appropriations received, \$1,525,000.	Appropriations received, \$1,539,000.	Appropriations received, \$1,589,000.	Appropriations received, \$400,000.	Appropriations requested, \$660,000.	Request appropriations for continuing program.
Restoration and renovation of buildings.					Appropriations received, \$2,248,000.	Appropriations received, \$2,300,000.	Appropriations received, \$1,125,000.	Appropriations requested, \$1,200,000.	Request appropriation for additional renovation.
								Scheduled to be under construction.	
Joseph H. Hirshhorn, Museum and Sculpture Garden.							Planning appropriations requested, \$803,000.	Request construction appropriations \$14,197,000.	

HIGHLIGHTS OF APPROPRIATION REQUEST

Chairman HAYDEN. Mr. Ripley, would you please file your written statement for the record, and then summarize it for the committee?

MR. RIPLEY. Thank you, sir. Yes. I have a statement prepared which we are handing in, sir, and I would like to speak to it very briefly if I may.

(The statement follows:)

Let me say first that I am grateful to the Committee for its strong support of our programs in the past. And let me express the hope that we will continue to earn your support in the future.

During the current year, with funds recommended by this Committee, we have continued the pursuit of knowledge and the education of the public. We have opened the doors of our museums and art galleries to fifteen million visitors, coming from every point in the country.

Behind the halls of public educational exhibits, we have pursued research in natural history, in astrophysics, in art, and in our national cultural history, and in technology. The results of these diversified yet integrated research programs are recognized as unique contributions of our Institution. The Smithsonian's goal is to work assiduously in those interconnecting areas where one discipline meets another.

The theme of our budget presentation this year is, as it must be at a time of National austerity, the continuing effort of the Smithsonian Institution to get the greatest possible return for every dollar we spend. It is essential that we consolidate what we have and seek the most economical way of meeting our standing obligations.

The most dramatic illustration of this principle—but one that is perhaps so obvious that we often lose sight of it—is to be found in the literally priceless National Collections of the Smithsonian. These collections, ranging from priceless gems and great works of art to historic treasures of our nation's past and the most sophisticated products of modern technology, have very largely been amassed through gifts and contributions for the benefit of all our people. The continuing ability of the Smithsonian to attract such gifts depends upon our capacity to care for and exhibit them.

In 1966, Joseph H. Hirshhorn offered to the United States of America through the Smithsonian his magnificent collection of sculpture, paintings and drawings—a private collection without parallel in the world. The Committee will recall that the Congress in 1966 authorized the acceptance of the Hirshhorn collection. At the time this gift was ranked in importance with the bequest of James Smithson which led to the establishment of the Institution itself in 1846; with William Corcoran's founding of the Corcoran Gallery in 1859; with Charles Freer's donation of his collection and the gallery which opened in 1922; and with the gift of Andrew Mellon which was accepted for the National Gallery of Art in 1937. Now we have the gift of Joseph H. Hirshhorn of his collection, valued conservatively at over \$40,000,000 with constant accretions.

I believe the Committee will recall that the terms of the gift require that we obtain the authorizing legislation—which has been enacted by the Congress—and the appropriation for the construction of the museum and sculpture garden by the end of this Session of the 90th Congress.

The appropriation of these construction funds will represent the final action of a series of approvals already enacted by the Congress. The Congress has enacted legislation to provide the site on the Mall for the building and the sculpture garden and has provided the necessary authority for the appropriation of construction and operating funds. The Congress has authorized the Secretary of the Army to construct an addition to the existing Headquarters of the Armed Forces Institute of Pathology at Walter Reed Hospital so that the existing Medical Museum of Pathology may be relocated and thereby clear the Mall site for this museum. Funds have been appropriated by the Congress to the Army for the construction of the Pathology Addition. Funds have been appropriated for the preparation of contract drawings and specifications for the Hirshhorn Museum, and architectural planning is well underway.

The Committee may recall that the Smithsonian's opportunity to obtain this valuable collection on behalf of the American people is the basis for our urgent

request for construction funds at this time. Now we have reached the moment when construction must be initiated in order to meet the terms of the gift so that the agreement will not be nullified.

The same pattern of acquiring precious collections for the Nation has been happily illustrated during the last year in the case of the National Collection of Fine Arts. This collection has suddenly and dramatically come to life as a result of the impending opening of its handsome gallery—the first it has ever possessed. As the opening date has approached, so the rate of gifts to the collection has accelerated. The donation of the Johnson Wax collection of American paintings valued at \$1,000,000, is the most impressive instance, but it is in fact only one among many gifts that have begun to come to the National Collection of Fine Arts.

I am persuaded that the same thing will happen with the fledgling National Portrait Gallery when it opens to the public in the autumn. Although in the case of both galleries we have curtailed our original plans in order to live within the funds made available to us—curtailments that have involved the postponement of the planned opening of various exhibition spaces—the important fact is that within a few months the National Collection and the Portrait Gallery will be visibly and palpably there as evidence of the fulfillment of a national commitment of long standing. I have no doubt whatever that these two bureaus, like our others, will increasingly benefit from the generosity of individuals and corporations and foundations and will soon possess collections worth many times over the amount that we spend on them.

I think it is appropriate also in these times that I remind you of the extent to which the Smithsonian Institution has been able to support its activities from sources other than this Committee. We are proud of the efforts that have resulted in a grant of some quarter of a million dollars to assist in our experiments with automatic data processing for our collections. We are proud of the efforts that have produced nearly a hundred-thousand dollars of private funds to support the experimental year of our Anacostia Neighborhood Museum. We are proud of the efforts that bring to our Astrophysical Observatory some \$9,000,000 a year. We are proud of these efforts, and others like them, not only because they enable us to accomplish things that we could not otherwise do, but also because they represent the most tangible kind of evidence of the confidence and esteem which we have earned over the years. We are proud, in short, that foundations and Government agencies and individuals believe that we are able to perform imaginatively and effectively and are willing to back up their belief with money.

The construction program this year has been slowed but not stopped. The long-range improvement program at the National Zoological Park has continued at a much lower level of expenditure. Planning has been substantially completed for the National Air and Space Museum but construction is deferred, and naturally much momentum has been lost. The design drawings are well underway for the Hirshhorn Museum and we count on your necessary support for this undertaking. In a smaller way we plan to start work on the restoration of the classic and unique Smithsonian Institution building. I am pleased to report as well that restoration is progressing satisfactorily at the Renwick Gallery, across Pennsylvania Avenue from the White House.

Turning now to the request for fiscal year 1969, allow me to say that I fully recognize the budgetary pressures placed on the Congress by international events. In asking for a total increase of \$20,158,000, I ask the Committee to bear in mind two considerations:

(1) \$14,197,000 of the increase is sought for the construction of the Hirshhorn Museum and \$3,684,000 for our foreign currency program of scientific research. The latter is, of course, totally financed by excess foreign currencies, which now assume increasing importance to the Smithsonian and indeed to all agency users in view of balance-of-payment problems.

(2) And, secondly, apart from these we have asked for increases only in those cases where modest additional funds can lead to substantially greater benefits for those who come to the Smithsonian for information and for enlightenment. In this period of economy, we are not asking for funds for many educational services to the public that would be fully justified in other circumstances, but which we must defer under these awesome conditions of threat to our measured aspirations.

The Foreign Currency Program has provided support in individual grants to universities or museums in 20 States across the Nation and in grants to university consortia, with memberships totalling over 200 academic institutions, for

essential research projects and field expeditions.* The recipient institutions have told us time and again that this support is vital to their research interests and unavailable from other sources.

The advantages to the United States in this kind of a program are substantial. It has provided measurable contributions to man's knowledge of his physical and cultural environments, opened up new avenues for exchange of information and artifacts between American and foreign museums, played a substantial role in launching the United States' contribution to the International Biological Program, and permitted the Smithsonian to carry out some of its own responsibilities, both National and international, at far less cost than could be done here. These are the bases for proceeding with this valuable program.

In our basic "Salaries and Expenses" appropriation we are asking for \$2,745,000 over the current level of \$24,385,000. This amount includes \$741,000 to meet increased pay costs for the present staff—increases over which the Institution has little or no control. Of the balance, an increase of \$436,000 will meet the requirements of providing minimum essential levels of maintenance and protection of additional public building space.

The growing National Collections of specimens and objects in natural sciences, history, and art that are entrusted to the Smithsonian are being sought for purposes of scholarship, research, and problem analysis by specialists and students from every State in the Union. To progress in meeting the need for access to and professional information on the National Collections, small increases in supporting staff are essential. We believe it to be of the highest necessity to improve the substandard levels of technical support for our scientists and curators in order that these valuable professionals can effectively pursue their responsibilities. For these needs, added funds in the amount of \$740,000 are sought.

To prepare for the Bicentennial Celebration of the American Revolution; to permit completion of the exhibits programs of the National Collection of Fine Arts and the National Portrait Gallery reduced by the present national stringency; to allow for adequate care of our heavily visited public exhibits; to continue the successful Neighborhood Museum experiment; and to engage in small-scale efforts to study and achieve the most effective use of all the Institution's resources for public enlightenment through exhibitions, an additional \$427,000 are sought for staff and services.

Associated costs in administrative support and a carefully phased effort to increase the effectiveness of central services, including the Smithsonian Libraries, the Press, and Information Systems, will require \$401,000.

It is our purpose to seek economy and to achieve the most effective performance of our objectives with present resources. The increases I have outlined are all consistent with this purpose. I might illustrate with reference to one area. The Committee has most generously responded to recognition of the important role of the electronic computer in the handling of great volumes of information, such as that in the National Collections of over 52 million objects. With funds appropriated in 1968 and with collaborative financing from the Office of Education, progress is being made at the Smithsonian to adapt the computer to the storage and retrieval of data on these collections. We believe that the research being conducted on information systems will enable us to investigate the base of much of our cost structure for maintaining the National Collections. Research in this area, if really promising, should have Government-wide repercussions. We believe that this is what the Smithsonian Institution should pioneer in. In addition of course this system will inevitably aid the documentation of scientific and historical data on collections not only at the Smithsonian but in other museums throughout the world.

In closing, I would like to explain that we have deferred a number of proposals in recognition of the budgetary limitations of these times.

In the United States National Museum, we are curtailing our services to other museums throughout the country in training programs and informational services just as the pressure is mounting to service them. In the National Air and Space Museum we have deferred requesting funds for the organization of documents and for the care of present exhibitions. In the National Collection of Fine Arts, we are proceeding with the most stringent economy for the public opening in the Spring of this year. When strengthened with the complementary collections and public service of the Renwick Gallery and the Cooper Union Museum, we hope that the National Collection of Fine Arts can in future years

*List attached.

serve the nation in art education and appreciation as intended by its century old statutory charter.

At the Smithsonian Astrophysical Observatory, we are proceeding in accordance with a 10-year program of research which has been presented to the Committee each year for the past three years. This shows a level of approximately two million dollars in direct appropriations. I should mention that as a measure of our collaboration with other agencies, we are receiving approximately nine million dollars for collaborative research from NASA, the Department of Defense, and other Federal agencies. The Astrophysical Observatory is in professional collaboration with Harvard University, MIT, and the Lincoln Laboratory, together with a number of other New England universities, in studies of the most efficient development of a large-diameter antenna for radio astronomy. We plan that this research instrument will be funded by others than the Smithsonian.

The Smithsonian Tropical Research Institute centered at Barro Colorado Island was the subject of a directive from the House Subcommittee last year. In response to that directive, we have assembled an *ad hoc* committee of leading biologists from Harvard, Princeton, University of Maryland, and Rockefeller University to review and advise on the research and services of the Institute. To implement their unanimous recommendations, we have applied our best management effort to assure that the present competence, originality, and productivity of the Institute's research staff can be nourished in the face of scarcity of funds and growing demands for service. This unique center for research in tropical biology should be strengthened with small additions to staff and to physical facilities in order to continue its contributions to knowledge and its services to visiting scientists and specialists.

STRI is, after all, the only facility fully available to United States scientists to use in pursuing basic scientific research in American tropics.

During 1967, 274 scientists, specialists, and predoctoral students were assisted for work periods at STRI out of the many more requesting accommodation. This figure is significant in that it demonstrates the increasing interest in tropical environments. It is also a reflection on the development in the past several years of an excellent resident core of young but highly regarded marine and evolutionary biologists of doctorate level. Their intellectual and physical energies are exemplary. But they must gain additional support—and soon. This interest in turn reflects the increasing attention being given to the area for political and economic reasons.

United States Governmental groups, working toward an understanding of these factors, are working under a handicap unless they have available basic data concerning the environment in question. STRI remains at present the only continuing source of data on the biology and ecology of the area. It is essential not only for the Smithsonian but also the other Governmental agencies interested in the American tropics that this source of information be made more fully effective.

An example of how the basic information derived from research at STRI relate to specific problems in the information that has been gathered at STRI concerning the biological, physical, and chemical characteristics of the Atlantic and Pacific Oceans on either side of the Isthmus. If a sea-level canal should be cut through anywhere in the area, this information will be needed in assessing whether from the point of view of overall environmental economy, a sea-level canal can indeed be afforded.

In the related field of oceanography, we are conducting a sorting operation in one of the old buildings at the Washington Navy Yard. I know we could be of far greater value to the President's Marine Sciences Council, to universities, and to Federal agencies, who are studying food and other resources from the sea, if we had the capacity to provide additional services that are within our special competence. But for the present we must continue at a modest level, deferring all but minimal efforts to identify the key specimens collected in national marine expeditions by other agencies.

I am sure the Committee knows that a library is indispensable to the performance of our research. Through intensive recruiting, we have secured a highly

qualified librarian who is competently and diligently undertaking to increase the effectiveness of our library of 600,000 volumes. The Library needs to be re-catalogued but this, too, must largely be deferred.

A low-cost activity is underway in the field of ecology. Without asking for substantial appropriations, we are collaborating with Johns Hopkins and Maryland Universities in utilizing to the fullest possible advantage a natural habitat area which was in part bequeathed to the Institution and in part acquired through a grant from the Ford Foundation. Since its founding, the Smithsonian has contributed in this way to its search for knowledge and in the education of the public. We dedicate all of our own resources—material, financial, and intellectual—to the programs which are reviewed by this Committee.

As Dr. Philip Abelson, the editorial writer for "Science" magazine, and the renowned chemist of the Carnegie Institution has recently remarked, "the social instincts of man repeatedly lead to fads and fashions in research. . . . In considering priorities for support of research, we should recognize and weigh the desirability of maintaining at least minimal activity in all fundamental fields of science."¹

Mr. Chairman and Members of this Committee, we believe that in view of the war effort, our deferrals have brought us to the stage of demonstrating to you that indeed we are now at the minimal levels consistent with survival of our programs.

Your support is deeply appreciated.

AMERICAN INSTITUTIONS, INCLUDING CONSORTIA, AWARDED GRANTS UNDER
SMITHSONIAN FOREIGN CURRENCY PROGRAM

University of Pennsylvania
 University of Arizona
 American Schools of Oriental Research, Boston, Massachusetts (Includes
 140 American institutions in all parts of the country)
 University of Michigan
 Dumbarton Oaks Center for Byzantine Studies, Washington, D.C.
 Stanford University, Stanford, California
 American Anthropological Association, Washington, D.C.
 University of Washington
 University of Oregon
 University of Chicago
 University of Wisconsin
 Hebrew Union College, Cincinnati, Ohio (Includes 43 American institu-
 tions)
 Southern Methodist University, Dallas, Texas
 Yale University
 University of California, Berkeley
 Institute of Advanced Study, Princeton, N.J.
 University of Minnesota
 American Institute of Indian Studies, Philadelphia, Pa. (Includes 23
 American institutions)
 American Research Center in Egypt, Boston, Mass. (Includes 11 American
 institutions)
 University of Georgia
 National Academy of Sciences, Washington, D.C.
 American University in Cairo, New York, N.Y.
 University of Colorado
 Carnegie Museum, Pittsburgh, Pennsylvania
 University of Missouri
 Corning Museum
 Brooklyn Museum
 University of California, Los Angeles
 Harvard University
 Johns Hopkins University
 Smithsonian Institution

¹ Science, February 9, 1968, Vol. 159, p. 585.

BUDGETARY RESTRICTIONS

Mr. RIPLEY. This is a year in which we have fought a battle of the budget, and we have been most grateful for the cooperation we have received from your committee in the past, and look forward to continuing happy relations in the future.

During the current year we have continued our general program of trying to get the most for the dollar, trying to cut down, where possible, and trying to meet our commitments at the same time.

This has been an extremely difficult year for us, because we have had to absorb a major amount of mandatory salary increases, and we have also tried to keep up with the constant demands for the support for our own research which, due to various inflationary pressures, represent an increment of far more than 5 percent a year. When you employ scientists doing research, you find that you just can't help but have to give more every year, and we are in great competition for salaries. We have lost very, very good people this year due, purely, I think essentially, to the salary differentials. A man working for us in a scientific capacity getting perhaps \$20,000 has just left us for another job in a university at \$32,000.

This kind of pressure, while it is a measure of the good men we have, is a relentless problem for us.

CARE OF COLLECTIONS

We are particularly impressed this year by the problem of caring for our really priceless collections. So long as we can continue to attract important and valuable collections in the national interest, we feel we have to guard them, protect them, and treat them with the consideration that they deserve. We have to conserve them and much of our expense really is involved in the maintenance and keeping of these incredibly valuable collections, which continue to come to us through gifts, and which are of enormous importance to the Nation.

JOSEPH H. HIRSHHORN MUSEUM AND SCULPTURE GARDEN

In 1966, as you know, Senator, Joseph H. Hirshhorn offered the United States his collection. The conservative estimate of the value of this collection is now over \$40 million. It is the greatest art event which has happened since the Mellon gift and before that the Freer gift, and perhaps the original Smithsonian bequest.

It is of enormous importance for us, we feel, to live up to the agreement which Congress authorized, that we try and obtain the funds promised before the end of the 90th Congress.

Without that, we can't live with the agreement.

The appropriation of these construction funds will be the last action

required of the Congress. We would then have the building, we hope, complete in 1971, and prepared for an opening shortly thereafter.

We have already received money last year for the preparation of contract drawings and specifications. It is a beautiful building. I have shown a model of it to a number of Members of Congress, to Mrs. Johnson, and other officials.

I have a picture here which I thought perhaps you might like to see, Mr. Chairman, of the site, the round building in the foreground being the Hirshhorn gallery. Here is a closeup of it, and a view across the Mall shows us the circular pool in the area of the National Sculpture Garden, which we were just talking about in the National Gallery's testimony.

I think this will be quite an architectural triumph for Washington.

FINE ARTS AND PORTRAIT GALLERIES

We hope this spring to open the National Collection of Fine Arts in the newly restored and renovated F Street building, the old U.S. Patent Office, which was built in the 1850's and in its time was the largest building in Washington. It is a very beautiful building. Congress by legislation introduced by our Regents, very kindly gave us this building in 1958. Funds have been appropriated for a phased reconstruction program to prepare for an opening.

The gallery is to open this spring. Already, word of the gallery opening in advance has initiated some marvelous gifts. The Johnson Wax family of Wisconsin has given us a collection valued at over a million dollars to be incorporated in this new gallery, and exposure, we believe, in connection with an art gallery is of the greatest importance. Once the gallery is open, then the public becomes cognizant of it, and they will then proceed to do right by it, to give it gifts and to present objects for study and display. Just last week, for instance, I took a lady from New York through the galleries and, as a result, she suddenly said, "I have a little bust of Benjamin Franklin by Houdon, and I think I had better give it to you." Such a bust is valued at over \$100,000, conservatively, so this is quite a gift. And if we didn't have this building to show objects such as these, we wouldn't attract them, and we wouldn't get many of these things which we have been acquiring steadily. This kind of thing is of great importance.

We hope to open not only this fine arts gallery in May—and I hope you will come, Mr. Chairman—but also in the fall we hope to open the companion part, the National Portrait Gallery, which is also in the Fine Arts and Portrait Galleries Building. The National Portrait Gallery is almost ready to open. We hope to open it in October 1968, actually in fiscal year 1969.

PRIVATE FINANCIAL SUPPORT

We have been able to attract a steady level of private support for our activities. We are very proud of this. We feel that the record that we present to the Congress is enhanced if we can show that private sources are continuing to give us major support.

Over \$9 million of outside support has come to our Astrophysical Observatory. Over a quarter of a million dollars have come for the program in automatic data computing, which is of such interest, and which we have been talking to you and your committee about for several years now.

We feel that we can be pathfinders for the possessors of collections all across the Nation by innovating and modern techniques in data retrieval, and have been getting support. This is of great significance to us.

INCREASE BUDGET REQUESTS

Now, in regard to our budgetary requests for fiscal year 1969, Mr. Chairman, we are asking for a total increase of \$20,158,000. And of this, about \$17 million represent two items: On the one hand, \$14 million and some dollars are for the construction of the Hirshhorn Museum and, on the other hand, over \$3½ million are for an increase in the excess currency fund, the blocked currencies abroad.

This means that the remainder of our increase is relatively small. It is less than \$3 million. About one-fifth of this increase is for opening, maintaining, and protecting the Fine Arts and Portrait Galleries Building. Almost one-half is for managing the national collections and for preparations for the American Revolution Bicentennial celebration, and one-quarter is for built-in pay increases already legislated by the Congress.

PROTECTION OF WORKS

We have a very great need for custodial and guard work in our buildings management department, and, as I say, a substantial amount of our total request is in this area particularly for protection.

VANDALISM

Mr. Chairman, I thought you would be interested to see what happens. We have vandalism that occurs on important paintings. These photographs represent paintings of a total value of nearly half a million dollars. When these sorts of things happen, incredible amounts of work and time are expended. This painting itself, with chalk lines across the middle of it, is valued at \$200,000.

Chairman HAYDEN. Why in the world would anybody want to do this?

Mr. RIPLEY. Isn't that appalling?

We wouldn't be given things of this sort if we couldn't protect them, and if we can't protect them, then we won't get anything more like it. The amount of time and effort expended by our conservators trying to make up for hideous actions of this sort is incredible. We don't have the necessary staff to go around quickly patching up paintings or taking care of things we have lost.

LOSSES

We lost some Indian masks from the Western States—Oregon and Washington—Haida Indian masks which aren't made anymore. These fascinating anthropological masks were actually taken off figures in the exhibits.

Here is a tremendously graphic exhibit showing the world population increase since the birth of Christ. Somebody just came along and took one of the skulls, just like that. These skulls are irreplaceable.

And in this connection, when we open a gallery, we have things such as these on exhibit. If we are going to attract more exhibits for our national purposes—last year, as you know, we had about 14 million visitors from all over the Nation and abroad—it is absolutely essential that objects on display be safeguarded.

APPREHENSION OF THIEVES

Chairman HAYDEN. Have you had any luck in catching somebody who is doing this?

Mr. RIPLEY. Not so far. We haven't apprehended the thieves. We hope through the cooperation of the FBI we will eventually get some clue on their trying to sell valuable objects, particularly in the case of coins and so on. It is possible to apprehend these persons, but to date we haven't. These are perhaps acts of vandalism in which the people may well have thrown the stuff away afterward.

AMERICAN REVOLUTION BICENTENNIAL

We have certain small requests that we have tried to hold down to a minimum. One of them is for the preparation for the Bicentennial of the American Revolution scheduled in 1976, and for which we need to gradually increase our activities.

What we are doing is to prepare in stages for the vast celebrations that will culminate in that year.

REQUESTS FOR INFORMATION

The demand for information from all sectors of the country continually goes up. As Mr. Walker points up in the case of the Gallery, people want to have pictures identified.

We continually have—it used to be 500,000 a year, and it has gone up to 1 million a year—inquiries from people all over the country, which the Smithsonian, because of its reputation, supposedly can answer. We can answer them, but we need support for those units that are responsible for preparing the answers.

DEFERRED PROGRAMS

I think that a number of activities that have been deferred or curtailed for economy reasons might be worth referring to. We are curtailing our services to other museums as much as we can in spite of increasing demand. We are putting off asking for funds for the organization of valuable research material in the National Air and Space Museum. In the National Collection of Fine Arts, even though we are going to open the new building this year, we are proceeding with the utmost stringency in connection with this opening. This approach characterizes all of our operations.

SMITHSONIAN ASTROPHYSICAL OBSERVATORY

In our Astrophysical Observatory program, I have just been up at Cambridge attending a meeting of the Harvard Astronomy Committee, with which we collaborate, and we are proceeding with a 10-year program of integrated research with Harvard and the Massachusetts Institute of Technology.

We put to good use surplus equipment acquired from Government agencies. Here is a photograph of an 84-foot-diameter radio astronomy antenna which was given us by the U.S. Army, Redstone Arsenal because they were finished with it. And in collaboration with Harvard we have now put it together again, and we are already getting interesting research results.

We are slowly proceeding with the plan for developing an observatory on Mount Hopkins in Arizona. The road up to the top of the mountain has been roughed out. We got funds for that last year. It is still a very rough road, but this year we are going to have gamma ray astronomy equipment up there making first observations.

But all of this has been phased to go at a slow rate on account of the war in Vietnam and on account of the austerity with which our budget is faced.

SMITHSONIAN TROPICAL RESEARCH INSTITUTE

I must say that I think that the most interesting thing that we are doing in the tropics is the Tropical Research Institute which we maintain in Panama. I think it is proving its worth year by year and will continue to do so.

In the last year, nearly 500 American scientists and specialists came to visit this institute to work there with our scientists. We have a

measured program there which can be of inestimable use not only to the American Republic but to the Caribbean and the middle-American world. For instance, we have been concerned about the proposal to create a canal at sea level between the Pacific and the Atlantic, not because it cannot be done, but because no one has really attempted to estimate what will happen to the resources of the sea when the Atlantic and Pacific begin to mix through this vast canal. If a canal, a thousand feet wide and a hundred feet deep, is dug from one sea to the other, there is no alternative to the plain proposition that fish and other animals will mix with unpredictable effects.

We feel that the aspects of this problem are so serious that if someone doesn't get up on their hind legs and do something about studying them, we are not living up to our research obligations, and so we called a conference last year with the cooperation of the Inter-Oceanic Canal Commission, the Corps of Engineers, and the Panama Canal authorities. We are continuing studies on this, and we are getting demands all the time from the biological community, particularly in the States, to push this and to try and make these studies.

HYBRIDIZED FISH

In our Panama Laboratory, we have already hybridized some species of fish which occur on both sides of the isthmus trying to find out whether the hybrids are either more successful or less successful. It is quite obvious if certain species of fish, which are closely related to each other but have been separated for perhaps 15 million years, come together and are capable of hybridizing, we could easily have a crash in fish production.

All the money that is being spent in the Caribbean for increasing fish products for these nations whose populations are multiplying at a fantastic rate is likely to come to a very bad end, indeed, if it results that certain of these fish species are going to produce sterile hybrids, causing a fish population crash.

Until some of these effects can be predicted we feel that the utmost caution is important in deciding whether or not the canal is really the right thing to do.

I think there are all sorts of fascinating and horrendous possibilities in this connection.

SEA SNAKES

You know, perhaps, Mr. Chairman, that sea snakes occur in the Pacific. They are very common. They do not occur in the Caribbean. If sea snakes, which are poisonous—they are sort of terrifying looking—get into the Caribbean, we can look for all sorts of wild excitement in the American public. I hesitate to think what will happen to real estate values in Florida, for example.

STUDIES ON POLLUTION EFFECTS

We have continuing work in oceanography, which has been one of our strong points. We have been doing work which is of value to the President's Council on Marine Science, and to universities and Federal agencies. We are still working in our ecology laboratory, trying to develop ways of studying and helping people who are concerned with pollution. It is possible that some of our scientists, for example, sedimentologists, who are interested in bottom deposits in the sea, can be of great help to the Corps of Engineers and to local harbor authorities and city administrations in analyzing what happens to these great dumps that are put out in certain areas of the sea to get rid of city wastes, industrial wastes, and other wastes, chemicals and so on.

We have already had a first conference on this, and we probably will continue to work, and here, again, this beneficial activity will largely be supported by grants. We get grants from other agencies, particularly, and private organizations.

MAINTAINING FUNDAMENTAL FIELDS OF SCIENCE

I think that all of our fundamental fields of science must be maintained, even at an austerity level.

I sometimes feel, Mr. Chairman, that we are like a monastery in the Middle Ages, and when things are tough, the people come in and concentrate there. Science and knowledge are prosecuted at a small, steady level. This is about the best we can do, and we think it is pretty good.

Thank you, sir.

SALARIES AND EXPENSES BUDGET ESTIMATE

Chairman HAYDEN. There will also be printed in the record the justification submitted in support of the 1969 budget estimate of \$27,130,000 for Salaries and Expenses of the Smithsonian Institution.

This is an increase of \$3,217,000 over the amount appropriated in fiscal year 1968.

(The justification follows:)

SMITHSONIAN INSTITUTION

SALARIES AND EXPENSES, SUMMARY STATEMENT

Appropriation Act, fiscal year 1968	\$23, 913, 000
Anticipated supplemental, fiscal year 1968	472, 000
<hr/>	
Total available, fiscal year 1968	24, 385, 000
Budget estimate, fiscal year 1969	27, 130, 000
<hr/>	
Increase, fiscal year 1969	2, 745, 000

SUMMARY OF INCREASES, 1969

	Program	Necessary pay increase	Total
U.S. National Museum—to provide for programs of exhibits' experimentation, American Revolution Bicentennial planning, and museum personnel training; to meet heavy backlog and maintenance workloads and other demands on exhibits, conservation, and registrar activities.....	\$260,000	\$67,000	\$327,000
Museum of History and Technology—to strengthen the program in historic archaeology with particular emphasis on American Revolution Bicentennial needs and to organize masses of documentary materials for research purposes.....	75,000	44,000	119,000
Museum of National History—to improve the overall condition of the national collections and emphasize research projects on tropical biology and the American Indian.....	105,000	101,000	206,000
National Air and Space Museum—to support new obligations in the exhibition of space science and technology artifacts incurred under broadened legislated responsibility for the museum and an agreement with the National Aeronautics and Space Administration.....	90,000	11,000	101,000
National Armed Forces Museum Advisory Board—for continued studies on the contributions of the Armed Forces and planning for a museum park.....		3,000	3,000
Freer Gallery of Art—to relieve a severe workload problem in responding to technical conservation inquiries.....	5,000	2,000	7,000
National Collection of Fine Arts—for a full program of public exhibitions in the Fine Arts and Portrait Galleries and for graduate level art research and improving the condition of the collections.....	75,000	56,000	131,000
National Portrait Gallery—to strengthen the public exhibition resources and to implement, with emphasis on the American Revolution Bicentennial, the legislated responsibility for study programs.....	50,000	8,000	58,000
Joseph H. Hirshhorn Museum and Sculpture Garden—for necessary leadtime in preparing the gift collections for the opening of a major gallery of art.....	35,000	2,000	37,000
Smithsonian Astrophysical Observatory—for continued accomplishment in its 10-year research and budgetary plan through additional support to the radio astronomy, gamma ray astronomy, meteorites and cosmic dust, and optical observing programs.....	76,000	23,000	99,000
Smithsonian Tropical Research Institute—to accelerate the demonstrated potential of the staff, natural resources, and visiting researchers for highly significant studies in tropical biology.....	125,000	13,000	138,000
Radiation Biology Laboratory—to add scientific competence in the controlled-environmental biology program and correct serious deficiencies in the maintenance of complex laboratory research equipment.....	50,000	10,000	60,000
Office of Ecology—to realize the research potential of the Chesapeake Bay Center for Field Biology and selected foreign areas for studies on the interrelationships of living organisms with their total environment.....	35,000	2,000	37,000
Office of Oceanography and Limnology—for the sorting, documenting, and distributing of backlogged specimens urgently needed for the solution of marine problems and identification of marine resources.....	80,000	8,000	88,000
Smithsonian Research Awards Program—to continue financing meritorious research opportunities at a level commensurate with previous National Science Foundation support.....	30,000		30,000
Office of Education and Training—for support essential to the continued operations of an experimental neighborhood museum to bring stimulation and learning to low-income users.....	42,000	2,000	44,000
International Activities Programs—to administer a growing and more complex cooperative research effort, including the special foreign currency program and to meet increased volume and costs for the international exchange of publications.....	34,000	4,000	38,000
Administrative and central services—for selective additional administrative assistance and centralized services to enable the research, exhibition, and education activities to function productively and efficiently.....	401,000	79,000	480,000
Buildings Management Department—to provide minimum essential levels of maintenance, operation, and protection, including services for additional building spaces.....	436,000	306,000	742,000
Total increase, 1969.....	2,004,000	741,000	2,745,000

1. PAY INCREASES

Need for increase

An increase of \$741,000 is requested for pay increases. In 1969, the Smithsonian Institution will be faced with increased pay costs in the amount of \$1,127,000. Of this total, the Institution will absorb \$386,000 through the application of the maximum lapse savings from tight position control, the filling of positions at lower grades, and overall economies of operation.

The requested increase is made up of the following:

(a) An increase of \$127,000 is requested to meet the full-year cost in fiscal year 1969 of salary increases granted to current General Schedule employees, effective October 8, 1967, under the "Postal Revenue and Federal Salary Act of 1967." The 1968 base for the 1969 estimate includes only 73% of the annual cost of this increase.

(b) An increase of \$39,000 is requested to meet the full-year cost in fiscal year 1969 of salary increases granted to current Wage Board employees effective October 22, 1967. The dollar absorption of the combined items (a) and (b) will amount to \$113,000 in 1969.

(c) An increase of \$172,000 is requested for the full-year costs of positions which were part-year funded in 1968. The positions are in Buildings Management Department (\$134,000) and the National Collection of Fine Arts (\$38,000) and are related to the opening to the Public of the National Collection of Fine Arts Gallery in its restored Old Patent Office Building site in May 1968.

(d) An increase of \$76,000 is requested to pay for one extra work day and one extra holiday in fiscal year 1969. Inauguration Day will occur as an extra holiday in that year. Protection and custodial employees of the Buildings Management Department staff are required to work that day in order to keep the eight exhibition buildings open to the Public.

(e) An increase of \$327,000 is requested to pay for step increases in accordance with the Government Salary Reform Act of 1964 (78 Stat. 400) and step rates granted to the Wage Board employees in accord with prevailing practices. The apparent cost was determined through a position-by-position study and has been reduced to real cost by offsets resulting from the fact that a percentage of the employees are separated before they receive their step increases or have been promoted to another position and the further offset resulting from filling positions at the base of the grade.

Actual experience during fiscal year 1967 has shown that 874 employees received within-grade promotions or step-rate increases at an actual cost during the year of \$148,000. The cost of these within-grade promotions on an annual basis would be \$277,000.

During fiscal year 1968, an additional \$180,000 will be paid employees for within-grade promotions and step-rate increases. This figure will annualize at an estimated \$300,000 in 1969. The cumulative burden of these costs (\$577,000) is offset by \$202,000, representing savings from separations and base of grade hires; thus, the burden of past-year increases that is carried forward into 1969, and for which partial funding is sought, amounts to \$375,000. This amount combines with anticipated \$225,000 for new within-grades to be granted in 1969 for a total new burden of \$600,000 in that year. Of this amount, financing is sought for \$327,000. The balance must be absorbed.

Thorough examination of all operations of the Smithsonian have been made to determine and apply the maximum degree of absorption possible in all areas of increased pay.

Each new position vacancy is being reviewed for cancellation or for the application of that position to each bureau's more essential needs or for planned delay in recruitment in order to assure the most effective possible use of scarce manpower and dollar resources.

Allotments in manpower and in all objects of expenditure are now very tautly drawn. This has been conditioned by the absorption of a combined \$760,000 of Wage Board and General Schedule pay increases in 1967 and 1968. The Institution will absorb \$386,000 in 1969.

Absorption of any additional amount is impracticable in the face of present workloads. The accomplishment of traditional Smithsonian responsibilities must be safeguarded. Permanent exhibit installations costing at least \$10,000,000 must receive adequate care. More than 3,000,000 square feet of Public and laboratory space must be maintained. Growing millions of visitors must be protected.

Acquisitions to the collections must be properly recorded and given conservation treatment.

Deficiencies in these areas will carry forward into 1969 and could only be deepened by greater absorption than the amount cited.

PAY INCREASES, FISCAL YEAR 1969

Organizational unit	Annualization			Extra day and extra Holiday	Periodic step increases	Total
	GS pay raise	Wage raise	Part-year positions			
U.S. National Museum:						
Office of the Director					\$1,000	\$1,000
Conservation Laboratory	\$1,000			\$500	3,500	5,000
Office of the Registrar	4,000			1,000	2,000	7,000
Office of Exhibits	8,000	\$1,000		6,000	39,000	54,000
Museum of History and Technology	9,000			6,000	29,000	44,000
Museum of Natural History	18,000			12,000	71,000	101,000
National Air and Space Museum	3,000	1,000		2,000	5,000	11,000
National Armed Forces Museum						
Advisory Board	500			500	2,000	3,000
Freer Gallery of Art	1,000				1,000	2,000
National Collection of Fine Arts	3,000		\$38,000	2,000	13,000	56,000
National Portrait Gallery	3,000			1,000	4,000	8,000
Joseph H. Hirshhorn Museum and Sculpture Garden	1,000				1,000	2,000
Smithsonian Astrophysical Observatory	6,000			4,000	13,000	23,000
Smithsonian Tropical Research Institute	4,000			2,000	7,000	13,000
Radiation Biology Laboratory	3,000			1,000	6,000	10,000
Office of Ecology	500			500	1,000	2,000
Office of Oceanography and Limnology	3,000			1,000	4,000	8,000
Buildings Management Department	37,000	37,000	134,000	25,000	73,000	306,000
Office of Education and Training	500			500	1,000	2,000
Office of International Activities				500	1,500	2,000
International Exchange Service				500	1,500	2,000
Office of the Secretary	3,000			1,000	5,000	9,000
Management Support	3,000			1,000	11,000	15,000
Fiscal Division				1,000	4,000	5,000
Information Systems Division				500	1,500	2,000
Smithsonian Institution Libraries	3,000			2,000	8,000	13,000
Division of Performing Arts					1,000	1,000
Personnel Division	3,000			1,000	3,000	7,000
Photographic Services Division	3,000			1,000	3,000	7,000
Smithsonian Institution Press	3,000			1,000	4,000	8,000
Office of Public Affairs	500			500	2,000	3,000
Supply Division	3,000			1,000	5,000	9,000
Total	127,000	39,000	172,000	76,000	327,000	741,000

2. UNITED STATES NATIONAL MUSEUM

1967 appropriation	\$2,549,000
1968 appropriation	2,614,000
1969 estimate	2,941,000

The United States National Museum advances knowledge through research in science and history and conveys, through publications and exhibits, knowledge about the growth of science and the history of our national heritage. The museum preserves scholarly collections actively employed in support of research. The National Museum is comprised of the Museum of Natural History and the Museum of History and Technology, which are presented in separate justifications; and the centralized services which are presented under this heading, namely the Office of the Director, the Office of Exhibits, the Conservation Analytical Laboratory, and the Office of the Registrar. These centralized services need an increase of \$260,000 as summarized below:

	1967		1968		1969	
	Positions	Amount	Positions	Amount	Positions	Amount
Office of Director	5	\$170,000	5	\$172,000	8	\$292,000
Office of Exhibits	166	2,039,000	166	2,082,000	172	2,187,000
Conservation Analytical Laboratory	9	107,000	9	114,000	11	129,000
Office of the Registrar	24	233,000	26	246,000	28	266,000
Total, U.S. National Museum	204	2,549,000	206	2,614,000	219	2,874,000

¹ In addition, these components require an increase in 1969 of \$67,000 for necessary pay increases.

U. S. NATIONAL MUSEUM OFFICE OF DIRECTOR

	Personnel compensation		Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Analysis of total	
	Number of positions (permanent)	Amount								Total	Pay increases	Program
1968 base.....	5	\$57,000	\$3,000	.....	.....	.....	\$55,000	\$8,000	\$45,000	\$172,000	\$2,000
Increase requested.....	3	24,000	2,000	.....	.....	.....	93,000	0	0	121,000	1,000
1969 estimate.....	8	81,000	5,000	.....	.....	.....	148,000	8,000	45,000	293,000	3,000

SPECIFICATION OF INCREASE (PROGRAM)

Experimentation and evaluation of exhibits (1 position, \$40,000); For a strengthened program to determine the value and effectiveness of museum exhibits in public elementary and secondary school education. No funds in base are specifically available for a continuing program. Request includes 1 exhibits researcher (\$10,000) and contractual design services (\$30,000).
 Bicentennial of the American Revolution (2 position \$50,000); For coordinated and comprehensive planning of the Smithsonian's contributions to the commemoration. No funds are available for this need. Increase includes 1 historian and 1 research assistant (\$15,000); travel to inspect materials for exhibition and for conferences with historians (\$2,000) and contractual studies of resources and observance opportunities (\$33,000).
 Training museum personnel (\$30,000); For training 5 college graduates to meet widespread museum needs. Less than 10 percent of requests can now be met. Request includes contractual training services (\$30,000).

Office of the Director

The Office of the Director provides program planning and review of the U.S. National Museum's programs of exhibition and education, training in museum techniques, advice and assistance to museums and community institutions, and museum research and scholarship.

An increase of \$120,000 is requested, including \$40,000 for experimentation and evaluation of exhibits' effectiveness; \$50,000 for planning for Smithsonian's role in commemorating the Bicentennial of the American Revolution; and \$30,000 for the training of museum personnel.

Need for increase

The value and effectiveness of museum exhibits and museum education are increasingly recognized by educators. Scores of requests from communities are being received by the Smithsonian for advice on the use of museum resources in teaching and in stimulating curiosity and the desire to learn. To improve exhibits in the Smithsonian and to provide authenticated advice on the exhibition and presentation of museum objects, the Smithsonian has instituted new studies, experimentation, and evaluation of exhibits for the public and for the enrichment of classroom instruction. For example, a year's pilot test use of a series of 14 experimental learning exhibits on the physics of light have been completed by the 4th to 6th-grade students in a local school system. The results obtained were hailed by the teachers and principals. Side effects of the program included increased self-reliance of students who had had their first learning experiences away from the classroom. Valuable information was obtained for evaluating teaching aids in the museum itself. The museum can contribute to elementary and secondary education at a time when education concepts are changing rapidly.

It is planned to design further experimental exhibits for study, tests, evaluation, and modification in order to gain new knowledge of the sciences and techniques underlying the involvement of viewers through all their senses with objects and exhibits and to determine the fundamental values that produce the most effective exhibits. An exhibits researcher and funds for contractual services are required. An increase of \$40,000 is sought for this need.

By virtue of its experience and scholarship in preserving and interpreting the national heritage through collections, research, and exhibition, the Smithsonian necessarily will have a central role in the celebration of the anniversary of the American Revolution. Such leadership will not be new to the Institution. A notable event in the early history of the National Museum was its participation at the International Exhibition at Philadelphia in 1876 to celebrate the 100th anniversary of the independence of the United States. The National Museum was charged with showing the mineral and animal products of the country and its Indian tribes in both prehistoric and modern times. Congress appropriated \$100,000 to the Smithsonian for these purposes.

Smithsonian museums already have prepared exhibits on the prelude to the Revolution and are initiating individual programs of research, publication, and collecting required to be ready for the observance. To provide national leadership, to coordinate the widespread activities of the Smithsonian components, and to develop a comprehensive program of scholarship and exhibition, the National Museum must engage a scholar of recognized stature for program direction and a research assistant and provide for essential travel and contractual services, an increase of \$50,000.

For more than 100 years, the Smithsonian has engaged its staff, collections, and laboratories in the training of museum curators, exhibits' preparators, and museum technicians from other museums and elsewhere. This traditional role was confirmed by the National Museum Act of 1966 which has as one of its primary aims the development of future museum personnel. Scores of requests for training are among the approximately 1,000 requests for advice and assistance that have been received from museums since the Act's passage. On June 20, 1967, President Johnson wrote the Secretary in his role as Chairman of the Federal Council on the Arts and the Humanities, requesting recommendations on ways to support and strengthen American museums. To assist in meeting this need, the Smithsonian has continued to provide as much training in its collection areas and laboratories as possible despite the absence of National Museum Act funding. In addition, a cooperative training program has been established with the Los Angeles County Museum of Natural History, the Field Museum of Natural History in Chicago, and the American Museum of Natural History in New York. Museum directors and their associations are requesting much more training to fill existing needs for curators and technicians across the country. To instruct an additional five trainees at the Smithsonian and in cooperating museums, an increase of \$30,000 is required.

OFFICE OF EXHIBITS

	Personnel compensation		Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Analysis of total	
	Number of positions (permanent)	Amount								Total	Pay increases
1968 base.....	166	\$1,358,000	\$7,000	\$3,000	-----	\$52,000	\$326,000	\$98,000	\$135,000	\$2,082,000	\$43,000
Increase requested.....	6	75,000	0	2,000	-----	0	24,000	18,000	34,000	1,59,000	54,000
1969 estimate.....	172	1,433,000	7,000	5,000	-----	52,000	350,000	116,000	169,000	2,241,000	97,000

SPECIFICATION OF INCREASE (PROGRAM)

Maintenance of exhibits (6 positions \$54,000): To prevent progressive deterioration of several thousand permanent exhibit units produced since 1956. No more than 5 man-years can now be devoted to this task which is estimated to need at least 15 full-time persons. Increase includes 6 exhibits specialists (\$27,000); specialized contractual renovation services (\$5,000); preservation and refurbishing supplies (\$1,000); and replacement of worn-out, public-operated exhibit devices (\$11,000).

Support of Neighborhood Museum (\$36,000): To provide exhibitions and materials for visitor participation at the Smithsonian's Neighborhood Museum. Scheduled permanent exhibit program and an increasing number of timely special shows in the Institution's museums preclude effective current support for this museum. Request includes a variety of exhibit and other supplies for active visitor participation (\$5,000) and display equipment (\$11,000).

Major photographic exhibit (\$25,000): To produce 1 major photographic exhibition in response to the Vice President's urging that the Smithsonian gradually expand its contributions to the national recognition of photography. Existing resources cannot meet this added responsibility. Increase will be used for travel to develop exhibitions and to acquire materials (\$2,000); contractual design services (\$13,000) necessary supplies (\$2,000); and the acquisition of outstanding photographs and display equipment (\$8,000).

Innovative exhibits techniques (\$10,000): To develop the latest display techniques expected by the public as a result of Expo 67 and other expositions. Increase would be used for planning and testing services (\$5,000); supplies (\$1,000); and electronic components and testing equipment (\$4,000).

Office of Exhibits

The Office of Exhibits designs, produces, installs, modernizes, and maintains permanent exhibits in the Museum of Natural History and the Museum of History and Technology; prepares special temporary exhibits on important and timely subjects of art, history, and science; produces touring exhibits; provides exhibits for experimental neighborhood museums; and advises and assists with exhibits work and public events throughout the Smithsonian Institution.

An increase of \$105,000 is sought, including \$54,000 to prevent deterioration of permanent exhibitions; \$16,000 to support the exhibits activities of the Neighborhood Museum; \$25,000 to implement a major photographic exhibition program; and \$10,000 to continue the development of innovative exhibits techniques.

Need for increase

During the past 12 years, large new permanent halls, each containing up to 150 unit displays, have been opened at the rate of more than four halls a year. By the end of fiscal year 1968, there will be 58 large halls open to the public. A conservative estimate of the investment in these exhibits is \$10,000,000. These exhibits contain hundreds of visitor-operated units. Many objects are displayed in the open to add to the visitor's pleasure and education. Lighting causes paint fading and gradual deterioration. In the same period, attendance has increased by millions of visitors. Recently over 900,000 visitors were counted in one building in one month. The increases in numbers, quality, and complexity of the exhibits and the intense wear and abrasion to which high concentrations of viewers subject them require that additional maintenance be given to cases, public-operated models, audio systems, projectors, motors, and protective devices. This maintenance requirement far exceeds all former estimates. The Office of Exhibits should make continuous inspections, adjustments, repairs, and painting in order to forestall breakdowns and progressive deterioration and to protect this public investment, to avoid more costly complete overhauls and rebuilding of exhibits, to update ever-changing information and add newly acquired objects, and to keep the exhibitions open and in an operating and presentable condition to provide each visitor (many of whom may have only a single opportunity to see an exhibit) with maximum pleasure and education. Demands on the Office to open new permanent and special exhibits preclude close and continuous attention to maintenance and repairs. To meet this need, a minimal requirement is for six exhibits technicians and funds for contractual refurbishing services, supplies and materials, and replacement of worn-out exhibit equipment at a cost of \$54,000.

A special type of museum extension activity is exemplified by the Neighborhood Museum pioneered by the Smithsonian with great success as an educational, cultural, and social force in the community (see section on the Office of Education and Training). These museums require exhibition and museum innovations of a high order of originality and invention. Many exhibitions are geared to active participation by children. To prepare exhibits in support of neighborhood museums, an increase of \$16,000 is required for supplies and equipment.

For a number of years, the Vice President has spoken of the need for the Federal Government to give national recognition to photography as an art form uniquely capable of communicating facts and information about important concerns of our times. As a member of the Smithsonian's Board of Regents, he urged that the Smithsonian expand its traditional role in photography and undertake to meet this need. The Regents have approved a goal of four major photographic exhibitions a year on subjects related to worldwide photographic journalism, the documentary camera, photographic art, and photography in science. To implement this program and to produce one exhibition of national significance will require \$25,000 for contractual services for the design of an outstanding exhibition, for the acquisition of photographs, and for the preparation of suitable display fixtures.

The Office of Exhibits has been a pacesetter in the museum world in the development and application of techniques and processes to improve exhibition effectiveness and to improve results or cut costs in the preparation of specimens for exhibition. Illustrative of these advances are freeze-dry taxidermy and the bacterial preparation of skeletal material. As a result of recent World Fairs and Expositions here and abroad, exhibits viewers have become oriented to new and sophisticated exhibits devices and have come not only to accept but to expect these devices, which have added new dimensions to their enjoyment

and understanding of exhibits. The Smithsonian is a leader in this field and enjoys a worldwide reputation for excellence and for the development of new and pioneering efforts in the field of exhibits communication. Hundreds of museum professionals from this country and abroad, seeking advice and studying techniques, visit our laboratories. In order to continue research in the innovation of exhibits techniques, an increase of \$10,000 is sought for planning and conducting tests and evaluation, supplies, electronic components and testing equipment.

Maintaining the high quality and level of exhibits productivity of the past several years, the Office of Exhibits opened six new permanent exhibition halls to the general public during 1967—including the first two halls of the Institution's unique Growth of the United States exhibition in the Museum of History and Technology, a comprehensive visual survey of every aspect of United States history which includes important American Revolution displays. In addition, the Office completed supplementary portions of 25 other permanent exhibition halls and produced 29 temporary and special exhibits—some of them of major national and international importance, such as the special exhibit on Chile, in conjunction with that country; the large-scale Alaska Centennial exhibit; the World Exposition of Photography exhibit; the Vinland Map exhibit, which with its accompanying symposium drew scholars from all over the world; and the Wedgwood exhibit, produced in conjunction with the 1967 Wedgwood International Seminar. Continuing in its role of service for the development and application of exhibition techniques throughout the museum world, the Office of Exhibits received into its laboratories—for purposes of observation, instruction, and advice—more than 200 professionals from museums all over the United States and more than a score of foreign countries. In April 1967, the Office demonstrated exhibits techniques as part of a "job fair" for high school students in collaboration with the Neighborhood Youth Corps and the United Planning Organization.

CONSERVATION ANALYTICAL LABORATORY

	Personnel compensation		Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Total	Analysis of total	
	Number of positions (permanent)	Amount									Pay	Increases
1968 base.....	9	\$81,000	\$2,000	-----	-----	-----	\$2,000	\$7,000	\$16,000	\$114,000	\$2,000	\$112,000
Increase requested.....	2	14,000	0	-----	-----	-----	0	1,000	4,000	20,000	5,000	15,000
1969 estimate.....	11	95,000	2,000	-----	-----	-----	2,000	8,000	20,000	134,000	7,000	127,000

SPECIFICATION OF INCREASE (PROGRAM)

Conservation of metal objects (2 positions, \$15,000): To give attention to the preservation of the hundreds of thousands of metal objects in the national collections (coins, archeological artifacts, etc.) The Laboratory has no staff competence in this specialized area of conservation. Increase includes 1 conservator and 1 technician (\$10,000), specialized supplies (\$1,000), and advanced instrumentation equipment (\$4,000).

Conservation Analytical Laboratory

The Conservation Analytical Laboratory performs research in the science and techniques of the conservation of museum and art gallery objects. It conducts analysis, treatment, restoration, and preservation of objects in the National Collections. Analysis of objects by advanced instrumentation is conducted to determine appropriate conservation procedures and to provide museum historians, archeologists, and scientists with basic information used in determining dates, history, attribution, and ancient production methods of objects under study. The Laboratory collects and disseminates information on conservation and analytical theories and practices for the use throughout the Smithsonian and in other institutions.

An increase of \$15,000 is requested to meet a serious workload problem in the conservation of metal objects.

Need for increase

Entire collections of significant and valuable historical objects and scientific specimens numbering thousands of items are in need of cleaning, repair, and conservation treatment. Objects are received from excavations and by donation at a rate far exceeding present capability to analyze or to treat them adequately. Objects which have been inadequately preserved in the past are deteriorating toward conditions which will result in the need for costly restoration, if possible, or total loss. Notable conservation accomplishments during 1967 included these examples: conditioning of antique cabinetry essential to new exhibits in natural science; the conservation of currency, drawings, and photographs; and the use of X-ray diffraction techniques for the examination of pigment samples.

At present the Laboratory does not have available staff competence in the conservation of metal objects. Yet a very large proportion of the 62-million objects in the National Collections are made of metal. The Division of Numismatics, for example, has at least 30,000 coins in need of conservation. Three or four other divisions house numerous ancient metal objects of greater complexity than coins. Many of these objects require individual attention which, in the cases of particularly difficult conservation needs, can require as much as one-half man-year per object. A conservator and a technician are required with additional specialized supplies and equipment to give close attention to metal objects. This is an essential increase of \$15,000.

OFFICE OF THE REGISTRAR

	Personnel compensation		Travel 21	Transportation of things 22	Rent, com- munications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Total	Analysis of total	
	Number of positions (permanent)	Amount									Pay increases	Program
1968 base.....	26	\$148,000		\$85,000						\$246,000	\$4,000	\$242,000
Increase requested.....	2	13,000		10,000				\$1,000		271,000	7,000	20,000
1969 estimate.....	28	161,000		95,000				3,000	1,000	273,000	11,000	262,000

SPECIFICATION OF INCREASE (PROGRAM)

Mail handling (2 positions, \$10,000): To handle a mail and information inquiry workload which has increased from 700,000 pieces in 1963 to 1,000,000 in 1967. Present staff inadequate to handle this volume promptly and accurately. Request includes 2 mail clerks (\$8,000) and essential handling supplies (\$2,000).

Transportation of museum materials (\$10,000): To meet an increasing volume of shipments of collections and loans (15,000 objects weighing 1,000,000 pounds in 1967) and higher shipping costs. Increase includes transportation of things (\$10,000).

Office of the Registrar

The Office of the Registrar records all accessions and loans of objects and specimens by the Museum of Natural History and the Museum of History and Technology. It provides central mail, messenger, and shipping services for the Institution and furnishes essential correspondence services for responding to public inquiries relating to the work of the two museums.

An increase of \$20,000 is requested, including \$10,000 to provide adequate handling of the large volume of information inquiries received from the general public and \$10,000 to cover the moving of field equipment and the return of collected specimens, transporting objects for exhibition and study, and meeting higher shipping rates.

Need for increase

Public interest in the Smithsonian's activities, its exhibitions, and in its reference collections has grown enormously. The general public's insatiable quest for knowledge on every subject is reflected in the continued increase in letters asking about the Smithsonian's collections, requesting the Smithsonian to identify objects, or seeking other information. Correspondence from the Smithsonian to the public and to scientific, historical, and educational institutions has increased steadily. The number of pieces of mail handled annually by the central mail room increased from under 700,000 in fiscal year 1963 to almost one million in fiscal year 1967. More mail pick-up and delivery points on and away from the Mall add to the problem of adequately servicing Smithsonian offices.

Much of this mail concerns the activities of the Museum of Natural History and the Museum of History and Technology. Some 100,000 pieces of mail annually are opened, controlled, distributed for the required information, and replies prepared and mailed. Over 1,000 of these each month are from elementary and secondary school students.

Present manning of the central mail room and the correspondence control section does not permit prompt and accurate handling of mail. Two additional mail clerk positions with supplies are required.

In 1967, the Office of the Registrar arranged shipment for 15,000 objects totaling over one-million pounds. Among the interesting and significant cargo recently handled were a 15,000-pound meteorite, a collection of Mexican coins weighing two tons, a chariot dated 1825, a 17th-century Dutch marquetry cabinet, and a McMillan Synchrotron weighing 25,000 pounds. Many of these materials go on public display or into the reference collections for study. An increase of \$10,000 in transportation funds is required to continue to meet essential shipping requirements, many of which require complicated packing and special-care arrangements.

3. MUSEUM OF HISTORY AND TECHNOLOGY

1967 appropriation-----	\$1, 742, 000
1968 appropriation-----	1, 807, 000
1969 estimate-----	1, 926, 000

The Museum of History and Technology is the national museum of American cultural, civil, and military history and of the history of science and technology. It maintains reference collections and interpretive exhibitions concerning all aspects of American life in times past. Its professional staff and other historians from all parts of the world perform research leading to the discovery and documentation of materials of historic significance.

An increase of \$119,000 is requested to include \$55,000 for a program of historic archeology through the excavation, salvage, and study of important objects from endangered historic sites and \$20,000 to organize and make usable for research masses of documentary material relating to the collections. This also includes \$44,000 for necessary pay increases.

Need for increase

The program of historic archeology is a principal feature of the Museum's preparation for the observance of the Bicentennial of the American Revolution. Of particular significance are the following projects: underwater archeology of 16th to 18th century naval and merchant shipping in the Caribbean; underwater archeology of naval shipping in Lakes Champlain and George; colonial archeology in Virginia; and manufacturing and industrial archeology of New England factory sites. Many of these sites were focal points of activity during

the Revolutionary period and, as such, cannot be ignored in comprehensive planning for the celebration of the Bicentennial. Strong and immediate efforts must be made to study and photograph these sites and others; to obtain local documentation of them; and to excavate and salvage important objects before the sites are destroyed by construction or otherwise lost. As an example of these projects, a survey of early textile mill buildings in New England was initiated in June 1967. These sites are likely to disappear under pressures from urban renewal, highway construction, and other changing patterns of land and building use. Modern techniques, including aerial photography, are being used in this survey. The textile industry was selected as a starting point because it was the first American industry organized largely on the factory system.

The requested increase also will enable the Museum to respond to requests for assistance in historic archeology. In the last year, little could be done to assist on several dozen requests received from New Jersey, Massachusetts, Maryland, New York, North Carolina, New Mexico, and individuals and organizations in other States who are properly concerned with the potential loss of important sites. These requests are being received with increased frequency as the approach of the Bicentennial increases the historical awareness of Americans. With the present staff of a single museum specialist in historic archeology and occasional attention by curators of other divisions, it is now impossible to respond to opportunities or needs. The increase also will permit a modest purchasing program of especially significant objects in association with the historic archeology program. This acquisition is essential to the preparation of exhibits of the Revolutionary period. Two specialists and funds for travel, supplies, and contractual services in the study of sites and the preparation of publications are also requested, a \$55,000 total increase.

Eleven million objects are in the collections of the Museum of History and Technology. Usually each object in the collection is accompanied by a small amount of documentary literature (patents, letters, etc.) but frequently the Museum receives valuable collections of papers which document whole categories of specimens. These papers number several million. Examples are the Peters print collection, Hammer electricity collection, Holley steel collection, Lehigh coal collection, and the recent acquisition of the Warshaw collection (containing over a million papers) which covers the whole range of the Museum's subject matter. The Museum also has the largest collection of trade catalogs in the United States. Some of these documentary materials come to the Smithsonian partially organized; most of them, however, are not arranged when received. Little of this material can be found in any library. Much of it is unique and, as a supplement to the collection of objects, constitutes a principal attraction of the Museum to the student and scholar. Some minimal organization and classification of this material will develop its research and educational potential. An archival assistant with supplies, equipment, and services are essential requirements to begin to arrange this material, an increase of \$20,000.

Current resources of the Museum cannot be stretched to meet these needs. Its staff has not increased in size in several years while at the same time public interest in the study collections is imposing an increasingly heavy demand on professional and support personnel time. Thousands of public inquiries require authoritative responses. Visiting scholars and students require assistance in locating and understanding the history and significance of objects. Loans of objects to other museums must be arranged. Increased numbers of acquisitions demand curation. Twelve hundred new collections arrived in 1967. The total number of objects is now over 11 million. Thirty-two permanent exhibitions are now open. Eighteen halls remain to be completed to present a full panorama of history and technology to the visiting public now numbering more than five-and-a-half million persons a year. In connection with the events leading to the celebration of the American Revolution, a series of exhibits and commemorative publications over the next eight years will document this historic event. Already, a first exhibit was held commemorating the Stamp Act. This year, an exhibit on George Mason and the Bill of Rights was prepared, and significant objects belonging to George Washington, Thomas Jefferson, and other Revolutionary War figures were displayed in the new Growth of the United States exhibition which opened in June. Exhibits on the Townshend Acts and the arrival of the British Customs Commissioners are being developed. A display of Revolutionary War naval paintings will be shown. The staff continued to produce important research publications such as *The Origins of Chemistry, Sources of Thermoelectricity* and *The Mechanical Engineer in America, 1830-1910*.

MUSEUM OF HISTORY AND TECHNOLOGY

	Personnel compensation		Personnel benefits 12	Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Analysis of total		
	Number of positions (permanent)	Amount									Total	Pay increases	
1968 base.....	152	\$1,344,000	\$100,000	\$36,000	-----	\$5,000	-----	\$132,000	\$25,000	\$165,000	\$1,807,000	\$42,000	
Increase requested.....	3	58,000	4,000	2,000	-----	1,000	-----	21,000	6,000	27,000	119,000	44,000	
1969 estimate.....	155	1,402,000	104,000	38,000	-----	6,000	-----	153,000	31,000	192,000	1,926,000	86,000	
													1,840,000

SPECIFICATION OF INCREASE (PROGRAM)

Historic archeology (2 positions, \$55,000): To accelerate the Institution's program of historic archeology in connection with preparations for the American Revolution Bicentennial through the excavation, salvage, and study of important objects from endangered sites. Only \$40,000 in limited available staff time and other resources can now be devoted to this need. Increase would be applied to 1 additional curatorial technician (\$12,000); travel to a new State inquires and visit sites (\$2,000); contractual services for detailed study of sites and preparation of publications (\$16,000); supplies for site work (\$2,000); and purchase of significant Revolutionary War objects for display (\$3,000).

Organization of Documentary Materials (1 position, \$20,000): To classify and organize for research purposes several million gift collections of papers documenting whole categories of specimens or technical processes (electricity, coal, steel, prints, etc.). No funds are specifically available for this purpose. Requested increase to be used for 1 archival assistant (\$6,000); rental of office duplicating equipment (\$1,000); contractual services for preserving and restoring old, fragile documents (\$5,000); supplies for arranging, filing, and storing (\$4,000); and associated equipment (\$4,000).

4. MUSEUM OF NATURAL HISTORY

1967 appropriation -----	\$3,091,000
1968 appropriation -----	3,259,000
1969 estimate -----	3,465,000

The Museum of Natural History is an international center for the natural sciences, maintaining the largest reference collections of anthropological, biological, and geological materials in the nation and conducting a comprehensive program of original research on man, plants, animals, rocks and minerals, and fossil organisms—their classification, distribution, and relationship to the environment. The reference collections and the resident scientists provide an important focal point for cooperative research and educational activities among Federal agencies, universities, and other scientific institutions. Its studies of living and fossil plants and animals provide critical data for problems of pollution, medicine, development of food sources, and earth sciences pursued by Federal agencies and private research groups. Through its exhibits and public activities it interprets the natural sciences to the nation.

An increase of \$206,000 is sought including \$105,000 to reduce backlogs of unprocessed collections and to strengthen the management of the National Collections in support of research and scholarship, and \$101,000 for necessary pay increases.

Need for increase

Custody of the National Collections poses a challenge requiring constant attention. As the prime repository for documentation of the nation's natural history, the Museum cannot limit the collections in scope or in numbers of specimens. The collections have nearly tripled in the past 20 years. Over 2,000 collections (containing many hundreds of thousands of specimens) were added in 1967. Today they contain 51 million specimens in anthropology, botany, entomology, invertebrate and vertebrate zoology, mineral sciences, and paleobiology.

The use of the National Collections by Federal agencies and scholars of the nation is timely and important. These collections form significant indicators to the condition of the environment and become increasingly important in studies of pollution and environmental quality control. For instance, the Department of Defense and other agencies involved in the national defense effort have used the collections steadily in the last few years. An example of the important research related to the Viet Nam conflict is the assignment of technicians by the Army and Navy to the Museum to develop a handbook of poisonous reptiles of Viet Nam for use by the U.S. medical forces. These research efforts involve not only the National Collections but also the supporting knowledge of the scientific staff of the Museum.

For decades the collections grew so rapidly that records of accessions and data on each object could not be promptly maintained. With the advent of data processing, the Museum has in the past few years developed improved techniques for cataloging specimens and for processing and manipulating their associated data. Today, cataloging is accomplished in less than half the time previously needed, it is many times more accurate, and the system adopted has a potential for further extensive savings. Greater accessibility of documentation associated with specimens will facilitate their use in research and reduce appreciably the clerical and scientific costs now consumed in searches.

Despite the development of better techniques and methods for managing collections, the current condition of the collections requires very substantial additional attention. An analysis of the 51 million specimens housed in the seven departments of the Museum produced an appraisal of collection condition. This review revealed that the overall status of processing (inspection, fumigation, cleaning, preservation, etc.), documentation (identification, cataloging, and labeling), and organization (shelving and filing) of these specimens meets only one-half of acceptable levels in the Museum's objective to place these resources in condition for their most effective and widespread use.

In 1969, the collections and other resources of the Museum will be directed at all of its eight major program areas (Geophysics and Cosmochemistry, Natural Science: Tropics, Natural Science: North American, Ancient Technologies and Cultures, Social Behavior in Man and other Organisms, Studies of Living Sys-

tems, Marine Biology, and Investigations of Earth History). Increases will be directed at two research areas of particular importance.

Nowhere in the world are the complexities of plant and animal interrelationships more numerous, more intricate, and less understood than in the tropics. Intense national and international interest in tropical biology has developed in response to deep concern for the rate at which man is exploiting and modifying this important and extensive segment of his environment. The Smithsonian Institution's own contributions to knowledge in tropical biology, the interest of the American academic community in tropical studies, and the impact of the International Biological Program have all contributed to the necessity for strengthening the Museum's capability to direct its resources to intensified studies in this field in full concert and collaboration with the Smithsonian Tropical Research Institute. Plans for construction of a sea-level canal in Panama and escalating population pressures in tropical countries are examples of problems for which an array of organizations in the scientific community must ally in providing data. Further, the requirements of the defense effort in Southeast Asia for knowledge about the fauna, flora, ecology, and animal behavior in tropical areas have increased greatly. For example, the Department of Defense, in cooperation with the Smithsonian Institution, is carrying on a major study entitled, "The Mosquitoes of Southeast Asia," one of the largest studies in the history of the mosquito as a disease vector.

Knowledge of the tropics is so scant that much of the research has been necessarily descriptive. This phase must continue to be emphasized, particularly as natural areas are being destroyed at an increasing rate. However, through the broad programs of the Tropical Research Institute and through development of research centers such as Guama (cooperatively with the Brazilian Government), studies of the interaction of flora, fauna, and environment are stimulated.

The large collections of South American artifacts, flora, and fauna present in the National Collections form a superb base in the United States for studies of the tropics. Through these studies can be developed a better understanding of the ways in which man and the natural fauna and flora can live together.

As a second significant research effort, the revision of "The Handbook of the American Indians North of Mexico" is imperative. The present handbook is 50 years old and the knowledge gained since its publication needs to be documented in one place. The logical focus for this activity is at the Smithsonian Institution where there are professional and collection resources for this purpose. The Smithsonian Institution has been collecting and preserving knowledge about American Indians since 1879, when Congress directed that all archives, records, and materials relating to the Indian collected by the Geographical and Geological Surveys be turned over to the Smithsonian. The long-sought, projected nine-volume work, incorporating over 1,000 authors from the American anthropological and Indian communities, is in its second year of development. We are in a period of rapid social change, and authentic information on the political, economic, and social development of the American Indians is of great importance. The opportunity to document past American Indian cultures with any authenticity will soon be lost. The best source for this is the older generation, many members of which are passing away every year.

The handbook will likewise emphasize the modern situation of the American Indian. As such, it will be invaluable to other Federal agencies such as the Departments of Interior, Justice, and Health, Education and Welfare, for understanding Indian health and educational problems. Since some States are custodians of the Indians, they will also benefit from its publication.

To meet the above needs of improvements to the condition of the National Collections and applying this resource to specific research projects, an increase of eight museum technicians and research assistants at a cost of \$28,000 is requested. Additional funding in the amount of \$77,000 is required for travel and transportation in connection with field work and the return of specimens and materials, the rental of equipment, services in support of collection management and research studies, and purchases of storage cases, shelving, glassware for preservation, automatic machines for cataloging, and other facilities for the proper curation of the National Collections.

Solid accomplishments were made by the Museum in 1967. The number of publications reached a record level—364 publications (8,864 pages) were produced as compared with 159 (3,070 pages) in 1964. This reflects not only a growth of professional staff, but also increased scientists' productivity as a result of an improved ratio of supporting personnel, computer support, and centralized laboratory facilities. The published research of the Museum of Natural History is one of the most highly regarded reference libraries in systematic biology, paleontology, and anthropology in the world. These references are used daily by scientists in Federal agencies in the conduct of their missions and by scholars throughout the world. Accession rates of specimens climbed to one of the highest annual levels in the Museum's history. Over 2,100 collections of specimens were added. This influx represents increasing regard and requirements in the scientific and educational community for the National Collections and more research activity in biological sciences. Greater use of the collections by other scientists, universities, museums, and research organizations is shown by the high number of loans of specimens for study (from 127,000 in 1964 to 391,000 in 1967). Exchanges of materials with other museums also leapt from 28,000 specimens in 1964 to almost 50,000 in 1967. This loan and exchange program was with some 700 cooperating institutions. Over 5,000 (4,000 for more than one day) visiting researchers, students, and scholars used the collections during 1967. This was a 10 percent increase over the previous year. The staff of the Museum of Natural History responded to thousands of information requests from Federal agencies, universities, research institutes, individual scientists, schools, museums, Governmental bodies, publishers, and the general public.

More specific accomplishments in the area of research included the following. A cooperative effort by American and Canadian taxonomists was initiated to use the Museum's botany and library collections to produce a complete survey of North American plants covering the only major area of the Northern Hemisphere for which such flora does not exist or is not in progress. A center was established for the study of primate animals. The dramatic and still-increasing use of such animals in medical research and other scientific studies has exposed repeatedly the confusion and inadequacy of primate classification. Geologic studies of the mid-Atlantic Ridge gave new insights into the development of the oceanic crust. Research on the development and aging of human bones will add to knowledge on the biochemical and micromorphological end results of the aging process. Close collaboration between the Smithsonian Institution and the University of Maryland continued on studies of ectoparasites on viral and rickettsial infections. Studies of meteorites continued in collaboration with scientists from the Max-Planck-Institute in Germany, the Lamont Geological Observatory, the California Institute of Technology, the Ames Research Center, and the Carnegie Institute of Technology. Fossil studies identified species which are significant to the geological search for ground-water deposits in Oklahoma, Nebraska, and Kansas. Progress on the systematics of the mackerel family of fishes contributed to the development of plans for worldwide studies of the tuna with the Food and Agriculture Organization.

MUSEUM OF NATURAL HISTORY

	Personnel compensation		Travel 21	Transportation of things 22	Rent, com- munications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Analysis of total		
	Number of positions (permanent)	Amount								Pay increases	Program	
1968 base.....	263	\$2,610,000	\$61,000	0	\$14,000	-----	\$251,000	\$66,000	\$71,000	\$3,259,000	\$82,000	\$3,177,000
Increase requested.....	8	121,000	4,000	\$3,000	4,000	-----	27,000	5,000	34,000	206,000	101,000	109,000
1969 estimate.....	271	2,731,000	65,000	3,000	18,000	-----	278,000	71,000	105,000	3,465,000	183,000	3,282,000

SPECIFICATION OF INCREASE (PROGRAM)

Strengthen management and use of the national collections (8 positions, \$105,000): To reduce the rate of backlog accumulation and to eliminate deficiencies in the overall status of receiving, documenting, and housing the biological, geological collections. Present condition for research meets only 1/2 acceptable levels as determined by review. Present number of technicians and research assistants inadequate to coping with the backlog of necessary work. To apply improved collections to selected intensive research efforts on tropical biology and the American Indian. Requested increase would be used for 8 museum technicians and research assistants (\$28,000), travel in connection with supporting fieldwork (\$4,000), shipment of supplementary collections (\$3,000), rental of field equipment and office machines (\$4,000), contractual research studies and the preparation of reports and publications (\$27,000), glassware and other preservation supplies (\$5,000), and the purchase of automatic machines for cataloging and storage cases (\$34,000).

NATIONAL AIR AND SPACE MUSEUM

1967 appropriation-----	\$438,000
1968 appropriation-----	480,000
1969 estimate-----	551,000

The National Air and Space Museum is the nation's center for exhibition, education, and research in the history and principles of air and space flight. It possesses the world's greatest collection of objects related to aviation and space flight and represents an unparalleled resource for research in aviation and aerospace history; in flight science and technology; in the contributions of flight to the economy and culture of the United States; and in the pioneering efforts of early aviators and astronauts. It is continuously acquiring, preserving, and documenting historically and technologically important objects and records resulting from air and space research, development, and operations. Drawing upon its collections, the Museum produces exhibits and displays portraying the past, present, and future of aeronautics and astronautics in America.

An increase of \$101,000 is requested to support new obligations incurred under an agreement between the National Aeronautics and Space Administration and the Smithsonian Institution, with respect to the acquisition and preservation of historically important artifacts developed in the nation's aerospace programs. This includes \$11,000 for necessary pay increases.

Need for increase

Public Law 89-509, approved July 20, 1966, added space science and technology to the National Air and Space Museum's area of responsibility. In response to the Congressional mandate, the Smithsonian signed an agreement with the National Aeronautics and Space Administration in March 1967, whereby all historically important air and space artifacts developed by the National Aeronautics and Space Administration will be transferred to the Air and Space Museum after their technical evaluation is completed. The National Air and Space Museum agreed to accept responsibility for the custody, protection, preservation, and display of such artifacts, both in the Museum, and on loan to NASA headquarters, NASA field centers, other Federal agencies, museums, and other organizations. NASA provided first year funding with the understanding that the Smithsonian would seek continued funding directly from the Congress. NASA provided an initial sum of \$200,000 to enable the Smithsonian to begin its work. As a direct result of the current need for austerity, the Smithsonian is requesting funds for 1969 which will permit a level of operations only 40 percent of that for which the National Air and Space Museum is presently committed under the agreement.

The NASA Artifacts Program will increase significantly the number of historically and technologically significant air and space objects available for loan to other history and science museums and Institutions, Federal and private, for exhibition and study. National Air and Space Museum specimens have been on loan to the Goddard Museum at Roswell, New Mexico, the Air Force Museum at Dayton, the Naval Air Museum at Pensacola, the Naval Engineering Center at Philadelphia, and a number of private organizations. The Alan Shepard Mercury Spacecraft (Freedom 7) was on exhibit at EXPO 67.

Much work needs to be done to implement this agreement. The physical number of available artifacts is large. Literally hundreds of scientific and technical developments are involved and thousands of artifacts are potential candidates for accession.

Artifacts must be selected carefully for accession, preservation, and exhibit such as flown manned spacecraft, spacesuits used by the astronauts, backup scientific satellites, and rocket motors that played critical roles in our space advances. The key advancements in aerospace science and technology must be documented and the artifacts related to such advancements sought, inspected, and accessioned for exhibit or study.

The artifacts are widely dispersed from coast to coast (at NASA Field Centers as well as at dozens of industrial and university complexes). Therefore, increased curatorial travel to inspect specimens with regard to preservation, restoration, and preparation for shipment is mandatory. Travel is required also to meet with other museums and potential exhibitors seeking loans of specimens to determine the quality of physical and technical care which will be accorded the specimens and to negotiate satisfactory conditions for display.

During the first year of the contract with NASA, \$9,000 were budgeted for travel. The fiscal year 1969 requirements for travel will continue at least at the same level as for fiscal year 1968.

Because the National Air and Space Museum must move large and heavy specimens to its storage facility for preservation and preparation for display, a substantial increase in transportation funds is necessary.

An increase in contractual capabilities is necessary for a variety of preservation, exhibition, and special handling requirements of a nonrecurring nature for which permanent staffing and equipping of National Air and Space Museum facilities would be impractical and uneconomical.

A wide array of materials is required to preserve, protect and restore aerospace artifacts as required by the NASA/Smithsonian Institution agreement. For example, all manned spacecraft must be sheathed in flexible plastic prior to public exhibit as a matter of preservation and protection. Special chemical and other protective processes requiring nonstandard materials for control of corrosion (especially after specimens have been immersed in sea water) must be applied before storage and/or display. Racks and heavy-duty cradling are required for proper and efficient storage of various types, sizes and weights of aerospace specimens.

To fulfill on a minimal basis the National Air and Space Museum's obligation under the NASA/SI agreement it is necessary to employ a curator in astronautics, a research historian (astronautics), and an exhibits specialist. This represents a total increase of \$90,000 for this added responsibility.

NATIONAL AIR AND SPACE MUSEUM

	Personnel compensation		Travel 21	Transportation of things 22	Rent, com- munications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Analysis of total	
	Number of positions (permanent)	Amount								Total	Pay increases
1968 base.....	41	\$378,000	\$4,000	---	\$1,000	---	\$22,000	\$16,000	\$30,000	\$480,000	\$12,000
Increase requested.....	3	31,000	8,000	\$3,000	---	---	35,000	6,000	15,000	101,000	11,000
1969 estimate.....	44	409,000	12,000	3,000	1,000	---	57,000	22,000	45,000	581,000	23,000

SPECIFICATION OF INCREASE (PROGRAM)

National Aeronautics and Space Administration artifacts program (3 positions \$90,000): includes, 1 curator, 1 historian, and 1 exhibits specialist (\$23,000); travel to inspect and to support new obligations under responsibilities added by the Congress for the acquisition, acquire significant items (\$8,000); shipping of missiles and other large and heavy items preservation, study, and display of important aerospace program artifacts. The National (\$3,000); contractual services for preservation and other specialized needs (\$35,000); Aeronautics and Space Administration provided initial funding. The Smithsonian must begin preservation, protective, and restoration supplies and materials (\$6,000); and heavy-duty equipment for storage of objects (\$15,000). No funds exist to meet this new commitment. Requested increase

6. NATIONAL ARMED FORCES MUSEUM ADVISORY BOARD

1967 appropriation-----	\$127, 000
1968 appropriation-----	129, 000
1969 estimate-----	132, 000

The National Armed Forces Museum Advisory Board, as required by Public Law 89-186, advises and assists the Board of Regents of the Smithsonian Institution on matters concerned with portraying the valor and personal sacrifice of the members of the armed forces and their extensive peacetime contributions in science, engineering, medicine, exploration, and other fields. The Advisory Board recommends lands and buildings suitable for the proposed National Armed Forces Museum Park; conducts planning with regard to the concept of the museum park, especially its role in the celebration of the Bicentennial of the American Revolution; performs research on the contributions of the armed forces; and collects and preserves materials for exhibit and for study.

No increase is sought for the programs of the Board for 1969. Planning and study efforts will be continued with emphasis on innovative approaches that will encourage scholarship in military history; provide broad appreciation of the efforts and issues brought about by military security in a democratic society; and relate the Museum in a dynamic way with current national trends and thinking and with existing Smithsonian programs. The increase of \$3,000 will meet necessary pay increases.

Study and survey efforts already initiated will be continued to locate and measure available resources in the field of American military history. Objects of significant historical value will be acquired.

The National Armed Forces Museum and Park could be a valuable adjunct to the visitors traversing the Eastern Seaboard from Boston to Williamsburg for the commemoration of the events of 1776.

NATIONAL ARMED FORCES MUSEUM ADVISORY BOARD

	Personnel compensation		Personnel benefits 12	Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Total	Analysis of total	
	Number of positions (permanent)	Amount										Pay increases	Program
1968 base.....	7	\$73,000	\$5,000	\$10,000	0	0	0	\$30,000	\$2,000	\$9,000	\$129,000	\$2,000	\$127,000
Increase requested.....	0	3,000	0	0	0	0	0	0	0	0	3,000	3,000	0
1969 estimate.....	7	76,000	5,000	10,000	0	0	0	30,000	2,000	9,000	132,000	5,000	127,000

SPECIFICATION OF INCREASE (PROGRAM)

No program increase requested.

7. FREER GALLERY OF ART

1967 appropriation -----	\$32,000
1968 appropriation -----	39,000
1969 estimate -----	46,000

The Freer Gallery of Art preserves and exhibits collections of oriental art of the highest quality, numbering some 4,000 Chinese objects, 2,000 Japanese, and 3,000 from the Near East and India. It furthers scholarship in oriental art history and promotes studies relative to the collections, thus contributing to the increase of knowledge of the artistic achievements of Near and Far Eastern civilizations.

An increase of \$7,000 is requested to provide secretarial assistance for the Gallery's technical laboratory. This includes \$2,000 for necessary pay increases.

Need for increase

The technical laboratory, which is entrusted with the analysis and preservation of objects in the collection, has gained an international reputation for museum conservation. Numerous scientific techniques are used, including microscopy, metalography, spectrographic and wet-chemical analysis, x-ray diffraction, ultra-violet light study, and radiographic study. The laboratory is receiving an increasing number of requests (over 100 a month) to advise on historic conservation programs of the International Council of Museums, the International Institute of Conservation, UNESCO, and other public and private organizations. Most of the replies are lengthy and detailed involving the use of technical language and symbols. A secretary is required to meet this heavy correspondence workload and to assist in the keeping of a conservation documentation center.

FREER GALLERY OF ART

	Personnel compensation		Travel 21	Transportation of things 22	Rent communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Total	Analysis of total	
	Number of positions (permanent)	Amount									Pay increases	Program
1968 base.....	6	\$36,000								\$39,000	\$1,000	\$38,000
Increase requested.....	1	7,000	0							7,000	2,000	5,000
1969 estimate.....	7	43,000	3,000							46,000	3,000	43,000

SPECIFICATION OF INCREASE (PROGRAM)

Technical laboratory (1 position, \$5,000): To handle an increasing number of requests clerical employee at present. Request would provide for a secretary (\$5,000). (100 per month) to advise on conservation and other technical matters. The laboratory has no

8. NATIONAL COLLECTION OF FINE ARTS

1967 appropriation-----	\$739, 000
1968 appropriation-----	937, 000
1969 estimate-----	1, 068, 000

The National Collection of Fine Arts is dedicated to presenting American creative genius in the field of fine arts. It stimulates national pride in American cultural achievements by programs of exhibitions, lectures, and publications which develop public awareness and appreciation of this heritage. The international standing of American art is being enhanced by United States participation (organized by the National Collection of Fine Arts) in major international art exhibitions and through extensive circulating of American art abroad.

An increase of \$131,000 is sought, including \$43,000 to continue to establish a full program of outstanding exhibitions for the public in the newly restored Fine Arts and Portrait Galleries building and through the International Art Program and to strengthen graduate level art research; \$32,000 to improve the condition of the reference collections; and \$56,000 for necessary pay increases.

Need for increase

It is through a program of first-quality exhibitions and educational activities that the National Collection of Fine Arts will make its greatest contribution. Millions of visitors and residents of Washington, and hundreds of thousands of people overseas, through the International Art Program, will see American creative achievements in painting, graphics, sculpture, decorative arts, and the crafts. The interest generated by the exhibitions increases the need for supporting educational programs designed to strengthen scholarship in art and to enhance individual appreciation, understanding, and recognition of American art.

The new space provided by the Congress for the National Collection of Fine Arts in the Fine Arts and Portrait Galleries building, to be opened in May 1968, offers opportunity, challenge, and a number of increased demands. This space will permit three times as many concurrent changing exhibitions to be shown than were possible in the past. Instead of being limited to successive displays in two galleries, the related field of art—painting, graphic, sculpture, decorative arts and crafts—may be exhibited simultaneously in six new galleries. To use these spaces effectively, heavy reliance must be placed on loaned objects. Major private art museums and collectors are willing to loan their valuable art objects to the National Collection of Fine Arts for exhibition in its expanded gallery space and in the overseas circulating exhibitions organized and managed by the National Collection of Fine Arts' International Art Program. Additional travel funds are necessary to negotiate loans. Continued availability of these resources, however, is dependent upon the Gallery providing professional packing, safe shipment, framing, matting, and other display arrangements. These arrangements permit the exhibiting each year of art objects valued at several millions of dollars and the acceptance by the United States of opportunities offered by foreign governments to show work by American artists overseas.

The achievement within the past three fiscal years of national recognition from both the professional art community and the public of the National Collection of Fine Arts as a major art museum in the United States reflects the soundness with which Federal funds have been applied to accomplish quickly this goal envisioned by Congress. The high degree of professional recognition may be illustrated by the willingness of such major art museums as the Whitney in New York, the Art Institute of Chicago, and the Los Angeles County Museum in California, for example, to accept for cooperative showing exhibitions organized by the National Collection of Fine Arts. Public recognition came rapidly, primarily through the various news media which recorded favorably on one major National Collection of Fine Arts' exhibition after another. United States representation sponsored by the

National Collection of Fine Arts in the two top recurring international exhibitions, The Venice Biennale and the São Paulo Bienal, was received equally well. As a result, increasing numbers of inquiries from museums, universities, scholars, students, and the general public began arriving.

Of special significance were those seeking information about opportunities to engage in research at the museum using its collection of art objects, its archival and library resources, and professional guidance from the staff. Until recently, the Director and curatorial staff have been able to respond promptly and fully to these requests. The present volume of these requests is growing at a rate that precludes effective service with present resources. Approximately 50 requests a year are now being received. The exhibits and facilities in the new building will accelerate the demands from scholars and serious students of American art. It is essential that a senior scholar, assisted by a museum technician, be added to the staff to strengthen the research and education program by performing independent studies as well as aiding graduate students, interns, and advanced researchers to use the resources of the National Collection of Fine Arts. An increase of \$43,000 for staff, travel, shipping, services, materials, and equipment is requested for the above exhibition and education needs.

The collections form a great public heritage which the National Collection of Fine Arts is charged to preserve, study, and display. These collections now consist of over 8,000 items, many of which are of great significance and value. The conserving and curating of these are clearly of prime importance. Furthermore, these items can be used to promote the understanding and appreciation of American art only as they are knowledgeably evaluated and displayed in their proper historical and artistic contexts. Several needs must be met to develop the collections for research and educational purposes. A research assistant is required to work on the approximately 5,000 prints and drawings in the collections which have received little or no attention. The 1,000 pieces of sculpture in the collections have been in storage for many years. All require cleaning and repairs. Many pieces will require several weeks' work. A full-time conservator of sculpture is required. This would reduce to a minimum the requirement for contract work in sculpture restoration.

Microfilming of research material throughout the nation presents an inexpensive means of increasing research resources. Purchase of books and archival materials to complete chronological sequences will fill in gaps in reference works and enable more productive research and use of material already owned.

Although already possessing a well-equipped photographic laboratory, the National Collection of Fine Arts and the National Portrait Gallery are not receiving the full benefit of this investment due to the present personnel limitation of one photographer. Concurrent requirements by the two museums for photographic assistance are not being met and the current backlog of 2,300 items to be photographed is constantly increasing with new acquisitions, loans, and exhibits preparation demands. An assistant photographer is needed to absorb this workload and to reduce substantially the costs of contract photographic processing. An increase of \$32,000 is sought for reference collection and support needs.

During 1967, substantial augmentations to the National Collection of Fine Arts' collections were made, most notably the S. C. Johnson Wax Company collection of contemporary artists' works valued at approximately \$1,000,000. Over 800 works were on loan to Government agencies as of June 1967. During the year, the National Collection of Fine Arts also lent 200 works to museums and other educational institutions. Seven major American art exhibitions were held as well as a number of other shows. The International Art Program successfully concluded the showing in Washington of the American section of the XXXIII Venice Biennale. The Art-in-Embassies Program continued with 64 collections in circulation; 32 of these were started in 1967. The program currently represents nearly a thousand American artists.

NATIONAL COLLECTION OF FINE ARTS

1968 base increase requested	Personnel compensation		Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Total	Analysis of total	
	Number of positions (permanent)	Amount									Pay	Program increases
57	\$457,000	\$32,000	\$17,000	0			\$244,000	\$18,000	\$169,000	\$937,000	\$14,000	\$923,000
5	78,000	6,000	3,000	\$11,000			10,000	5,000	18,000	131,900	56,000	75,900
1969 estimate	62	535,000	38,000	20,000	11,000		254,000	23,000	187,000	1,068,000	70,000	998,000

SPECIFICATION OF INCREASE (PROGRAM)

Exhibition, art research, and education programs (2 positions, \$43,000); To establish a full program of exhibitions in the Fine Arts and Portrait Galleries building; to strengthen the International Art Program, and to respond more fully to heavy public demands for research and education programs. Existing curatorial staff and other resources are inadequate to meet these needs which will intensify after the public opening of the gallery in May 1968. The increase would be used to employ 1 senior researcher and 1 museum technician (\$13,000); for necessary travel to negotiate loans of art work (\$3,000); for transportation of items borrowed for display in the Fine Arts and Portrait Galleries building and for the International Art Program (\$11,000); services for the design and preparation of exhibits (\$9,000); exhibits preparation supplies (\$2,000); and display equipment (\$5,000).

Reference collection (3 positions, \$32,000): To improve the usefulness of the reference collections by curating the large print collection, conserving the sculpture collection, performing photography, and by acquiring reference materials. Large work backlogs exist in all these areas. Request includes 1 research assistant for prints, 1 sculpture conservator, 1 photographer (\$15,000); microfilming scarce research materials (\$1,000); specialized supplies and materials for conservation and photography (\$3,000); and purchase of books and archival materials to fill reference set gaps (\$13,000).

9. NATIONAL PORTRAIT GALLERY

1967 appropriation-----	\$610,000
1968 appropriation-----	774,000
1969 estimate-----	832,000

The National Portrait Gallery collects, researches, documents, and exhibits portraits of persons who have made significant contributions to the history, development, and culture of the United States. This gallery, the only such institution in the United States, has the potential to become of major importance as a repository for historical and biographical iconography.

An increase of \$58,000 is requested to strengthen the continuing public exhibition program and to implement the Gallery's legislated responsibility for study and scholarship in American portraiture. This includes \$8,000 for necessary pay increases.

Need for Increase

The legislation which established the National Portrait Gallery in 1962, stated that it would function as a museum not only for the *exhibition* of portraiture and statuary documenting the history of the nation but also the *study* of such portraiture. The Gallery will meet partially the first objective by opening to the public in September 1968, with a distinguished display of portraiture, including many important borrowed paintings, that explores in depth the nature of the American character as it has developed through 200 years of history. In addition, a supplementary exhibition that describes the institution of the American Presidency through Presidential portraits will be presented, along with a selection of outstanding works from the Gallery's permanent collection, to include significant figures of the Revolutionary period. An intensified curatorial and exhibits' preparation effort must be made to meet the public opening goal and to provide for an outstanding continuing program of public viewing events in the 22 galleries available to the Gallery in the remodeled Fine Arts and Portrait Galleries Building. A continuing search and acquisition, through purchase or loan, of portraits of outstanding American men and women must be made. New acquisitions and borrowed items must be fully researched and documented. Special and temporary exhibitions on subjects of timely interest, including the events leading to the nation's independence, must be planned and developed. This effort will require additional support to be successful.

To fulfill the second objective with which the National Portrait Gallery was charged, the study of American portraiture, the Gallery should initiate advanced study and research, based on its own and other area collections, employing the resources of its library and staff, and inviting the participation of other museums, universities, and leading art historians in the country. Exploratory efforts to this end have been initiated.

This program initially will have three primary elements.

A postgraduate, predoctoral program in American Portraiture for advanced students in art history and American studies will be established. It will consist of seminars, colloquia, assistance in the formulation of dissertation topics, and supervision of doctoral dissertations.

The Gallery is preparing the Catalog of American Portraits, a national inventory of likenesses of Americans of historical significance. Nearly 10,000 portraits have been documented. The first steps have been taken toward the use of automatic data processing for the Catalog so that it can be indexed by subject, artist, location, dates, medium, etc. This Catalog is undertaken as a service to scholarship, but with the awareness that its information will contribute greatly to the growth of the national portrait collection, as a guide to the Institution's search for new acquisitions, and will permit public inquiries to be answered in a manner that may lead ultimately to donations.

In the planning stage is a multivolume study of the portraits of the leaders of the American Revolution to appear during the Bicentennial celebration. An edition on microfilm of the complete papers of Charles Willson Peale, portrait painter of the Revolution, with publication in book form of selected writings also is planned.

To meet the above exhibition, research, and public and scholarly education needs, two historians, an archivist, and a supporting clerical position represent essential requirements. Modest increases for travel and the purchase of portraits are needed.

This is a requested increase of \$50,000.

NATIONAL PORTRAIT GALLERY

	Personnel compensation		Personnel benefits 12	Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Total	Analysis of total	
	Number of positions (permanent)	Amount										Pay increases	Program
1968 base.....	27	\$274,000	\$18,000	\$12,000				\$200,000	\$20,000	\$250,000	\$774,000	\$8,000	\$766,000
Increase requested.....	4	36,000	3,000	1,000				0	0	18,000	58,000	8,000	50,000
1969 estimate.....	31	310,000	21,000	13,000				200,000	20,000	268,000	832,000	16,000	816,000

SPECIFICATION OF INCREASE (PROGRAM)

Public education and scholarship programs (4 positions, \$50,000); Resources do not exist within the gallery at present to develop fully and effectively the public exhibition galleries and to implement responsibility for study and scholarship. Increases would provide for 2 historians, 1 archivist, and 1

clerk (\$31,000); travel to inspect and acquire by loan or purchase objects for display (\$1,000); and the purchase of portraits, especially those of the Revolutionary War period (\$18,000).

10. JOSEPH H. HIRSHHORN MUSEUM AND SCULPTURE GARDEN

1967 appropriation-----	0
1968 appropriation-----	\$56,000
1969 estimate-----	93,000

The Joseph H. Hirshhorn Museum and Sculpture Garden will be the permanent home of the collection of art of Joseph H. Hirshhorn and the Joseph H. Hirshhorn Foundation, donated to the Smithsonian Institution for the benefit of the people of the United States. This museum will be used for the exhibition, study, and preservation of this unique collection of art.

An increase of \$37,000 will permit limited headway on properly organizing, conditioning, photographing, readying the collection for exhibit, and planning the exhibitions and other programs in the new museum. It includes \$2,000 for necessary pay increases.

Need for increase

The museum must continue a very substantial job during 1969 of two to three years preparations for the opening of a major gallery of art, including the move of approximately 7,000 paintings, drawings, and sculptures, now located in New York and Connecticut. Plans demand modest phased additions to the present small staff. New acquisitions to the collection (many since the original gift, including works by Cassatt, Stuart Davis, Moore, Rodin, and Sargent) must be fully documented. Research on individual pieces must be completed to fill in and update existing records. A thorough analysis must be undertaken of the physical condition of all pieces, with repair, conservation, and preservation procedures applied where necessary to assure the collection's best possible condition for exhibition and study. The extensive collection must be photographed in order to enhance its documentation, to assist researchers and students in studying the collection, and to aid in the design and production of exhibits. Framing and mounting needs must be determined and services obtained. A basic reference library of books, catalogs, periodicals, and other materials must be developed to meet essential research requirements. The director should visit national and international exhibitions and other museums as are essential to keeping him current and informed of new developments. The donor will continue to absorb certain costs for maintaining the temporary offices in New York City. In fiscal year 1969, the Smithsonian Institution must assume partial operating costs of minimal office spaces.

To meet these needs, a curator and a librarian must be added to the staff and the museum supported with additional funds for travel, rent, contractual services, supplies, and the purchase of library materials, a total of \$35,000.

JOSEPH H. HIRSHORN MUSEUM AND SCULPTURE GARDEN

	Personnel compensation											Analysis of total		
	Number of positions (permanent)	11	Amount	12	21	22	23	24	25	26	31	Total	Pay increases	Program
1968 base.....	3	\$39,000	\$3,000	\$3,000	\$3,000						0	\$56,000	\$1,000	\$55,000
Increase requested.....	2	13,000	1,000	2,000	6,000						0	37,000	2,000	35,000
1969 estimate.....	5	52,000	4,000	5,000	17,000				9,000	2,000	4,000	93,000	3,000	90,000

SPECIFICATION OF INCREASE (PROGRAM)

Preparation of the collections (2 positions, \$35,000); To permit limited headway on researching and documenting the approximately 7,000 items in the gift collection for display in the planned museum and sculpture garden. Requested increases would add 1 curator and 1 librarian (\$12,000); travel to national and international art exhibitions (\$2,000); rent temporary office space (\$6,000); services for photographing, preserving, and mounting artworks (\$9,000); supplies and reference materials (\$2,000); and book acquisitions (\$1,000).

11. SMITHSONIAN ASTROPHYSICAL OBSERVATORY

1967 appropriation-----	\$1, 696, 000
1968 appropriation-----	1, 808, 000
1969 estimate-----	1, 907, 000

The Smithsonian Astrophysical Observatory is a center of active research in astrophysics, the science concerned with the origin and matter of the solar system and the universe. It is the only United States Government observatory devoted to basic research in astrophysics.

To promote collaboration and mutual support, the Observatory maintains a constant exchange of information and people with other Government organizations, especially with the National Aeronautics and Space Administration (NASA), the Department of Defense (DOD), and the National Science Foundation (NSF). The Observatory participates actively with these groups in the planning and execution of national scientific programs, such as the United States participation in the International Quiet Sun Year and the 1966 solar eclipse expeditions to South America, both coordinated by NSF and the United States geodetic satellite program organized by NASA.

As a by-product of its primary effort in pure research, the Observatory provides many services to other organizations. Its round-the-world network of astrophysical observing stations continually responds to special requests from NASA and DOD, providing information for which there is usually no other source. The U.S. Coast and Geodetic Survey and American and foreign universities and observatories also use the facilities of the stations and of the headquarters in Cambridge. A postdoctoral fellowship program administered by the National Academy of Sciences brings outside scholars to the Observatory. As a service to the International Association of Geodesy and to the International Astronomical Union, respectively, the Observatory operates the Central Bureau for Satellite Geodesy and the Bureau of Astronomical Telegrams. Both are international clearinghouses for scientific information.

An increase of \$99,000 is requested for the planned implementation of the Observatory's research in radio astronomy, gamma-ray astronomy, meteorites and cosmic dust, and for a limited build-up of support of the Mt. Hopkins, Arizona, optical observing site. Request includes \$23,000 for necessary pay increases.

Need for increase

Radio astronomy.—Radio astronomy provides a rich source of new astrophysical information. Observations of discrete spectral lines give clues to processes on the atomic and molecular scale; data on flare stars reveals violent events on stars; study of quasars (quasi-stellar-radio sources) yields knowledge about these strange objects which seem to emit vast amounts of energy by some process not yet understood. During 1967 and 1968, an 84-foot radio telescope for joint use by the Smithsonian Astrophysical Observatory and Harvard College Observatory (HCO) will have been installed and a vigorous observing program established.

To utilize this instrument efficiently during 1969, it is essential to add a radio astronomer to the small group of radio astronomers at the Observatory and provide computer and other services, an increase of \$19,000.

Gamma-ray astronomy.—Gamma-Ray Astronomy, the detection and analysis of gamma rays from astronomical objects, is still in an embryonic state. Theoretical calculations predict that a detachable flux of gamma rays is emitted by several astronomical objects. Scientists at the Observatory have played an important role in analyzing the theoretically great potential of this branch of astronomy and in developing instrumentation for its pursuit. High energy gamma rays are particularly important for the information they carry about high energy phenomena in the universe.

During 1967 and 1968, a single large reflector to collect Cherenkov light for pursuit of gamma-ray astronomy will have been installed at the Observatory's Mt. Hopkins, Arizona site, and preliminary measurements will continue to be made with this instrument. It is essential that an increase in travel funds of \$3,000 be made available so that the scientific staff may make optimum use of the instrument. The Observatory is the only known such facility pursuing this branch of astronomy with ground-based instrumentation of large size. Thus, it is essentially the national observatory for this work.

Meteorites and cosmic dust.—The Observatory is investigating the petrography, mineralogy, metallurgy, and isotopic composition of meteorites and cosmic dust in order to reveal the history and evolution of the solar system as recorded in meteoritic matter. The same techniques will be applied by the Observatory to returned lunar samples in a responsibility assigned to it by the National Aeronautics and Space Administration. Current activities include a concerted effort to measure the quantity of extraterrestrial dust falling on the earth and to establish criteria for its identification.

During 1968, substantial additions will have been made to the laboratory equipment for this research at the Observatory. These additions were scheduled some years in advance and similar purchases are not planned for 1969.

This program contains an increase of \$3,000 for rent, \$16,000 for services, \$5,000 for supplies, and a decrease of \$69,000 for equipment, a total decrease of \$45,000.

Theoretical astrophysics.—The Observatory is making significant contributions in topics such as stellar atmospherics and the evolution and mechanics of the solar system. It is pioneering in the use of high-speed digital computers for solving complex astrophysical problems. Although a measured increase for computing is anticipated over the next several years, additional funding for theoretical astrophysics is not requested at this time.

Optical observatory and observations.—Over the past several years, scientists at the Observatory have demonstrated an escalating need for observation time on conventional telescopes. The Observatory has not had a conventional telescope. The need has exceeded the time available on instruments at other observatories, particularly in support of stellar atmosphere research. A meaningful program addressed to this particular need will occupy very productively the full time of a modest-sized optical instrument. Thus, during 1968, a 60-inch telescope is being procured and during 1969 this will be housed at the Observatory site on Mt. Hopkins, Arizona. To man this instrument properly, two observer-astronomers must be attached to the Mt. Hopkins staff during 1969.

By 1969, the following will be in operation on Mt. Hopkins: (1) Gamma-ray astronomy instrument, (2) satellite tracking laser, (3) Baker-Nunn Camera, (4) 12-inch telescope, and (5) 60-inch telescope. Scientific use of these instruments plus our activities in Interference Spectroscopy and Atmospheric Investigations require additional funds for travel to the site. Operational implementation of the 60-inch telescope will require additional instrumentation.

Total increases of \$99,000 for this program include \$16,000 for personal compensation and benefits, \$6,000 for travel of scientists and engineers to Arizona, \$8,000 for computer and other services, and \$69,000 for equipment. Funding requirement decreases in the meteorite program will be used to offset this need.

Flight experiments.—The Observatory is actively exploiting both balloons and artificial satellites in order to make critical measurements of gamma rays and ultraviolet radiation of extraterrestrial origin above the atmosphere blanket.

No significant change is anticipated in the Observatory funding for flight experiments in 1969.

Meteors and comets.—Both radio and optical observations of meteors are made regularly. The distribution of its stations around the world make possible nearly continuous observations of bright comets, yielding data not otherwise available anywhere in the world. Recently, data from very bright meteors show that most of the incoming meteoroids are surprisingly fragile.

Although no change in the Observatory's funding level for these activities is planned for 1969, the program will continue vigorously.

Planetary and lunar.—Studies of planets and satellites in the solar system, including investigations which bear on the earth as a planet, are making substantial advances in this decade. The Observatory is making significant contributions, particularly in the areas of planetary atmospheres and geodesy. No increase is sought for this program.

SMITHSONIAN ASTROPHYSICAL OBSERVATORY BUDGET PROJECTION, 1968-71

	1968		1969		1970		1971		1972		1973	
	Man-years	Amount	Man-years	Amount	Man-years	Amount	Man-years	Amount	Man-years	Amount	Man-years	Amount
Program:												
Radio astronomy.....	3	\$92,000	4	\$111,000	6	\$230,000	7	\$260,000	7	\$295,000	9	\$375,000
Gamma-ray astronomy.....	2	169,000	2	172,000	5	200,000	9	450,000	9	450,000	10	225,000
Meteorites and cosmic dust.....	11	348,000	11	303,000	11	320,000	12	330,000	12	350,000	13	425,000
Theoretical astrophysics.....	16	304,000	16	304,000	16	310,000	16	340,000	17	360,000	17	420,000
Optical observatory and operations.....	3	242,000	5	341,000	9	450,000	9	850,000	10	950,000	13	400,000
Flight experiments.....	5	137,000	5	137,000	5	140,000	5	150,000	7	150,000	7	150,000
Planetary and lunar.....	2	103,000	2	103,000	6	220,000	8	245,000	8	275,000	5	250,000
Meteors and comets.....	5	99,000	5	99,000	5	110,000	5	110,000	5	130,000	5	130,000
General scientific and administration.....	6	289,000	6	309,000	6	370,000	6	400,000	6	450,000	6	475,000
Total.....	53	1,783,000	56	1,879,000	69	2,350,000	77	3,135,000	81	3,410,000	89	2,850,000
Scientific and administrative positions:												
Scientists ²	41	-----	44	-----	55	-----	62	-----	65	-----	71	-----
Technicians.....	6	-----	6	-----	8	-----	9	-----	10	-----	12	-----
Administrative ³	6	-----	6	-----	6	-----	6	-----	6	-----	6	-----
Total.....	53	-----	56	-----	69	-----	77	-----	81	-----	89	-----

SMITHSONIAN ASTROPHYSICAL OBSERVATORY BUDGET PROJECTION, 1969-77—Continued

	1974		1975		1976		1977		Total	
	Man-years	Amount	Man-years	Amount	Man-years	Amount	Man-years	Amount	Man-years	Amount
Program:										
Radio astronomy.....	9	\$415,000	10	\$445,000	12	\$495,000	14	\$510,000	14	\$3,228,000
Gamma-ray astronomy.....	10	225,000	10	265,000	10	300,000	10	325,000	10	2,781,000
Interiors and cosmic dust.....	13	425,000	13	350,000	14	350,000	14	370,000	14	3,571,000
Theoretical astrophysics.....	17	470,000	18	490,000	18	490,000	18	515,000	18	4,003,000
Optical observatory and operations.....	17	400,000	19	400,000	22	450,000	24	450,000	24	4,933,000
Flight experiments.....	1	175,000	7	175,000	7	180,000	7	180,000	7	1,574,000
Planetary and lunar.....	10	250,000	10	270,000	10	270,000	10	325,000	10	2,311,000
Meteors and comets.....	6	140,000	6	140,000	6	160,000	6	175,000	6	1,293,000
General scientific and administration.....	7	475,000	8	475,000	8	475,000	10	525,000	10	4,243,000
Total.....	96	2,975,000	101	3,010,000	107	3,170,000	113	3,375,000	113	27,937,000
Scientific and administrative positions:										
Scientists ¹	75	-----	79	-----	83	-----	85	-----	85	-----
Technicians.....	14	-----	14	-----	16	-----	18	-----	18	-----
Administrative ³	7	-----	8	-----	8	-----	10	-----	10	-----
Total.....	96	-----	101	-----	107	-----	113	-----	113	-----

¹ Short-range revisions in this project result from effort to maintain close alignment of Smithsonian Astrophysical Observatory programs with external programs consistent with internal scientific priorities: Radio astronomy—Decrease in the category relates to stretchout encountered by the Cambridge Radio Astronomy Committee (Camroc) of which the Smithsonian Astrophysical Observatory is a member in order to evaluate fully current levels of operation prior to stepping them up. Lunar and planetary—Decrease in this category is due to general slowdown of the Nation's planetary program and consequent rescheduling of planet satellite events. Theoretical astrophysics—Decrease in this category resulting in large part from significant computer economies is reflected in

the increase of the optical observatory and observation category warranted by the efforts of the stellar atmosphere group in conjunction with the 60-inch telescope instrument for Mount Hopkins. Optical observatory and operations—Upward changes in this program represent an accelerated schedule of development necessitated by increasing demands both internal and external and made possible by savings, program schedule readjustments, and direct program contributions from the associated activities of the observatory.

² Includes Ph. D.'s and engineers.

³ Includes Drs. Whipple and Lundquist.

SMITHSONIAN ASTROPHYSICAL OBSERVATORY

	Personnel compensation		Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Analysis of total	
	Number of positions (permanent)	Amount								Total	Pay increases
1968 base.....	53	\$766,000	\$29,000	\$10,000	\$112,000	\$12,000	\$383,000	\$62,000	\$378,000	\$1,808,000	\$1,783,000
Increase requested.....	3	47,000	9,000	0	3,000	0	31,000	5,000	0	99,000	76,000
1969 estimate.....	56	813,000	38,000	10,000	115,000	12,000	414,000	67,000	378,000	1,907,000	1,859,000

SPECIFICATION OF INCREASE (PROGRAM)

Radio astronomy (1 position, \$19,000): To use effectively the joint SAO/Harvard College 84-foot radio telescope, it is necessary to add 1 radio astronomer to the small group at SAO (\$12,000) and provide computer and other services (\$7,000).

Gamma ray astronomy (\$3,000): To make optimum use of the reflector at the Mount Hopkins, Ariz., site by allowing additional travel from Cambridge, Mass. (\$3,000).

Meteorites and cosmic dust (net decrease of \$15,000): To strengthen the concerted effort to study extraterrestrial dust falling on the earth. Increases for rent (\$3,000), services (\$16,000), and supplies (\$5,000) would be offset by a reduction in equipment requirements (\$35,000).

Optical observatory and observations (2 positions, \$99,000): To man and use effectively the 60-inch telescope to be installed at the Mount Hopkins, Ariz., site. Increases would provide for 2 observer-astronomers (\$16,000), travel for use of this and other instruments (\$6,000); computer and other services (\$8,000), and equipment (\$69,000). Meteorite program decrease will be used to offset this equipment need.

12. SMITHSONIAN TROPICAL RESEARCH INSTITUTE

1967 appropriation-----	\$307, 000
1968 appropriation-----	308, 000
1969 estimate-----	446, 000

The Smithsonian Tropical Research Institute conducts and supports basic biological research, education, and conservation in the tropics. It does so in several ways: 1) by the scientific research of its own staff; 2) through the maintenance of a natural reserve on Barro Colorado Island; 3) through operation of research facilities, including both terrestrial and marine laboratories, open to visiting scientists and students; 4) by directing and supporting the education and training of students at all levels from undergraduate to postdoctoral; and 5) by providing technical and scientific information and counsel to other institutions, both private and Governmental.

No new funds have been appropriated for two years while at the same time the Institute is increasingly looked to for a full measure of support of the growing requirements from the outside while developing its own significant research role and performance.

In order to service its minimal workload needs and reestablish a slow and deliberate pace in supporting its research potential, an increase of \$138,000 is required as follows: \$56,000 to rectify serious shortages in supporting services including an administrator, to relieve scientists of growing management responsibilities and to pursue productive relationships with other Federal and private agencies, two laboratory assistants and two laborers; to replace terminal funds from other sources for the salaries of two scientists; and funds for necessary supplies and completely depreciated equipment; \$19,000 to fill an important gap in the professional staff by adding a theoretical ecologist, and to provide him with necessary support; \$50,000 for the review and application by the Research Awards Program to proposals directly related to marine biology and tropical ecology to permit the essential lead-time to assess the biological costs of sea-level canal construction; and \$13,000 required for necessary pay increases.

Need for increase

The Smithsonian Tropical Research Institute is the only U.S. field laboratory of its kind in the American tropics today. Consequently, the great upsurge of interest in science and technology in the tropics has resulted in a rapid increase both in the number of visiting students and scientists, in the number of requests for service made on the Institute, and for the dissemination of its research findings.

To assure the most effective course, a thorough and ongoing review of the research program and services of the Institute has been undertaken. A team of several of the country's leading biologists from Harvard, Princeton, University of Maryland, and Rockefeller University was assembled recently to conduct an on-site review. Their conclusion:

"The general impressions received by the members of the Visiting Committee were highly favorable. The opportunities for important research are unlimited and the existing staff of high competence and originality. The Institute certainly deserves vigorous support. STRI has already had an important impact on the training of graduate students and indeed most research on tropical biology published in the United States was either conducted at Panama or by investigators who have received their first introduction into tropical biology at the Smithsonian Tropical Research Institute."

The urgency of the study of tropical biology is becoming recognized at last. Most of the world's underdeveloped countries are in the tropics. Their populations are increasing very rapidly while their natural resources are being destroyed at a constantly accelerating rate. It is vitally important to acquire a better understanding of tropical environments and biotas, and their potentials, in order to recommend sound policies for future management and conservation practices, and lay the groundwork for sustained economic development and the improvement of standards of living. This can be done only by increasing basic research, and it must be done as soon as possible. These concerns are uniquely compatible with purely scientific interests. The tropics are extremely important from a purely scientific point-of-view. There is convincing evidence that they are the place of origin and the principal center of evolution of most groups of organisms. They also support a much larger number and a greater diversity of species than other regions. Ecological and behavioral relations are more complex in the tropics than elsewhere. Adaptations evolve more rapidly in the

tropics, and tropical species are more apt to be successful in invading other regions than the reverse. Thus, analyses of tropical environments and organisms are yielding, and should continue to yield, valuable insights into fundamental biological processes.

Within the tropics, the Panamanian region is particularly interesting for several reasons. The isthmus itself is a bridge between two continents. It is the route by which species of northern origin move south, and southern species move north. Thus, it is a living laboratory for the study of zoogeographic change. The fact that the Atlantic and Pacific are only 50 miles apart in central Panama is also significant. Nowhere else in the world can the distinct floras and faunas of two oceans be compared as easily and under such favorable conditions. The range of habitats, sandy, rocky, mangroves, coral reefs, estuaries, silty waters, clear waters, beaches with high tides, with little tidal range, etc. is extraordinary.

In view of all these facts, it is not surprising that the Institute attracts more and more scientists and students. And there is every reason to believe that this increase will continue to accelerate. The number of graduate students doing long-term research under the direction of bureau staff has increased from 0 in fiscal year 1965 to six in fiscal year 1967. The number of graduate students working at bureau facilities for shorter periods has increased from 25 in fiscal year 1966 to 138 in fiscal year 1967.

The use made of bureau facilities by visiting scientists from various institutions in the United States and abroad has increased steadily. In fiscal year 1966, 88 senior scientists made work visits to Institute facilities; in fiscal year 1967, this was up to 96. Technical assistants, engineering specialists, members of natural history bodies swelled the total number of visits to 468, nearly all of which required professional guidance and coordination.

In 1967, significant research projects facilitated by the Institute were conducted separately by teams from Washington University, University of Pennsylvania, University of Rhode Island, Rockefeller University, Washington State University, University of North Dakota, and the University of Michigan, to name but a few. Fellows from the Organization of American States conducted long-term studies.

The in-house research activities of the bureau staff have also increased in both amount and variety. Research opportunities were much broadened by the opening of a marine laboratory in fiscal year 1966 to take advantage of the position of the Isthmus of Panama, and initiate comparative studies of the Atlantic and Pacific Oceans. Development of the marine biology program is of considerable importance in relation to assessing the impact of the proposed sea-level canal in the Panama area.

The Institute now provide services and information in direct support of the feasibility study for the canal project. However, the need to initiate a long-term research program to assess the environmental changes to be expected when two oceans are linked, represents an urgent objective of national and hemispheric importance. The Institute can provide important leadership and a core nucleus in the essential effort to become sufficiently familiar with tropical ecological systems to estimate the biological cost of permitting biota from the two oceans to intermingle. Seed money now can reap significant economic savings in future years.

In the judgment of review committee scientists, "all members of the (STRI research) group are highly productive. Each project relates to fundamental biological principles. . . . The result is a wide spectrum of activities which are imaginative in conception and vigorously pursued. Visiting investigators benefit greatly from this (staff breadth)." The ongoing research of the Institute's own professionals is concentrated on productive inquiries in the fields of evolution; social behavior; communication; species diversity; and zoogeography. Considering the limited dollars available for research, research productivity compares favorably with scientific organizations in the United States and can climb further with modest increased support.

The increase of educational and research activities during the past two years has been rewarding, but it also has placed a severe strain on equipment and staff. Some of this strain has been absorbed by more efficient use of facilities and professional resources. But the limit has now been reached. Costs and demands rise while resources remain static. Despite growing workload, reduction-in-force measures are now necessary in stripping back on temporary labor used to handle peak loads.

All available space is already overcrowded, and therefore deteriorating rapidly. Current grants are running out, and probably cannot be renewed (largely because of the National Science Foundation curtailment of its support of Smithsonian Institution research projects). Appropriations are requested here to compensate for these losses, and allow the bureau to continue to operate at its present level of research and service while making modestly scaled progress in meeting new problems in marine and ecological research.

Theoretical ecology is of central importance to the Smithsonian Tropical Research Institute programs, both scientific studies and education and training. The subject is becoming increasingly complex, however, and it is necessary to add now a theoretical ecologist to the staff, to take special charge of several projects in this field.

The Smithsonian Tropical Research Institute contributes essential information to many Government agencies concerned with the manipulation and improvement of tropical environments. Among these are the Departments of Defense, Agriculture, Interior, the National Institutes of Health, and the Atlantic-Pacific Interoceanic Canal Study Commission, for example: Identification of human disease-bearing, host animals and their habitats.

The Smithsonian Tropical Research Institute can continue to improve and carry forward its tropical research, field study center, and problem service responsibilities by the selective support identified here at this critical juncture in its history and development.

SMITHSONIAN TROPICAL RESEARCH INSTITUTE

	Personnel compensation		Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Analysis of total	
	Number of positions (permanent)	Amount								Pay increases	Program
1968 base	21	\$221,000	\$8,000	\$3,000	\$12,000	-----	\$20,000	\$21,000	\$11,000	\$308,000	\$1,000
Increase requested	8	47,000	4,000	0	1,000	-----	54,000	5,000	24,000	138,000	13,000
1969	29	268,000	12,000	3,000	13,000	-----	74,000	26,000	35,000	446,000	14,000

SPECIFICATION OF INCREASE (PROGRAM)

Supporting service improvements (7 positions, \$56,000): To rectify crippling shortages in supporting services and resources in the face of heavy demands placed on the Institute by researchers, students, universities, and Federal agencies by providing 1 administrator to assume a growing administrative workload, 2 scientists previously funded from other sources, and 2 laboratory assistants and 2 laborers to furnish research and island management support (\$27,000); raise to research areas of unusual potential (\$3,000); rental of office space and the provision of utilities (\$1,000); contractual services for management and preservation of the island (\$2,000); laboratory and island maintenance supplies (\$3,000); and replacement of obsolete and depreciated equipment (\$20,000).

Theoretical ecology (1 position, \$19,000): To fill a significant gap in a research area of central importance to tropical biology studies by 1 theoretical ecologist (\$10,000), travel to field projects under his direction (\$1,000), special ecological studies (\$2,000), and specialized laboratory and field research supplies (\$2,000) and equipment (\$4,000).
Marine and terrestrial biology (\$50,000): To fund through the research awards program proposals approved by the Advisory Committee directly related to assessing well in advance of construction the biological costs of sea level canal (\$50,000).

13. RADIATION BIOLOGY LABORATORY

1967 appropriation-----	\$340,000
1968 appropriation-----	394,000
1969 estimate-----	454,000

The Radiation Biology Laboratory conducts pioneering research on the functions of living organisms affected and controlled by radiation, primarily as related to the utilization of sunlight. Such studies produce information fundamental to the development of technological advances and applications, especially in food production and environment control.

An increase of \$60,000 is requested including \$15,000 for a physiological ecologist to fill a gap in the controlled-environment biology program and \$35,000 for mechanical and service personnel and supply support for science programs. \$10,000 are for necessary pay increases.

Need for increase

The sun is the principal source of energy for life on the earth. Radiant energy from the sun is trapped by pigments and converted to potential chemical energy. The research of the Radiation Biology Laboratory is directed toward understanding the cellular and subcellular mechanisms and processes by which organisms use radiant energy for their growth and development.

This research is of wide application. For example, the quality and duration of sunlight is of the greatest importance in the growth and development of many plants as well as animals of direct agricultural importance. In addition, the quality, duration, and periodicity of light is of direct consequence to living organisms including man in determining their physiological tolerance to ionizing radiation and chemical agents. In fact, the modern fields of biophysical physiology and biochemistry have a continuing requirement for a precise characterization of solar radiation in developing experiments of health-oriented importance to man.

Radiation biology is interdisciplinary in nature, extending from the primary physical event of radiant energy absorption through the chemical transformation of the molecule to the final physiological expression in cells and whole organisms. Specific and varied disciplines must be welded together to achieve an understanding of this process. The distinctive combination of research disciplines in the Radiation Laboratory is particularly well-adapted to the study of complex biological problems such as those cited by the U.S. National Committee for

the International Biological Program. One such problem is "to identify the environmental factors that limit production of plant materials, particularly food stuffs."

To achieve such goals, the Radiation Biology Laboratory undertakes a comprehensive approach, examining all the variable factors of the organisms and their functioning, the influences upon them, and the interrelationships among these. The addition of a physiological ecologist is required to complete the team investigation of biological responses. A physiological ecologist would study the adaptive structural and functional features which link the plant or animal to its environment and investigate all forms of transfer and transformation of energy and mass connected with the dynamics of a living system. This is an increase of \$15,000.

Mechanical and service support for science programs is indispensable. Scientists are employed for their knowledge and skill in conducting research. Their time should not be wasted on servicing and maintaining physical facilities and equipment. The complexity of technology and cost of equipment employed in the conduct of research are such that a trained maintenance staff is essential. In a laboratory biological program, controlled-environment facilities include refrigeration machinery with precise temperature control systems, electrical systems to operate humidity and light control devices, and various plumbing and mechanical facilities for adapting instruments to specialized laboratory use. Several research projects require special ventilation and refrigeration facilities which must be maintained continuously around the clock for long periods. Interruption of services for more than a few hours in a single experiment of several months' duration can invalidate the entire experiment. These additional personnel are required now for ongoing research projects and will be essential to proper maintenance and operation of the Laboratory's improved facilities in its relocation site. Laboratory service personnel must have special qualifications. Their services are separate and distinct from the kinds associated with conventional physical plant maintenance. Four mechanical positions and supplies and equipment for laboratory support are required, an increase of \$35,000.

The Laboratory has a long history of accomplishments in the study of biological mechanisms regulated by radiation. Most recently, in 1967, a "first" has been the successful measuring of the relative sensitivity of the control of growth and bending response of moss cells by various regions of the visible spectrum. This may have general significance in understanding plant development under natural environmental conditions.

RADIATION BIOLOGY LABORATORY

Number of positions (permanent)	Personnel compensation		Personnel benefits 12	Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Total	Analysis of total	
	11	Amount										Pay increases	Program
1968 base.....	31	\$288,000	\$22,000	\$4,000	-----	-----	-----	\$17,000	\$24,000	\$39,000	\$394,000	\$11,000	\$383,000
Increase requested.....	5	35,000	3,000	2,000	-----	-----	-----	0	10,000	10,000	60,000	10,000	50,000
1969 estimate.....	36	323,000	25,000	6,000	-----	-----	-----	17,000	34,000	49,000	454,000	21,000	433,000

SPECIFICATION OF INCREASE (PROGRAM)

Controlled-environment biology program (1 position \$15,000): To fill a gap in existing laboratory staff competence by adding 1 physiological ecologist (\$9,000); and supporting the program with travel (\$2,000); specialized supplies and materials such as radioisotopes (\$1,000); and essential laboratory research equipment (\$3,000).

Mechanical and service support (4 positions \$35,000): To maintain repair and operate complex refrigeration, electrical, plumbing, and controlled-environment equipment used in laboratory experimentation. No personnel exist to meet this need. Increase would provide for 4 mechanics (\$19,000); hardware and supplies (\$9,000); and test and repair equipment (\$7,000).

14. OFFICE OF ECOLOGY

1967 appropriation-----	\$118, 000
1968 appropriation-----	120, 000
1969 estimate-----	157, 000

The Smithsonian Office of Ecology plans and oversees a program of fundamental research on the interrelationships of living organisms, including man, with their total environment. This program emphasizes the effects of rapidly changing environments on natural resources and on human societies. The Office is concerned also with conservation in the sense of preserving the capacity of ecological systems to support rich and varied forms of life. Currently the program has two major focuses: One on the development of international programs of ecological research, especially in foreign countries where Public Law 480 funds have been made available through the Smithsonian Foreign Currency Program; and the other on ecosystem-oriented science at the Chesapeake Bay Center for Field Biology. The Office's work brings into concerted action efforts under way in the Smithsonian's research bureaus with those of other public and private agencies and with activities such as the International Biological Program.

An increase of \$37,000 is requested in support of research activity at the Chesapeake Bay Center for Field Biology and environmental studies abroad. This includes \$2,000 for necessary pay increases.

Need for increase

Society is facing the urgent need to adjust patterns of human culture to the physical and biological limitations of the earth's resources and ecological systems. With his modern technology, man is capable of massive environmental changes which are usually irreversible and can affect adversely the lives of future generations as well as his own. Public concern is growing over the deteriorating quality of human life through improper management of natural resources and environmental systems. The importance of bringing national science resources to bear on predicting the consequences of alterations in the world's resources and environment is recognized. This cannot be the responsibility of any single institution or agency. The Smithsonian's board and deep resources must be brought to bear in an overall national and world effort.

The foundations for a program in ecology at the Smithsonian have been built up since the Institution's establishment. They consist of a closely-interrelated pattern of scientific skills, the National Collections in the natural sciences, and the availability of natural preserves. Smithsonian scientists are concerned with the quality of the environment, for they are largely concerned with systematics, with setting into categories organisms that are inescapably a part of the particular environments within which they, as species, live. The Institution also has well developed experimental programs on photosynthesis and the effects of radiation on plants and animals. Its extensive biological and anthropological collections are essential for precise determination of the components of the ecological systems in which we live. Plants and animals in the Smithsonian's collections provide significant comparisons with those in their natural habitats. Similarly, data about specimens in the collections in relation to their environments, acquired over a period of 120 years of collecting and documenting, become a series of benchmarks against which modern environments can be gauged.

Similar benchmark resources are offered by the Institution's natural preserves at the Smithsonian Tropical Research Institute and the Chesapeake Bay Center for Field Biology. These are natural complexes that are relatively unmodified by man and which can be used to understand the dynamics of the natural environment and to measure and forecast the effects of human interference.

The Office of Ecology is charged with the responsibility of enhancing the growing and productive use of the Smithsonian's professional, collection, and preserve resources in a coordinated study effort.

At the Chesapeake Bay Center for Field Biology long-range studies of vegetation change will supply knowledge which is essential for the management of vegetation for forestry, wildlife protection, control of watersheds, beautification of highways and open spaces, and right-of-way maintenance. Sufficient evidence has accumulated in the last 25 years to challenge seriously the textbook concept of plant succession. The Chesapeake Bay Center for Field Biology also offers a resource for environmental studies basic to an understanding of the movement of pollutants and their effect on terrestrial and estuarine ecosystems. For in-

stance, in 1967, studies on the dynamics of populations of ospreys and great blue herons in the area may help to evaluate the influence of man's activities in contaminating ecological systems with insecticides since these birds concentrate quantities of insecticides large enough to influence reproduction and mortality.

Surveys of opportunities for ecological research have been initiated in a number of foreign countries. Opportunities are sought for research in basic principles and concepts concerning the dynamics of animal populations, vegetation change, primary and secondary productivity, the cycling of nutrients, demography, numerical regulation of populations with emphasis on social behavior, and ecological anthropology.

To meet the research and administrative needs of the Chesapeake Bay Center for Field Biology and foreign ecological study programs, one research biologist, one administrative assistant, and one clerk-typist are essential additional staff needs. Additional funds are needed also for maintenance of the Center, including utilities, and for travel, equipment, and supplies for scientists using the Center. This requires a total increase of \$35,000.

OFFICE OF ECOLOGY

	Personnel compensation		Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Total	Analysis of total	
	Number of positions (permanent)	Amount									Pay	Program
1968 base.....	5	\$77,000	\$5,000	-----	\$1,000	-----	\$29,000	\$1,000	\$1,000	\$120,000	\$2,000	\$118,000
Increase requested.....	3	20,000	1,000	-----	3,000	-----	3,000	3,000	5,000	37,000	2,000	35,000
1969 estimate.....	8	97,000	6,000	-----	4,000	-----	32,000	4,000	6,000	157,000	4,000	153,000

SPECIFICATION OF INCREASE (PROGRAM)

Environmental Study Programs (3 positions, \$35,000): Existing office resources are inadequate to develop the research potential of the Chesapeake Bay Center for Field Biology and to provide the coordinated planning and administrative support required to arrange basic environmental studies in selected overseas areas of special interest. Increase would be used to provide 1 research biologist for continuity of effort at the Center, 1 administrative assistant and 1 clerk-typist for both Center

activities and international programs (\$20,000); travel to study areas (\$1,000); utilities and communications at the Center (\$3,000); field maintenance and other services not supplied by Smithsonian staff (\$3,000); scientific and preservation supplies and materials (\$3,000); and essential research equipment (\$5,000).

15. OFFICE OF OCEANOGRAPHY AND LIMNOLOGY

1967 appropriation-----	\$254,000
1968 appropriation-----	259,000
1969 estimate-----	347,000

The Office of Oceanography and Limnology operates the Smithsonian Oceanographic Sorting Center which processes marine specimens from national and international expeditions for use by scientists of the world in specimen-related research. The Office also facilitates the productive involvement of Smithsonian scientists in aquatic research of national and international significance, and provides outside scientists and research organizations with a focal point for their effective use of Smithsonian competencies within the national interest. Through its Sorting Centers in Washington, D.C., and in Tunisia (the latter principally supported by the Foreign Currency Program), the Office serves as a substantial producer and repository of biological and geological data for the Federal Government. These data are used in the evaluation and harvest of fisheries and mineral resources; in the protection of human life at sea; in the resolving of naval problems of fouling, bioluminescence and bioacoustics; and in studying the effects of pollution on the marine environment.

An increase of \$88,000 is requested to process and distribute urgently needed, backlogged specimens collected by the International Indian Ocean Expedition, the International Cooperative Investigations of the Tropical Atlantic, the Guinean Trawling Survey, and Antarctic Expeditions in preparation for materials to be received from newly approved international expeditions to the Caribbean, the Mediterranean, and the Southern Ocean. Included is \$8,000 for necessary pay increases.

Need for increase

More than 150 U.S. scientists have participated in biological collecting cruises of U.S. vessels engaged in international expeditions developed under the **S4-nation Intergovernmental Oceanographic Commission**. The Smithsonian Institution on behalf of the U.S. Government accepted the responsibility in 1962 to **sort** the resulting collections and deliver them to the collecting scientists and to other scientists in the world able to study and evaluate them in relation to available food and other resources from the sea. Although two of these expeditions have been completed for more than two years, past budget restrictions have been so stringent as to limit severely the performance of the Institution under these commitments. Newly approved major international expeditions to the Caribbean, the Mediterranean, and the Southern Ocean place great urgency on completion of sorting of the backlog. Unless such work is completed, a significant portion of the value to our understanding of the food resources of the former expeditions will be lost.

In developing information on the potential resources in the ocean, the Sorting Center collects, tabulates, and distributes information concerning the nearly 500,000 kinds of marine organisms of potential value to man. Efforts of the Center have resulted in the development of a new field of biology. This field concerns meiofauna, minute animal life living in and among sediments at the bottom of the sea, and providing food for bottom-feeding fishes and other organisms.

Since the Center began operations in 1963, 35,000 samples of marine organisms and sediments have been received. From 27,000 of these samples, more than 16 million (seven million in 1967) individual organisms have been sorted for study by scientists. A total of 1,000 shipments of specimens has been sent during the four and one-half years of the Center's existence. Actively servicing 254 scientists from 27 countries of the world, each studying a different group of marine species, the Sorting Center has been unable to meet the accelerated demand caused by the increasing world interest in marine production.

The success and enthusiasm with which scientists and institutions have received the services provided by the Center is shown by the regularly increasing quantities of bulk materials sent to the Center since its establishment and by corresponding increases in the volume of requests for specimens. Production is becoming backlogged and is not meeting research requirements. More than 100 requests for specimens cannot be met. Advisers and users of the Center also have urged that its operations be broadened to include more extensive coverage of sediments and rock samples and additional biological groups.

The Center continues to serve the National Science Foundation, the Bureau of Commercial Fisheries, the National Oceanographic Office, Intergovernmental Oceanographic Commission, and many private institutions and universities in the processing of marine collections. Recently, a recommendation to the National Science Foundation resulted in a substantial modification and cost saving to the planned plankton-collecting program in the Antarctic.

A valuable by-product of the activities of the Sorting Center has been its training of oceanographic technicians. All of the nearly 100 trainees already provided have been gainfully employed. The increase requested would be an important asset in meeting the shortage of manpower for oceanographic work by industry and Government.

An additional two scientists and six technicians are needed urgently to oversee Center activities and to sort, document, and distribute the increased flow of newly-collected materials as well as to start reducing the amount of backlogged collections. Increases are required for travel to oversee the movement of collections, computer time in connection with systems being developed to improve recordkeeping, sorting and shipping supplies and preservatives, and microscopes and other sorting equipment. These increases will result in greatly accelerated research effectiveness by investigators now having only partially useful collections.

OCEANOGRAPHY AND LIMNOLOGY

	Personnel compensation		Travel 21	Transportation of things 22	Rent, com- munications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Total	Analysis of total	
	Number of positions (permanent)	Amount									Pay increases	Program
1958 base.....	18	\$177,000	\$5,000	-----	\$4,000	-----	\$13,000	\$23,030	\$25,000	\$259,000	\$5,000	\$254,000
Increase requested.....	8	46,000	3,000	-----	0	-----	3,000	6,000	26,000	88,000	8,000	80,000
1969 estimate.....	25	223,000	8,000	-----	4,000	-----	16,000	29,000	51,000	347,000	13,000	334,000

SPECIFICATION OF INCREASE (PROGRAM)

Oceanographic sorting center (3 positions, \$80,000): To sort and identify several million specimens collected on 4 expeditions and distribute these to a worldwide network of scientists studying food and other resources from the sea. Present staff cannot clear existing backlogs due to increase with new materials resulting from planned international expeditions. Increases would provide 2

scientists and 6 technician-sorters (\$42,000); travel to survey incoming collections (\$3,000); computer time for recordkeeping systems (\$3,000); preservatives and shipping supplies (\$6,000); and sorting microscopes and equipment (\$26,000).

16. RESEARCH AWARDS PROGRAM

1967 appropriation-----	\$400,000
1968 appropriation-----	400,000
1969 estimate-----	430,000

The Smithsonian Research Awards Program supports intramural research projects not funded either by outside agencies or through the regular plans of operation of the bureaus.

An increase of \$30,000 is requested for support of projects rated to be of high scientific merit. An additional \$50,000 would be reviewed for support of marine and biological studies at the stations of the Smithsonian Tropical Research Institute in Panama as explained in the justification for that bureau.

Need for increase

The Research Awards Program was started in fiscal year 1966 for the purpose of financing new or continuing research projects formerly supported by the National Science Foundation. In the years preceding fiscal year 1966, the National Science Foundation provided research grants for Smithsonian Institution scientists, as well as to scientists in other Government agencies. This was terminated during 1965 and has not been resumed. Funds appropriated for this program have never reached the proportionate level of those previously available from the National Science Foundation.

Projects cover all phases of research in all the Smithsonian scientific bureaus. The Smithsonian Research Awards Advisory Committee reviews all proposals and recommends that support be given to those proposals having the greatest scientific merit, with careful consideration given to competence of the investigator, the relevance of the research, and the facilities available for the research. During the past two years, 140 proposals were submitted, of which 78 were supported. Approximately 50 highly meritorious proposals were passed over because of the lack of funds.

The Research Awards Program permits the expeditious exploitation of unanticipated research opportunities as well as the maintenance and continuity of basic long-term research through essential supplementary support. Further, it serves as an important means whereby scientists of the Smithsonian Institution may engage in collaborative field research projects in timely fashion 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 assistance. The Research Awards Program increases the opportunities for our scientists to provide basic research results to the mission-oriented Federal research and development agencies.

Illustrations of recent awards of unusual significance included support for the preparation of a basic reference catalog, heretofore not available, for the field identification of the snakes and lizards of the neotropics. To be prepared in both English and Spanish, it will serve the needs of nonherpetologists working on the biota of the neotropics in the International Biological Program. An award to a member of the Smithsonian Astrophysical Observatory staff for the purpose of obtaining spectral energy distributions for selected stars in nearby galactic clusters will be used to test the consistency of theoretical stellar atmosphere calculations and to derive chemical abundances for these stars. A Smithsonian anthropologist received funds to investigate and establish chronological sequences of the development of pre-European cultures along the coast of Brazil and its major rivers.

SMITHSONIAN RESEARCH AWARDS

	Personnel compensation	Personnel benefits 12	Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Total	Analysis of total	
	Number of positions (permanent) Amount										Pay increases	Program
1968 base.....							\$400,000			\$400,000	0	\$100,000
Increase requested.....							30,000			30,000	0	30,000
1969 estimate.....							430,000			430,000	0	430,000

SPECIFICATION OF INCREASE (PROGRAM)

Support of meritorious research projects (\$30,000): To continue financing research opportunities During the past 2 years, 50 projects of high scientific merit, as judged by an advisory committee, at a level commensurate with previous National Science Foundation support of similar projects. could not be supported because of lack of funds. Increase will provide only modest additional support.

17. OFFICE OF EDUCATION AND TRAINING

1967 appropriation-----	\$200,000
1968 appropriation-----	218,000
1969 estimate-----	262,000

The activities of the Office of Education and Training fall into two broad categories reflecting the major concerns of the Institution. The first category includes those programs directly related to Smithsonian research in science, history, and art. Notable among these is the program of visiting research appointments for postdoctoral scientists and scholars, for graduate students, and for undergraduates. The second category includes those programs directly associated with the exhibit and public education functions of the Institution's museums. Significant here are the guided tours of the exhibit halls provided to all school systems in the Washington Metropolitan area and the development of neighborhood museums. In both cases, the programs of the Office are designed to support and strengthen continuing and fundamental Smithsonian activities and, at the same time, to make the results of these activities more widely available.

An increase of \$44,000 is requested to continue operations of an experimental neighborhood museum in Washington, D.C. Request includes \$2,000 for necessary pay increases.

Need for increase

The neighborhood museum provides an opportunity for stimulation and learning on a small, personalized scale through actual contact with real things—which is the unique characteristic of museums—for adults and children who rarely, if ever, use existing museums and other cultural resources in the Capitol. The neighborhood museum is not viewed as a substitute for use of the city's cultural resources, but as a doorway to greater use of them.

While millions of visitors use the Smithsonian annually for pleasure and learning, it is clear that large sections of the urban community do not do so. For the school year 1965-66, for example, guided tours of the museum's exhibit halls were provided to all school systems in the Washington Metropolitan area. In all, 32,909 schoolchildren from the area participated, yet only 1,871 or six percent of them were from the schools in the District of Columbia itself. The remainder were from the middle- and upper-class suburbs surrounding Washington's urban core. Furthermore, the pattern of Smithsonian visitors in no way reflects the city's actual population characteristics. More than 98 percent of the visitors to the Museum of Natural History on a recent holiday were white.

This is perhaps not surprising. In a city where 262,000 people—or one-third of the total population—live “at little more than subsistence level, with incomes inadequate to provide them with decent housing, sufficient food and clothing, and other necessities,”¹ it is hardly to be expected that large numbers of the poor are as much as able to afford the carfare for a trip to a museum, if they have time to think of museums at all. If carfare is no problem, then dress may be a difficulty.

There is abundant evidence that the poor, in any city, are only minimally aware of the range of social and cultural services potentially available to them. Yet for the poor, the undereducated, and the slow learner as much as for the college graduate, the contents of museums—things—have real educational potential. Many objects speak for themselves. One needn't read at all, nor understand the processes of geology to see that time, and weather, and pressures from within the earth can transform a stone into a jewel or molten lava into a rock. Nor must one be a student of archeology to see the complexity and beauty of Egyptian pottery or an Inca weaving.

A neighborhood museum will not eradicate poverty and ignorance. Programs to relieve material poverty are essential. But it is equally important that the citizens of the “other America,” and especially their children, be introduced to the varieties of the wider world.

The program of the museum, which will be open seven days a week at times most convenient for potential visitors, will include the following:

¹ *Report on the President's Commission on Crime in the District of Columbia*; Washington, D.C., U.S. Government Printing Office, 1966, p. 12.

Frequently changing exhibits drawn from our collections in art, history and science. Objects will include things which may be touched and disassembled, as well as static exhibits.

Workshops, clubs and classes related to the exhibits, including trips and use of resources other than the Neighborhood Museum. The activities will be instituted in response to participants' interests and, to the greatest degree possible, will be organized and run by neighborhood volunteers, with encouragement and assistance by the staff of the museum.

Exhibits assembled or made by residents of the neighborhood.

Experimental exhibits, designed to discover effective ways of reaching people not ordinarily attracted by conventional museum programs or to pre-test experimental approaches for ultimate use within the Smithsonian.

The museum's staff will be responsible for encouraging maximum neighborhood use of the facility by responding flexibly and imaginatively to the needs and interests of the users and upon efforts to insure the fullest possible neighborhood participation both in planning and in programming the museum. For this reason, the staff will be drawn from individuals with demonstrated skill in community work, including, on a part-time basis, a number of neighborhood residents. Thus, the Smithsonian will provide the scientific and technical skills necessary to fill the museum with exhibits; the museum staff will provide the educational and organizational skills needed to fill the museum with people.

During the past year, with seed money granted by private foundations, the first of these experimental museums was opened in Anacostia—a densely populated community in which 78 percent of the population is non-white, in which 41 percent of the population is under 18 years of age, in which the median family income in 1960 was \$3,430. Working in the closest cooperation with a Neighborhood Advisory Council, the Smithsonian has been able to involve the Anacostia community in every aspect of this venture, from the remodelling of the rented building and grounds, through the design and construction of exhibits, to the actual operation of the museum. All indications to date suggest that this experiment in bringing museums to the people will be a signal success, and that it will chart a course which other museums may follow.

The Smithsonian is continuing to make strong efforts to obtain private support of the neighborhood museum concept. Recently, a foundation has promised a matching grant if funds are raised by Washingtonians. It is essential to continued successful operations, however, that the Smithsonian fund this Museum in its regular budget. The requested increase of \$42,000 will be used to provide minimal staff support consisting of a director, an exhibits specialist, a museum aid, and a secretary and to provide for supplies and equipment for office and visitor use of the museum. Additional amounts for physical facilities and exhibits' preparation are requested in the Buildings Management Department and Office of Exhibits portions of this budget.

In 1960, the Office of Education and Training will maintain its other responsibilities. Notable among these are its guided tour program for schools and its visiting research appointment program. The 35,000 children who took guided tours of anthropology, zoology, and American history during the 1966-67 school year represent only a fraction of those who would come if more tours were available. The number of applicants for graduate and undergraduate assignments to use the Smithsonian's research facilities far exceeds the number of appointments that can be given. Despite the importance of these two programs, no increases are sought in deference to the needs of the Neighborhood Museum.

OFFICE OF EDUCATION AND TRAINING

	Personnel compensation		Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Total	Analysis of total	
	Number of positions (permanent)	Amount									Pay increases	Program
1968 base.....	13	\$93,000	\$2,000	-----	-----	-----	\$115,000	0	0	\$218,000	\$3,000	\$215,000
Increase requested.....	4	22,000	0	-----	-----	-----	0	\$10,000	\$10,000	44,000	2,000	42,000
1969 estimate.....	17	115,000	2,000	-----	-----	-----	115,000	10,000	10,000	262,000	5,000	257,000

SPECIFICATION OF INCREASE (PROGRAM)

Neighborhood museum (4 positions, \$42,000); To continue operation of an experimental neighborhood museum in Washington, D.C., established and thus far operated largely with funds from private foundations. Increase would provide for 1 Director, 1 exhibits specialist, 1 museum aide, and 1 secretary (\$22,000); supplies and materials for museum operations and visitor use (\$10,000); and office equipment and minimal public furnishings (\$10,000).

18. INTERNATIONAL ACTIVITIES

1967 appropriation -----	\$188,000
1968 appropriation -----	192,000
1969 estimate -----	230,000

The International Activities program focuses on the Smithsonian's traditional commitments to basic research and international exchange of information in the sciences and the humanities.

The Office of International Activities develops and administers programs of international cooperation, giving emphasis to those research areas where further advancement of knowledge in the United States requires continuing and strong cooperative research programs in other nations. The Office also serves as the Institution's point of liaison with Government agencies and other organizations on international matters.

The International Exchange Service is the bureau of the Smithsonian Institution responsible for carrying out the obligations assigned to the Institution in conventions, treaties, and other international agreements for the transmission of scientific, cultural, and Government publications to other countries on exchange or as gifts.

An increase of \$38,000 is requested, including \$26,000 for the Office of International Activities to administer a growing and more complex international program and \$12,000 for the International Exchange Service to meet a higher volume of requests and increased shipping costs. Requests include a total of \$4,000 for necessary pay increases.

Need for increase

The Office's principal activity is the development and support of cooperative international projects, particularly in the anthropological sciences and in systematic and environmental biology, under the Foreign Currency Program. This Program has proved essential in meeting the Institution's long-term research goals during times of imperative budgetary restraint through the advantageous medium of excess foreign currencies. It requires, however, complex inter-Governmental negotiations leading to country-to-country agreements and, more frequently, individual project agreements. These individual agreements are necessary because the Smithsonian's program, unlike other PL-480 excess currency programs, awards grants only to American institutions for which the Smithsonian nearly always has to insure optimum working conditions abroad by agreement with appropriate host-country organizations.

The Office now receives an average of 20 project proposals a month for review and possible development along the above lines, as contrasted with one or less during the first year of the program and seven to 10 during fiscal year 1967.

In addition, to insure adequate fiscal, management, and reporting standards, the Office staff has had to increase correspondingly on-site inspections and audits.

The Office also administers other cooperative programs with Federal agencies or international organizations and serves as the programming center for all foreign visitors who are professionally interested in the Smithsonian. Examples include the Pan American Union's Fellowship Program for Latin American scientists at the Smithsonian Tropical Research Institute and a cooperative arrangement with the Department of State for assisting museum specialists and museum scientists. The number of visitors increased from 22 in 1966 to over 40 in 1967.

Substantial effort also goes to assisting the Institution's curatorial and scientific staff in mounting expeditions or research projects and in establishing exchanges of exhibits which involve substantial participation of foreign institutions or inter-Governmental negotiations. For instance, in 1967, such assistance ranged from obtaining host country and America Embassy support for multinational research programs, such as the Office of Anthropology's Ancient Technologies Program, which has carried out field research in Iran, Turkey, and Ceylon, to making arrangements for locally shown art exhibits or cultural events with the Embassies of Peru, Chile, Tunisia, Iran, and Czechoslovakia.

Two additional administrative and technical assistants and increased travel and other support funds (a total of \$24,000) would be the minimum for successful administration of increased international support activities.

During 1967, one million pounds of official, literary, scientific, cultural, medical, and dental publications were received from more than 400 different colleges, universities, societies, Government bureaus, Congressional committees, and agricultural experiment stations for transmissions to more than 100 different countries. Over 100,000 pounds were received from foreign sources for distribution within the United States.

The Service has received many requests for assistance in transmitting publications to the developing countries. Many worthwhile requests are having to be refused. On January 4, 1967, a Presidential Directive to Government Agencies for implementation of the National Policy Statement on International Book and Library Activities, provided for "sizeable" expansion of the present Smithsonian program to provide core libraries overseas with United States journals and serial publications. Unless the Service receives additional funds, it will be forced to reduce further the amount of publications it can accept for transmission. One additional clerk is required to sort, pack, and unpack incoming and outgoing materials and to prepare shipping documents. Costs of transporting publications to the piers in Baltimore have doubled during the past fiscal year, and another increase is proposed. Ocean freight rates have risen 10 percent. This is a total increase of \$10,000.

INTERNATIONAL EXCHANGE SERVICE

	Personnel compensation		Personnel benefits 12	Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Total	Analysis of total	
	Number of positions (permanent)	Amount										Pay increases	Program
1968 base.....	9	\$58,000	\$4,000	-----	\$31,000	-----	-----	-----	\$4,000	\$1,000	\$98,000	\$2,000	\$96,000
Increase requested.....	1	6,000	0	-----	4,000	-----	-----	-----	2,000	0	12,000	2,000	10,000
1969 estimate.....	10	64,000	4,000	-----	35,000	-----	-----	-----	6,000	1,000	110,000	4,000	106,000

SPECIFICATION OF INCREASE (PROGRAM)

International Exchange Service (1 position, \$10,000): The 1,000,000 pounds of publications sent and offset much higher freight rates (\$4,000), and replace obsolete package handling equipment in 1967 represent the limit of capability of present staff and funds. A growing number of requests cannot be serviced. Increase would provide 1 shipping clerk (\$4,000), provide for increased shipping

OFFICE OF INTERNATIONAL ACTIVITIES

	Personnel compensation		Personnel benefits 12	Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Total	Analysis of total	
	Number of positions (permanent)	Amount										Pay	increases
1968 base	6	\$67,000	\$5,000	\$6,000				\$15,000	\$1,000	\$0	\$94,000	\$3,000	\$91,000
Increase requested	2	13,400	1,000	2,000				7,000	1,000	2,000	26,000	2,000	24,000
1969 estimate	8	80,000	6,000	8,000				22,000	2,000	2,000	120,000	5,000	115,000

SPECIFICATION OF INCREASE (PROGRAM)

Office of International Activities (2 positions, \$24,000): To meet substantially increased demands to plan, negotiate, and administer international programs and projects of concern to Federal agencies, international and national organizations, universities, and museums. Increase would provide for 2 administrative and technical assistants (\$12,000); travel to negotiate and administer projects (\$2,000); contractual surveys and studies in the development of international projects (\$7,000); and basic supplies (\$1,000) and equipment (\$2,000) for office operations.

19. ADMINISTRATIVE AND CENTRAL SERVICES

1967 appropriation-----	\$2,964,000
1968 appropriation-----	3,241,000
1969 estimate-----	3,721,000

The Smithsonian Institution's unique complex of museums, art galleries, zoological park, laboratories, and information centers require certain executive direction, administrative assistance and guidance, and specialized central services to enable them to work productively and efficiently toward approved program objectives. A number of groups serve the Institution in this capacity and by so doing, contribute to and support its accomplishments in research, education, exhibitions, the management of the National Collections, and public service.

These groups are: the Office of the Secretary and the divisions of Management Support, Fiscal, Performing Arts (previously Museum Services), Personnel, Public Affairs, Supply, Information Systems, the Libraries, Photographic Services, and the Press.

Minimal increases are requested to meet identified essential requirements of the present "Salaries and Expenses" programs. These requirements include backlogs in service areas despite continuing efforts to obtain efficiencies in operations and selective strengthening of technical support.

These units are requesting a total increase of 32 positions and \$480,000 for 1969, as summarized below and justified on the following pages:

	1967 appropriation		1968 appropriation		1969 increase		1969 estimate	
	Positions	Amount	Positions	Amount	Positions	Amount	Positions	Amount
Office of the Secretary	23	\$332,000	23	\$342,000	3	\$34,000	26	\$376,000
Management Support	29	325,000	37	388,000	5	60,000	42	448,000
Fiscal Division	21	319,000	25	359,000	1	30,000	26	389,000
Division of Performing Arts	5	59,000	5	60,000	2	31,000	7	91,000
Personnel Division	16	227,000	18	246,000	1	17,000	19	263,000
Office of Public Affairs	11	121,000	11	124,000	4	37,000	15	161,000
Supply Division	17	257,000	20	276,000	2	29,000	22	305,000
Information Systems Division	3	55,000	8	113,000	5	52,000	13	165,000
Smithsonian Institution Libraries	41	512,000	44	546,000	7	105,000	51	651,000
Photographic Services Division	18	198,000	18	202,000	0	17,000	18	219,000
Smithsonian Institution Press	18	559,000	20	585,000	2	68,000	22	653,000
Total	(202)	2,964,000	(229)	3,241,000	(32)	480,000	(261)	3,721,000

Administrative and central services—Office of the Secretary

1967 appropriation -----	\$332, 000
1968 appropriation -----	342, 000
1969 estimate -----	376, 000

The Office of the Secretary provides executive direction, program planning, and review of all programs of the Smithsonian Institution. This Office includes the Secretary, the Assistant Secretary, the Assistant Secretary for Science, and the Assistant Secretary for History and Art.

An increase of \$34,000 is required in the Office of the Secretary. This includes \$9,000 for necessary pay increases.

The Secretary of the Smithsonian Institution is called upon to serve on many commissions, study groups, and councils. Among the more than 50 groups with which he is currently associated are the American Revolution Bicentennial Commission, the Federal Council on the Arts and the Humanities, the Temporary Commission on Pennsylvania Avenue, the Board of Trustees for the John F. Kennedy Center for the Performing Arts, the National Council on the Arts, the White House Art Committee, and the White House Historical Association. The work involved in each of these committees varies, but the total work for all these groups is significant. The number of visitors to the office, the number of special reports, and the volume of correspondence are increasing. An increase of a secretary and a receptionist-typist and related expenses is required to assist the Secretary in directing the work of the Institution and in meeting his official external responsibilities and commitments.

The Office of the Assistant Secretary, Assistant Secretary for Science, and Assistant Secretary for History and Art advise and assist the Secretary in planning, implementing, and reviewing the progress of Smithsonian programs. As such, each of these offices has broad and intensive responsibilities for the general direction of specific bureaus and offices and for major functions cutting across organizational lines. In addition, each of these offices must represent the Secretary and the Smithsonian in high-level planning and development efforts with the Congress, Government agencies, and private organizations.

The Assistant Secretary for Science requires the addition of a biologist to assist him in planning, coordinating, and reviewing the work of various scientific bureaus within the Institution. Biological research is a main thrust of the Smithsonian with broad programs in systematics, ecology, radiation biology, conservation, and oceanography in the Museum of National History, Radiation Biology Laboratory, the Office of Oceanography and Limnology, the Office of Ecology, the Smithsonian Tropical Research Institute, and at the National Zoological Park.

OFFICE OF THE SECRETARY

Number of positions (permanent)	Personnel compensation 11		Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Total	Analysis of total	
	Amount	Personnel benefits 12									Pay increases	Program
23	\$287,000	\$21,000	\$13,000				\$7,000	\$6,000	\$8,000	\$342,000	\$10,000	\$332,000
3	28,000	3,000	1,000				0	0	2,000	34,000	9,000	25,000
26	315,000	24,000	14,000				7,000	6,000	10,000	376,000	19,000	357,000

SPECIFICATION OF INCREASE (PROGRAM)

Program planning and review assistance (3 positions, \$25,000): To strengthen the capability of the Secretary and the Assistant Secretaries in meeting the wide range of internal and external responsibilities and commitments of the Smithsonian. Present supporting staff resources are inadequate to the present demands for administrative and science planning and review. Increase would provide for 1 biologist, 1 secretary, and 1 typist (\$22,000); additional travel funds to oversee Smithsonian field activities (\$1,000); and replacement of obsolete office equipment (\$2,000).

Administrative and central services—Management support

1967 appropriation -----	\$325, 000
1968 appropriation -----	388, 000
1969 estimate -----	448, 000

Management Support provides specialists and services to assist the Secretary and Assistant Secretaries and to provide agency level administrative requirements for the various programs. Management Support consists of the following: Smithsonian Archives, Contracts Office, Internal Auditor, General Counsel, Organization and Methods, Programming and Budget, Secretary's Files, Travel Services Office, and Printing and Duplicating.

An increase of \$60,000 is required for management support. Of this increase, \$17,000 is required to reimburse the Employees' Compensation Fund as invoiced by the Department of Labor for job-related injuries in fiscal year 1967. Also included is \$15,000 for necessary pay increases.

Smithsonian Institution Archives

The Archives is responsible for the selective preservation of the correspondence, manuscripts, and other records of the Institution. It retrieves all material of lasting value from the operating files and collections of the Institution; arranges and preserves this material; and makes it available to the Smithsonian staff and qualified students and scholars from other institutions.

Much of the archives consists of the correspondence, field notes, and journals of explorers and others who contributed to the National Collections, performed research upon them, or were otherwise directly concerned with the establishment and development of the Institution. The Smithsonian must keep these archives and manuscript collections as records of the collections and of the history of the Smithsonian and must make them readily available to scholars. The history of the Institution, its expeditions and collections, and of the persons associated with it during its formative years in the 19th century is essentially the history of American science in that period.

An increase of a Records Manager is requested to establish overall supervision of the records and record-keeping of the Institution and to establish comprehensive records management and disposal schedules.

Office of the General Counsel

The Office of the General Counsel advises the Secretary and other officials of the Smithsonian Institution on all legal matters pertaining to the administration and operation of the Institution's museums and programs.

The General Counsel's office needs a research assistant. This research assistant would devote his time to studies which are of importance to the long-range plans of the Institution. Examples are studies of the taxation laws of all the states as they affect educational institutions, and problems in international oceanography.

Organization and Methods

The Organization and Methods Division is responsible for providing management analysis and assistance activities in the continuing development of sound business administration and management improvement programs within the Institution.

This Division develops organizational, functional, staffing, and flow charts, procedural manuals, and other administrative issuances; makes studies and special surveys; analyzes management problems and recommends solutions; provides management advisory services; and maintains the forms management program.

Work in the forms activity is seriously backlogged and restricted. To support adequately the work and objectives of major science and history programs and all technical and administrative units, their specialized needs and mandatory deadlines must be met. Increased automatic data processing applications demand procurement of custom-designed new forms and conversion of obsolete manual-type forms to computer capability. Full compliance with the Government Printing Office regulations on submission of detailed, technical specifications for data processing forms cuts heavily into the available time of the single employee responsible for the forms program.

Graphic and clerical help is essential for forms layout, preparation of copy for printing, maintenance of the forms control system, and typing of Government Printing Office requisitions and specifications. The professional research staff's use of program-oriented forms to support their work has measurably increased. An additional clerk is an essential requirement to realize the full economies of a centralized forms procurement and management system.

Office of Programing and Budget

The Office of Programming and Budget is responsible for the improvement of budget analysis and communication throughout the Smithsonian leading to the increasing review value to the Congress of the agency's budget presentations. Ongoing analysis assuring the most effective use of appropriated resources is a principal task of its four-man technical staff. A planning officer is essential to develop estimates of future year impact of program and resource decisions integrated into multiyear program projections.

Printing and Duplicating Section

The Printing and Duplicating Section provides for all duplicating requirements of the Institution. Included are office memoranda, manual issuances, forms, news releases, and other administrative issuances, as well as materials required by the research, curatorial, and exhibits activities.

It is desirable to combine the two printing activities, the Institution's Print Shop (linotype composition and letterpress printing) and the Duplicating Section (offset printing). These two functionally related printing activities are now under separate management but many of their skills are complementary. A printing manager would provide administrative and technical supervision, and would plan and schedule the work of both activities resulting in a more efficient and economical handling of an increasing workload. A clerk-typist is requested to assist the Printing Manager in processing requisitions, ordering printing materials and supplies, arranging for the delivery of completed orders, and performing other support duties.

MANAGEMENT SUPPORT

1968 base Increase requested	Personnel compensation		Personnel benefits 12	Travel 21	Transportation of things 22	Rent, com- munications, and utilities 23	Printing 24	Other services 25	Supplies 23	Equipment 31	Total	Analysis of total	
	Number of positions (permanent)	Amount										Pay increases	Program
37	\$316,000	\$24,000	\$10,000	-----	-----	\$3,000	\$18,000	\$3,000	\$11,000	\$3,000	\$388,000	\$11,000	\$377,000
5	37,000	20,000	1,000	-----	-----	0	0	0	2,000	0	60,000	15,000	45,000
42	353,000	44,000	11,000	-----	-----	3,000	18,000	3,000	13,000	3,000	448,000	26,000	422,000

SPECIFICATION OF INCREASE (PROGRAM)

Specialized support services (5 positions, \$45,000): To strengthen centralized administrative and technical support services in areas of particular concern and potential benefit to the Institution. Increase would provide for 1 specialist for a program of comprehensive records and archives management, 1 research assistant for complex legal studies, 1 forms management clerk to process a wide variety of research and administrative forms, 1 planning officer to develop and integrate program and cost forecasts as an essential aspect of the budget process; and 1 printing manager to achieve economies and efficiencies through central administration of currently separate printing facilities and to reimburse the Employees Compensation Fund for job-related injuries in fiscal year 1967 (\$42,000); travel to Smithsonian field units to give technical advice and assistance (\$1,000), and office and shop supplies (\$2,000).

Administrative and central services--Fiscal Division

1967 appropriation-----	\$319, 000
1968 appropriation-----	359, 000
1969 estimate-----	389, 000

The Fiscal Division is responsible for the administration and accounting of funds of the Smithsonian Institution. This includes payroll, accounting, auditing, reporting, and financial counseling.

An increase of \$30,000 is requested, including \$4,000 for an additional accounting clerk; \$21,000 for postage indicia mail and tort claim reserve, and \$5,000 for necessary pay increases.

Need for increase

Increased Smithsonian activity in research, management of the National Collections, and public education has resulted in a corresponding increased workload in the Fiscal Division. The present staff must work on an overtime basis to earn vendors' discounts by prompt payment of invoices. Computerizing work to the fullest extent possible enables holding the request for additional staff to one accounts maintenance clerk.

Cost of postage indicia mail is constantly rising as a result of increased postal rates and activities at the Institution. There is a great influx of letters from the general public, students, scholars, and educators; and from research museums, cultural, historical, educational, community, and similar organizations seeking information, advice, and assistance. In 1967, the Museum of Natural History and the Museum of History and Technology alone received 100,000 such requests.

The large number of visitors to our museums provides substantial potential for tort claims. The numbers and amounts of tort claims have shown a marked increase.

FISCAL DIVISION

	Personnel compensation		Personnel benefits 12	Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Insurance claims and Indemnities 42	Analysis of total		
	Number of positions (permanent)	Amount										Pay increases	Program	
1968 base.....	25	\$206,000	\$16,000	\$1,000		\$130,000			\$2,000	\$3,000	\$1,000	\$359,000	\$7,000	\$352,000
Increase requested.....	1	9,000	0	0		17,000			0	0	4,000	30,000	5,000	25,000
1969 estimate.....	26	215,000	16,000	1,000		147,000			2,000	3,000	5,000	389,000	12,000	377,000

SPECIFICATION OF INCREASE (PROGRAM)

Accounts maintenance (1 position, \$4,000); To handle increased workload that the existing staff cannot meet without considerable overtime, 1 accounts clerk (\$4,000).
 Postage indicia mail (\$17,000); To meet rising costs of postage indicia mail (\$17,000).
 Tort claims (\$4,000); To establish a fund for tort claims (\$4,000).

Administrative and central services—Division of Performing Arts

1967 appropriation -----	\$59, 000
1968 appropriation -----	60, 000
1969 estimate -----	91, 000

The Division of Performing Arts plans and conducts seminars, special events, and demonstrations of folk crafts, folk dance, music and other arts related to the Smithsonian Institution's research, exhibits, and collections in the field of cultural history and ethnology. Presentations have traditionally existed in the various scholarly disciplines which are part of the structure of the Institution. This Division has the capability to unite these various performances and presentations and make the Smithsonian museums and collections come alive for the public.

An increase of \$31,000 is sought for necessary field work and research and for the presentation of events of public pleasure and instruction. This includes \$1,000 for necessary pay increases.

Need for increase

The performing arts have proved their value as tools of communication and as means of enriching the total cultural experience of their audiences. It is the particular mandate of the Smithsonian Institution to preserve, exhibit, and interpret the artifacts and the physical evidence of patterns of human culture. Dynamic live or filmed performances not only illuminate the collections and research of the Institution, but also provide a means of defining and understanding patterns of culture, frequently demonstrating the methods of transmission of that culture, and the actual interplay of social and cultural forces from which evolved given patterns, traditions, and skills which produced the physical objects on display in the exhibit cases of the Institution.

Until recently, many persons believed that America had no aesthetic tradition of its own. Consequently, there have been few organized programs to define, preserve, or support folk culture, urban or rural. Scientific knowledge must be complemented by a program of preservation and interpretation of basic artistic and cultural forms if there are to be sensitive and humane judgments concerning the uses of technology. It is not enough that the Smithsonian preserve and interpret the artifacts and the cultural patterns of the past; it is imperative to discover the living folk culture of today.

Beginning in 1967, the Smithsonian Institution sought to encourage interest in the understanding of this basic level of culture, the artifacts of which have been collected for over 120 years. An example is the Festival of American Folk-life produced by the Division of Performing Arts on the Mall over the Fourth of July weekend. This event, which was viewed by 431,000 persons, included many of the best remaining craftsmen, musicians, singers, and dancers representing old patterns of life. A concurrent conference of university and museum scholars was concerned with the preservation of fast-disappearing elements of our community crafts and traditional arts. Also in 1967, a study was begun on the neglected field of American aesthetic history. Understanding of our cultural past can only be accomplished in meaningful terms by the collection or re-creation of music, entertainments, and oral literature of our past. In this regard, the Division of Performing Arts has supplied advisory services to the State of Arkansas in its plans to establish a folk culture center, to the State of Louisiana in its plans to establish an International Jazz Festival; to the State of Missouri in its efforts to establish a demonstration of traditional regional crafts and to the States of Virginia, North Carolina, Texas and others on other subjects.

Field research and surveys must be accelerated in order to salvage and preserve much of our traditional visual and oral literature and to seek out and record the rapidly dwindling remains of an important sector of our cultural heritage. Funds for contractual services and travel are essential. Two additional assistants are required also to identify, evaluate, select, and obtain performers; to produce public programs of significance and scope; and to make necessary arrangements, including the design and presentation of the events. This is a requested increase of \$30,000.

DIVISION OF PERFORMING ARTS

	Personnel compensation		Personnel benefits 12	Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Total	Analysis of total	
	Number of positions (permanent)	Amount										Pay increases	Program
1968 base.....	5	\$39,000	\$4,000	0	-----	-----	-----	-----	\$4,000	\$3,000	\$60,000	\$1,000	\$59,000
Increase requested.....	2	10,000	1,000	\$3,000	-----	-----	-----	-----	3,000	0	31,000	1,000	30,000
1969 estimate.....	7	49,000	5,000	3,000	-----	-----	-----	24,000	7,000	3,000	91,000	2,000	89,000

SPECIFICATION OF INCREASE (PROGRAM)

Documentation and presentation of crafts and performances (2 positions, \$30,000): To seek out, document, and present performances and demonstrations of traditional American craft, music, and art forms in order to preserve aspects of this country's culture. Increase would be used for two assistants to develop, arrange, and present public programs (\$10,000); travel (\$3,000); and contractual studies (\$14,000) in connection with field research and surveys; and supplies and materials to design and present public performances (\$3,000).

ADMINISTRATIVE AND CENTRAL SERVICES—PERSONNEL DIVISION

1967 appropriation -----	\$227,000
1968 appropriation -----	246,000
1969 estimate -----	263,000

The Personnel Division provides specialized services in employment, position classification, employee relations, employee training, and salary and wage administration. It also administers the Health Services Units.

An increase of \$17,000 is requested, including \$10,000 to strengthen employee training programs and \$7,000 for necessary pay increases.

Need for increase

Smithsonian activities in exhibits, education, and public service, as well as general administration, all require trained and capable employees. A comprehensive employee training and development program is essential to maintain acceptable levels of accomplishment in these fields. A qualified training specialist to provide adequate in-house training and counseling must be added. It is planned to provide training opportunities for selected qualified employees which will enable them to advance in certain nonprofessional assignments as museum technicians and exhibits aids. Increased emphasis on supervisory training also is required.

PERSONNEL DIVISION

	Personnel compensation		Personnel benefits 12	Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Total	Analysis of total	
	Number of positions (permanent)	Amount										Pay increases	Program
1968 base.....	18	\$197,000	\$14,000	\$9,000				\$23,000	\$2,000	\$1,000	\$246,000	\$5,000	\$241,000
Increase requested.....	1	13,000	2,000	0				2,000	0	0	17,000	7,000	10,000
1969 estimate.....	19	210,000	16,000	9,000				25,000	2,000	1,000	263,000	12,000	251,000

SPECIFICATION OF INCREASE (PROGRAM)

Employee training (1 position, \$10,000): To strengthen current level of effort of 1 man-year for the entire institution by providing 1 training specialist for inhouse training programs (\$8,000) and additional opportunities for use of government and other training courses (\$2,000).

ADMINISTRATIVE AND CENTRAL SERVICES—OFFICE OF PUBLIC AFFAIRS

1967 appropriation-----	\$121, 000
1968 appropriation-----	124, 000
1969 estimate-----	161, 000

The Office of Public Affairs informs the public of Smithsonian objectives and projects in history, science, and art. It widens the usefulness of Smithsonian resources by cooperating with writers, authors, and reporters, assisting them in locating Smithsonian staff members and collections, and aiding them in informing their readers on Smithsonian plans and accomplishments. It assists Smithsonian scientists and historians to prepare announcements of their work and writes and issues announcements, including a monthly program of events of interest to the public including research, seminars, exhibitions, and special events. It also prepares orientation brochures and building guides for the millions of visitors to the Smithsonian and responds to public inquiries.

An increase of \$37,000 is sought to improve the capability to inform the public of the many millions of dollars of science and educational resources available to it through Smithsonian museum and special programs. This includes \$3,000 for necessary pay increases.

Need for increase

The Office of Public Affairs provided noteworthy contributions to meeting public information needs in 1967. Many of the evening performances of the Free Film Theater played to capacity audiences of almost 600 persons. Over 12,000 persons saw these films. Particularly popular of the 34 shows presented last year were films on Stonehenge, Van Gogh, and Lewis and Clark. Afternoon films have been initiated this year. Over 150 news releases were distributed to some 500 newspapers, magazines, and other media across the country. The Dial-A-Satellite service provided 127,000 callers (a 40 percent increase over 1966) with the precise time and exact location of satellite passage visible to the naked eye. The Dial-A-Museum service informed 48,000 callers of the subject and time of new exhibitions or special demonstrations in the museums. The monthly *Smithsonian Calendar of Events* is being distributed to 15,000 members of the press and public. Every Saturday through last fall and winter, a half-hour filmed color television program produced by the National Broadcasting Company, entitled "The Smithsonian", brought various aspects of the Institution, including underwater archeology, patriotism, aviation and space flight, meteors, sports, and American Indians, into an estimated four-million homes.

Despite these public service activities, the Smithsonian is in the position of being a major scientific research and educational organization with an extremely minimal identifiable communication or information program with the general public and with specialized publics in many scientific areas. Our programs in oceanography, conservation, environmental studies, radiation biology, astrophysics, space, aeronautics, tropical research, anthropology, and archeology, to name only a few, are among those for which we continually receive demands for science information from all sectors of the public. An urgent need is for an information specialist in scientific subjects.

With 14 million visitors a year and many thousands of requests for information from school children and other members of the general public, the Smithsonian does not have adequate materials on hand to meet the most basic orientation requirements of documenting and providing additional information on subject areas, exhibits, and collections. Only give-away building-guide leaflets have been available in the past. The demand for these limited-coverage leaflets has increased to three and one-half million a year. Responsibility for the preparation and distribution of these and more useful materials has been centralized in the Office of Public Affairs to meet a constantly increasing demand for both general and specific information and orientation materials in history, art, and science. Information leaflets, maps, one-sheet guides, and other materials are essential to public understanding and enjoyment of exhibits. Thousands of requests from school children and others can be handled effectively and efficiently by the production of carefully planned and meaningful brochures. In order to meet these information needs, a writer-editor, a photographer, a clerk-typist, and additional printing funds are required.

OFFICE OF PUBLIC AFFAIRS

	Personnel compensation		Personnel benefits 12	Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Total	Analysis of total	
	Number of positions (permanent)	Amount										Pay increases	Program
1968 base.....	11	\$100,000	\$7,000	\$1,000	-----	-----	\$10,000	\$5,000	\$1,000	-----	\$124,000	\$3,000	\$121,000
Increase requested.....	4	21,000	2,000	0	-----	-----	14,000	0	0	-----	37,000	3,000	34,000
1969 estimate.....	15	121,000	9,000	1,000	-----	-----	24,000	5,000	1,000	-----	161,000	6,000	155,000

SPECIFICATION OF INCREASE (PROGRAM)

Science Information and Museum Orientation (4 positions, \$34,000): To meet scores of public requests for information on the Smithsonian's science programs and to provide for more adequate orientation materials for the 14 million visitors. Increase would provide for 1 science information specialist, 1 writer-editor, 1 photographer, 1 clerk-typist (\$20,000) and printing funds for visitor materials (\$14,000).

ADMINISTRATIVE AND CENTRAL SERVICES—SUPPLY DIVISION

1967 appropriation-----	\$257, 000
1968 appropriation-----	276, 000
1969 estimate-----	305, 000

The Supply Division procures supplies, materials, contractual services, and equipment. It stocks and issues office, laboratory, and other supplies and materials required in daily operations. Its property management activities include obtaining excess property items in lieu of new procurement whenever possible, maintaining property records, and taking periodic inventories to assure proper control, accountability, and effective utilization of all equipment items.

An increase of \$29,000 is requested to employ additional procurement and stock personnel, repair office machines, and provide necessary supplies and materials for Smithsonian's expanded responsibilities, and meet \$9,000 of necessary pay increases.

Need for increase

The work output of the Supply Division in terms of the number of purchase orders, contracts, imprest fund uses, and other transactions increased by 52 percent in fiscal year 1967 over 1966. Over 21,000 transactions were processed. As a result of improved methods, this work was accomplished with only a 35 percent increase in manhours worked by procurement personnel. Although further streamlining techniques will continue to improve productivity, it is anticipated that the procurement workload will outpace available manpower in fiscal year 1969. The accelerating activities of the National Collection of Fine Arts and the National Portrait Galleries in their new building, to be opened in 1968, are contributing materially to the increase in procurement functions and to the problem of adequate control of receiving and prompt delivery services to the building. Two additional personnel, a clerk-typist and a stock and supply clerk, at a cost of \$8,000 will meet these needs as well as improve services to all other Institution buildings on and away from the Mall.

Research, exhibit, and educational programs have increased steadily in scope and complexity and created greater demands for common office, laboratory, and workshop supplies and materials. For economy and efficiency of purchasing, these items are bought centrally and stocked by the Supply Division for issue as needed. The Division also provides routine maintenance and repairs of office machines throughout the Smithsonian as part of its property management responsibilities. To meet minimum additional needs in these categories, an increase of \$12,000 is required.

SUPPLY DIVISION

	Personnel compensation		Personnel benefits 12	Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Analysis of total		
	Number of positions (permanent)	Amount									Pay increases	Program	
1968 base.....	20	\$161,000	\$12,000	-----	-----	\$12,000	-----	\$9,000	\$69,000	\$13,000	\$276,000	\$1,000	\$275,000
Increase requested.....	2	15,000	2,000	-----	-----	0	-----	5,000	7,000	0	29,000	9,000	20,000
1969 estimate.....	22	176,000	14,000	-----	-----	12,000	-----	14,000	76,000	13,000	305,000	10,000	295,000

SPECIFICATION OF INCREASE (PROGRAM)

Procurement workload (2 positions, \$8,000): To meet a growing procurement workload, up 52 percent in 1967 over 1966 to 21,000 transactions, and to receive and deliver orders to a widening area of buildings including the Fine Arts and Portrait Galleries. Despite improved productivity, current staff cannot cope with demands. Increase would furnish 1 clerk-typist and 1 stock clerk (\$8,000).

Supplies and repairs (\$12,000): To purchase and stock centrally wide array of office, laboratory, and workshop supplies to meet Smithsonian program needs (\$7,000) and to repair and refurbish office machines to avoid new purchases (\$5,000).

ADMINISTRATIVE AND CENTRAL SERVICES—INFORMATION SYSTEMS
DIVISION

1967 appropriation-----	\$55,000
1968 appropriation-----	113,000
1969 estimate-----	165,000

The Information Systems Division is responsible for centrally developing and applying automatic data processing systems to the increasing information handling requirements in research, management of collections, and administrative work.

An increase of \$52,000 is sought for systems design and programming staff for computer usage required for scientific analysis, data storage and retrieval, and administrative operations. This represents less than 25 percent of the additional resources which could be applied effectively to meeting existing workload requirements. Austerity dictates this minimum advance. \$2,000 is for necessary pay increases.

Need for increase

The Smithsonian is the repository for the National Collections of specimens and objects in the fields of art, history, science, and technology. Its resources also include extensive library and archival materials in these fields. Manual methods of maintaining data associated with these collections and searching for answers to specific questions are uneconomical and inadequate because of the large volume of data and because inquiries cut across subject matter, time periods, and geographic areas. For instance, frequent inquiries are received by the Museum of Natural History from the Federal Bureau of Investigation and other law enforcement agencies regarding the identification of bones or portions of bones. Information is desired on age, sex, and possible cause of damage or defects. Adequate response to these questions now requires that the sample be compared manually with the reference collections and matched with information appearing in various card and other files. At present, this is a tedious and time-consuming process for scientists, historians, and supporting personnel. The development of innovative computer-supported systems will enable the Smithsonian to manage its information resources and to respond to inquiries with speed, accuracy, and completeness.

Smithsonian scientists in the Museum of Natural History, Radiation Biology Laboratory, and elsewhere have a strong need for applying mathematical and statistical approaches to their research. The growing usefulness of mathematical modeling requires a capability in correlation and regression analysis and other techniques to perform significant tests on samples. The classifying of plants and animals by numerical taxonomy also is possible. The volume of data and com-

putations involved, however, do not permit use of these techniques with manual means.

Reviews of greater administrative workloads revealed that almost every organizational unit is handicapped by the lack of computer services with associated analysts and programmers. For instance, there is a demonstrated need for increased computer services and programming support in the fiscal area. Computer applications for allotment accounting and payroll need to be refined to meet continuously changing data recording and reporting requirements, including those to outside agencies. Similarly, a study of the Smithsonian Libraries shows that increased reference, cataloging, and circulation aids involving a computer offer the most efficient means of making the Library more responsive to its staff and public users. Sound administrative and financial management demand that the Institution explore and apply computer techniques to its administrative and business tasks where it is demonstrated that such applications will increase work output, lower unit costs of work, or permit capabilities, such as reports, not otherwise feasible.

To meet the above problems, two additional analyst-programmers, a keypunch-verifier operator, and two supporting clerical personnel are essential needs with funds for contractual keypunch and other support services to meet peak workloads not justifying full-time staff; an increase of \$50,000 is needed.

During 1967, the Information Systems Division provided automatic data processing support to administrative, curatorial, and research activities. In addition to payroll, accounting, mailing lists, library purchasing, and other business applications, an information retrieval system using 200 descriptors was developed for the collection of 20,000 envelopes in the Division of Philately. This indexing and cross-referencing system provides prompt responses to the reference needs of researchers, collectors, and the general public. Similarly, an analysis program was prepared to assist in the correlation of biological and other specimen data. In this program, a scientist first classifies small groups of biological specimens on which certain characters have been measured. A computer program calculates a "measure of similarity" for each group and then clusters the groups by the magnitude of their resemblance. The program and the methodology are equally applicable to nonbiological categories. In archeology, for example, it could apply to grouping and breaking the code of unknown hieroglyphs from a series of artifacts of an extinct culture. Design of an information storage and retrieval system for biological and geological data was completed and is being implemented. The system provides a data bank containing collection records and descriptive and bibliographic information on zoological and geological specimens. Participating with the United States National Museum in this project are the National Museum of Canada and the Universidad Nacional Autonoma de Mexico.

INFORMATION SYSTEMS DIVISION

	Personnel compensation		Travel 21	Transportation of things 22	Rent, com- munications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Total	Analysis of total	
	Number of positions (permanent)	Amount									Pay increases	Program
1968 base.....	8	\$85,000	\$3,000	-----	\$12,000	-----	0	-----	\$7,000	\$113,000	\$3,000	\$110,000
Increase requested.....	5	31,000	0	-----	0	-----	\$19,000	-----	0	52,000	2,000	50,000
1969 estimate.....	13	116,000	3,000	-----	12,000	-----	19,000	-----	7,000	165,000	5,000	160,000

SPECIFICATION OF INCREASE (PROGRAM)

Support to research, collection management, and administration (5 positions, \$50,000): To help which could be effectively applied in meeting existing workload requirements. Increase would be used to meet the workload in using computers for making scientific analyses, for storing and retrieving data, for 2 analyst, programmers, 1 keypunch operator, 1 secretary, and 1 stenographer (\$31,000) and for and for administrative programming. Request represents less than 25 percent of the additional resources peak workload contractual keypunch and other support services (\$19,000.)

ADMINISTRATIVE AND CENTRAL SERVICES—SMITHSONIAN INSTITUTION
LIBRARIES

1967 appropriation -----	\$512, 000
1968 appropriation -----	546, 000
1969 estimate -----	651, 000

The Smithsonian Institution Libraries are an essential community-wide information resource created through the acquisition and organization of books, journals, and other documentary materials in subject areas relating to the broad spectrum of interest of curators, research specialists, students, Government agencies, universities, and other museums associated with the Smithsonian Institution. These Libraries are interdependent with the Library of Congress with specific responsibility for coverage in many areas of Smithsonian expertise. The acquisition program and the reference and information services of the Libraries contribute to the quality of research, conserve research staff time, and measurably heighten the creativity and productivity of the scientists and scholars at the Smithsonian.

An increase of \$105,000 is requested, including \$44,000 to increase the acquisition rate of library materials; \$12,000 to increase the power of collection utilization services through the application of subject and inventory controls to library materials; \$36,000 to improve the service capabilities of the library system in support of established Smithsonian Institution programs; and \$13,000 for necessary pay increases.

Need for increase

Two broad but related categories of needs face the Libraries: The first relates to the basic problems of the management of complex information systems; the second, to serious backlog and workload problems in providing services to the Libraries' users.

The Libraries have begun to apply automatic data processing to their purchasing and certain of their control operations. Much more could be done in innovative applications. The complexity of communication patterns among researchers in various disciplines has increased, creating difficult problems of library collection management in order to insure full utilization of all media. The physical dispersion of collections of library materials helps to accommodate different patterns of research methods, but also introduces stresses in the Libraries' management capability. The increase in interdisciplinary interests of researchers causes further problems. Information science technologies are creating new and highly sophisticated information storage, retrieval, and communication capability potential for library services to solve these problems but these applications require intensive study and planning for adoption in libraries. Use of these new techniques would expand greatly the information service performance of the Libraries. In recognition of the immediate operational problems described below, however, work on these techniques must be deferred.

The Institution's responsibility to maintain documentary resources has been growing steadily because of increased program responsibilities as with space exploration in the National Air and Space Museum and urgent anthropology in the Office of Anthropology. Its major activities in art have been expanded, as have those in marine biology at the Smithsonian Tropical Research Institute. An increase in the number of parameters governing the classification of organisms has expanded the volume of publishing in traditional areas of concern to the Smithsonian. New technologies in information control are producing a greater number of more expensive bibliographic publications of primary importance to scientific research. (*Chemical Abstracts*, for example, has risen in price from \$80 to \$1,550 a year in about a decade and a half due chiefly to the use of computers to produce a wider range of stronger information control services.)

In fiscal year 1968, the Libraries will be able to purchase only 2,500 serials and 3,500 books, far below the rate of acquisition of material of the kind needed to offer quality working collections to the staff and outside users. As a result of increased costs and other factors, fewer books and serials can be purchased than in 1967. An increase of \$44,000 for books and journals in 1969 will just about recover the 1967 level of purchases when taking into account the increased volume of publishing in subjects of interest to the Smithsonian Institution. With these funds the Libraries will be able to purchase approximately 825 new serial titles, 145 bibliographic and other information services, and 1,965 books. Further evidence of pressure on the purchasing power of library funds is the

fact that the average price of journals in botany, geology, and general science was \$13.75 per title in 1967, up 119.3 percent over the 1957-59 figure.

The organization of library materials to provide the means for physical access and at least a minimum amount of subject analysis is the keystone of the structure of library and information services. At the current rate of acquisition of essential library materials, the amount of staff available for the central technical processes of acquisition and cataloging is estimated to be about 20,000 man-hours per year too little, according to the norm for research libraries. Furthermore, present level of funds restricts the Libraries' efforts to methods and levels inadequate to the Smithsonian's and other users' basic requirements. A phased increase of one acquisitions assistant and three library technicians is sought to begin to rectify approximately one-third of the cataloging shortage. With a small increase for keypunch services, this is an increase of \$12,000.

Pressure on reference, circulation, and interlibrary borrowing services has increased noticeably in recent years. The reference staff handled over 60,000 questions and letters in 1967, an increase of 30 percent over the previous year. Over 51,000 items were circulated through the loan desks. This pressure will intensify. The unique reference collections have attracted users from many Federal agencies and the public. Increased cooperation among research libraries, fostered in part by repeated emphasis among information panels and committees on the development of national networks of libraries, continues to encourage other organizations to direct a growing number of requests for information and publications to the Smithsonian.

Although much more strength needs to be built into collection preservation and public services, the Libraries are placing first emphasis on acquiring and organizing library materials. In the face of economy, only three new positions, a reference assistant and two stack attendants are requested. Additional funds for binding and preservation of heavily used valuable reference works, for the translation of reference materials, and for the transportation of books to the branch libraries at the Smithsonian Astrophysical Observatory and the Smithsonian Tropical Research Institute also are requested. This is a total increase of \$36,000.

SMITHSONIAN INSTITUTION LIBRARIES

	Personnel compensation		Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Total	Analysis of total	
	Number of positions (permanent)	Amount									Pay increases	Program
1968 base.....	44	\$363,000	\$4,000	\$1,000	\$10,000	\$31,000	\$4,000	\$46,000	\$60,000	\$546,000	\$11,000	\$535,000
Increase requested.....	7	37,000	0	1,000	1,000	15,000	2,000	22,000	24,000	105,000	13,000	92,000
1969 estimate.....	51	400,000	4,000	2,000	11,000	46,000	6,000	68,000	84,000	651,000	24,000	627,000

SPECIFICATION OF INCREASE (PROGRAM)

Acquisition of library materials (\$44,000): To recover 1967 level of purchases in face of increased volume of publishing in Smithsonian fields, additional Smithsonian subject areas, such as astrophysics, and rising prices. Increases would be used for journals, serials, and bibliographic and information services (\$20,000) and basic reference books in science, art, and history (\$24,000).
 Acquisition and cataloging services (4 positions, \$12,000): To rectify approximately $\frac{1}{2}$ of the estimated 20,000 man-hours per year deficit in processing new materials and eliminating backlogs. Increase would be used for a phased addition of 1 acquisitions assistant and 3 library technicians (\$11,000) and additional keypunch services for the purchasing and cataloging operations (\$1,000).

Reference services (3 positions, \$36,000): To relieve heavy pressures on available staff and other resources to respond to reference questions (60,000 in 1967), requests for loans (51,000 in 1967), and other basic support services. Increase would be applied to 1 reference assistant and 2 stack attendants (\$16,000); transportation of needed materials to branch libraries at the Smithsonian Astrophysical Observatory and Smithsonian Tropical Research Institute (\$1,000); binding supplies (\$2,000) and binding services (\$15,000) for the preservation of rare and heavily used books; and contractual translating services for essential foreign reference works (\$2,000).

ADMINISTRATIVE AND CENTRAL SERVICES—PROTOGRAPHIC SERVICES
DIVISION

1967 appropriation-----	\$198,000
1968 appropriation-----	202,000
1969 estimate-----	219,000

The Photographic Services Division provides professional photography services to support Smithsonian programs of research, documentation and conservation of collections, exhibition, education, training, publication, and public service.

An increase of \$17,000 is requested for specialized commercial services, replacement of obsolete equipment, and supplies. This includes \$7,000 for necessary pay increases.

Need for increase

The photographic laboratories are not equipped to perform color and motion picture film processing, the preparation of mural-size prints, and certain other specialized photographic work. Requests for services of this type, in support of the exhibits program, are increasing. Additional funds for commercial services are required.

Many of the pieces of darkroom processing and printing equipment, purchased at the time of the Division's establishment in 1959, have deteriorated to the point where repairs no longer produce satisfactory operation or are a wise investment. Replacement of a temperature-controlled film-developing sink, a print drier, an enlarger, a print washer, and other essential equipment, is necessary.

Exhibits preparation and modernization work require the use of specialized photographic paper, film, and other unusual-sized and textured photographic supplies. To provide these materials and to meet higher costs of stock, a small increase in funding for supplies is necessary.

PHOTOGRAPHIC SERVICES

	Personnel compensation 11		Personnel benefits 12	Travel 21	Transportation of things 22	Rent, com- munications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Total	Analysis of total	
	Number of positions (permanent)	Amount										Pay increases	Program
1968 base.....	18	\$152,000	\$11,000					\$20,000	\$18,000	\$1,000	\$202,000	\$4,000	\$198,000
Increase requested.....	0	6,000	1,000					4,000	2,000	4,000	17,000	7,000	10,000
1969 estimate.....	18	158,000	12,000					24,000	20,000	5,000	219,000	11,000	208,000

SPECIFICATION OF INCREASE (PROGRAM)

Professional Photographic Support (\$10,000); To provide specialized commercial services beyond the technical capability of the Smithsonian laboratories (\$4,000); replacement of obsolete equipment dating from 1959 (\$4,000); and specialized photographic supplies (\$2,000).

ADMINISTRATIVE AND CENTRAL SERVICES—SMITHSONIAN INSTITUTION
PRESS

1967 appropriation-----	\$559,000
1968 appropriation-----	585,000
1969 estimate-----	653,000

The Smithsonian Institution Press is a primary agent for the communication of results of the Institution's research and education programs. It issues numerous research studies in nine active series in science and history. It produces catalogs that document and supplement special and permanent exhibitions. It publishes popular pamphlets, information leaflets, and other materials that describe and illustrate the National Collections. The functions of the Press include the approval and editing of manuscripts, design of publications, procurement of printing, and distribution of over 100 finished works annually. In company with advanced research, this is an original program of the Institution.

An increase of \$68,000 is requested, including \$60,000 to eliminate a backlog of manuscripts and to meet a predicted increase in the flow of manuscripts and illustrations submitted for publication, and \$8,000 for necessary pay increases.

Need for increase

The principal value of research is enabled through publication. Support of research is wasted if that research goes unreported to the scholarly community and uninterpreted for the general public. This is particularly true of Smithsonian Institution scientific results, which are typically basic data of primary necessity to the advancement of specific research in Federal agencies, universities, and industry. Pertinent examples are the *Smithsonian Astrophysical Observatory Star Catalog*, published in 1966, and the series of *United States National Museum Bulletins* presenting life histories of all North American birds. The last three volumes of this famous series, now in press, will complete a 22-volume compendium of information to which hundreds of this country's ornithologists and naturalists have contributed over the past half-century. The *Star Catalog* identifies and locates more than one-quarter million stars and is considered an indispensable reference tool by astronomers. The information on its 2,600 data-packed pages was composed by computer and photographed for offset printing at the rate of a page every second-and-a-half, saving well over \$100,000 in typesetting and proofreading costs.

The requested increase will be devoted largely to the publication of research papers and monographs of this type. At present almost 2,000 manuscript pages with illustrations await assignment to editors. In fiscal year 1968, the Press expects to receive a total manuscript workload of over 15,000 manuscript pages, plus illustrations, in the fields of natural history, anthropology, history, technology, astrophysics, aeronautics and astronautics, and art. Almost 17,000 pages are forecast for submission to the Press for publication in fiscal year 1969, an increase of 10 percent above the current year. In addition, a 16 percent increase is forecast for the costs of page charges and reprints of research papers published by the Smithsonian staff in outside scholarly journals. These forecasts were made from a detailed study of the increased professional research staff and its higher per capita productivity. Increased costs also reflect the greater number of copies that must be printed to meet public demands, and higher printing costs. An increase of \$53,000 is sought for printing and reproduction costs.

The Press will continue to obtain maximum economies in composition and printing costs wherever commensurate with the requirements of durable, high-quality publications. The substitution of linotype for monotype, the use of type-writer composition instead of set type for listings and tables, and the use of offset printing instead of letterpress will save approximately \$15,000 in fiscal year 1968. Similar economies are expected to offset cost increases for labor and materials in fiscal year 1969.

Additional clerical personnel are a basic need to cope with the increased research manuscript workload. Presently, there are only one secretary and one clerk-typist to support the entire Press professional staff engaged in direction, editorial, design, and production work. This forces the professional staff to perform many routine clerical and administrative tasks below their grade levels. The increased productivity of the Press professional staff resulting from additional clerical support will permit the unit to handle the additional manuscript workload indicated for fiscal year 1969. Two additional clerical personnel, at a cost of \$7,000, represent an essential staffing increase.

The goal of the Smithsonian Institution Press is to have every approved research report in the process of editing within one week after submission; and to publish short research papers within six months, and longer monographs within 15 months of their acceptance.

SMITHSONIAN INSTITUTION PRESS

	Personnel compensation		Personnel benefits 12	Travel 21	Transportation of things 22	Rent, communications, and utilities 23	Printing 24	Other services 25	Supplies 26	Equipment 31	Total	Analysis of total	
	Number of positions (permanent)	Amount										Pay increases	Program
1968 base.....	20	\$202,000	\$15,000	\$3,000			\$357,000	\$5,000	\$1,000	\$2,000	\$585,000	\$6,000	\$579,000
Increase requested.....	2	13,000	2,000	0			33,000	0	0	0	68,000	8,000	60,000
1969 estimate.....	22	215,000	17,000	3,000			410,000	5,000	1,000	2,000	653,000	14,000	639,000

SPECIFICATION OF INCREASE (PROGRAM)

Manuscript workload (2 positions, \$60,000): To meet a current and projected workload of 34,000 pages of manuscripts in science, history, and art this year and next. Current printing fund resources are inadequate to meet rising research staff productivity and increased public demands despite demonstrated printing economies. Only 2 clerks are now available for some 18 editors, designers, and other professional Press staff. Increase would be used for 2 clerks (\$7,000) and printing funds (\$52,000).

BUILDINGS MANAGEMENT DEPARTMENT

1967 appropriation-----	\$6,904,000
1968 appropriation-----	7,350,000
1969 estimate-----	8,092,000

The Buildings Management Department protects, maintains, and operates eight major Smithsonian buildings, including the original Smithsonian Institution building, the Museum of Natural History, the Museum of History and Technology, the Arts and Industries building, the Freer Gallery of Art, the National Air and Space building, the Fine Arts and Portrait Galleries building, and the Renwick Gallery. This Department is also responsible for a number of other research, collection, and service facilities, including the Oceanographic Sorting Center, the Chesapeake Bay Center for Field Biology, the Belmont Conference Center, and the Silver Hill facility for the restoration and storage of air and spacecraft.

This Department provides utilities, transportation, and communications services; plans and supervises construction projects; performs alterations, repairs, and improvements; furnishes guard, fire protection, safety, and security services; participates in the installation of new or renovated exhibition halls; repairs and refinishes museum objects and furnishings; and provides custodial and other supporting services for the research, scientific, exhibition, and public education programs of the Smithsonian.

An increase of 46 positions and \$742,000 is required to provide minimum essential protection, custodial, and maintenance services for the new Fine Arts and Portrait Galleries building, the Renwick Gallery, Neighborhood Museum, and Silver Hill facility; to meet projected increased utility costs; to continue furnishing uniforms to custodial and maintenance employees; and to provide for the rental of necessary space for the temporary relocation of certain activities. This includes \$306,000 for necessary pay increases.

Need for increase

The requested increases are necessary to maintain an adequate level of basic services, the cost of which has been approximately 25 percent of the total Smithsonian budget over the past ten years. During this period the demand for Buildings Management services has necessarily reflected the growth in the number of Smithsonian buildings, the number of visitors to those buildings, and the number of employees necessary to staff the Smithsonian's public service programs. The total floor space of all Smithsonian buildings has increased from 1.4 million square feet in 1959 to 3.2 million square feet in 1969. The number of visitors has increased from 7 million in 1959 to an expected 14 million in 1969 and to 20 million by 1973. During the same period there have been substantial additions to practically every cost of meeting new and existing requirements. Salaries, the largest single cost item, have increased 50 percent.

This Department also must provide services not only during the regular hours when the buildings are open, but for special public activities in the evenings, on weekends, and holidays as well as during the period April 1 through August 31, when the museum and gallery exhibitions are open until 10:00 p.m. During calendar year 1967, of the 14 million visitors to Smithsonian buildings on the Mall, 67 percent, or over 9,000,000, visited during the summer months. Over 1.5 million of these came during the summer evening hours.

The newly renovated Fine Arts and Portrait Galleries building is being prepared for opening to the public. Like other museums, the building will become fully operational over a period of several years as additional galleries are completed, furnished, and opened to the public. The present Buildings Management staff is adequate only to provide minimum support services during the interim period and must be supplemented to provide a minimal staffing level during fiscal year 1969. The essential additional positions required to open the building, with protection and custodial services at a reduced level and with all except

basic support activities curtailed, are 10 custodial and service employees, seven mechanics, and 15 guards. In recognition of the need for economy, this increase will not provide for night opening of the building.

The renovation of the Renwick Gallery at 17th and Pennsylvania Avenue is scheduled for completion in September 1968. This Department must service the building while final renovation work is being completed and exhibition halls, equipment, and heating, air-conditioning, and humidity control systems are being installed and activated prior to opening the Museum to the public as a museum of American crafts, decorative arts, and design. An initial staff of 10 will be required to give minimal mechanical operations, protection, and custodial services during the latter part of fiscal year 1969. These are five guards, four custodial employees, and an operating engineer.

The Silver Hill facility includes 22 buildings on approximately 16 acres of land, used for general storage of museum collections and workshops to rehabilitate historic and irreplaceable aircraft and spacecraft. Although the area is fenced, several acres of open storage for aircraft and vehicles present an attraction for children and souvenir seekers. To protect against vandalism, it is necessary to provide four additional guards for a 24-hour patrol of buildings and grounds seven days a week.

Funds are needed to give minimal maintenance support to the Neighborhood Museum located in Washington, D.C.

The cost of electricity, steam, and other utility services has increased very substantially over the last several years, as shown by the following comparison :

Type of utility	1965	1966	1967	1968 estimate	1969 estimate
Electricity.....	\$424,000	\$454,000	\$542,000	\$586,000	\$634,000
Steam.....	255,000	259,000	276,000	286,000	318,000
Communications.....	100,000	170,000	164,000	198,000	203,000
Gas.....	14,000	14,000	18,000	25,000	29,000
Total.....	793,000	897,000	1,000,000	1,095,000	1,184,000

The provision for air conditioning, heating, and lighting for the increasing number of visitors and longer visiting hours, and for increasing building space areas has resulted in higher consumption of electricity and steam, and has required an operating personnel complement substantially greater than normally required for office-type buildings. Expanded Smithsonian public service and education activities have increased communication costs. An increase of \$89,000 is necessary to meet projected increased utility costs in 1969.

An increase of \$96,000 is requested for rental of office space which will be required for the relocation of some selected Institution activities during alterations and improvements planned for the Smithsonian Institution building and to meet other critical short-term space requirements. This estimate is based on the General Services Administration standard rate of \$5.00 per square foot.

These additional needs cannot be met from existing resources. At present, there are too few craft and trade employees to operate and maintain complex mechanical systems and perform essential preventive maintenance. There are shortages of laborers and custodial employees to perform routine cleaning and other assignments and to respond to special requests from the museums' staffs. Existing guard posts are not covered properly during peak visitor time.

The workload placed on this Department continues to grow as evidenced by the increase in the number of work orders for mechanical trades assistance (carpentry, plumbing, electrical work, etc.) received during fiscal year 1967 over fiscal year 1964, as follows :

Fiscal year :	<i>Number of work orders</i>
1964 -----	2, 570
1965 -----	3, 294
1966 -----	3, 344
1967 -----	4, 916
1968, estimated -----	7, 000
1969, estimated -----	9, 000

These work orders represent a broad range of assistance to such activities as special exhibitions in the arts, history, and science; new approved educational and research programs; increased, continuing use of all buildings, grounds, and facilities by the visiting public, students, and scholars; and greatly increased servicing and maintenance problems resulting from new building spaces, complex equipment and intricate systems in the newer buildings, and continuing preventive maintenance and repairs to the older historical buildings to prevent deterioration leading to more costly repairs.

Some examples of the support which this Department provides includes the redesign and installation of temperature and humidity control systems for laboratory research; installation of specialized and intricate lighting and various types of motors and controls for publicly operated exhibits; installation of complex plumbing techniques required in the Heavy Machinery Hall of the Museum of History and Technology; special installations in relation to lighting, sound systems, and projectors for educational and training programs; restoration of antique furniture for special exhibition or use; and building special design exhibit cases which cannot be purchased on the open market. A great proportion of the work is performed directly in the spaces involved and requires, in most cases, the effort of a number of skilled trades in addition to inspection, planning, and supervision of the work.

Mechanical services employees are also responsible for servicing, repairing, and operating the present 9,380-ton capacity of air-conditioning, refrigeration, heating, and humidity control equipment, and related machinery and accessories, compared to the 2,280-ton capacity of such equipment in 1964, on a 24-hour basis, seven days a week. Environmental control is vital to the conservation and preservation of the 62 million objects in the National Collections as well as to the comfort of the visiting public and the productivity of the staff.

Building services employees also give support to the many programs of the Smithsonian including moving collections and objects; cleaning special exhibits, e.g., the Blue Whale; removing glass from exhibit cases for changing the exhibits; and special cleaning of research equipment in addition to their regular duties of cleaning exhibition areas, exhibit cases, rest rooms, offices, shops, laboratories, and several public lounges. These employees also are responsible for all vehicle services, switchboard operation, office moves, pest-control operations, and the operation of the elevators. The cost of these employees was over a million dollars in fiscal year 1967, exclusive of supplies, materials, and equipment.

A recent survey of the required number of guard posts which should be manned for adequate protection of the visitors to our museums and art galleries, the National Collections, and the buildings revealed that only 85 percent of the essential posts can be staffed with current personnel, compared with approximately 96 percent in fiscal year 1965. Guarding is becoming increasingly more complex. Effective design of exhibits halls or the shape of available spaces frequently prevent large open spaces that can be guarded effectively with a single or a few posts. Many more exhibits are being designed to permit the public to view the objects without the intrusion of protective devices, such as enclosures and cases. The National Collections must be given every protection against loss or damage through theft or vandalism. The number of such incidents has increased from 45 incidents in 1965 to 183 in 1967, an increase of 75 percent.

The size and complexity of the Building Management Department requires management improvement and cost reduction programs to insure that a maximum quality of services is provided with available funds. Periodic evaluations are made to selected areas of operations; and comparisons, where applicable, are made with comparable operations by similar organizations. For instance, 32 museums and art galleries throughout the United States recently were asked for their costs for the operation and maintenance of their buildings. Based on the information received, the overall average typical unit cost is \$1.76 per square foot. For comparable services, the Smithsonian's average cost is \$1.01 per square foot.

In addition to staff, rent, and utility increases, additional funds are required for automatic detection systems in new building spaces, custodial and mechanical supplies, and for the replacement of obsolete equipment.

BUILDINGS MANAGEMENT DEPARTMENT

Name of building	Square feet, gross	Number of positions			Operating costs ¹		
		1967	1968	1969	1967	1968	1969
Museum of History and Technology.....	753,667	243	248	248	\$2,252,000	\$2,293,000	\$2,407,000
Museum of Natural History.....	1,220,581	268	272	272	2,501,000	2,596,000	2,721,000
Smithsonian Institution building.....	150,388	48	49	49	384,000	394,000	409,000
Arts and Industries building.....	162,897	73	74	74	658,000	553,000	602,000
Fine Arts and Portrait Galleries building.....	374,125	0	64	96	120,000	452,000	769,000
Renwick Gallery.....	38,000	0	0	10	0	0	² 42,000
All other (National Air and Space Museum, Freer Gallery of Art, 24th St., Neighborhood Museum, Oceanographic Sorting Center, Silver Hill facility, Lamont St., and minor sheds).....	509,762	91	92	96	764,000	837,000	917,000
Rehabilitation projects.....					225,000	225,000	225,000
Total.....	3,209,420	723	799	845	6,904,000	7,350,000	8,092,000

¹ Excludes rehabilitation costs.

² Initial operation only.

BUILDINGS MANAGEMENT DEPARTMENT

Personnel compensation 11	Number of positions (permanent)	Analysis of total										
		Personnel benefits	Travel	Transpor- tation of things	Rent, com- munications, and utilities	Printing	Other services	Supplies	Equipment	Total	Pay increases	Program
Amount	12	21	22	23	24	25	26	31				
1968 base.....	799	\$4,485,000	\$5,000	\$2,000	\$1,100,000		\$959,000	\$337,000	\$125,000	\$7,350,000	\$145,000	\$7,205,000
Increase requested.....	46	439,000	1,000	0	185,000		50,000	19,000	17,000	742,000	306,000	436,000
1969 estimate.....	845	4,924,000	6,000	2,000	1,285,000		1,009,000	356,000	142,000	8,092,000	451,000	7,641,000

SPECIFICATION OF INCREASE (PROGRAM)

Adequate level of basic services (46 positions, \$436,000): To provide basic, phased mechanical, custodial, and protection services to the new Fine Arts and Portrait Galleries building, the Remwick Gallery, and the Neighborhood Museum; to meet projected increased utility costs of new public and work spaces; to rent temporary space for certain present Smithsonian offices during building renovations; and to continue providing uniforms to custodial and maintenance employees. Widespread and intensive demands on available Department resources preclude coverage of these unavoidable additional requirements. Increase will provide for 8 mechanics, 14 custodial and service employees, and 24 guards (\$164,000); travel to permit training of employees in essential skills and new techniques (\$1,000); increased rent and utilities (\$185,000); commercial services for the detection of smoke, fire, and physical security violations (\$50,000); custodial and maintenance supplies (\$19,000); and replacement of worn-out and obsolete equipment (\$17,000).

SCIENTIFIC RESEARCH ACTIVITIES

Chairman HAYDEN. Dr. Ripley, with respect to the scientific research activities of the Smithsonian Institution, how many personnel are involved?

Mr. RIPLEY. Mr. Chairman, our basic science research staff at the Smithsonian, supported by appropriations, is now 345. We are requesting in 1969 an increase in that figure up to 384.

These numbers do not include people working in research in history and art. In addition, we have people servicing these research efforts in units such as the library and the press.

Chairman HAYDEN. How much of your budget is set aside for such activities?

Mr. RIPLEY. Well, in our science activities, we have \$5,800,000, including a major portion of the work in the Museum of Natural History.

We are requesting for all of these services in 1969 an increase of \$607,000, which includes funds for necessary pay increases.

MAJOR FIELDS OF RESEARCH

Chairman HAYDEN. What are the major fields in which your scientific research takes place?

Mr. RIPLEY. Anthropology, astrophysics, oceanography, tropical biology, and also other major fields in the natural sciences, botany, entomology, vertebrate and invertebrate zoology, mineral sciences, and paleobiology.

We also do work in research of the history of cultures and technology and the history of art.

ASSISTANCE TO OTHER AGENCIES

Chairman HAYDEN. To what extent is the knowledge which the Smithsonian Institution gains through its scientific research used by other Federal agencies and by non-Federal organizations?

Mr. RIPLEY. We have some information on this, sir, as a result of a recent survey.

During this past year, almost every agency of the Government has asked the Smithsonian to do something for it, to apply our combination of knowledge and curatorial information. The information associated with the national collections keeps on being used.

This survey showed that in 200 instances, almost 100 other departments, agencies and Government units asked us for information. I can give you examples. In the case of the Bureau of Public Roads, we provided information about components and history of bridge construction for that disaster of the bridge that fell down in the Ohio River.

MOLLUSKS

In connection with our mollusks, our shell collections, we are continually being asked to identify species of mollusks imported into this country harboring epidemic diseases, viruses, and so forth.

MOSQUITOES

In the case of mosquitoes, we have a tremendous fund of information on the types of malaria-bearing mosquitoes, and the Department of Defense has set up a unit for the identification of those mosquitoes of Southeast Asia, where, of course, malaria is still epidemic.

POLLUTION

We have this work, that I mentioned earlier in connection with possible pollution in the sea, where we are working with State and Federal agencies to analyze cores of sediments. A sedimentologist in the Museum of Natural History is working with the city of New York to study the effects of offshore garbage, commercial acid, and sewage dumps.

TEACHING AIDS

We have done quite a lot of work with school systems at all levels, and we are continually being pressed to do more than our resources permit us to do. We have a fascinating recent demonstration, a teaching exhibit, which has been going on in schools in local counties, Fairfax County, and possibly this year in Prince William County, in which we use sound, light and color systems of teaching aids.

This field is of great importance, I feel, for the Institution. An institution that runs museums must study new ways of conveying information in connection with teaching and creating interest in it.

As you know very well, Mr. Chairman, from our long experience, you can't teach people unless you can interest them.

Chairman HAYDEN. That is right.

REIMBURSEMENT FROM OTHER AGENCIES FOR RESEARCH

Does the Smithsonian Institution receive reimbursement from other Federal agencies for the research it performs on matters about which information is not otherwise available?

Mr. RIPLEY. It depends, Mr. Chairman, on the circumstances. If it is just a single-use, single-occasion inquiry, then we don't make any charge. If it becomes a frequently recurring service, we may request reimbursement from the agency. This would be likely to be on a 1-year basis, a sort of a contract. And then sometimes we get a specific grant or contract to perform a special task, like the mosquito project. There we get a grant from the Defense Department to do this, because this is outside of our capacity to maintain a continuing staff for the project.

SOURCES AND EXTENT OF OUTSIDE RESEARCH FINANCING

Chairman HAYDEN. To what extent and from what sources, if any, are contributions received for research work by the Smithsonian Institution?

Mr. RIPLEY. In 1967, Mr. Chairman, we received rather a good sum, \$13½ million for grants and contracts from outside agencies. And in 1968 we estimate we received a little less, about \$12.4 million.

These are largely from NASA, the National Aeronautics and Space Administration, from the Department of Defense, and from the National Science Foundation.

U.S. MUSEUM: AMERICAN REVOLUTION BICENTENNIAL COMMEMORATION

Chairman HAYDEN. In the proposed budget for the Office of Director of the U.S. Museum there are included two new positions and a \$50,000 increase for the Smithsonian's role in commemorating the bicentennial of the American Revolution.

What is the total number of personnel now on duty and the total budget available throughout the Smithsonian Institution for work on the bicentennial?

Mr. RIPLEY. Mr. Chairman, we don't have any people who are working solely on the bicentennial, but I would estimate that 1 man-year's work, about 2,000 hours, is spent by the staff in bicentennial activities now.

There is \$24,000 available in fiscal 1968 in our "Salaries and expenses" appropriation for bicentennial projects.

PERSONNEL AND FUNDING

Chairman HAYDEN. How much is asked in total personnel and total funds for fiscal year 1969 throughout your organization?

Mr. RIPLEY. Well, for the bicentennial, we are requesting five employees and \$184,000 throughout the Institution, and this includes \$50,000 for a feasibility study for pavilions which might be erected in time for 1976 to house tremendous historic objects—for example, George Washington's tent—and things of this sort, next to the Museum of History and Technology.

Then we have quite a long list of temporary exhibits we have held and plans for additional exhibits and other programs for commemorating this very special event.

EXPERIMENTING IN EXHIBIT EFFECTIVENESS

Chairman HAYDEN. Also included in this part of your estimate is a request for \$40,000 for experimentation and evaluation of exhibit effectiveness.

Is this a new activity? If not, how much did you have last year?

Mr. RIPLEY. We had \$15,000 for this in 1968, so it is not a new activity. We are going to try to continue it. We feel that if we don't study this, we won't be spending our money right.

TEACHING EXHIBIT

Chairman HAYDEN. How do you go about experimenting and evaluating such effectiveness?

Mr. RIPLEY. Well this is a very difficult subject. Mr. Chairman, because whatever we do is sort of pioneering. But one of the pilot projects was this teaching exhibit that I mentioned earlier. We made 14 exhibits on the physics of light, and we circulated these with the assistance of high school teachers through elementary schools making them available to students in Fairfax County.

We are now circulating them in Prince William County in Virginia.

These exhibits permit the student to experiment and demonstrate principles of optics, color, light, and energy. Without the exhibit, the teacher couldn't do anything except maybe make a drawing on the board and talk about it.

These exhibits have been highly successful because they give the student a chance to read the lesson sheet, go to the exhibit and perform experiments, draw conclusions, and report. And the student in this way learns on his own, without a teacher, outside the classroom, while also learning something of the methods of being a scientist. Then the results are measured both by responses made by the students at the exhibit and by their answers to the teacher's questions.

We feel that this is the kind of demonstration we can use to determine the reaction of visitors to exhibits themselves. I would like to see us do much more of this by having a testing situation for our visitors. They can come in at random. If they wish to submit themselves to tests, they can, and they can experiment with solving problems.

We would like to do a lot more of this, because we feel this could be a tremendous value to education.

TRAINING COLLEGE GRADUATES

Chairman HAYDEN. Also, I note a request for \$30,000 to train five college graduates to meet museum needs.

How much do you have in your 1968 budget for this purpose?

Mr. RIPLEY. We made available about \$25,000 this year. There were no new funds in 1968 for this, and we hope that with the \$30,000 we can train five trainees.

In 1967 we were able to provide a year's museum training for nine young college graduates on a cost-sharing basis in several cooperating museums, one in Los Angeles, one in Chicago, and one in New York.

This program is very popular with the museums themselves. They feel it gives a lot of stimulus to an idea we have which is that there is no real training program for technicians in museum research in science. Technicians train in laboratories for R. & D. kinds of science, and they are possible to find and work with in other programs. But nothing is really being done about the museum scientists, and as a result, there is no real replacement program as people retire and change their jobs.

Chairman HAYDEN. Are these college graduates advanced students or employees of other museums?

Mr. RIPLEY. Sir, they are young graduates entering the museum field, and they are not advanced students as a result. They will be developed, I hope, as research assistants, research associates, people who do not need an advanced degree.

Chairman HAYDEN. Is it expected that they will work for the Smithsonian, or will they seek employment in other places?

Mr. RIPLEY. We are doing this as a service for the Nation, and we expect that they will seek employment anywhere they wish as a result.

NEIGHBORHOOD MUSEUM SUPPORT

Chairman HAYDEN. In connection with the Office of Exhibits, I note that you are asking an increase of \$16,000 for support of the Neighborhood Museum.

How much was available for this purpose in your budget for fiscal year 1968?

Mr. RIPLEY. Mr. Chairman, we estimate that in man-hours and time we spent about \$30,000 in 1967 for this activity. And for this museum, we also received over \$60,000 in grants.

Here is a picture I would like to show you of this Neighborhood Museum, which has been enormously successful since it opened in September.

We spent a certain amount of money and time planning even in the earlier budget—that is, the 1967 budget, in 1966—just planning for this activity, so that the work to prepare for this thing has taken almost 2 years now, I would say.

But the outlay of money has been essentially for the time spent by our exhibits people, who are very excited about it, and have derived a great deal of educational value themselves. The exhibits people view this Neighborhood Museum as a testing laboratory for themselves, to find out what audience reaction and participation is.

1968 AND 1969 FUNDING

Chairman HAYDEN. I recall that further reference to the Neighborhood Museum appears in the Office of Education and Training portion of your budget.

Throughout the Smithsonian Institution how much was available in fiscal year 1968 for this purpose, and how much is asked in fiscal year 1969?

OFFICE OF EXHIBITS

Mr. RIPLEY. In 1968, Mr. Chairman, we had available, or used, about \$30,000 from the Office of Exhibits, and, as I say, we did this on basis that this is the Laboratory for the Office of Exhibits.

BUILDINGS MANAGEMENT DEPARTMENT AND U.S. MUSEUM

We had about \$8,000 expended from the buildings management department for services, trucking and getting materials back and forth, and we had \$1,000 in the U.S. National Museum. That made a total of \$39,000.

PRIVATE GRANTS

The private grants which we received, as I say, in 1968, represented about \$60,000, so that it cost us, using these grants which we had asked for, close to \$100,000 to conduct this museum experiment. We also received an additional challenge grant from the Irwin-Sweeny-Miller Foundation of Columbus, Ohio, to augment the museum's program this coming year. We are trying to raise little sums, \$1 here, \$10 there, from children and other donors to match this challenge and keep the thing going.

For 1969, we are requesting an increase of \$68,000 for the Neighborhood Museum. This will just about replace initial year generous private support for this museum.

MUSEUM OF HISTORY AND TECHNOLOGY: ORGANIZATION OF DOCUMENTARY MATERIALS

Chairman HAYDEN. Under the Museum of History and Technology, you ask an increase of \$20,000 and one position for organization of documentary material, stating that no funds are specifically available for this purpose now. This indicates that some work has been done in this field.

How much was used in each of the past 2 years, and from what sources were the funds made available?

Mr. RIPLEY. Mr. Chairman, this work is primarily being performed by museum technicians, who are concerned with management and collection of objects. We estimate that in the past 2 years probably less than 1 man-year has been devoted to this or approximately the equivalent of no more than \$8,000 total in appropriated funds each year.

However, when we start really assembling important machines and instruments illustrating the history of science and technology, a tremendous amount of documentary material is also collected. This comes in the form of drawings, specifications, and so on. We have received some tremendous gifts and other collections in this regard.

WARSHAW COLLECTION

For example, in the past year we have finally gotten the Warsaw collection, which represents almost a million documents, and which is full of important information on the patents and inventions of the 19th and early 20th centuries. It has been used to help settle patent disputes, litigations, and so on. It is a valuable mine of information for people studying the history of the development of various inventions, and we think that this sort of work is very important.

We have got to get it organized into some kind of easily usable archival form for historical research.

PAY INCREASE ALLOCATIONS

Chairman HAYDEN. Throughout your budget justification you have provided very useful summary tables for each of your appropriation activities. The tables provide an analysis of the total increase requested, divided to show the amount needed for pay purposes and the amount needed for program purposes.

Would you please have furnished for the record, information to show how much of the pay increase requested is to meet requirements for personnel now employed and how much is needed to meet the increased pay pertaining to the new positions which may have been requested in such activity?

Mr. RIPLEY. I would like to ask Mr. Bradley to speak to that, if I may, Mr. Chairman.

Mr. BRADLEY. Mr. Chairman, we would like to submit a statement that would show the pay increases divided up as you suggest. I should go on to say, though, that the funds shown in these summary tables that you just referred to are for the existing positions and that any funds that come along for any increase in personnel that we get is included in what we call the program increase. That is self-contained.

Chairman HAYDEN. You may place that in the record.

(The information follows:)

1969 COST OF CLASSIFIED PAY RAISE, EFFECTIVE OCT. 8, 1968

Activity	1968 positions		1969 increase		1969 total	
	Number	Amount	Number	Amount	Number	Amount
1. Museums of science and history (including research):						
U.S. National Museum.....	191	\$75,967	13	\$4,537	204	\$80,504
Museum of History and Technology.....	152	66,150	3	1,353	155	67,503
Museum of Natural History.....	262	125,050	8	1,872	270	126,922
National Air and Space Museum.....	39	18,127	3	1,328	42	19,455
National Armed Forces Museum Advisory Board.....	7	3,046	0	0	7	3,046
Total, museums of science and history..	651	288,340	27	9,030	678	297,430
2. Art galleries:						
Freer Gallery of Art.....	5	1,838	1	234	6	2,072
National Collection of Fine Arts.....	57	22,257	5	1,818	62	24,075
National Portrait Gallery.....	27	12,104	4	1,662	31	13,766
Joseph H. Hirshhorn Museum and Sculpture Garden.....	3	1,859	2	794	5	2,653
Total, art galleries.....	92	38,058	12	4,508	104	42,566
3. Research activities (other than museums):						
Smithsonian Astrophysical Observatory.....	53	37,735	3	1,922	56	39,657
Smithsonian Tropical Research Institute.....	13	6,298	6	2,806	19	9,104
Radiation Biology Laboratory.....	27	13,359	1	634	28	13,993
Office of Ecology.....	5	3,084	3	871	8	3,955
Office of Oceanography and Limnology.....	18	8,734	8	2,792	26	11,526
Smithsonian research awards.....	0	0	0	0	0	0
Total, research activities.....	116	69,210	21	9,025	137	78,235
4. Other activities (including administrative and central services):						
Office of Education and Training.....	13	4,252	4	1,487	17	5,739
International activities.....	13	6,977	3	991	16	7,968
Administrative and central services.....	223	93,949	32	10,545	255	104,494
Total, other activities.....	249	105,178	39	13,023	288	118,201
5. Buildings management, total.....						
	337	88,854	25	5,224	362	94,078
Grand total, salaries and expenses.....	1,445	1,589,640	124	40,870	1,569	630,510

¹ Increased pay costs for new positions requested for 1969 are included in the requested funds for "program increases."

Note.—The \$589,640 are financed in part from \$127,000 of the \$741,000 requested in (1) Pay increases item (a), and the \$439,000 of the requested pay supplemental in fiscal year 1968.

REVISION OF HANDBOOK OF AMERICAN INDIANS NORTH OF MEXICO

Chairman HAYDEN. In connection with the Museum of Natural History, you state that a revision of "The Handbook of the American Indians North of Mexico" is imperative, indicating that part of the increase of \$206,000 which you request will be used for this purpose.

How much do you estimate it will cost to do a complete revision of this book, and how much of it will occur during fiscal year 1969?

Mr. RIPLEY. This handbook is a collaborative effort between universities, museums and Government agencies. It is expected that over the

next 10 years these other organizations will contribute about 420 man-years of time and effort on the revision of the handbook, worth in this sense about \$3½ million.

The Smithsonian, it is proposed, would contribute about \$700,000 over the next 10 years, and in fiscal 1969, as you point out, we are asking for one technician and \$26,000 to assist with the project.

But it is an enormously important work. The previous older work I have here. This is one of the volumes of the handbook which is going to be redone.

I would like to point out that the Indian population is continuing to increase slowly from 1900 to 1968. There has been a rather measured and definite increase. It is true that they are probably the fastest growing segment of the whole U.S. population.

When the handbook was written, we did not realize that the Indians had reached the lowest point in their history. At that time there were less than 300,000 Indians, and today that figure has doubled. There are now over 600,000 Indians.

Chairman HAYDEN. When was the book issued?

Mr. RIPLEY. This was published in about 1900, as I recall. Let me see. It was 1910.

Chairman HAYDEN. I have a copy of it, but I had forgotten the date.

Mr. RIPLEY. We feel it is vitally important to bring this up to date. It is a long way out of date now, and we have a tremendous number of people who are continually interested in Indians in various ways.

As you know, the other departments of the Government are charged with tremendous responsibilities in regard to Indians, and we have a traditional role to play in conserving and documenting their history.

ACQUISITION AND EXHIBIT OF SPACE OBJECTS

Chairman HAYDEN. In the National Air and Space Museum portion of your budget estimate you indicate that three positions and \$90,000 more are necessary in order to support new obligations under responsibilities added by the Congress.

What are these responsibilities?

Mr. RIPLEY. Mr. Chairman, one of the interesting developments in the past year has been the program developed with NASA to assist the Air and Space Museum. NASA provided some funding this year with the understanding that we would then seek continued funding directly from the Congress. This program in space science and technology is in direct support of the added responsibilities given to the Air and Space Museum by legislation in 1966.

This is what we are requesting. It has to do with the space capsules and other components which we are receiving from NASA. If we are going to be able to maintain, conserve, and exhibit these space objects, we will gradually have to assume this obligation and this responsibility after this first grant from NASA runs out.

JOSEPH H. HIRSHHORN MUSEUM AND SCULPTURE GARDEN

Chairman HAYDEN. You are asking \$38,000 more in fiscal year 1969 for Salaries and Expenses related to the Hirshhorn Museum than was appropriated to you in fiscal year 1968.

Would you explain why it is necessary to have this fund in advance of construction of the museum?

Mr. RIPLEY. One of the important things about the Hirshhorn collection, Mr. Chairman, is that it is in the New York City vicinity, and it is in a variety of warehouses. It must somehow be gotten into shape for moving down to Washington.

COLLECTION MAINTENANCE COST

Mr. Hirshhorn himself spends about \$50,000 a year on this project of just maintaining his collections, and I might say that since May 1966 we estimate that he has spent well over a million and a half dollars buying new objects. We have to document these. We have to catalog them. We have to help maintain them in good condition once we have accepted the obligation that we are going to show them.

Chairman HAYDEN. Is it planned to move any of the sculpture and paintings to Washington prior to completion of the museum?

Mr. RIPLEY. Yes, sir, we do plan to do so as soon as we have gotten into the construction phase of the museum where storage is possible. That will be well before, perhaps a year before, it actually opens.

Chairman HAYDEN. I note that Mr. Hirshhorn will absorb certain costs of maintaining the temporary offices in New York City.

How much does the Smithsonian contribute to these costs?

Mr. RIPLEY. We contribute about \$11,000 now to the rental of office space, cleaning, telephones, and the like. Our total contribution is about \$56,000. As I mentioned earlier, Mr. Hirshhorn contributes something around \$50,000.

SMITHSONIAN ASTROPHYSICAL OBSERVATORY

Chairman HAYDEN. With respect to the Smithsonian Astrophysical Observatory, for which you request three addition employees and \$99,000 more in fiscal year 1969, would you please indicate to the committee the importance of this observatory and also tell us about the need for your requested increase?

Mr. RIPLEY. I am happy to do so, Mr. Chairman, especially since I spent part of last week up there working with the Harvard committee.

This is an enormously important activity to the Nation. It is a center of very active research in the sciences concerned with the origin and matter of the solar system and the universe. It operates jointly with Harvard and MIT and this is a very fruitful relationship, because they react on each other.

The scientists working in these institutions help us, and we help them reciprocally.

FUNDING

About \$11 million is involved in the total funding of the Observatory and about 85 percent of that is contributed by others, so that we get off quite cheaply.

Our grant support from the other agencies is about \$9 million, and we have been very active in soliciting new and innovative people to the staff, which we could not do if we weren't so closely tied in, I think, with Harvard and MIT.

Harvard's budget receives, also, about \$8 million or \$9 million from grants, and they put in, besides, over a million dollars in total for their observatory and the astronomy department.

HARVARD BUILDING PROGRAM

They are looking for a building program at Harvard which will benefit our staff, because we will be able to help man these new facilities. Harvard is going to come in, I hope, eventually with us in our observatory in the Southwest. They are considering three plans, but they feel their scientists need an observatory in the Southwest, too, because the present telescope that they have in Massachusetts is just not fully satisfactory due to wheather conditions.

I think that we are in a very strong position there in our own work, especially with the study of planets and planetary properties.

Dr. Jesse L. Greenstein, who was at this meeting from Cal Tech, tells me that he thinks the Smithsonian leads the Nation, and this kind of cooperative work is one of the reasons why.

BUDGET REQUEST INCREASE

The requested increase of \$99,000 is for the planned implementation of the Observatory's research in radio astronomy, gamma-ray astronomy, meteorites and cosmic dust, and especially for a limited buildup of support of the Mount Hopkins, Ariz., observing site. The request includes \$23,000 for necessary pay increases.

MOUNT HOPKINS OBSERVATORY, ARIZ.

Chairman HAYDEN. What is the total estimated fund requirement for Mount Hopkins, Ariz., in fiscal year 1969, and how does this compare with the amount which is needed there during the current fiscal year?

Mr. RIPLEY. May I ask Mr. Bradley to speak to this, Mr. Chairman? He knows more about Mount Hopkins than I do. I haven't been out there yet, I am sorry to say.

Mr. BRADLEY. Mr. Chairman, of the net increase we are seeking for this observatory, \$33,000 would be expended at Mount Hopkins, and an additional \$69,000 would be spent for off-site studies. That is for instrumentation, travel, the use of the computer back at Cambridge, and generally to support and integrate the results of the Mount Hopkins work. These increases are largely offset by economies in other observatory programs.

GAMMA RAY ASTRONOMY

Chairman HAYDEN. A part of your activity at Mount Hopkins is gamma ray astronomy. Would you explain this briefly, and indicate what information it is expected that a study of these rays will reveal?

Mr. BRADLEY. Mr. Chairman, I would like to offer you a very short statement that was given me very recently by Dr. Fred Whipple, the Director of the Observatory.

Gamma rays are extremely short waves at the upper end of the spectrum, and because they have a very short wave length, they have a very

high frequency. They are like X-rays and the rays that are emitted by radium and other radio-active elements.

Gamma ray astronomy is essentially the study and the observation of these natural gamma rays that are impinging on the earth from astronomical sources.

It is their detection that we are interested in, in order to reveal features of the universe that have not been observable before. Because of their very high penetration and origin under circumstances not possible to duplicate in a laboratory, gamma rays may lead to the discovery of new physical processes and may show what is the origin of cosmic rays—and whether there is antimatter in the universe and whether matter is being created continuously in outer space.

SMITHSONIAN TROPICAL RESEARCH INSTITUTE, PANAMA CANAL

Chairman HAYDEN. Another of your activities on which both the House and Senate committees commented last year is the Smithsonian Tropical Research Institute.

I believe that it would be helpful to the committee if you would explain your activities in Panama and highlight some of the shortcomings which I know you feel exist there.

Mr. RIPLEY. Mr. Chairman, I would be happy to ask Dr. Galler to speak to this, because he has recently been down there again, and I think he is better informed on the situation than I am.

Mr. GALLER. Thank you, Mr. Secretary.

Mr. Chairman, may I show you this map of the total resources and facilities of the Smithsonian Tropical Research Institute? You will note that we have laboratories at each end of the Panama Canal, one in the Atlantic and one in the Pacific.

Then, halfway down on your right is the Barro Colorado facility, where we have the central laboratory, and over to the left we have use of the so-called pipeline—Navy pipeline reserve—where a great deal of Smithsonian research is going on in this natural preserve that has been maintained by the Navy.

This photograph is a picture of the marine laboratory on the Atlantic side. Practically every one of the facilities, Mr. Chairman, has been donated or borrowed from the Navy, the Panama Canal Company, and some of our other good friends in the Canal Zone.

If I may reiterate what Mr. Ripley said earlier, the Tropical Research Institute is the only basic research institute in the tropics available to scientists and students throughout the United States, the Caribbean, Middle America, and Latin America.

RESEARCH ACTIVITIES IN THE TROPICS

The Institute has essentially five components of its activities. It has a small, but very excellent, young group of seven scientists carrying on a basic research program to discover more information about the tropics.

It provides, through the combination of facilities and the scientists, a unique place for U.S. scientists and students to come and work for their own projects. And, as Mr. Ripley pointed out, last year alone,

we had more than 400 visiting scientists, primarily from the United States.

It provides unique opportunities for the training of graduate students and undergraduate students and, also, last but not least, the combination of faculty and information is a very valuable repository that is used quite frequently by other agencies, both public and private.

For example, the Sea Level Canal Commission, the Army Corps of Engineers, and Batelle Memorial Institute, which serves as the contractor for the feasibility study of the sea-level canal, has made use of our facilities and our scientists for advice.

The Army Tropical Test Unit there has referred questions to our staff very frequently, primarily dealing with survival under jungle conditions. They have asked for advice about how soldiers and marines can subsist on the various resources in jungle areas. And I could go on and on.

FUNDING AND PERSONNEL INCREASES

We are asking for, in addition to the \$13,000 for necessary pay increases, and in a priority sequence, first, we are asking for \$56,000 and seven positions to meet some of the very severe shortages in supporting services. This includes an administrator to take up the management burden, which is now being carried on almost entirely by our scientists; two laboratory assistants and two laborers to support our scientists and visiting students and researchers; and, to replace the terminal funds we have received in the past from outside grants and contracts, the positions and salaries of two key scientists who have joined the staff. One is a distinguished entomologist and the other is a specialist in tropical marine biology. And we are also including the necessary funds for supplies and to replace completely depreciated equipment.

Second, one additional position and \$19,000 is asked to fill a significant gap in theoretical ecology. As was mentioned by Mr. Ripley earlier, we do feel a special responsibility to the Nation to help assess some of the consequences of major engineering projects that are being proposed and constructed in the American tropics by various agencies, both public and private.

A theoretical ecologist is a kind of scientist who is able to tie together the special knowledge that is obtained from the discoveries of other scientists and to come out with the means for determining what may happen if we start manipulating the environment in some of these tropical areas.

Third in priority, but of very timely importance, \$50,000 are sought for competitive award through the Smithsonian's Research Awards Program for collaborative efforts led by our staff scientists directly related to marine biology and tropical ecology to permit the essential leadtime to assess the biological costs and dangers of sea-level canal construction. The hour already is extremely late for initiating a responsible effort that is well within the leadership capabilities of our STRI scientists.

OTHER TROPICS LABORATORIES

Chairman HAYDEN. Does any other nation in the world have an operation like this in the tropics?

Dr. GALLER. In the American tropics, no, sir. This is unique. In the Old World tropics, yes, there are several laboratories that are either in the tropics or on the periphery of the tropics. I don't believe any of them is constituted the way the Smithsonian Tropical Research Institute is constituted. In particular, nowhere else in the world can the distinct floras and faunas of two oceans be compared as easily and under such favorable conditions.

PROGRAM PRIORITY

Chairman HAYDEN. Can you provide for the committee a priority listing of your needs at the Panama Institute?

Mr. GALLER. Yes, sir, we will be glad to provide that for the record. (The information follows:)

SMITHSONIAN TROPICAL RESEARCH INSTITUTE

Needs by priority

1. Pay increases -----	\$13,000
2. Administrator -----	14,000
3. Two laboratory assistants and two laborers to rectify shortages in research support services. Increase includes replacement of wornout equipment -----	28,000
4. Two scientists, now paid by terminating funds from other sources.---	14,000
5. Support for marine biology and tropical ecology through the research awards program -----	50,000
6. Theoretical ecologist -----	19,000
7. Improved laboratory space for research -----	100,000

RADIATION BIOLOGY LABORATORY

Chairman HAYDEN. For the Radiation Biology Laboratory you propose an increase of \$35,000 to repair and operate complex refrigeration equipment, et cetera. Later in your budget there is a request for \$400,000 to move this Laboratory to a new site.

Is the \$35,000 necessary if you do find another location?

Mr. RIPLEY. Yes, sir. We are asking for this in order to renovate and maintain in good order existing equipment, which has to be renovated to continue experiments. This equipment would be relocated to the new site. We are asking for \$400,000 for a one-time expense related to rehabilitating new space and moving.

SMITHSONIAN OCEANOGRAPHIC SORTING CENTER

Chairman HAYDEN. In the material submitted for the Office of Oceanography and Limnology I notice a statement that the Smithsonian Institution on behalf of the U.S. Government has accepted the responsibility for sorting the resulting collections of certain international expeditions and delivering them to collecting scientists.

From whom did you accept this responsibility, and under what authority?

Mr. RIPLEY. Sir, in 1962, the National Science Foundation received funds to conduct what was called the International Indian Ocean Expedition, and they immediately discovered that we were probably the one place that could act as a sorting center for the material that would come back from these ocean expedition patrols. There was no place else—the National Science Foundation did not have this capability

themselves, naturally, because they don't conduct research operations themselves.

We did, and we had these enormous existing collections which could be matched against the new material coming in. So we set up the Oceanographic Sorting Center in that year initially, and this has developed since as a major research center for ocean material.

TECHNICIAN TRAINING

Chairman HAYDEN. On page B-75 you indicate that the Office of Oceanography has been training 100 oceanographic technicians. I assume that these are not Smithsonian employees.

Where do they come from, and do they receive a salary while they are working with the Smithsonian? If so, who pays the salaries?

TRAINEE PAY

Mr. RIPLEY. Mr. Chairman, in the past 4 or 5 years we have indeed taken on and developed about 100 technicians. Many of these have come from the Department of Labor unemployed lists. And almost all of these technicians have been paid from funds provided by the National Science Foundation, the Office of Naval Research, the Bureau of Commercial Fisheries, and other agencies for special projects.

We have done a marvelous job in training these people. Many of them have really become highly adept and skilled and motivated, interested in this work.

They are employed at grades GS-4 and GS-5, and nearly all of those who were formerly employees have gone on to some better paying permanent position after their training and work with us.

So we essentially do not pay for them. That is the answer.

OFFICE OF EDUCATION AND TRAINING: EXPERIMENTAL NEIGHBORHOOD MUSEUM, WASHINGTON, D.C.

Chairman HAYDEN. The increase requested for the Office of Education and Training is \$44,000 to continue operations of an experimental Neighborhood Museum in Washington. As I understand it, there is only one such museum, the one in Anacostia, which was supported with a \$25,000 grant in 1968 from the Carnegie Corp.

1968 AND 1969 FUNDING

Why it necessary to have \$44,000 for this purpose in 1969?

Mr. RIPLEY. I would like to ask Mr. Blitzer to answer this one, because he has been our man on the spot with the Anacostia Museum.

Mr. BLITZER. Mr. Chairman, actually we received about \$60,000 in private funds in fiscal 1968 for that museum. As the Secretary pointed out, we have been able, by using the services of our exhibits department, which is finding out things about making exhibits for kinds of people that we don't know much about yet, we will spend altogether about \$90,000 on the neighborhood museum. That will carry us, we figure, until the end of fiscal 1968.

What we are requesting now is Federal funds to continue the operation during the next year.

Chairman HAYDEN. What will be the result if Congress should not approve this request?

Mr. RIPLEY. We would have to close the museum, in effect, because the subsisting grants that we are operating on are so relatively small, you see. We think, in matching funds, we have put in about \$39,000 this year, and we got about \$60,000 in outside contributions. So we had nearly \$100,000.

This year, so far, we are operating with the thought that next year we have a challenge grant, that we may be able to raise about \$40,000 or \$45,000. And in order to keep it going, we are asking for \$44,000 for the Neighborhood Museum.

ANTICIPATED ADDITIONAL NEIGHBORHOOD MUSEUMS

Chairman HAYDEN. Do you have plans and budget proposals for additional neighborhood museums? If so, where, and in what amounts?

Mr. BLITZER. Mr. Chairman, this first neighborhood museum was started as an experiment. I might say, just to refer to the previous question, foundations, as you know, are reluctant to underwrite continuing operations of things like this. They are not interested, really, in supporting this for all eternity. We hope that if this experiment proves to be a success, we could help with the founding of other neighborhood museums in other parts of Washington.

The crucial part of this is that the people in the neighborhood must want it. We have had enormous expressions of interest from various parts of the District of Columbia, but first we feel would like to finish this museum.

In the long run, we hope that, cooperating with the people in the District of Columbia, there might be several of these. Ultimately, we hope museums in all cities, if this is a success, will go and do likewise.

Mr. RIPLEY. We have photographs of the museum. Walter Washington is visiting it, and children are working in it.

We have had about 30,000 visitors so far, to the end of February.

Chairman HAYDEN. That is interesting.

INTERNATIONAL EXCHANGE SERVICE SHIPPING COSTS

Four thousand dollars of your requested increase under international activities are for shipping costs. How much of these costs can you meet with foreign currencies?

Mr. RIPLEY. Mr. Warner, would you answer that for me, please?

Mr. WARNER. Mr. Chairman, we believe a very small amount relative to the overall shipping costs of the International Exchange Service can be met. This is because not all of the excess currency countries have frequent sailings or any shipping lines at all, but we have done a little investigation and have found American- or foreign-flag shipping lines which would accept foreign currencies in payment for shipments to Burma, India, Israel, Pakistan, Poland, Egypt, and Yugoslavia. It is not all, or the greatest volume of our shipping, but we think we could economize by \$20,000 in this way.

OFFICE OF ASSISTANT SECRETARY FOR SCIENCE PERSONNEL

Chairman HAYDEN. One of the additional positions requested for the Office of the Secretary is a biologist for the Assistant Secretary for Science.

What scientists does he now have on his staff?

Mr. GALLER. Mr. Chairman, the Office of the Assistant Secretary for Science is responsible to the Secretary for the supervision of all of the scientific activities in the Smithsonian Institution. These activities include some 345 scientists, plus supporting personnel, plus the program offices of oceanography and ecology, the Smithsonian Tropical Research Institutes; and the activity at the Astrophysical Observatory.

At the moment, the Office of the Assistant Secretary for Science consists of one scientist; namely, the Assistant Secretary for Science. And we feel that there is a need for an assistant to help with the many scientific research activities that go on in the Smithsonian Institution.

CONSOLIDATION OF PRINT SHOP AND DUPLICATING SECTION

Chairman HAYDEN. It is indicated that there is a desire to combine your print shop and your duplicating section, but that to do so will require an additional two positions.

Will you please explain why the personnel now employed in these two sections can't be so utilized as to provide all the employees you need?

Mr. RIPLEY. I would like to ask Mr. Bradley to answer that question, Mr. Chairman.

Mr. BRADLEY. Mr. Chairman, upon the retirement, several years ago, of a very excellent foreman, his job got to be a production job, and we had to do without a manager. We think that it has pretty well been demonstrated that it would be good business, if we can possibly do it, to obtain an additional position for a manager and also to give him a typist to make him more productive. We feel these two would be worth their pay in organizing the work of the two shops.

We have two employees in the printshop and seven employees in the duplicating shop, and they are very busy and very productive. But, nevertheless, somebody should be there to plan, schedule, and assign work, recruit employees, and in general, serve as a good production manager to achieve the most effective and efficient results.

We think it would be good economy.

TORT CLAIMS

Chairman HAYDEN. How many tort claims against the Smithsonian Institution have been settled in the past 2 years, and what were the total costs of settlement, and what were the high and low settlements?

Mr. BRADLEY. Sir, in 1966 we actually paid four. We had probably twice that number to handle. The total cost was about \$649. The high claim that was paid was \$250, and the low settlement was \$43.

In 1967 we only paid two, although we had about eight to consider, some of which were found not to be valid.

The total cost in 1967 was \$244, with a high and a low of \$160 and \$84.

To date this year, however, we have paid out five. That has cost \$873, with a high of \$600 for one and a low of \$33 for another.

The point is that today, under existing law, Mr. Chairman, anything up to \$2,500 in the way of a settlement is the responsibility of the Smithsonian and comes out of this appropriation. Anything greater than that, we send to the Department of Justice, and it becomes a part of an omnibus claims supplemental request that is submitted for the entire Government.

DIVISION OF PERFORMING ARTS PERSONNEL INCREASE

Chairman HAYDEN. You are asking two additional positions in the Division of Performing Arts at an increased cost of \$31,000 in the coming fiscal year, indicating that they are to seek out, document, and present performances and demonstrations concerning American craft culture, et cetera.

I note that on page B-98 you indicate a number of accomplishments along this line, which, apparently, have been completed.

Are the employees who did this work not available to continue this same type of work in the future?

JULY FOURTH FESTIVAL

Mr. RIPLEY. Mr. Chairman, this is only a small list here that you see on B-98. However, I think I should speak to the most sensational one, and that was the festival that was held over the July Fourth holiday. This was extraordinarily successful, and it was largely done with grants received from arts councils in a number of the States with some supporting money coming from the City of Washington and with help from the Park Service, and so on.

Over 430,000 people were clocked in by the Park Service officially at that festival, and it aroused very favorable reactions in the press throughout the Nation and in the Congress. In the Congressional Register, a number of Congressmen volunteered—much to our surprise, as it were—testimonial statements about how successful this thing had been.

PUPPET THEATER PROGRAMS

Then, some of the puppet theater programs have been successful, so much so that the National Park Service is asking us to consider using these in their programs this summer around the city.

As you know, the President and others have been urging the Park Service to take the initiative to try and provide healthy recreational activities during this summer in Washington. They have come to us and asked us for ideas, because they have felt that our sort of pilot program was so successful and that we have the know-how.

ANIMATING MUSEUM OBJECTS

If we are going to perform for the Park Service, we feel we need to get going right away, and we will probably have to make this into a significant activity. I feel that this is part of the idea of using the objects which are in the museums, making them come to life and demonstrating them in the open air for the people.

MUSICAL EVENTS

Some of the other things we have done have been musical events. We have started in a small way, and we have been very, very highly successful.

The critic in the Washington Post gave a lyrical criticism to our tower music performance, which was unlike most of his usual criticisms, I may say, which have more asperity. We feel this has been a great success.

PLANNED CELEBRATION AND FESTIVAL

The employees available to do this work in the past will continue, and many of these presentations will continue. For example, this spring and summer, we are again planning to have on April 1, our annual celebration of the start of our night visiting hours which helped to inaugurate the Department of Transportation last year, and then the festival of American folklife.

But in order to bring the Smithsonian collections and other resources material to life and bring them dramatically before the public, we feel a very small increase in additional staff can be put to good use. We feel the dividends in terms of meeting the long, hot summer are going to be tremendous.

I have written to the President about this, and have received a very stimulating letter back about the flexibility which a venerable and ancient institution can show in adapting its resources to the present-day needs.

SMITHSONIAN INSTITUTION PRESS

Chairman HAYDEN. In connection with the Smithsonian Institution Press, how many jobs were completed in fiscal year 1967, and how many are estimated for fiscal year 1968 and fiscal year 1969?

Mr. BRADLEY. During fiscal 1967, Mr. Chairman, 92 publications were funded by this particular appropriation, and we expect 105 in 1968 and 117 in 1969.

RECEIPTS FROM PUBLICATIONS

Chairman HAYDEN. What charges are made for these printing jobs, and what are the total receipts for these 3 years?

Mr. BRADLEY. The receipts to the Smithsonian Institution, Mr. Chairman, are zero. We have a mailing list to some 5,000 learned societies, universities, libraries, museums, schools, who receive on a selective basis. They elect the general area that they are interested in and they receive our publications. We, in turn, receive theirs.

SALES

The Government Printing Office does the actual printing. The Superintendent of Documents from time to time decides that a particular publication has general, popular appeal, and then he will take the plates that were used for our publication, print additional copies, and place these on sale. But the receipts go to him.

MUSEUM PROGRAMS AND RELATED RESEARCH

(SPECIAL FOREIGN CURRENCY PROGRAM)

Chairman HAYDEN. For fiscal year 1969 there is a request for an appropriation of \$6 million for museum programs and related research to be met through the special foreign currency program. This is an increase of \$3,684,000 over the amount appropriated last year.

The justification for this estimate will be placed in the record. (The justification follows:)

1967 Appropriation-----	\$2,316,000
1968 Appropriation-----	2,316,000
1969 Estimate-----	6,000,000

An appropriation of \$6,000,000 in foreign currencies, as determined by the Treasury Department to be excess to the needs of the United States, is requested for a program of grants to United States institutions for essential field research in archeology and related disciplines, systematic and environmental biology, astrophysics, and other fields of Smithsonian competence.

This request reflects an assessment of the most valuable and practicable research opportunities in the excess currency countries, as determined by scientific surveys and conferences with host country institutions. The Smithsonian's Foreign Currency Program assumes proportionately more importance as the current period of budgetary restraint may affect dollar research support. It will become doubly important to the many American private institutions that are beneficiaries of the program in the event that their overseas research is limited by dollar outflow restrictions, since excess foreign currency expenditures in no way contribute to balance of payment problems.

Since its inception in 1965, the Special Foreign Currency Program has provided vital and frequently unique support to over 35 American universities or museums for research or field work that cannot be carried out in the United States. A number of the projects supported under this program have already made breakthroughs in terms of advancing knowledge in various scientific and humanistic disciplines. A sampling of these may be summarized as follows:

The Smithsonian Office of Oceanography—Hebrew University of Jerusalem project for the study of Indian Ocean—Mediterranean biological interchange has discovered populations of economically valuable fish species, recent migrants from the Indian Ocean through the Suez Canal, which Israeli fisheries are already harvesting.

The Yale University excavations in the badlands of El Fayum, Egypt, have uncovered the oldest known fossil ape, a discovery which has moved back the base of man's family tree to 28 million years ago and opened up entirely new understandings of primate evolution.

The University of Pennsylvania study of the temple of Akhnaten at Luxor has successfully applied the latest computer techniques to the matching and coding of Egyptian hieroglyphics and pictographs to reveal information on the unique monotheistic faith of the XVIIIth Dynasty Pharaoh.

The Mediterranean Marine Sorting Center at Salammbu, Tunisia, has studied and processed collections of benthic or deep sea organisms previously unknown to science and made an evaluation of fisheries resources in Tunisian coastal waters.

Organizations ranging from the American Institute of Archeology to the United States National Committee for the International Biological Program have characterized this Smithsonian program as the sole or the most important source of support for overseas research needs. In addition, both the National Academy of Sciences and the National Science Foundation have welcomed this source of funding for basic research in fields of study and in regions of the world which have suffered relative neglect.

It is basically for these reasons and also because of the increasing acceptance Smithsonian programs are finding in the excess currency countries that the Institution believes that a substantial foreign currency increase is justifiable in 1969. To defer ongoing projects, such as those listed above, would mean heavy additional expenses in reestablishing them at a later date, when foreign currencies may lose value through inflation. Many of these projects are multiyear

and now in the position of reaping maximum results after prior years of preliminary surveys, installation of excavation or research equipment, and the establishment of satisfactory arrangements with host country institutions. To defer many of the possible future projects, as shown in the attached table, would mean to lose the opportunities now afforded by the growing climate of acceptance for the program in nearly all excess currency countries, which in some cases the Smithsonian has achieved only after patient negotiation. It would also mean serious delays in attaining the Institution's domestic or overall research goals, since the program has a proven record of advancing the Smithsonian's own research objectives. This is because all project grants, although mainly awarded to other American institutions, represent strong interests of the Smithsonian's own scientific staff.

PROJECTS FOR WHICH FUNDS ARE REQUESTED

	1967 appropriation	1968 appropriation	1969 estimate
Archeology and related disciplines	\$1,300,000	\$1,105,000	\$2,000,000
Systematic and environmental biology	1,016,000	1,016,000	3,580,000
Museum programs	0	40,000	250,000
Astrophysics	0	145,000	120,000
International exchange service	0	0	20,000
Grant administration	0	10,000	30,000
Total	2,316,000	2,316,000	6,000,000

RESEARCH AND EXCAVATION IN ARCHEOLOGY AND RELATED DISCIPLINES

\$2,000,000 in excess currencies are requested for the fourth year of the Smithsonian's program of grants to American universities, museums, or other institutions of higher learning interested in conducting excavations or research in archeology and related disciplines in the excess foreign currency countries.

Within this amount, approximately \$1,230,000 in excess currencies will be required for ongoing research or excavations which in the Institution's view fully merit continuing support. Among these projects are:

The Hebrew Union College—Jerusalem School of Archeology excavation at Gezer, Israel. This excavation, which serves as a principal field training ground for American biblical scholars and archeologists attending the Jerusalem School's annual Seminar on Near Eastern Civilizations, centers on the city given by Pharaoh Shishak as a dowry to his daughter, who became King Solomon's queen. Excavations have furnished conclusive proof of the city's destruction by Nebuchadnezzar.

The University of Michigan excavation of a Neolithic site near Cracow, Poland, undertaken together with the Polish Academy of Science's Institute for the History of Material Culture. This project, which is the first under the Smithsonian's program in Poland, and the first United States-Polish joint archeological excavation since World War II, is expected to provide sound knowledge of the initial agricultural societies in Poland and of their origins.

Joint Stanford University—Territorial Museum of Sarajevo excavations and surveys of the Trebinjica Basin near Dubrovnik, Yugoslavia. This archeologically rich area, which is soon to be flooded by dam and hydroelectric construction, contains large Roman and medieval Slavic necropoli, as well as archeological sites and monuments of Pre-Illyria, Illyrian (Iron Age), Greek and Bogomil origin.

Within the total of \$2,000,000 in excess currencies requested for archeological and related research, \$300,000 are requested to support sound project proposals received during fiscal year 1968 which could not be considered because of insufficient funds. Interest in the archeological program has reached a new high, with grant applications from universities or museums across the nation averaging three a month; the Institution therefore wishes to be able to accommodate at least a select number of outstanding project proposals held pending during the current fiscal year.

An additional \$470,000 are requested to support new project proposals currently in preparation which the Institution feels merit serious consideration.

A list of ongoing, pending, and new archeological projects is found on page 2152.

SYSTEMATIC AND ENVIRONMENTAL BIOLOGY

\$3,580,000 in excess currencies are requested for support of field research projects in systematic and environmental biology. This amount, which forms the largest part of the Institution's foreign currency request, may be subdivided as follows:

(1) *Direct support of the International Biological Program, \$100,000.*

The Smithsonian is a major contributor to the United States' work under the International Biological Program [IBP]. The IBP is an international scientific effort to which some fifty nations have subscribed, aimed at taking a biological inventory of the earth's natural environments, both marine and terrestrial, in order to determine their relative productivity for the human populations that must some day inhabit or sensibly exploit them.

Responding to requests of the National Science Foundation, the National Academy of Sciences, and the United States National Committee for the IBP, on which the Institution is prominently represented, the Smithsonian employed a small but significant portion of its fiscal years 1967 and 1968 special foreign currency appropriations to support IBP conferences and preliminary surveys in Poland and Tunisia. The United States National Committee recently characterized this support as "especially valuable in providing opportunities for U.S. representation at IBP symposia and working conferences and in enabling surveys of research opportunities to be carried out through the use of excess foreign currencies." Plans of this Committee and of the International Secretariat of the IBP now call also for training courses aimed at developing common research objectives and techniques. Some of these activities will take place during fiscal year 1969 in the excess currency countries of India, Israel, and Poland. As a consequence, the Smithsonian would like to make a direct contribution of \$100,000 in excess currencies to support American participation in the symposia and training courses.

A breakdown for the IBP contribution is given on page 2154.

(2) *Research in systematic and environmental biology, \$2,980,000.*

The sum of \$2,980,000 in excess currencies is requested for research in systematic and environmental biology contributing to the program objectives of the IBP.

Approximately 27 percent of the funds requested for systematic and environmental biology, or some \$818,000 in excess currencies are needed to continue multi-year projects initiated in fiscal years 1967 and 1968. Noteworthy examples include:

An oceanographic sorting facility at Salamambo, Tunisia, which serves as the Mediterranean extension of the Smithsonian's Oceanographic Sorting Center in Washington. This facility, known as the Mediterranean Marine Sorting Center, was established in November 1966, with the cooperation of the Tunisian National Institute of Oceanography and Fisheries, which provides storage and laboratory facilities. Its purpose is to accelerate the identification of marine organisms of the Mediterranean, especially the microscopic plankton which are the beginning of the life cycle and the key to the marine resources of all oceans. The Mediterranean Center is currently sorting collections from cooperating scientific institutions or individual scientists across the Mediterranean. It has contributed to special projects of the Food and Agricultural Organization and various international oceanographic organizations.

A University of Georgia study of the flow of energy in small rodent populations, in conjunction with the Institute of Ecology of the Polish Academy of Sciences. This study will provide basic information on the food consumed by rodents which would otherwise be available to man. It will provide a basis for additional studies in other world regions where the impact of mice and rats on the human community is great.

A Smithsonian study of the ecology of the Ceylonese elephant. The objective of this study, which is headed by a National Zoological Park zoologist,

is to develop a plan for the conservation of the elephants in Ceylon, where expansion of agriculture is threatening the elephant's forest habitat. It is expected that the results of this research will have some application to other Asian or African elephant habitats.

A University of Michigan ecological study of a living coral reef and its associated organisms at Eilat, Israel. This study is similar in objective to those which have resulted in new understanding of territorial behavior and the origins of aggression in many species of animals. The results of this area of ecological research have recently been widely published and acclaimed for the new light they throw on human behavior.

Of the funds requested for systematic and environmental biology, \$1,399,000 in excess currencies are needed for research foregone during the current year for lack of funds. Among proposals which the Institution has had to postpone are a Duke University ecological study of the Indian province of Assam and a University of Michigan study of the effects of fire and grazing on the characteristic Mediterranean shrub ecosystems of Israel.

Approximately \$763,000 of the funds requested for systematic and environmental biology will be required to accommodate new project proposals. Prominent among these will be Smithsonian-directed comparative ecological studies in different world areas, which would be undertaken with the University of Washington, the University of California, the University of North Carolina, Johns Hopkins University, the University of Michigan, and Michigan State. In this category also will be marine biology studies growing out of a survey of the research resources of six of the excess currency countries; namely, Tunisia, Yugoslavia, Israel, Egypt, Pakistan, and India. The survey was requested by the recently established National Council for Marine Resources and Engineering Development and would be carried out under the direction of the Smithsonian's Office of Oceanography and Limnology with various participating American universities. Its purpose is to evaluate the potential research contributions which these nations can make to "Food from the Sea" programs and to plan future cooperative projects of high priority to both the United States and the host countries.

A list of ongoing and new or illustrative projects in systematic and environmental biology is found on page 2154.

(3) *Smithsonian contribution to the National Science Foundation's translation program, \$500,000.*

The Institution urgently requests foreign currencies to be used to accelerate the translation of vital foreign reference works in systematic biology through the National Science Foundation's translation program. Under existing arrangements, the Smithsonian annually receives an average of 3,000 pages of translation of foreign scientific works without charge as its quota in NSF's interagency service program. However, at this rate of support, the Institution cannot receive in time the necessary foreign monographs which will permit it to make much needed comparative studies on its now growing collections. For example, the Museum of Natural History's Department of Botany and the American botanical community in general urgently need a translation of the recently completed 30-volume *Flora of the USSR*. Such a translation will not be ready under the present rate of allocation of NSF funds until sometime after 1990. This one reference set is indispensable to the plans now underway to write a long overdue revised *Flora of North America*. Availability of the Russian translation will greatly facilitate this American work because comparative studies of species common to both continents are essential to proper classification. Translation of the Russian *Flora* will also avoid much possible duplication of effort. The importance of translation of this and other Soviet taxonomic publications was recently highlighted by a unanimous resolution of the American Society of Plant Taxonomists which called for rapid expansion of the NSF program.

There are many other similarly urgent needs for translations of foreign taxonomic literature which can make a substantial contribution to the International Biological Program. All of these needs must be met at a faster pace because the global biological inventory proposed by the IBP cannot be completed without such basic reference works.

The Smithsonian therefore requests \$500,000 of its foreign currency appropriation for transfer to the National Science Foundation to permit the Founda-

tion to respond more adequately to the Institution's translation needs. Similar foreign currency transfers for accelerated translation have already been made by the Departments of Agriculture; Commerce; Interior; Labor; and Health, Education, and Welfare.

MUSEUM PROGRAMS

\$250,000 in excess currencies are requested to support cooperative programs of the United States National Museum involving other American museums and professional museum organizations in a continuing study of museum problems, both in the United States and abroad.

Funds requested would be used to strengthen United States' museums with program interests in the excess currency countries. Specifically, support would go to training courses and conferences for museum professionals in India, Israel, Egypt, and Ceylon, some of which will have support from the UNESCO-affiliated International Council of Museums. Funds would also go to provide advisory services of American museum professionals responding to requests from abroad. A portion of the appropriation also would be used to improve museum collections by purchasing unique specimens or collections not available in the United States and to exchange exhibits by defraying shipping costs which otherwise might require use of dollars.

Additional detail on Museum Program uses of excess currencies appears on page 2157.

ASTROPHYSICS

\$120,000 in excess currencies are requested for research in astrophysics. The funds would be used to extend current programs of the Smithsonian Astrophysical Observatory (SAO) in satellite geodesy, celestial mechanics, and the history of astronomy by making use of the geographical advantages and the special research resources of three excess currency countries, Ceylon, Egypt, and India.

A breakdown of proposed SAO research appears on page 2158.

INTERNATIONAL EXCHANGE SERVICE

\$20,000 in foreign currencies are requested to permit the International Exchange Service (IES) to effect economies in its dollar expenditures for the shipment of publications to various of the excess countries when carriers will accept payment in foreign currencies.

PROGRAM DEVELOPMENT AND ADMINISTRATION

\$30,000 in excess currencies are requested to defray costs of administration of the Special Foreign Currency Program which otherwise would require an expenditure of dollars. Funds would be used to cover travel and related costs for scholars and program staff inspecting field research projects and negotiating with host governments on program operations, as well as costs of on-site audits of multiyear projects in the excess currency countries.

APPORTIONMENT OF FOREIGN CURRENCIES

Outlined below are the various projects and project proposals which make up the total of \$6,000,000 excess foreign currency fiscal year 1969 estimate, divided according to the different program areas described above. Continuing or ongoing projects are identified. New projects are in effect sample or illustrative projects based on firm indications of interest both within and without the Smithsonian. They represent the Institution's selection of possible projects which appear most promising for successful development and implementation during fiscal year 1969. It should be noted, however, that actual implementation of these projects will be contingent upon three factors: review by the Smithsonian's outside advisory councils, review and approval by American embassies overseas, and appropriate cooperative arrangements with host-country institutions or Governmental authorities. It is not expected that foreign currency appropriation requests in subsequent years would differ significantly unless the number of excess currency countries is radically altered.

MUSEUM PROGRAMS AND RELATED RESEARCH (SPECIAL FOREIGN CURRENCY PROGRAM)

I. ARCHEOLOGICAL EXCAVATION AND RESEARCH

Recipient	Project	Grant	
		Year	Amount (U.S. dollars)
A. Ongoing Projects (Year in Parentheses Shows Initial Fiscal Year of Award)			
1. American Institute of Indian Studies (a nonprofit organization of 24 American colleges and universities).	For continued support of the American Academy of Benares, a research center for South Asian archeology and art history (1966).	1969 Prior	150,000 366,100
2. American Research Center in Egypt (a nonprofit study center supported by 10 American universities).	To continue support of the Center's research and excavation program in the archeology of Egypt, which includes Pharaonic, Hellenistic, Roman, and early Christian sites (1966).	1969 Prior	160,000 638,400
3. Jerusalem School of Archeology of the Hebrew Union College.	To continue the survey and exploration of some 400 archeological sites in the Negev and to conduct seminars in biblical archeology for American graduate students in archeology (1966).	1969 Prior	150,000 481,450
4. Peabody Museum of Yale University.	To continue the paleontology and stratigraphy studies of the Paleocene, Eocene, and Oligocene deposits of Egypt, which have resulted in important discoveries relating to human evolution (1966).	1969 Prior	30,000 93,000
5. University of Colorado	To study prehistoric archeological and paleontologic remains in Tunisia (1967).	1969 Prior	60,000 44,000
6. Southern Methodist University	To study prehistory of the area around Sibaiya, Egypt (1966).	1969 Prior	40,000 78,000
7. University Museum, University of Pennsylvania.	To study remaining stones of the Temple of Akhnaten at Luxor, Egypt (1966).	1969 Prior	60,000 125,000
8. Museum of Anthropology, University of Michigan.	To develop a program for research and training in prehistoric archeology through field excavations on Mount Carmel in Israel (1967).	1969 Prior	50,000 87,000
9. University of Washington, American Museum of Natural History.	To study and excavate prehistoric and early historic sites in East and West Pakistan. (Funds available in 1968. Awaiting Pakistani Government approval.)	1969	50,000
10. Carnegie Museum	To continue the excavation of a Philistine city at Ashdod, Israel (1966).	1969 Prior	50,000 147,000
11. Lawrence Radiation Laboratory, University of California, Berkeley.	To continue testing the utilization of cosmic rays to X-ray the Egyptian pyramids in search of presently unknown chambers (1966).	1969 Prior	30,000 56,000
12. Museum of Anthropology, University of Michigan.	To continue excavations of early Neolithic sites near Cracow, Poland, with the goal of providing the first detailed description of early Neolithic cultures in Poland (1967).	1969 Prior	20,000 21,000
13. University of Missouri	To excavate at Yavneh Yam, Israel, to understand better the nature of Greek trade with Palestine and Egypt in the period after 800 B.C. (1967).	1969 Prior	40,000 30,000
14. University of Oregon, Portland State College, and University of Illinois.	To establish a chronology of the cultural history of West Africa on the basis of excavations and recordings of oral history in Guinea (1967).	1969 Prior	40,000 55,000
15. University of Minnesota	To initiate a program of research in Yugoslavia with excavations of the unique Roman Palace of Diocletian at Split, Yugoslavia (1967).	1969 Prior	27,000 28,000
16. Carnegie Museum	To extend the excavations at Ashdod, Israel, to include underwater studies of the ancient port serving Ashdod and of ancient sunken ships associated with it (1968).	1969 Prior	20,000 19,000
17. Smithsonian Institution, Office of Anthropology.	To study disappearing metalworking crafts of Pakistan and Ceylon as part of a worldwide study of ancient technologies and their development (1968).	1969 Prior	20,000 15,000
18. Smithsonian Institution, Office of Anthropology.	To excavate at Carthage, Tunisia, to study the little-known Punic civilization which flourished there before the conquest by Rome (1967).	1969 Prior	40,000 52,000
19. University of California at Los Angeles.	To excavate at Obre, Yugoslavia, a site which promises to provide definitive information about the remarkably high Butmir civilization of the fourth millennium B.C. (1967).	1969 Prior	21,000 34,000
20. Yale University, Peabody Museum	To locate and open quarry excavations for fossil remains of early relatives of man in Siwalik hills of north India (1967).	1969 Prior	40,000 42,000
21. Brooklyn Museum	To construct scale models of Egyptian monuments and archeological sites for study purposes of U.S. museums and universities (1966).	1969 Prior	10,000 22,000
22. University of Wisconsin	To reexamine late prehistoric sites in Kharga and Dakhla Oasis in Egypt to relate this area which is rich in Neolithic cultural objects to the adjacent Nile Valley (1966).	1969 Prior	8,000 6,000
23. Institute for Advanced Study, Princeton.	To conduct interdisciplinary research and excavations in Bronze and early Iron Ages of northern Yugoslavia (1966).	1969 Prior	8,000 10,000

MUSEUM PROGRAMS AND RELATED RESEARCH (SPECIAL FOREIGN CURRENCY PROGRAM)—Continued

I. ARCHEOLOGICAL EXCAVATION AND RESEARCH

Recipient	Project	Grant	
		Year	Amount (U.S. dollars)
A. Ongoing Projects (Year in Parentheses Shows Initial Fiscal Year of Award)—Continued			
24. Peabody Museum, Harvard University.	To excavate at Starcevo, Yugoslavia, to test conclusions of earlier research at this earliest of Middle Danube Basin Neolithic sites in the light of new archeological techniques including radio-carbon dating (1967).	1969 Prior	10,000 7,700
25. University of Chicago	To provide research assistantships for graduate credit in South Asian art at the American Academy of Benares, India, an affiliate of the American Institute of Indian Studies (1967).	1969 Prior	10,000 11,400
26. University of Chicago	To examine a Vaisnava religious community in West Bengal historically and sociologically (1967).	1969 Prior	50,000 52,000
27. American University in Cairo	To study the distinctive dome Mausolea of the Mamluk era (A.D. 1250-1517) in Cairo which have not been studied and are threatened by growth and modernization of Cairo (1968).	1969 Prior	21,000 16,000
28. Stanford University	To conclude urgent archeological and ethnographic studies of Trebinsjica River basin rapidly being inundated by waters rising behind a newly constructed dam (1967).	1969 Prior	15,000 68,000
Subtotal 1969 ongoing estimate			1,230,000
B. Pending Research Proposals			
1. University of Pennsylvania	To excavate the protohistoric site of Kantarodai, Ceylon, to determine the nature and chronology of settlement and to look for evidence of early links with South India.	1969	40,000
2. Smithsonian Institution, Division of Numismatics.	To survey numismatic collections and cooperative research opportunities for American scholars.	1969	10,000
3. University of Washington	To excavate at Novi Sad, Yugoslavia, an 11th-century monastery partially destroyed by Mongol invasions, which shows both Western and Byzantine influences.	1969	35,000
4. University of Wisconsin	To conduct preparatory studies leading to multiyear interdisciplinary research in archeology and cultural anthropology in eastern Uttar Pradesh State as part of the cooperative Indian studies program with Benares Hindu University.	1969	40,000
5. Dumbarton Oaks (Harvard) Center of Byzantine Studies, American Academy in Rome.	To study the unique but rapidly disintegrating Roman and Byzantine mosaics at historic Utica, Tunisia.	1969	40,000
6. Smithsonian Institution	To prepare urgent anthropological research proposals in five excess currency countries as a part of the Smithsonian's traditional worldwide research program in changing cultures.	1969	20,000
7. University of Wisconsin	To study and film the rapidly disappearing Dhangars/Bangars, the seminomadic shepherds of Maharashtra State, India.	1969	40,000
8. University of Massachusetts	To study the effects of the decline of both death and birth rates on the Zadruga, a South Slav extended family household group.	1969	40,000
9. University of Washington	To study the relationship between the social structure of the Vedda communities of Ceylon and their economic organizations, food-collection, seasonal agriculturalists, and settled agriculturalists.	1969	30,000
10. Smithsonian Institution, Department of Science and Technology.	To publish in English the results of research in medieval medicine based on original manuscripts in Egyptian libraries.	1969	5,000
Subtotal pending research proposals.			300,000
C. New Project Proposals			
1. Smithsonian Institution, Office of Anthropology.	To study rapidly disappearing crafts at the village level in India.	1969	50,000
2. University of Michigan	To conduct research in ancient numismatics in the eastern Mediterranean (Israel).	1969	20,000
3. American Institute of Indian Studies, American Academy of Benares.	To survey and excavate monuments and remains of the Pratihara period especially at Bhinmal in Rajasthan.	1969	50,000
4. Smithsonian Institution, Museum of Natural History.	To survey and document the art history of Tibet on the basis of objects currently being brought to India and Nepal by Tibetan refugees.	1969	30,000

MUSEUM PROGRAMS AND RELATED RESEARCH (SPECIAL FOREIGN CURRENCY PROGRAM)—Continued

I. ARCHEOLOGICAL EXCAVATION AND RESEARCH

Recipient	Project	Grant	
		Year	Amount (U.S. dollars)
C. New Project Proposals—Continued			
5. New York University; Columbia University; University of Michigan.	To excavate ancient Utica, Tunisia, employing interdisciplinary techniques designed to describe fully the mode of life and the environment characteristic of successive cultures inhabiting the site.	1969	50,000
6. University of Washington.....	To prepare archeological research priorities for American institutions to undertake in cooperation with India's archeological survey and its proposed research institute.	1969	30,000
7. Smithsonian Institution, Office of Anthropology.	To initiate systematic collections of Indian folk art which is disappearing as village crafts yield to urban technology.	1969	40,000
8. University of Illinois.....	To conduct comparative studies of the effects of cultural change on folk music in Tunisia and Israel.	1969	30,000
9. Denison University.....	To establish America's only photographic archives of ancient Burmese art through exchanges with Burmese and other museums.	1969	10,000
10. American University in Cairo.....	To establish a union list of Coptic manuscripts in Egypt where they are widely dispersed and uncataloged and are therefore largely inaccessible for research.	1969	5,000
11. California State College at Long Beach.	To conduct prehistoric excavations in Ceylon to explore the question of common cultural origins with the peoples of Polynesia and Micronesia.	1969	45,000
12. Columbia University.....	To study the relationships of ritual and social structure in the "Ridge and Valley" section of the interior of Ceylon.	1969	20,000
13. University of Wisconsin.....	To study man's early primate ancestors of Asia and Africa.	1969	40,000
14. American Institute of Indian Studies.	To provide fellowships for predoctoral and postdoctoral research in social and cultural anthropology and linguistics of India and Ceylon.	1969	40,000
15. Miami University (Ohio).....	To study cultural change in Middle Eastern peasant societies in Tunisia and Egypt.	1969	10,000
Subtotal new project proposals.....			470,000
Total archeological excavation and research.....			2,000,000

II. SYSTEMATIC AND ENVIRONMENTAL BIOLOGY

1. DIRECT SUPPORT TO THE INTERNATIONAL BIOLOGICAL PROGRAM (IBP)			
1. National Academy of Sciences—U.S. National Committee for IBP.	To support American participation in IBP international symposia and planning conferences.	1969	35,000
	To convene an American-sponsored symposium in Israel on the effects of extreme environments on living things.	1969	25,000
	To support the training of American research project directors in IBP courses in bioenergetics in Poland.	1969	40,000
Subtotal direct support to the IBP.....			100,000
2. SYSTEMATIC AND ENVIRONMENTAL BIOLOGY			
A. Ongoing Projects (Year in Parentheses Shows Initial Year of Award)			
1. University of Georgia.....	To study the flow of energy through small rodent populations in different habitats in conjunction with the Ecological Institute of Poland (1967).	1969	125,000
2. Smithsonian Institution, Office of Oceanography and Limnology.	To study marine organisms of the Red Sea and Eastern Mediterranean in order to determine what biological interchange of species has occurred through the Suez Canal (1967).	Prior	90,000
		1969	100,000
		Prior	122,000
3. Smithsonian Institution, Office of Oceanography and Limnology.	To accelerate the processing of marine organisms from the Mediterranean through the sorting facility known as the Mediterranean Marine Sorting Center operated in cooperation with the Tunisian Institute of Oceanography and Fisheries (1966).	1969	100,000
		Prior	155,000

MUSEUM PROGRAMS AND RELATED RESEARCH (SPECIAL FOREIGN CURRENCY PROGRAM)—Continued

II. SYSTEMATIC AND ENVIRONMENTAL BIOLOGY—Continued

Recipient	Project	Grant	
		Year	Amount (U.S. dollars)
2. SYSTEMATIC AND ENVIRONMENTAL BIOLOGY—Continued			
A. Ongoing Projects (Year in Parentheses Shows Initial Year of Award)—Continued			
4. University of Colorado.....	To excavate a paleontological site in the Miocene-Pliocene formations of south-central Tunisia to attempt to establish a chronology for fossil mammals in Tunisia which may help to determine geological relationships with similar European formations (1967).	1969 Prior	23,000 24,500
5. Smithsonian Institution, Division of Birds.	To continue investigations on the ecology of Palearctic birds migrating through northeastern Africa, including cooperative research on serology with the Rockefeller Virus Laboratory and ectoparasites with the Naval Medical Research Unit III in Egypt (1967).	1969 Prior	41,000 96,000
6. Smithsonian Institution, Department of Entomology.	To continue behavioral investigations of insects in Egypt; particularly wasps, and to obtain examples of the insects and plants of Egypt for the exhibits of the Museum of Natural History (1967).	1969 Prior	5,000 5,100
7. University of Michigan.....	To continue taxonomic studies of Indian mollusks through caryotype analysis and the cytogenetics of closely related species which will contribute to medical, public health, and veterinary programs (1967).	1969 Prior	16,000 21,000
8. Smithsonian Institution, Office of Ecology.	To continue ecological surveys in Tunisia, Israel, Pakistan, India, and Ceylon, and to prepare cooperative research with the Universities of Washington, California, North Carolina, Johns Hopkins, Michigan State, Michigan, Montana, and Minnesota (1967).	1969 Prior	80,000 62,000
9. Smithsonian Institution, National Zoological Park.	To continue studies of the evolution and behavior of related primates (Cercopithecidae) in different environments in Ceylon (1968).	1969 Prior	21,000 42,700
10. Johns Hopkins University.....	To continue comparative studies of the behavior and ecology of populations of rodents and shrews in field, town, and city habitats in West Bengal, India (1967).	1969 Prior	40,000 41,000
11. Smithsonian Institution, National Zoological Park.	To continue studies of the relation of man and elephant in Ceylon where the domesticated beast of burden is captured and trained to work with man after reaching maturity as a wild elephant rather than after domestication as a young animal (1967).	1969 Prior	10,000 16,000
12. Smithsonian Institution, Department of Botany.	To continue comparative studies of the embryology and floral anatomy of tropical grasses in cooperation with the School of Plant Morphology at Meerut College, India (1968).	1969 Prior	13,000 13,500
13. University of Michigan.....	To continue theoretical ecological studies of a living coral reef and the organisms related to it (1968).	1969 Prior	20,000 11,500
14. Smithsonian Institution.....	To continue revision of the basic Trimen's flora of Ceylon in the light of modern botanical knowledge and techniques (1968).	1969 Prior	30,000 39,400
15. Smithsonian Institution, National Zoological Park.	To complete studies of the behavior and ecology of the Ceylonese elephant and the preparation of a conservation plan (1966).	1969 Prior	40,000 48,000
16. Smithsonian Institution, Office of Ecology.	To complete flora and vegetation studies of Ceylon considered basic to development of Ceylon's agricultural and forest resources (1967).	1969 Prior	40,000 52,000
17. Smithsonian Institution.....	To continue migratory bird banding and serological studies of principal flywings of India in cooperation with the Bombay Natural History Society (1967).	1969 Prior	10,000 10,300
18. Smithsonian Institution, Department of Botany.	To continue flora and vegetation studies of a district of Mysore State in the Ghat Mountains of southwest India and to prepare collections for the Smithsonian's National Herbarium. (1968).	1969 Prior	20,000 22,000
19. Smithsonian Institution, Radiation Biology Laboratory.	To extend studies of solar radiation to equatorial station in Ceylon for comparison with data obtained in Israel and Washington, D.C. (1967).	1969 Prior	84,000 110,000
Subtotal 1969 ongoing estimate.....			818,000
B. Pending Research Proposals			
1. Duke University.....	To conduct field studies in plant taxonomy and ecology in Assam State, India.	1969	30,000
2. University of Georgia.....	To study the interaction of human and small rodent populations in a variety of temperate zone environments in conjunction with the Ecological Institute of Poland.	1969	50,000

MUSEUM PROGRAMS AND RELATED RESEARCH (SPECIAL FOREIGN CURRENCY PROGRAM)—Continued

II. SYSTEMATIC AND ENVIRONMENTAL BIOLOGY—Continued

Recipient	Project	Grant	
		Year	Amount (U.S. dollars)
B. Pending Research Proposals—Continued			
3. Smithsonian Institution, Department of Invertebrate Zoology.	To study the taxonomy and distribution of the poorly known microscopic marine fauna of the Bay of Bengal to be obtained by collecting sediments from the coastal region of East Pakistan.	1969	20,000
4. Smithsonian Institution, Department of Invertebrate Zoology.	To collect and study the larger marine invertebrates known as stomatopods which are native to the Arabian Sea in cooperation with the University of Karachi.	1969	20,000
5. California Academy of Sciences.....	To study the so-called blind dolphin of the Ganges, Indus, and Bramaputra Rivers of India and Pakistan as a part of a worldwide ecological and behavioral study of the fresh water species.	1969	40,000
6. California Academy of Sciences.....	To conduct field investigations of the habitats of Indian amphibians and reptiles especially in the fast-disappearing virgin environments of that country.	1969	50,000
7. Smithsonian Institution, Office of Oceanography and Limnology.	To study the benthic and planktonic biology of the Adriatic Sea in Yugoslavia.	1969	50,000
8. Smithsonian Institution, Office of Ecology.	To study the ecology and behavior of hooved animals in a teak forest in India.	1969	40,000
9. Southern Methodist University.....	To undertake a definitive study of quaternary age deposits on the floor and the lower slopes of the Qattara Depression in the western desert of Egypt.	1969	50,000
10. Smithsonian Institution, Office of Oceanography and Limnology.	To conduct taxonomic research on the marine fauna of Pakistan's coastal waters in cooperation with the University of Karachi.	1969	100,000
11. Johns Hopkins University.....	To complete studies of the population ecology of Rhesus monkeys in northern India.	1969	10,000
12. University of Michigan.....	To study primary productivity of natural and semi-natural Mediterranean shrub ecosystems as affected by fire and grazing.	1969	41,000
13. Smithsonian Institution, Department of Paleobiology.	To collect in Poland and Israel specimen fossil sea urchins (echinoids) as a part of ongoing evolutionary studies of their masticating device, popularly known as Aristotle's lantern, believed to be transitional between major orders of this animal.	1969	35,000
14. Smithsonian Institution, Office of Oceanography and Limnology.	To establish in India a sorting center to distribute for study to world specialists specimens of marine biota from the Indian Ocean.	1969	250,000
15. Duke University.....	To conduct taxonomic studies in Yugoslavia of the Adriatic isopod and prepare a handbook for the study of this marine organism.	1969	40,000
16. Smithsonian Institution, National Zoological Park and Museum of Natural History.	To provide grants to Smithsonian scientists for increasing the national entomological, botanical, and zoological collections by expeditions to India, Ceylon, Egypt, Pakistan, and Tunisia.	1969	573,000
Subtotal pending research proposals.....			1,399,000
C. New Project Proposals			
1. Smithsonian Institution, Office of Ecology.	To conduct ecological studies of Mediterranean and Saharan environments in research preserves recommended by the international biological program in Tunisia.	1969	90,000
2. American University of Cairo.....	To study in Egypt the migration of marine biota between the Red Sea and the Mediterranean through the Suez Canal.	1969	80,000
3. Smithsonian Institution, Office of Ecology.	To conduct studies of the pattern and behavior of birds during migration in the Himalayan Mountains of northern India and Nepal.	1969	40,000
4. Smithsonian Institution, Office of Ecology.	To study the behavior of elephants and primates in India and coordinate these studies with the Smithsonian studies currently being conducted in Ceylon.	1969	50,000
5. University of Connecticut.....	To conduct taxonomic and ecological studies of the fauna of a large brackish water lake in South India.	1969	45,000
6. University of Michigan.....	To collect and study the plankton communities of the Nile River delta as they are affected by changes in salinity and circulation caused by construction of the Aswan Dam.	1969	210,000
7. Smithsonian Institution, Division of Invertebrate Paleontology.	To study in India the broadly distributed fossil ostracode which reveals through its varied physical appearance much about the climate and geography of the era in which it lived back through geological time.	1969	45,000

MUSEUM PROGRAMS AND RELATED RESEARCH (SPECIAL FOREIGN CURRENCY PROGRAM)—Continued

II. SYSTEMATIC AND ENVIRONMENTAL BIOLOGY—Continued

Recipient	Project	Grant	
		Year	Amount (U.S. dollars)
C. New Project Proposals—Continued			
8. University of Michigan.....	To study the importance of bilharziasis snail pests in new environments created by the Aswan Dam in Egypt.	1969	85,000
9. Smithsonian Institution, Division of Vertebrate Paleontology.	To study European fossil mammals in Polish museums for purposes of comparison with North American materials.	1969	15,000
10. University of Utah.....	To collect the mayflies of Pakistan for taxonomic studies as a part of specialized, worldwide studies.	1969	13,000
11. Smithsonian Institution, Office of Ecology.	To conduct investigation of the plant ecology of the Laccadive Islands of India in cooperation with the Botanical Survey of India.	1969	30,000
12. Smithsonian Institution.....	To make collections and to conduct floristic studies of neglected areas of India such as the Malabar Coast, the Koromandel Coast, the Nilghiri Hills, and Khasia Hills which served as the basis of classic studies made as long ago as the 17th century in cooperation with the Botanical Survey of India.	1969	60,000
Subtotal new project proposals.....			763,000
3. SMITHSONIAN CONTRIBUTION TO THE NATIONAL SCIENCE FOUNDATION'S TRANSLATION PROGRAM			
1. Library, Smithsonian Institution, Museum of Natural History.	To accelerate the translation and publication of reference works and monographs in Russian, which represent outstanding requests made by the Smithsonian staff since 1960, 20,000 pages an average of \$23.50 per page (cost includes both translation and publication).	1969	470,000
2. Library, Smithsonian Institution, Museum of Natural History.	For the translation and publication of selected Western European and Oriental language scientific journals or other serial publications, 1,300 pages, at \$23.50 each.	1969	30,000
Total translations.....			500,000
Total systematic and environmental biology.....			3,580,000

III. MUSEUM PROGRAMS

1. Smithsonian Institution, U.S. National Museum.	To provide development opportunities for American museum professionals through in-service training, regional museum surveys, and training symposia in India, Israel, Egypt, Ceylon, and Tunisia and to provide exchange visitor grants to bring foreign professionals from the excess countries to enrich American museum programs.	1969	90,000
2. Smithsonian Institution, U.S. National Museum.	To carry out the International Council of Museums' recommendation to establish exhibits laboratories, initially in Israel, India, and Egypt for the training of curators from developing nations and for the construction of scientific and other educational exhibits for circulation among the developing nations as examples of the potential of museum education.	1969	60,000
3. Smithsonian Institution U.S. National Museum.	To provide advisory services of American museum professionals responding to requests from Israel, Pakistan, India, Egypt, and Tunisia.	1969	25,000
4. Smithsonian Institution, U.S. National Museum.	To improve research collections of the U.S. National Museum by providing for the purchase and shipment with foreign currencies instead of dollars of unique specimens or collections not available in this country.	1969	45,000
5. Smithsonian Institution, Traveling Exhibition Service.	To defray shipping costs, which would otherwise require dollars, to bring educational exhibits from abroad for circulation to American museums and other educational institutions.	1969	30,000
Total, museum programs.....			250,000

MUSEUM PROGRAMS AND RELATED RESEARCH (SPECIAL FOREIGN CURRENCY PROGRAM)—Continued

IV. ASTROPHYSICS

Recipient	Project	Grant	
		Year	Amount (U.S. dollars)
A. Ongoing Projects (Year in Parentheses Shows Initial Year of Award)			
1. Smithsonian Astrophysical Observatory.	To conclude balloon experiments in cooperation with the Tata Institute of Fundamental Research at Colaba, Bombay, India, on gamma radiation reaching the earth's upper atmosphere at the magnetic equator (1967).	1969 Prior	51,000 38,000
B. New Research Proposals			
1. Smithsonian Astrophysical Observatory.	To investigate ancient astronomical records of Ceylon and Egypt in connection with historical studies of the stars.	1969	5,000
2. Smithsonian Astrophysical Observatory.	To establish in Poland an astrophysical observing station to carry out projects in satellite geodesy.	1969	50,000
3. Smithsonian Astrophysical Observatory.	To conduct theoretical studies in celestial mechanics in Egypt in cooperation with the University of Cairo.	1969	14,000
Total astrophysics.....			120,000

V. INTERNATIONAL EXCHANGE OF SCIENTIFIC PUBLICATIONS

1. Smithsonian Institution, International Exchange Service.	To support costs of ocean freight of IES publications to Burma, India, Israel, Pakistan, Poland, Egypt, and Yugoslavia.	1969	20,000
Total international exchange of scientific publications.....			20,000

VI. PROGRAM DEVELOPMENT AND ADMINISTRATION

1. Smithsonian Institution, Office of International Activities.	To defray costs of inspection and audit of field research sites and costs of negotiation with host governments on program operations.	1969	30,000
Total grant administration.....			30,000
Grand total.....			6,000,000

DISTRIBUTION OF FUNDS BY COUNTRY, FISCAL YEARS 1967, 1968, AND 1969

Fiscal year	Total	India	Egypt	Israel	Pakistan	Tunisia
1969.....	\$6,000,000	\$1,615,000	\$903,000	\$1,130,000	\$368,000	\$508,000
1968.....	2,316,000	323,709	308,359	1,182,688	78,816	81,066
1967.....	2,316,000	554,850	303,700	497,350	30,100	375,000

Fiscal year	Poland	Guinea	Burma	Yugoslavia	Ceylon	Congo
1969.....	\$405,000	\$140,000	\$110,000	\$371,000	\$450,000	.....
1968.....	90,000	55,301	.....	59,920	136,141	.....
1967.....	150,000	70,000	50,000	100,000	165,000	\$20,000

DEMONSTRATED VALUES OF THE CURRENCY PROGRAM

Chairman HAYDEN. Would you care to comment on the value of this program during the past 2 years and the advantages which you expect under your budget proposal for fiscal year 1969?

Mr. WARNER. Mr. Chairman, I would say that, briefly, the foreign currency program has demonstrated three great values in the past 3 years.

EXPANSION OF UNIVERSITY AND MUSEUM RESEARCH

First and foremost, it has permitted American universities and museums to advance their research interests—you might even say to keep up with the foreign competition—in fields that find little or no support from other sources and in fields that you can't study in the United States in a laboratory or a library. By this last we mean that you can't keep up with tropical biology without going to the tropics and doing field work, or that you can't fully understand the Biblical civilizations without going to the Bible lands, and so on.

When we say little or no support from other sources, we simply mean that such institutions as the American Institute of Archeology have told us that we are the only source of support for classical archeology in the Mediterranean.

To cite another example, the U.S. Committee for the International Biological Program has told us that our project and planning support has been instrumental in getting the U.S. contribution to this international program mapped out and off the ground, as it were.

CONTRIBUTION TO INTERNATIONAL RELATIONS

Second, we think that our foreign currency program really makes a positive contribution to international relations. It represents the basis of cultural relations on which political relations sometimes must rest. An interesting example in the past year is the fact that a number of the projects we are supporting in Israel and Egypt went on without interruption in some cases or only brief interruptions during and after the hostilities last June.

EXTRAMURAL ADVANTAGES

Third, I would say that the program, although it is primarily extramural, or a program of grants to other institutions rather than to ourselves, has nevertheless I believe, been of great value to the Smithsonian. It advances our own research interests, because we make grants only in the fields that represent long-standing interests of the Smithsonian and our grantee scholars are in constant communication with our faculty.

ECONOMICAL OVERSEAS RESEARCH SUPPORT

As to what we propose for 1969, I would say that we are simply trying to do more of what we have just described, with benefits to American institutions, and, for the Smithsonian itself, we are trying to keep going in a time of budgetary restraint with what is surely the most economical of all ways of supporting overseas research.

By this, we mean that if the Astrophysical Observatory can study gamma radiation, which Dr. Galler just commented on, in India as well as in this country, or we can even study certain phases of it better in India, which is, in fact, the case, then we say this is the time to do it in India. Or on a much smaller scale, as you mentioned earlier, Mr. Chairman, in the shipment of International Exchange Service publications, if we can effect a few economies, even if it is only \$20,000, by

using foreign currencies to meet this obligation of shipping documents to other countries, which is a treaty obligation, then this is the time to do it by using foreign currencies.

So, in essence, our 1969 request says help us economize on some of our own responsibilities and interests and help other American institutions realize their research objectives at a time when they have very few or no other sources of support.

UNOBLIGATED BALANCES

Chairman HAYDEN. What are the unobligated balances in this fund?

Mr. WARNER. The unobligated balance on all foreign currency appropriations made available to the Smithsonian is \$1,447,000. That is the sum that has been granted by contracts. Of this sum, we have committed all but \$192,000; that is, we have transmitted letters of grant award, or letters of intent, for all but \$192,000 of the balance.

We believe that, since this is largely a seasonal operation and most of the projects abroad get going during the summer vacation, contracts will be written for much of this balance of \$192,000 before the end of the fiscal year.

More important, we are currently reviewing new proposals which total much more than this uncommitted remainder of \$192,000, and therefore we expect awards will be made, or at least letters of awards will be issued, if not actual obligations and expenditures, for all of it before the close of the current fiscal year.

OVERSEAS DOLLAR PROGRAM COSTS

Chairman HAYDEN. What is your net cost for the special foreign currency program in American dollars in fiscal year 1968, and what do you estimate it will be in the fiscal year 1969?

Mr. WARNER. We do not have any overseas dollar program costs. I think that is important to point this out for the record. We have had none since the program's inception. This is to say, if there are some dollar requirements in a given project overseas, such as equipment which cannot be obtained in the host country, we have been uniformly successful in receiving dollar contributions either from the university to which we awarded the grant or from private foundations.

Therefore, dollar costs are only those of the personnel to administer the program here in Washington.

1968 APPROPRIATION

During the current year we have four employees working full time on foreign currency, and we have two other employees who work part time on the administration of this program.

The total salaries of the full time employees amount to \$45,000, and the total Office of International Activities budget for last year, for the current year, excuse me, is \$94,000.

1969 BUDGET REQUEST

For the next year we have asked for an increase of \$12,000 in personnel, which we would use for two grants technical assistants, which is what we consider to be the minimum necessary to administer a foreign currency program of the scope we are now requesting for 1969.

DEMAND FOR "EXCESS" FOREIGN CURRENCIES EXCEEDS THE SUPPLY

Chairman HAYDEN. I note on page C-3 an indication that if the full amount of your budget estimate is not approved it will be necessary to defer ongoing projects and to reestablish them at a later date at a probable greater cost.

Why would you defer ongoing projects assuming that you received only the same amount that you had in fiscal year 1968?

Mr. WARNER. Mr. Chairman, I am afraid we didn't express ourselves well on this point.

If we had the same appropriation, you are certainly right in pointing out that it would be foolish to terminate some of these ongoing projects, such as we listed at the beginning of the narrative justification.

What we meant to say is that we have three categories of projects: first, those in the field or ongoing; second, those that have been favorably reviewed by our advisory councils, given a letter of award and arranged with the host countries overseas—that are more or less ready to go in other words—and, third, we have a great many good proposals that have to wait in the wings, so to speak. We tell the authors of these proposals that we can't begin to consider them or talk to them about their proposals now.

If we received no increase in our foreign currency appropriation, we would have to continue to defer the ready projects in the second category and possibly have higher costs in future years, because some of these moneys do undergo inflation, when we attempt to resurrect them. Also, we would have to continue to say to the many universities, "I am sorry, but you will have to wait until a more favorable time," even on their good proposals.

That is what we meant.

PROPOSED PROJECTS

Chairman HAYDEN. For each of the sums which you have proposed for this program as shown on pages C-5 and following in your justification, would you prepare for insertion in the record a table showing the amounts which you had for these specific purposes in fiscal years 1966 and 1967, along with the proposed amount for fiscal year 1968?

Mr. RIPLEY. We would be very glad to do this.

Mr. WARNER. For the record, this is a multiyear history of all grants awarded year by year.

(The document follows:)

I. ARCHEOLOGICAL EXCAVATION AND RESEARCH

Recipient	Project	Grant	
		Year	Amount (U.S. dollars)
A. Ongoing Projects (Year in Parentheses Shows Initial Fiscal Year of Award)			
1. American Institute of Indian Studies (a nonprofit organization of 24 American colleges and universities).	For continued support of the American Academy of Benares, a research center for South Asian archeology and art history (1966).	1969 1968 1967 1966	\$150,000 144,753 130,778 76,850
2. American Research Center in Egypt (a nonprofit study center supported by ten American universities).	To continue support of the Center's research and excavation program in the archeology of Egypt, which includes Pharaonic, Hellenistic, Roman, and early Christian sites (1966).	1969 1968 1967 1966	160,000 258,728 177,137 259,200
3. Jerusalem School of Archeology of the Hebrew Union College.	To continue the survey and exploration of some 400 archeological sites in the Negev and to conduct seminars in biblical archeology for American graduate students in archeology (1966).	1969 1968 1967 1966	150,000 134,250 165,750 150,000
4. Peabody Museum of Yale University	To continue the paleontology and stratigraphy studies of the Paleocene, Eocene, and Oligocene deposits of Egypt, which have resulted in important discoveries relating to human evolution (1966).	1969 1967 1966	30,000 31,396 19,310
5. University of Colorado	To study the prehistoric archeology of Tunisia at an excavation at Oued el Akarit (1967).	1969 1967	60,000 62,000
6. Southern Methodist University	To study prehistory of the area around Sibaiya, Egypt (1966).	1969 1968 1967 1966	40,000 33,393 39,800 5,205
7. University Museum, University of Pennsylvania.	To study remaining stones of the Temple of Akhnaten at Luxor, Egypt (1967).	1969 1968 1967	60,000 9,730 65,070
8. Museum of Anthropology, University of Michigan.	To develop a program for research and training in prehistoric archeology through field excavations on Mt. Carmel in Israel (1967).	1969 1968 1967	50,000 47,660 50,000
9. University of Washington, American Museum of Natural History.	To study and excavate prehistoric and early historic sites in East and West Pakistan. (Funds available in 1968. Awaiting Pakistani Government approval.)	1969	50,000
10. Carnegie Museum	To continue the excavation of a Philistine City at Ashdod, Israel (1966).	1969 1968 1967 1966	50,000 55,180 47,180 50,000
11. Lawrence Radiation Lab. University California at Berkeley.	To continue testing the utilization of cosmic rays to "X-ray" the Egyptian pyramids in search of presently unknown chambers (1966).	1969 1967 1966	30,000 21,680 23,320
12. Museum of Anthropology, University of Michigan.	To continue excavations of early Neolithic sites near Cracow, Poland, with the goal of providing the first detailed description of early Neolithic cultures in Poland (1968).	1969 1968	20,000 21,684
13. University of Missouri	To excavate at Yavneh Yam, Israel, to understand better the nature of Greek trade with Palestine and Egypt in the period after 800 B.C. (1968).	1969 1968	40,000 60,500
14. University of Oregon, Portland State College, University of Illinois.	To establish a chronology of the cultural history of West Africa on the basis of excavations and recordings of oral history in Guinea. (1967) (Funds available in 1967. Awaiting Guinean Government approval.)	1969	40,000
15. University of Minnesota	To initiate a program of research in Yugoslavia with excavations of the unique Roman Palace of Diocletian at Split, Yugoslavia (1968).	1969 1968	27,000 32,505
16. Carnegie Museum	To extend the excavations at Ashdod, Israel, to include underwater studies of the ancient port serving Ashdod and of ancient sunken ships associated with it (1968).	1969 1968	20,000 19,172
17. Smithsonian Institution, Office of Anthropology.	To study disappearing metal-working crafts of Pakistan and Ceylon as part of a worldwide study of ancient technologies and their development (1968).	1969 1968	20,000 21,128
18. Smithsonian Institution, Office of Anthropology.	To excavate at Carthage, Tunisia, to study the little known Punic civilization which flourished there before the conquest by Rome (1968).	1969 1968	40,000 52,967
19. University of California at Los Angeles.	To excavate at Obre, Yugoslavia, a site which promises to provide definitive information about the remarkable high Butmir civilization of the fourth millennium B.C. (1968).	1969 1968	21,000 30,640
20. Yale University, Peabody Museum	To locate and open quarry excavations for fossil remains of early relatives of man in Siwalik hills of North India (1968).	1969 1968	40,000 43,850
21. Brooklyn Museum	To construct scale models of Egyptian monuments and archeological sites for study purposes of U.S. museums and universities (1967).	1969 1967	10,000 4,222

¹ Estimated.

I. ARCHEOLOGICAL EXCAVATION AND RESEARCH—Continued

Recipient	Project	Grant	
		Year	Amount (U.S. dollars)
22. University of Wisconsin.....	To reexamine late prehistoric sites in Kharga and Dakhla Oasis in Egypt to relate this area which is rich in Neolithic cultural objects to the adjacent Nile Valley (1967).	1969 1968 1967	\$8,000 3,000 630
23. Institute for Advanced Study, Princeton.	To conduct interdisciplinary research and excavations in bronze and early iron ages of northern Yugoslavia (1967).	1969 1968 1967	8,000 9,496 2,030
24. Peabody Museum, Harvard University.	To excavate at Starcevo, Yugoslavia, to test conclusions of earlier research at this earliest of Middle Danube Basin Neolithic sites in the light of new archeological techniques including radio-carbon dating. (Funds available in 1968. Research start postponed.)	1969	10,000
25. University of Chicago.....	To provide research assistantships for graduate credit in South Asian art at the American Academy of Benares, India, an affiliate of the American Institute of Indian Studies (1967).	1969 1967	10,000 11,400
26. University of Chicago.....	To examine a Vajsnava religious community in West Bengal historically and sociologically. (Funds available in 1967, awaiting Government of India approval.)	1969	50,000
27. American University in Cairo.....	To study the distinctive dome mausoleums of the Mamluk era (1250-1517 A.D.) in Cairo which have not been studied and are threatened by growth and modernization of Cairo (1968).	1969 1968	21,000 6,340
28. Stanford University.....	To conclude urgent archeological and ethnographic studies of Trebisnjica River Basin rapidly being inundated by waters rising behind a newly constructed dam (1968).	1969 1968	15,000 64,600
Subtotal, 1969 ongoing estimate.....			1,230,000
B. Pending Research Proposals			
1. University of Pennsylvania.....	To excavate the protohistoric site of Kantarodai, Ceylon, to determine the nature and chronology of settlement and to look for evidence of early links with south India.	1969	40,000
2. Smithsonian Institution, Division of Numismatics.	To survey numismatic collections and cooperative research opportunities for American scholars.	1969	10,000
3. University of Washington.....	To excavate at Novi Sad, Yugoslavia, an 11-century monastery partially destroyed by Mongol invasions, which shows both Western and Byzantine influences.	1969	35,000
4. University of Wisconsin.....	To conduct preparatory studies leading to multiyear interdisciplinary research in archeology and cultural anthropology in eastern Uttar Pradesh state as part of the cooperative Indian studies program with Benares Hindu University.	1969	40,000
5. Dumbarton Oaks (Harvard) Center of Byzantine Studies, American Academy in Rome.	To study the unique but rapidly disintegrating Roman and Byzantine Mosaics at historic Utica, Tunisia.	1969	40,000
6. Smithsonian Institution.....	To prepare urgent anthropological research proposals in five excess currency countries as a part of the Smithsonian's traditional worldwide research program in changing cultures.	1969	20,000
7. University of Wisconsin.....	To study and film the rapidly disappearing Dhangers /Bangars, the seminomadic shepherds of Maharashtra State, India.	1969	40,000
8. University of Massachusetts.....	To study the effects of the decline of both death and birth rates on the Zadruga, a south Slav extended-family household group.	1969	40,000
9. University of Washington.....	To study the relationship between the social structure of the Vedda communities of Ceylon and their economic organizations, food-collection, seasonal agriculturalists, and settled agriculturalists.	1969	30,000
10. Smithsonian Institution, Department of Science and Technology.	To publish in English the results of research in medieval medicine based on original manuscripts in Egyptian libraries.	1969	5,000
Subtotal, pending research proposals.....			300,000
C. New Project Proposals			
1. Smithsonian Institution, Office of Anthropology.	To study rapidly disappearing crafts at the village level in India.	1959	50,000
2. University of Michigan.....	To conduct research in ancient numismatics in the eastern Mediterranean (Israel).	1959	20,000

¹ Estimated.

I. ARCHEOLOGICAL EXCAVATION AND RESEARCH—Continued

Recipient	Project	Grant	
		Year	Amount (U.S. dollars)
3. American Institute of Indian Studies, American Academy of Benares.	To survey and excavate monuments and remains of the Pratihara period especially at Bhinmal in Rajasthan.	1969	\$50,000
4. Smithsonian Institution, Museum of Natural History.	To survey and document the art history of Tibet on the basis of objects currently being brought to India and Nepal by Tibetan refugees.	1969	30,000
5. New York University; Columbia University; University of Michigan.	To excavate ancient Utica, Tunisia, employing interdisciplinary techniques designed to describe fully the mode of life and the environment characteristic of successive cultures inhabiting the site.	1969	50,000
6. University of Washington	To prepare archeological research priorities for American institutions to undertake in cooperation with India's archeological survey and its proposed research institute.	1969	30,000
7. Smithsonian Institution, Office of Anthropology.	To initiate systematic collections of Indian folk art which is disappearing as village crafts yield to urban technology.	1969	40,000
8. University of Illinois	To conduct comparative studies of the effects of cultural change on folk music in Tunisia and Israel.	1969	30,000
9. Denison University	To establish America's only photographic archives of ancient Burmese art through exchanges with Burmese and other museums.	1969	10,000
10. American University in Cairo	To establish a union list of Coptic manuscripts in Egypt where they are widely dispersed and uncataloged and are therefore largely inaccessible for research.	1959	5,000
11. California State College at Long Beach.	To conduct prehistoric excavations in Ceylon to explore the question of common cultural origins with the peoples of Polynesia and Micronesia.	1969	45,000
12. Columbia University	To study the relationships of ritual and social structure in the "Ridge and Valley" section of the interior of Ceylon.	1959	20,000
13. University of Wisconsin	To study man's early primate ancestors of Asia and Africa.	1969	40,000
14. American Institute of Indian Studies.	To establish fellowships for pre- and post-doctoral research in social and cultural anthropology and linguistics of India and Ceylon.	1969	40,000
15. Miami University (Ohio)	To study cultural change in Middle Eastern peasant societies in Tunisia and Egypt.	1969	10,000
Subtotal, new project proposals			470,000
Total, archeological excavation and research.			2,000,000

II. SYSTEMATIC AND ENVIRONMENTAL BIOLOGY

1. DIRECT SUPPORT TO THE INTERNATIONAL BIOLOGICAL PROGRAM (IBP)			
i. National Academy of Sciences—U.S. National Committee for IBP.	To support American participation in IBP international symposia and planning conferences.	1969	\$35,000
	To convene an American-sponsored symposium in Israel on the effects of extreme environments on living things.	1969	25,000
	To support the training of American research project directors in IBP courses in bioenergetics in Poland.	1969	40,000
Subtotal, direct support to the IBP			100,000
2. SYSTEMATIC AND ENVIRONMENTAL BIOLOGY			
A. Ongoing Projects (Year in Parentheses Shows Initial Fiscal Year of Award)			
1. University of Georgia	To study the flow of energy through small rodent populations in different habitats in conjunction with the Ecological Institute of Poland (awaiting Polish Government approval).	¹ 1969	125,000
2. Smithsonian Institution, Office of Oceanography and Limnology.	To study marine organisms of the Red Sea and Eastern Mediterranean in order to determine what biological interchange of species has occurred through the Suez Canal (1967).	¹ 1969	100,000
		1957	122,000

¹ Estimated.

II. SYSTEMATIC AND ENVIRONMENTAL BIOLOGY—Continued

Recipient	Project	Grant	
		Year	Amount (U.S. dollars)
3. Smithsonian Institution, Office of Oceanography and Limnology.	To accelerate the processing of marine organisms from the Mediterranean through the sorting facility known as the Mediterranean Marine Sorting Center operated in cooperation with the Tunisian Institute of Oceanography and Fisheries (1967).	1959	\$100,000
		1967	152,360
4. University of Colorado.....	To excavate a paleontological site in the Miocene-Pliocene formations of South Central Tunisia to attempt to establish a chronology for fossil mammals in Tunisia which may help to determine geological relationships with similar European formations (1968).	1969	23,000
		1968	23,165
5. Smithsonian Institution, Division of Birds.	To continue investigations on the ecology of Palearctic birds migrating through northeastern Africa, including cooperative research on serology with the Rockefeller Virus Laboratory and ectoparasites with the Naval Medical Research Unit III in Egypt (1967).	1963	41,000
		1968	21,517
		1967	44,093
6. Smithsonian Institution, Department of Entomology.	To continue behavioral investigations of insects in Egypt; to obtain examples of the insects and plants for the exhibits of the Museum of Natural History (1968)	1969	5,000
		1968	5,100
7. University of Michigan.....	To continue taxonomic studies of Indian mollusks through caryotype analysis and the cytogenetics of closely related species which will contribute to medical, public health, and veterinary programs (1968).	1969	16,000
		1968	21,394
8. Smithsonian Institution, Office of Ecology.	To continue ecological surveys in Tunisia, Israel, Pakistan, India, and Ceylon, and to prepare cooperative research with the Universities of Washington, California, North Carolina, Johns Hopkins, Michigan State, Michigan University, Montana, and Minnesota (1967).	1969	80,000
		1968	65,301
		1967	31,685
9. Smithsonian Institution, National Zoological Park.	To continue studies of the evolution and behavior of related primates (Cercopithecidae) in different environments in Ceylon (1968).	1969	21,000
		1968	45,749
10. Johns Hopkins University.....	To continue comparative studies of the behavior and ecology of populations of rodents and shrews in field, town, and city habitats in West Bengal, India (1968).	1969	40,000
		1968	41,000
11. Smithsonian Institution, National Zoological Park.	To continue studies of the relation of man and elephant in Ceylon where the domesticated beast of burden is captured and trained to work with man after reaching maturity as a wild elephant rather than after domestication as a young animal (1968).	1969	10,000
		1968	4,371
12. Smithsonian Institution, Department of Botany.	To continue comparative studies of the embryology and floral anatomy of tropical grasses in cooperation with the School of Plant Morphology at Meerut College, India (1968).	1969	13,000
		1968	13,500
13. University of Michigan.....	To continue theoretical ecological studies of a living coral reef and the organisms related to it (1968).	1969	20,000
14. Smithsonian Institution.....	To continue revision of the basic Trimen's flora of Ceylon in the light of modern botanical knowledge and techniques (1968).	1968	12,036
		1969	30,000
15. Smithsonian Institution, National Zoological Park.	To complete studies of the behavior and ecology of the Ceylonese elephant and the preparation of a conservation plan (1967).	1969	39,400
		1967	40,000
16. Smithsonian Institution, Office of Ecology.	To complete flora and vegetation studies of Ceylon considered basic to development of Ceylon's agricultural and forest resources (1967).	1969	58,209
		1967	40,000
17. Smithsonian Institution.....	To continue migratory bird banding and serological studies of principal flyways of India in cooperation with the Bombay Natural History Society (1967).	1969	49,204
		1967	40,000
18. Smithsonian Institution, Department of Botany.	To continue flora and vegetation studies of a district of Mysore State in the Ghat Mountains of southwest India and to prepare collections for the Smithsonian's National Herbarium (1968).	1969	10,000
		1968	10,300
19. Smithsonian Institution, Radiation Biology Laboratory.	To extend studies of solar radiation to equatorial Station in Ceylon for comparison with data obtained in Israel and Washington, D.C. (1967).	1969	20,000
		1967	22,000
Subtotal, 1969, ongoing estimate.....			818,000
B. Pending Research Proposals			
1. Duke University.....	To conduct field studies in plant taxonomy and ecology in Assam State, India.	1969	30,000
2. University of Georgia.....	To study the interaction of human and small rodent populations in a variety of temperate zone environments in conjunction with the Ecological Institute of Poland.	1969	50,000

1 Estimated.

II. SYSTEMATIC AND ENVIRONMENTAL BIOLOGY—Continued

Recipient	Project	Grant	
		Year	Amount (U.S. dollars)
3. Smithsonian Institution, Department of Invertebrate Zoology.	To study the taxonomy and distribution of the poorly known microscopic marine fauna of the Bay of Bengal to be obtained by collecting sediments from the coastal region of East Pakistan.	1969	\$20,000
4. Smithsonian Institution, Department of Invertebrate Zoology.	To collect and study the larger marine invertebrates known as stomatopods which are native to the Arabian Sea in cooperation with the University of Karachi.	1969	20,000
5. California Academy of Sciences.....	To study the so-called blind dolphin of the Ganges, Indus, and Bramaputra Rivers of India and Pakistan as a part of a worldwide ecological and behavioral study of the fresh water species.	1969	40,000
6. California Academy of Sciences.....	To conduct field investigations of the habitats of Indian amphibians and reptiles especially in the fast-disappearing virgin environments of that country.	1969	50,000
7. Smithsonian Institution, Office of Oceanography and Limnology.	To study the benthic and planktonic biology of the Adriatic Sea in Yugoslavia.	1969	50,000
8. Smithsonian Institution, Office of Ecology.	To study the ecology and behavior of hooved animals in a teak forest in India.	1969	40,000
9. Southern Methodist University.....	To undertake a definitive study of quaternary age deposits on the floor and the lower slopes of the Qattara Depression in the western desert of Egypt.	1959	50,000
10. Smithsonian Institution, Office of Oceanography and Limnology.	To conduct taxonomic research on the marine fauna of Pakistan's coastal waters in cooperation with the University of Karachi.	1969	100,000
11. Johns Hopkins University.....	To complete studies of the population ecology of Rhesus monkeys in northern India.	1969	10,000
12. University of Michigan.....	To study primary productivity of natural and semi-natural Mediterranean shrub ecosystems as affected by fire and grazing.	1969	41,000
13. Smithsonian Institution, Department of Paleobiology.	To collect in Poland and Israel specimen fossil sea urchins (echinoids) as a part of ongoing evolutionary studies of their masticating device, popularly known as Aristotle's lantern, believed to be transitional between major orders of this animal.	1969	35,000
14. Smithsonian Institution, Office of Oceanography and Limnology.	To establish in India a sorting center to distribute for study to world specialists specimens of marine biota from the Indian Ocean.	1969	250,000
15. Duke University.....	To conduct taxonomic studies in Yugoslavia of the Adriatic isopod and prepare a handbook for the study of this marine organism.	1969	40,000
16. Smithsonian Institution, National Zoological Park and Museum of Natural History.	To provide grants to Smithsonian scientists for increasing the national entomological, botanical, and zoological collections by expeditions to India, Ceylon, Egypt, Pakistan, and Tunisia.	1969	573,000
Subtotal pending research proposals.....			1,399,000
C. New Project Proposals			
1. Smithsonian Institution, Office of Ecology.	To conduct ecological studies of Mediterranean and Saharan environments in research preserves recommended by the International Biological Program in Tunisia.	1969	90,000
2. American University of Cairo.....	To study in Egypt the migration of marine biota between the Red Sea and the Mediterranean through the Suez Canal.	1969	80,000
3. Smithsonian Institution, Office of Ecology.	To conduct studies of the pattern and behavior of birds during migration in the Himalayan Mountains of northern India and Nepal.	1969	40,000
4. Smithsonian Institution, Office of Ecology.	To study the behavior of elephants and primates in India and coordinate these studies with the Smithsonian studies currently being conducted in Ceylon.	1969	50,000
5. University of Connecticut.....	To conduct taxonomic and ecological studies of the fauna of a large brackish-water lake in South India.	1969	45,000
6. University of Michigan.....	To collect and study the plankton communities of the Nile River Delta as they are affected by changes in salinity and circulation caused by construction of the Aswan Dam.	1969	210,000
7. Smithsonian Institution, Division of Invertebrate Paleontology.	To study in India the broadly distributed fossil ostracode which reveals through its varied physical appearance much about the climate and geography of the era in which it lived back through geological time.	1969	45,000
8. University of Michigan.....	To study the importance of bilharziasis snail pests in new environments created by the Aswan Dam in Egypt.	1969	85,000

¹ Estimated.

II. SYSTEMATIC AND ENVIRONMENTAL BIOLOGY—Continued

Recipient	Project	Grant	
		Year	Amount (U.S. dollars)
9. Smithsonian Institution, Division of Vertebrate Paleontology.	To study European fossil mammals in Polish museums for purposes of comparison with North American materials.	1969	\$15,000
10. University of Utah.....	To collect the mayflies of Pakistan for taxonomic studies as a part of specialized, worldwide studies.	1969	13,000
11. Smithsonian Institution, Office of Ecology.	To conduct investigation of the plant ecology of the Laccadive Islands of India in cooperation with the Botanical Survey of India.	1969	30,000
12. Smithsonian Institution.....	To make collections and to conduct floristic studies of neglected areas of India such as the Malabar Coast, the Koromande Coast, the Nilghiri Hills, and Khasia Hills which served as the basis of classic studies made as long ago as the 17th century in cooperation with the Botanical Survey of India.	1969	60,000
Subtotal new project proposals.....			763,000
3. SMITHSONIAN CONTRIBUTION TO THE NATIONAL SCIENCE FOUNDATION'S TRANSLATION PROGRAM			
1. Library, Smithsonian Institution, Museum of Natural History.	To accelerate the translation and publication of reference works and monographs in Russian, which represent outstanding requests made by the Smithsonian staff since 1960, 20,000 pages an average of \$23.50 per page (cost includes both translation and publication).	1969	470,000
2. Library, Smithsonian Institution, Museum of Natural History.	For the translation and publication of selected Western European and Oriental language scientific journals or other serial publications, 1,300 pages at \$23.50 each.	1969	30,000
Total translations.....			500,000
Total systematic and environmental biology.....			3,580,000

III. MUSEUM PROGRAMS

1. Smithsonian Institution, U.S. National Museum.	To provide development opportunities for American museum professionals through in-service training, regional museum surveys, and training symposia in India, Israel, Egypt, Ceylon, and Tunisia and to provide exchange visitor grants to bring foreign professionals from the excess countries to enrich American museum programs.	1969	\$90,000
2. Smithsonian Institution, U.S. National Museum.	To carry out the International Council of Museum's recommendation to establish exhibits laboratories, initially in Israel, India, and Egypt for the training of curators from developing nations and for the construction of scientific and other educational exhibits for circulation among the developing nations as examples of the potential of museum education.	1969	60,000
3. Smithsonian Institution, U.S. National Museum.	To provide advisory services of American museum professionals responding to requests from Israel, Pakistan, India, Egypt, and Tunisia.	1969	25,000
4. Smithsonian Institution, U.S. National Museum.	To improve research collections of the U.S. National Museum by providing for the purchase and shipment with foreign currencies instead of dollars of unique specimens or collections not available in this country.	1969	45,000
5. Smithsonian Institution, Traveling Exhibition Service.	To defray shipping costs, which would otherwise require dollars, to bring educational exhibits from abroad for circulation to American museums and other educational institutions.	1969	30,000
Total museum programs.....			250,000

¹ Estimated.

IV. ASTROPHYSICS

Recipient	Project	Grant	
		Year	Amount (U. S. dollars)
A. Ongoing Projects (Year in Parentheses Shows Initial Year of Award)			
1. Smithsonian Astrophysical Observatory.	To conclude balloon experiments in cooperation with the Tata Institute of Fundamental Research at Colaba, Bombay, India, on gamma radiation reaching the earth's upper atmosphere at the magnetic equator (1967).	1969 1968	\$51,000 38,000
B. New Research Proposals			
1. Smithsonian Astrophysical Observatory.	To investigate ancient astronomical records of Ceylon and Egypt in connection with historical studies of the stars.	1969	5,000
2. Smithsonian Astrophysical Observatory.	To establish in Poland an astrophysical observing station to carry out projects in satellite geodesy.	1969	50,000
3. Smithsonian Astrophysical Observatory.	To conduct theoretical studies in celestial mechanics in Egypt in cooperation with the University of Cairo.	1969	14,000
Total astrophysics.....			120,000

V. INTERNATIONAL EXCHANGE OF SCIENTIFIC PUBLICATIONS

1. Smithsonian Institution, International Exchange Service.	To support costs of ocean freight of IES publications to Burma, India, Israel, Pakistan, Poland, Egypt, and Yugoslavia.	1969	\$20,000
Total International Exchange of Scientific Publications.....			20,000

VI. PROGRAM DEVELOPMENT AND ADMINISTRATION

1. Smithsonian Institution, Office of International Activities.	To defray costs of inspection and audit of field research sites and costs of negotiation with host governments on program operations.	1969	\$30,000
Total grant administration.....			30,000
Grand total.....			6,000,000

DISTRIBUTION OF FUNDS BY COUNTRY, FISCAL YEARS 1967, 1968, AND 1969

Fiscal year	Total	India	Egypt	Israel	Pakistan	Tunisia
1969.....	\$6,000,000	\$1,615,000	\$903,000	\$1,130,000	\$368,000	\$508,000
1968.....	2,316,000	323,709	308,359	1,182,688	78,816	81,066
1967.....	2,316,000	554,850	303,700	497,350	30,100	375,000

Fiscal year	Poland	Guinea	Burma	Yugoslavia	Ceylon	Congo
1969.....	\$405,000	\$140,000	\$110,000	\$371,000	\$450,000	.....
1968.....	90,000	55,301	.....	59,920	136,141	.....
1967.....	150,000	70,000	50,000	100,000	165,000	\$20,000

¹ Estimated.

CONSTRUCTION AND IMPROVEMENTS, NATIONAL ZOOLOGICAL PARK

Chairman HAYDEN. There will be placed in the record the estimate which you make of a need for \$660,000 for the capital improvement program at the National Zoological Park in fiscal year 1969.

(The justification follows:)

1967 appropriation.....	\$1,589,000
1968 appropriation.....	400,000
1969 estimate.....	660,000

An appropriation of \$660,000 is requested for the seventh year of a continuing development program for improvement of the National Zoological Park. Due to program funding reductions and increased construction periods, the complete construction program is now expected to take 14 years. A total of \$7,588,000 has been appropriated for the first six years and an additional \$12,493,000 will be requested over the next eight years. All items funded to date have been completed or are ready for construction except a waterfowl pond and a multiclimate house which are still on the drawing board.

Redevelopment of the National Zoological Park continues to follow the basic land use principles adopted in Master Plan form in 1961 and the following criteria remain in effect:

1. Modernize exhibits and visitor conveniences;
2. Eliminate automobile traffic through the Park and improve parking facilities;
3. Subordinate buildings and structures and increase planting and landscaping;
4. Cooperate with plans to improve Rock Creek Park and River and eliminate air and water pollution;
5. Diffuse and increase science through the study of animals, their health, nutrition, pathology, and behavior.

Although recognized funding limitations prevent continued construction progress for the National Zoological Park Improvement Program, it is requested that funds be appropriated to prepare plans and specifications. Completion of planning for the next phase will permit prompt resumption of construction at the earliest practicable date. Funds in the amount of \$120,000 are requested for plans and specifications for aquatic mammals, bears, goats, and canines. These facilities will be located in the hilly, largely undeveloped, central part of the Zoo and will permit removal of unsightly and inefficient pens and water ponds. This area is adjacent to portions of the Zoo now improved and is part of the planned progression of improvement throughout the National Zoological Park.

The existing coal-fired, steam heating plant at the Zoological Park for many years has been identified as a source of objectionable air pollution. Replacement of the central heating plant and distribution system with individual gas-fired heating plants in each building has been an integral part of the improvement program from the start. Complete abandonment of the existing plant was planned to occur near the end of the improvement program. With the deceleration of progress, it is now requested that funds be appropriated in fiscal year 1969 to start installation of individual gas-fired plants so that the load on the existing plant can be phased out as quickly as possible. This action is consistent with Executive Order 11282 concerning reduction of air pollution and in accordance with a request from the Public Health Service in July 1967, for replacing the plant as soon as practicable. An appropriation of \$200,000 will permit substantial completion of the heating system conversion.

In anticipation of improvements expected to occur in the future, certain repairs, renovations, and replacements of fencing, walks, curbs, handrails, roads, and structures have been deferred. Now that the improvement program is extended and it has become necessary to use many existing facilities longer than expected, it will be necessary to make many minor improvements and repairs to insure continued public safety and to prevent excessive deterioration in advance of future replacement. There are also many additional improvements in and along the edge of completed areas required to connect effectively certain walks, paving, utilities, landscaping, and erosion control works to adjacent existing areas which now must be maintained in use. An appropriation of \$340,000 is requested for only the most essential items necessary to maintain continued operation of all areas, until major improvements are accomplished in the future. This restoration and renovation increment of the Zoological Park improvement program is a priority request for fiscal year 1969.

HISTORY OF IMPROVEMENTS

Chairman HAYDEN. Would you please inform the committee of the status of the improvement program which has been carried on for the past few years at the park, and indicate just what you expect to do with the \$660,000 in the coming year?

MR. BRADLEY. Mr. Chairman, through the interests and very effective help of this committee, we have so far invested \$7½ million at the zoo. This was started early in 1963, so we are now in the sixth year this year. The status is that we have accomplished the renovation, almost total rebuilding, of the bird house, and we have installed access roads, utilities, the incinerator, parking yards, trunk sewers, and things of that kind. We have been able to build the deer area and the hoof stock complex has been completed.

We have had to rework our electrical power distribution system.

1966

In 1966, design for the multiclimate house was started and is expected to be completed this summer.

A letter regarding the hospital and research complex is before you now. We just took bids, and we think that now we have the best bid we can get and should proceed with the hospital and research building.

1967

In 1967 you gave us funds for the planning of a public service facility, that is, an administration building and for public services, and funds for the construction of a multiclimate house for which construction is expected to get started this summer. It will be completed in about a year and a quarter.

1968

Then for 1968, Mr. Chairman, we have funds for planning, principally, because we have had a slowdown on construction. We are planning for the bears and aquatic mammals, and we had construction funds for a water-fowl pond. That involved an element of pollution.

1969

In 1969, we will continue the preparation of plans and specifications in advance of construction, with \$120,000. We would like very much to start installation of heating facilities in order to replace the old steam, coal-fired central plant, with an amount of \$200,000. And we would like to accomplish general restoration and renovation to roads and walks throughout the park with the balance.

REPLACEMENT OF HEATING PLANT

CHAIRMAN HAYDEN. What is the total estimated cost for replacing the existing coal-fired steam heating plant?

MR. BRADLEY. Our estimate was \$340,000, but things, as we all know, do escalate, so I think we would have to add something to that. I would estimate \$400,000.

CHAIRMAN HAYDEN. How much have you expended on this so far, and when do you expect to complete the replacement?

MR. BRADLEY. We have put in \$30,000 in the birdhouse heating plant. Each one of these new buildings is getting its own heating plant—either in a new building or in a group of buildings. We have spent \$30,000 already, and we expect that the central plant probably could be closed down in about 2 years.

ANIMAL HOSPITAL AND RESEARCH BUILDING

Chairman HAYDEN. On March 7 of this year you addressed a letter to this committee asking approval of your proposal to award a contract for an animal hospital and research building, utilizing the major part of a fiscal year 1966 appropriation for this need and for shops and other service type facilities.

How much of the \$1,370,000 now available would be required for the hospital-research facility?

Mr. BRADLEY. Mr. Chairman, based on bids that just came in this month, \$785,000. We have proved to our satisfaction, at last—you see, we took bids 6 months ago—and they came in too high. And we weren't satisfied we had enough competition, so we went back for new bids. Now \$785,000 would be required for the hospital.

HOSPITAL USE AND PURPOSE

Chairman HAYDEN. How intense is your need for an animal hospital now?

Mr. BRADLEY. It is one of those century old things. Mr. Chairman, that is inherent as a part of the rebuilding of the zoo to make it a modern exhibition park and a center for research. After all, the zoo was created not only for the recreation of the people, as the 1899 act said, but also for the increase in knowledge about animals. "The advancement of science" was the term they used.

We know that this hospital is very important. We have some statistics here that show that we are talking about an animal collection of over 3,000 animals. This means over 1,000 different species.

The hospital would have to examine new arrivals for entrance quarantine to make sure they are fit to go in with the others. There would probably be as many as 1,600 annual examinations.

PATHOLOGICAL RESEARCH

The hospital cases that we had last year numbered 2,700. The treatments were much greater than that, although some are mostly shots, 7,000. We had 815 deaths last year. The post mortem examination are of critical importance to the hospital, because the pathologist must determine then what made that particular creature die.

These are some of the statistical representations of what this hospital is going to do.

Mr. RIPLEY. I should point out, Mr. Chairman, that we are under constant pressure from other agencies, like the Armed Forces Institute of Pathology, to expand our research in this area, pathological research. George Washington University would like to set up a degree-granting course using our facilities with the Armed Forces Institute of Pathology, if and when we have them.

CURRENT RESEARCH FACILITIES

Chairman HAYDEN. Do you have a research facility at the present time?

Mr. RIPLEY. A very small one. How much is it, Mr. Bradley?

Mr. BRADLEY. Well, it only represents a room in the reptile house, and a room in the mammal house, and another room in the birdhouse. We use the old cookhouse which has only 2,200 square feet.

In other words, we have a variety of places where the veterinarians and scientists can go. You could characterize it by saying that what hospital quarters we have we got 63 years ago. We simply do not have the counterpart of this proposed central, modern, utilitarian facility. It is nothing fancy. It is concealed from the public view. It is not going to be a large piece of architecture. It is going to be presentable and it will be extremely low lying. It will have but one floor with a basement.

SHOPS, WAREHOUSE, AND TRANSPORTATION BUILDINGS

Chairman HAYDEN. When would you plan to seek additional funds to complete the remainder of the activities for which the appropriation was made?

Mr. BRADLEY. Mr. Chairman, we would like to submit a request next year for the amount that we are short. We are running short about \$200,000 out of a total availability of \$1,200,000.

We would like to have \$1,400,000, but we don't have it. So we will simply have to take our chances—and the committee has been very good to us—to ask for the shop building and the warehouse and transportation building next year.

Chairman HAYDEN. The committee will approve your request now. We will send you a letter confirming it.

Mr. BRADLEY. Thank you, sir.

RESTORATION AND RENOVATION OF BUILDINGS

Chairman HAYDEN. For restoration and renovation of buildings you are proposing an appropriation of \$1,200,000 in the coming fiscal year. This is \$75,000 more than was appropriated last year.

The justification will be printed in the record.

(The justification follows:)

1967 appropriation.....	\$2,300,000
1968 appropriation.....	1,125,000
1969 estimate.....	1,200,000

An appropriation of \$1,200,000 is requested for the following projects:

Smithsonian Institution Building.....	\$350,000
Fine Arts and Portrait Galleries Building.....	50,000
Renwick Gallery.....	200,000
Radiation Biology Laboratory.....	400,000
Smithsonian Tropical Research Institute.....	100,000
Feasibility studies.....	100,000

Total estimate for 1969.....	1,200,000
Less amount appropriated in fiscal year 1968.....	-1,125,000
Increase in fiscal year 1969.....	75,000

SMITHSONIAN INSTITUTION BUILDING

An appropriation of \$350,000 is requested for additional restoration and renovation of the Smithsonian Institution building and grounds.

With funds previously appropriated by the Congress, the first major interior restoration of the historically important and well-known Smithsonian "Castle"

since its construction in 1855 is now ready for contract. During preparations of plans and specifications, a careful examination of the building was accomplished and details of construction were noted. The unusual design of the building requires very careful renovation and modification work to insure as much historical accuracy as possible. It has become necessary to forego many desirable improvements in order to balance increased costs due to unique solutions required to correct latent conditions discovered during examination and due to the continued rapid inflation of construction costs. Improvements foregone related to historical restoration, exterior grounds improvements, and improved facilities in the basement to serve the staff needs better.

In June 1967, the General Services Administration conducted a fire safety examination of the building and identified several fire hazards. They recommended that the dangerous conditions be eliminated and that additional improvements be made during the general building renovation. Additional funds will be required for this work.

Planned improvement to the grounds and electrical renovation of the building suggest that this is the most appropriate time to consider lighting improvements, including spot-lighting architecturally important features of the building. The many important and interesting events, recorded in history, that have taken place in and around this famous building, intensify the affectionate interest and curiosity of the throngs of visitors who take satisfaction from studying its architectural features or just enjoying the experience of being in the building. The strong tourist interest encourages us to consider highlighting the historical areas and prominent architectural features at some future time. The opportunity exists during the general renovation to install concealed electrical conduit for future installation of the lighting system.

Funds in the amount of \$350,000 are requested for the most important fire safety features and to install concealed conduit for future lighting.

FINE ARTS AND PORTRAIT GALLERIES BUILDING

Funds in the amount of \$50,000 are requested to renovate an unimproved area of approximately 20,000 square feet on the first floor of the Fine Arts and Portrait Galleries Building. One floor of one wing in this building remains unfinished due to a reduction in contract scope during construction to insure sufficient funds for critical changes caused by latent conditions. It was thought that this space could be reserved for future expansion but is required now for administrative purposes and should be rehabilitated for offices and work space.

The rehabilitation work estimated to cost \$50,000 includes flooring, lighting, new heating, ventilation and air conditioning, and painting.

RENWICK GALLERY

An appropriation of \$200,000 is requested to continue a program of historical restoration of portions of the old Court of Claims building on Lafayette Square.

Renovation work to convert the building into a gallery of American arts, crafts, and design is in progress and should be completed during 1968. Funds appropriated will be used in the most effective manner to insure early occupancy of the building. A fully creditable job of restoration will require an additional \$200,000. Although a usable facility is being provided, the historical significance of the building and its monumental location, adjacent to the Blair House, Lafayette Square, and the White House, stress the importance of outstanding restoration. Accomplishing the additional work concurrent with the present renovation, while the contractor is on the site, will be more economical than re-mobilizing a contractor at a later date.

The additional funds will be used to: Install a birdproofing system to protect the recently cleaned and restored stonework; restore a cast-iron railing on the roof to match early photographs; install special exhibit lighting to blend with the interior; restore original interior finishes and surfaces where possible; and construct a loading ramp and service entrance on the Seventeenth Street side.

A high quality of restoration work is now being accomplished and satisfactory preservation of this historic building is assured. With additional funds requested, a maximum of protection and functional usage will be obtained.

RADIATION BIOLOGY LABORATORY

An appropriation of \$400,000 is requested to continue relocation of the Radiation Biology Laboratory to a new site.

Comprehensive research to study the effects of light on plant growth started at the Smithsonian Institution in 1928. Within a few years the Institution occupied a position at the forefront of this specialty and has continued to maintain that position. The Smithsonian Radiation Biology Laboratory, as it is now known, has pioneered in the development of solar radiation instruments for measuring biological responses. Today the Laboratory maintains the only solar radiation calibration standards for calibration of instruments from all over the world.

The only space available for the Radiation Biology Laboratory is in the basement of the Smithsonian Institution building and several small sheds in back of the building. The basement consists of small, low ceiling, dungeon-like rooms with masonry walls and brick-arch ceilings, characteristic of mid-19th century construction. This is the least desirable type of space for modern high-precision laboratory activities with their complex piping, fume hoods, temperature control, and equipment. In spite of physical limitations, the Laboratory has improvised its facilities and increased its scope of activities in the most efficient and effective ways possible to further scientific efforts and to apply modern scientific methods toward research in the effects of light on plant and animal growth. To maintain its pre-eminent position in radiation biology research and to continue advances in this field, the Laboratory must progress and must keep pace with new techniques, and must obtain the most appropriate equipment to do the job. However, with the limited, overcrowded space, further progress is not possible. A new location is required to relieve the present intolerable situation and to provide additional space needed to insure progress in research programs. It is also appropriate to move the Laboratory out of the Smithsonian Institution building basement, at this time, because general renovation of the building, including installation of central air conditioning is to be accomplished with funds previously appropriated. By removing the Laboratory, it will be easier and more economical to do the renovation work, rather than require the contractor to work in and around laboratory activities and to provide many temporary utility connections to maintain use of laboratory facilities.

In response to a request for funding in fiscal year 1968, the Congress appropriated \$139,000 to start moving the Laboratory from the basement of the Smithsonian Institution building to a new location.

The General Services Administration is assisting the Smithsonian Institution in its research for a new location. With funds now appropriated, plans will be prepared to install laboratories for biochemistry, electron microscopy, plant physiology, cytology, and growth rooms in the new location. Prompt removal of these facilities from the basement of the Smithsonian Institution building will permit the long-delayed renovation of that building to proceed in an orderly manner.

A substantial amount of work will remain to make a new facility for the Radiation Biology Laboratory fully operational and to accomplish an orderly move without interrupting or losing momentum on vital experimental activities.

Facilities are required for the carbon dating laboratory, shops, support facilities, solar radiation measuring equipment, and greenhouses. To continue preparation of space at a new site and moving these facilities, \$400,000 is requested in fiscal year 1969.

SMITHSONIAN TROPICAL RESEARCH INSTITUTE

An appropriation of \$100,000 is requested for improved laboratory space for the Smithsonian Tropical Research Institute.

At the present time, scientists conducting priority experiments or collecting programs in the Isthmus of Panama have no place to keep equipment, to use as a base of operations, or to keep collections except at remote, overcrowded facilities on Barro Colorado Island in the Canal or in their private homes.

Since the island was set aside as a national reserve by Act of Congress in 1922, it should not be used for facilities or activities not directly related to scientific

study of the island or to its maintenance. The facilities on the island, which have been gradually built up over the years, have been used, of necessity, by scientists working on the mainland, simply because there are no other support facilities available. In recent years, it has become obvious that Barro Colorado Island facilities, although essential, are inadequate by themselves to support all activities of the Smithsonian Tropical Research Institute. Scientists are expanding their interests in the tropical environment and are no longer limiting their studies to the lowland forest, characteristic of the island. It is now essential that a replacement facility be provided on the mainland and that all activities be removed from the island, except those required for its program operation. This action is needed at this time to prevent irreparable damage to the natural reserve.

With an appropriation of \$100,000 a replacement facility consisting of a small single-story, low-cost masonry building with approximately 10,000 square feet of floor space can be provided in the Canal Zone. The building will have a minimum of built-in facilities to permit flexibility in accommodating a variety of uses as future needs require. Partitions will be provided as needed to section off portions of the building for research experiments. The building will also be used to house and protect research equipment. Animal holding cages and pens will be constructed outdoors adjacent to the building.

FEASIBILITY STUDIES

Funds in the amount of \$100,000 are requested to finance feasibility studies of the future building needs of the Smithsonian Institution. These studies are needed to provide the basis for determining the scope of buildings and facilities, location, estimated cost, recommendations for financing, and any necessary legislation.

The Smithsonian Institution is destined to play a vital and central role in the celebration of the Bicentennial of the American Revolution during the coming decade. To accommodate special exhibits covering the American Revolutionary period and an unprecedented influx of Bicentennial visitors, it is proposed that two exhibition pavilions be added to the Museum of History and Technology. This plan would also enable the special exhibits in the pavilions to be viewed in the context of the Museum's permanent displays relating the 200 years of national development. Funds to allow a study of the feasibility of this proposal are requested.

Projected rates of acquisition of objects and specimens for the National Collections indicate that the Smithsonian Institution must plan now to solve future storage problems. A feasibility study is needed to study electronic and automatic methods of storage and retrieval of great numbers of objects. The optimum distance between exhibit buildings, science activities, and storage facilities should be determined. Continued preservation of the history of our heritage can be assured only if studies are started now on these critical questions.

Additional studies related to long-range needs of the Institution will be required from time to time, but only those of the highest priority will be considered for fiscal year 1969.

SMITHSONIAN BUILDING

Chairman HAYDEN. Please outline briefly for the committee how you expect to use these funds.

Mr. RIPLEY. We plan to complete the restoration and renovation of the original Smithsonian Building, and that sum would be \$350,000.

FINE ARTS AND PORTRAIT GALLERIES BUILDING

We also wish to renovate the first floor, the east wing, of the Fine Arts and Portrait Galleries building. That would represent \$50,000. The money that we were granted in the prior years by the Congress

has been insufficient to complete the renovation of that wonderful building.

We are opening anyway, but we need to finish the east wing.

RENWICK GALLERY (CORCORAN ART GALLERY)

We also have been working on the Renwick Gallery, as we call it, which is the original Corcoran Art Gallery, across from the Executive Office Building of the White House.

I could point out that there is an article in the current issue of "Historical Preservation," the national trust magazine on the restoration of this remarkable building, which has been saved for us by the direct intervention of Mr. Johnson, and which will be, I think, a magnificent addition to the cultural scene in Washington. We need \$200,000 to complete the Renwick Gallery.

RADIATION BIOLOGY LABORATORY

The Radiation Biology Laboratory, which we have already mentioned, includes the requirement of \$400,000 for its imperative move from its cramped quarters in the basement of the Smithsonian Building.

SMITHSONIAN TROPICAL RESEARCH INSTITUTE

Laboratory space at the Smithsonian Tropical Research Institute represents \$100,000 required for replacement of buildings on Barro Colorado Island that are greatly overused:

FEASIBILITY STUDIES

Also included are \$100,000 for the feasibility study on the construction of wings at the Museum of History and Technology as well as some storage facility, in connection with housing principal exhibits of the commemoration of the American Revolution Bicentennial.

RENWICK GALLERY (CORCORAN ART GALLERY)

Chairman HAYDEN. With respect to the Renwick Gallery, how much have you spent so far on renovating the building?

Mr. RIPLEY. Mr. Chairman, we started off this building with high hopes that the General Services Administration was going to give us some money for it, because they had some in their budget. We got an interpretation that their funds were for offices and, therefore, could not be used for our kinds of purposes. So we were out of luck.

We came to the Congress, and we received a welcome respite. For the exterior renovation work, so far, we have expended in fiscal year 1967 funds transferred to GSA, \$930,000. For the interior, so far, we have and are administering funds totaling \$794,000.

In reservations and contingencies, \$62,000; and in supervision and administrative fees, which go to GSA, \$62,000.

The total of this is \$1,850,000. On March 1 of this year, the project was 60 percent complete. We believe it will be completed in March 1969.

RADIATION BIOLOGY LABORATORY

Chairman HAYDEN. \$400,000 is requested to continue the relocation of the Radiation Biology Laboratory. I would assume from the language of this justification that a new location has been determined. Where is that location?

Mr. RIPLEY. Mr. Chairman, we have had a committee set up, and I think Mr. Bradley or Mr. Kohn could refer to that.

Mr. Bradley?

Mr. BRADLEY. Mr. Chairman, the present location is a building owned by the General Services Administration at 701 Lamont Street, and these funds would be required for a rather extensive rehabilitation in order to make essentially an old laundry building suitable for laboratory purposes.

Earlier, I should say that with funds you gave us in 1968, which were \$139,000, we thought we were safely in the old Bureau of Standards, but the new city college for the city of Washington had an overriding priority, we found out, and GSA could only assure us a very short-term occupancy permit. We didn't feel it was good business to move in and then move out again.

Currently, sir, the answer is that we are looking at 701 Lamont Street, near Georgia Avenue.

Chairman HAYDEN. What have you accomplished with the funds provided last year for this relocation?

Mr. BRADLEY. We have plans for the layout of the laboratory. We need to engage the services of a consultant in order to make sure that we make the right moves, and that we install the right equipment, and then the balance of the money that we already have will be held for those important renovations and, of course, the moving cost.

SMITHSONIAN TROPICAL RESEARCH INSTITUTE

Chairman HAYDEN. You are asking \$100,000 to construct a building in the Panama Canal Zone for the Smithsonian Tropical Research Institute. What facilities there will you replace?

Mr. RIPLEY. Mr. Chairman, we have been working on this for some time. The existing facilities in Barro Colorado Island have been overextended in recent years and won't stretch any further. We do not wish to expand construction on the island, because the island is a living laboratory, and to create more space for scientists on the island would be inefficient, we think, in the long run. We want to take this money, if possible, and make a small facility on the mainland as a replacement space.

The Navy Department has given us a site in an isolated area, a place where we could erect a small building. The site is adequate. We are now

also exploring some other available alternatives for an accessible, centrally located site.

However, we do need the money to build these simple facilities for the increasing number of visiting scientists who are coming. We cannot build on Barro Colorado Island, and we must come to a decision to plan and construct very soon.

FEASIBILITY STUDIES

Chairman HAYDEN. Explain the need and proposed use of \$100,000 for feasibility studies for future building needs of the Smithsonian.

Mr. BRADLEY. Mr. Chairman, these feasibility studies are invaluable to us because they develop our needs, determine the scope of what we speak of, they develop the best location of the facility, the all-important matter of cost and the priority, and then the determination whether we need legislation, or do we have what we need under general law. The particular ones that we have in mind right now would be the possibility of identifying space required for exhibits for the bicentennial celebration of the American Revolution, and then we have a tremendous problem of the storage of 60 million objects, many of which are in the Natural History Museum.

We need to keep with that. We need to tackle that problem and see how best to handle the problem of storage.

JOSEPH H. HIRSHHORN MUSEUM AND SCULPTURE GARDEN

Chairman HAYDEN. For construction of the Joseph H. Hirshhorn Museum and Sculpture Garden you are proposing an appropriation of \$14,197,000. The justification statement in support of this request will be printed in the record.

(The justification follows:)

CONSTRUCTION

1968 appropriation-----	\$803,000
1969 estimate-----	14,197,000

An appropriation of \$14,197,000 is requested for construction of the Joseph H. Hirshhorn Museum and Sculpture Garden.

The President, on May 17, 1966, requested the Congress to enact legislation to authorize acceptance of the Hirshhorn Collection of sculpture and paintings. In his message to the Congress, the President recalled the great tradition of private contributions which have enriched the cultural life of this city. He recalled James Smithson's bequest which led to the establishment of the Smithsonian Institution in 1846; William Corcoran's founding of his art gallery in 1859; Charles Freer's donation of his collection and the gallery which opened in 1922; the gift of Andrew Mellon which was accepted in 1937; and now the gift of Joseph Hirshhorn of his collection of contemporary art.

This is a conditional gift of a large collection of nearly 5,000 paintings and drawings and over 1,500 pieces of sculpture. It has been valued conservatively at \$25,000,000 to \$50,000,000. Mr. Hirshhorn also will provide \$1,000,000 for

purchases for the collection. The terms of the gift require that the Smithsonian Institution obtain legislation and appropriations for the construction and operation of a museum and garden of sculpture on the Mall. A further requirement is that the necessary appropriation be obtained before the end of the 90th Congress.

The Congress has responded favorably to the President's request. By the Act of November 7, 1966, the Congress provided the site on the Mall and provided statutory authority for the appropriation of construction and operating funds. In a companion Act approved on November 2, 1966, the Congress authorized the Secretary of the Army to construct an addition to the existing Armed Forces Institute of Pathology at Walter Reed Army Medical Center. Funds for construction of this addition were appropriated to the Department of Defense in fiscal year 1968. This new addition will house the Medical Museum and a medical research unit now housed in the existing building at Seventh Street and Independence Avenue, the site of the Hirshhorn Museum.

The Congress also provided preliminary planning funds and has appropriated \$803,000 for the preparation of contract drawings and specifications for the Hirshhorn Museum and Sculpture Garden. This request for construction funds will not exceed the amount of \$15,000,000, authorized to be appropriated for planning and construction of the museum and garden of sculpture.

The authorizing legislation appropriate the Mall area between Seventh and Ninth Streets and Independence Avenue and Jefferson Drive to the Smithsonian Institution as the permanent site of the Museum. The Act also makes available to the Smithsonian Institution, as the permanent site of a sculpture garden, the area bounded by Seventh Street, Ninth Street, Jefferson Drive, and Madison Drive.

This legislation provides further that the Smithsonian Institution shall cooperate with the Secretary of the Interior so that the development and use of the sculpture garden are consistent with the open space concept of the Mall, for which the Secretary of the Interior is responsible, and with related developments regarding underground garages and street development.

The Mall site is situated in the midst of the Smithsonian Institution complex of museums and art galleries. It is the location which will be most convenient to the millions of visitors who crowd the Mall and who will visit the museum and sculpture garden each year.

This is the only remaining site of appropriate size and location on the Mall for the proper display of this large collection of sculpture and painting. The clearance of this area along Independence Avenue, which is now partially occupied by the Armed Forces Institute of Pathology Annex, will make it possible to combine this four-acre tract with the adjoining eight acres lying to the north, from Jefferson Drive to Madison Drive between Seventh Street and Ninth Street. This will form an unrivaled site for the museum and sculpture garden, a total of 12 acres.

It should be noted that the site lies within the Mall area contemplated by the Act of May 17, 1938, as the site for a Smithsonian Institution gallery of art which may be assigned for that purpose by the President.

The Master Plan for the Mall, recently developed for the Secretary of the Interior who is charged with the development of the Mall as a public park, visualizes the removal of the Armed Forces Institute of Pathology Annex building and erection of a building such as the Hirshhorn Museum for public use and interest at this location. In a letter to the Senate Committee on Public Works, Nathaniel Owings of the architectural firm of Skidmore, Owings and Merrill advised that the proposed gallery and garden to house the Hirshhorn Museum is in complete accord with the Master Plan for the Mall.

A preliminary design for the museum and sculpture garden has been completed by the architect and has been well received and approved by the Commission of Fine Arts and the National Capital Planning Commission. Completion of final construction drawings and specifications is scheduled to permit construction to proceed upon receipt of an appropriation.

STATUS OF PLANNING

Chairman HAYDEN. Last year \$803,000 was provided for planning this structure. What is the status of that planning at this time?

Mr. RIPLEY. I am happy to report, Mr. Chairman, we are nearly home with that money. The plans and specifications are virtually complete. We expect that the design completion will be in October of this year, and the bids are scheduled to be opened in December of this year. So we are working very rapidly on that.

Chairman HAYDEN. I understand that your appropriation request is for the full remaining amount in the authorized appropriation for this museum. How much of this appropriation do you expect will be used during fiscal year 1969?

Mr. RIPLEY. We estimate close to \$2 million during fiscal 1969.

CONSTRUCTION CONTRACT AUTHORITY

Chairman HAYDEN. Do you have authority to let a construction contract in the event Congress provided only the amount which you have indicated can be utilized in the coming fiscal year?

Mr. RIPLEY. I think that Mr. Bradley is much better on this one than I am, because he knows more about the congressional background of it.

Mr. BRADLEY. Mr. Chairman, we do not have the authority, such as many of the Government construction agencies do have, to enter into contracts that are in excess of the amount of the money that we have. Some agencies can award contracts with the condition that the contracts are subject to future appropriations that might be made by Congress. So the answer is "No," we don't have that authority, and so we have to say to you, sir, that either we need the \$14,197,000 or, if there is any way that there could be given to us permission to have contracting authority in the appropriation act. We could get by very nicely with \$2 million in appropriations, because that would cover the contractor's earnings during fiscal year 1969, but then we would need some authorization to enter into a contract for the balance of the \$14 million; that is, the \$12.2 million.

Chairman HAYDEN. If you will provide the required language for a bill we will be glad to consider it.

(The language follows:)

For an additional amount for necessary expenses of the preparation of plans and specifications and for the construction of the Joseph H. Hirshhorn Museum and Sculpture Garden, \$2,000,000, to remain available until expended: *Provided*, That such sums as are necessary may be transferred to the General Services Administration for execution of the work; and provided further that the Administrator of the General Services Administration is authorized to enter into contracts in an amount not to exceed \$14,197,000 for the purposes hereof.

SUBCOMMITTEE RECESS

Chairman HAYDEN. Thank you all for your appearance.

We stand recessed until 10 a.m. Wednesday, March 12, when we will hear the Capital Planning Commission and the Washington Metropolitan Area Transit Authority.

(Whereupon, at 12:15 p.m., Tuesday, March 12, 1968, the subcommittee was recessed, to reconvene at 10 a.m., Wednesday, March 13, 1968.)





