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# SMITHSONIAN INSTITUTION

Organization and Functions

September 30, 1968





## THE SMITHSONIAN INSTITUTION

The Smithsonian Institution was created by Act of Congress in 1846, in accordance with the terms of the will of James Smithson of England. In 1826, he bequeathed his property to the United States of America "to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men."

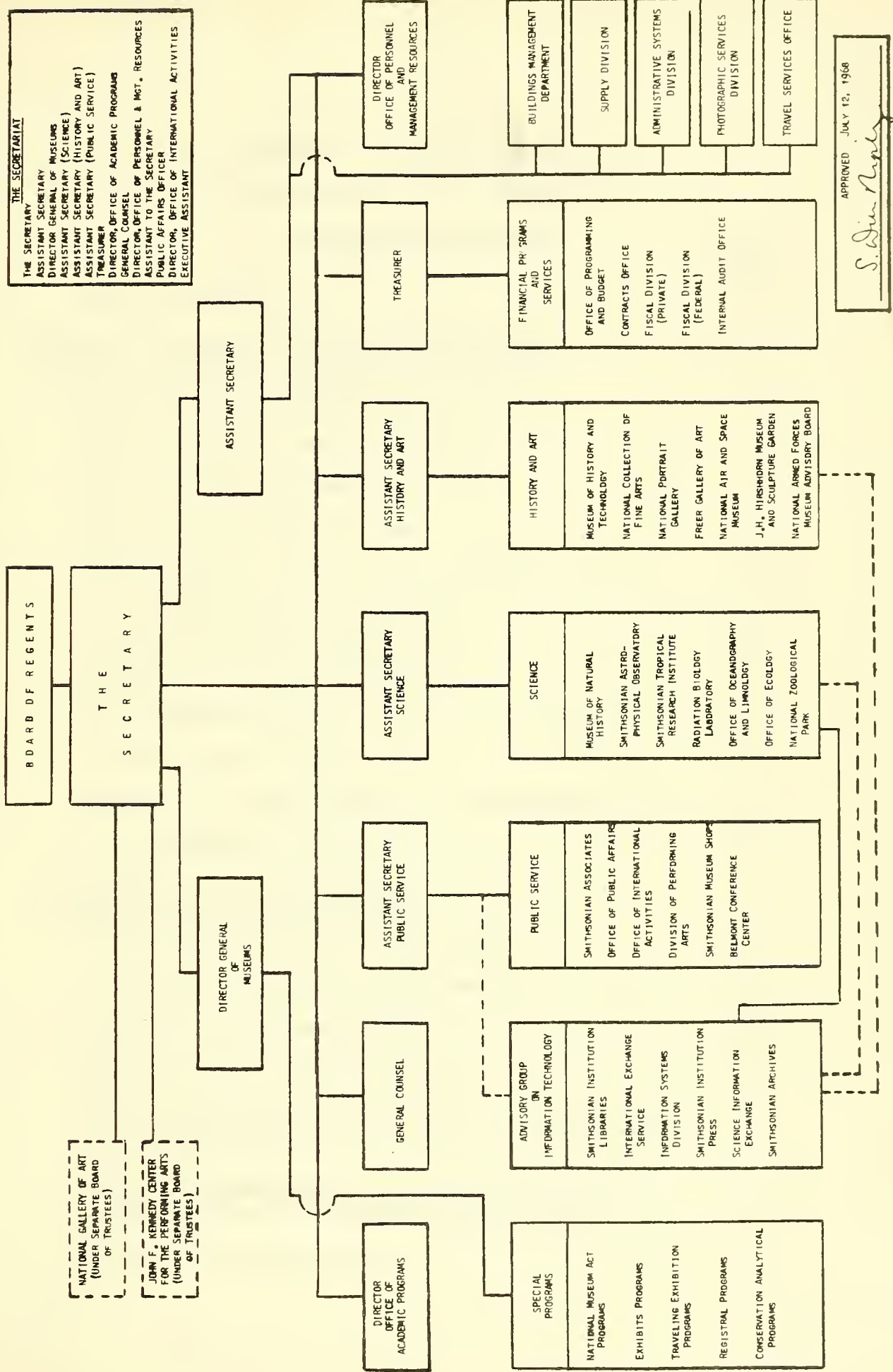
The Smithsonian is governed by a Board of Regents, consisting of the Vice President, the Chief Justice, three members each of the United States Senate and the House of Representatives, and six citizens of the United States appointed by joint resolution of Congress. The Secretary of the Institution is its executive officer and the director of its activities.

Since 1846, the Institution, as an independent establishment, has devoted its resources to public education, basic research, and national service in science, the humanities, and the arts. Its museums and laboratories are national institutions with commitments in broad fields of science and learning. The Institution's facilities for research are extensive and noteworthy. Its staff of approximately 300 professional scholars and scientists encompass many disciplines, and its collections of specimens, objects, and associated data constitute a national referral center for research across the spectrum of man's cultural and biological environment.

The varied activities of the Smithsonian contribute in many ways to the nation's goals in education and research. Its research programs help to provide basic scientific information to Federal agencies, whose missions, in turn, are related to maintaining our economic, agricultural, and military strength. The Institution is among the leading organizations in promoting better communications and understanding in the international scientific community. Through its public exhibit and education programs the Smithsonian presents the cultural heritage of the country and strengthens its democratic institutions.



# SMITHSONIAN INSTITUTION





SMITHSONIAN INSTITUTION  
ORGANIZATION AND FUNCTIONS

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## OFFICE OF THE SECRETARY

The Office of the Secretary provides executive direction and review of all programs of the Institution. The Office's beginnings can be traced to the establishment of the Institution in 1846. The Institution's museums and laboratories have become national in character, operating in part under the Federal Government. But they remain primarily within the jurisdiction of the Board of Regents of the Smithsonian, and under the direction of the Secretary.

To assist the Secretary in his administrative tasks, assistant secretaries have been appointed in specific areas reflecting the interests of the Institution. Directly under the Secretary is the Assistant Secretary whose functional responsibility parallels the Secretary's. Others are the Assistant Secretary for Science, the Assistant Secretary for History and Art, and the Assistant Secretary for Public Services. Each of these offices has responsibilities for reviewing the development of museum, bureau, and office activities falling within their purview, and for Institution-wide functions cutting across organizational lines.

Prior to overall review by the Secretary, problems of broad directional development in the Museum of Natural History, the Smithsonian Astrophysical Laboratory, the Smithsonian Tropical Research Institute, the Radiation Biology Laboratory, and the Offices of Ecology, and Oceanography and Limnology are discussed in concert between the Assistant Secretary for Science and the chief administrative officers of the various units.

The interests of the Museum of History and Technology, the National Collection of Fine Arts, the National Portrait Gallery, the Freer Gallery of Art, the National Air and Space Museum, the Joseph H. Hirshhorn Museum and Sculpture Garden, and the National Armed Forces Museum Advisory Board are represented by the Assistant Secretary of History and Art.

The newly created Office of the Assistant Secretary of Public Service is responsible for a broad range of activities including the Offices of Public Affairs, International Activities, the Division of Performing Arts, the Museum Shops, the Smithsonian Associates, and the Belmont Conference Center.



## OFFICE OF THE DIRECTOR GENERAL OF MUSEUMS

The act of Congress incorporating the Smithsonian Institution in 1846 authorized the formation of a library, a museum, and a gallery of art, and the erection of a building for their accommodation, including objects of natural history and a geological and mineralogical cabinet. The Congress presented to the Smithsonian the museum of the Wilkes exploring expedition and the collections of the National Institute belonging to the Government. The transfer of these objects took place in 1858 when the Congress began to make small appropriations for the maintenance of the museum. The museum came to be referred to as the National Museum.

From the beginning the collections of the National Museum supported research in the sciences, history, and the arts. The research and field work of Smithsonian scholars resulted in the rapid expansion of collections which not only enlarged the museum's resources for essential research by the staff and visiting scholars but also improved its capability for educational exhibits and other public programs. The National Museum became the largest element of the Smithsonian and its programs, collections, and scholarly faculty were placed early under the direction of an assistant secretary for the museum. The position of Director of the United States National Museum later became a separate office.

With the development of the programs of the Museum of History and Technology, the construction of its new building, and the concurrent expansion of the Museum of Natural History these two components of the National Museum each required its individual director. They continued under the general direction of the Director, United States National Museum, who also continued to administer programs common to both components including the Office of Exhibits, the Conservation Analytical Laboratory, and the Registrar's Office. The Director also administers the Smithsonian Traveling Exhibition Service.

Throughout its history the National Museum through the exchange of specimens and with advisory assistance to others in matters of museum organization and development, built up a tradition of service to museums and their associations. This was reaffirmed by the Congress with the passage of the National Museum Act, approved October 15, 1966. This Act charges the Secretary of the Smithsonian Institution and the Director of the United States National Museum to provide assistance to museums of the United States and abroad. Advice, information, research of museum and exhibit techniques and problems, publication of museum manuals, and the training of museum personnel are programs directed by the Act to be performed by the Smithsonian. Though appropriations are authorized by the Act, the Congress has not funded it.



The publicity given the Museum Act and the wide notice that has been taken of the Smithsonian's many programs such as the Neighborhood museum, the folk life festival, performing arts, new exhibitions, and Museum presentations, have increased the requests for assistance and advice in developing and reorganizing museums in practically every State and in many countries abroad. Many Smithsonian units and individual staff members have responded to meet these requests and the Director and his small office have been required to coordinate help from all quarters to provide the museum assistance sought. The Committee on Museum Needs of the American Association of Museums has strongly recommended that the National Museum Act be extended and that it be funded substantially.

The Director acts as a member of the Secretariat and the Secretary's adviser on museum problems throughout the Smithsonian. The title of the position has been changed recently to Director General of Museums.





## MUSEUM OF HISTORY AND TECHNOLOGY

The collections of the Museum of History and Technology arose out of the more or less accidental intrusion of relics of civilized men into the Smithsonian's anthropological collections. They subsequently achieved substance, if not form, by the acquisition of the burdensome collections assembled for the Philadelphia Centennial Exposition in 1876. The result became "the nation's attic," but within the last decade and a half the nation's attic has provided the objects for what may be the first attempt at a systematic general museum which becomes eminently more successful each year. This museum has now taken its place as the most important of its kind in the United States.

On June 28, 1955, Congress authorized and directed the Regents of the Smithsonian Institution to construct a building for the Museum of History and Technology (Public Law 84-106) at a cost not to exceed \$36,000,000. Funds for planning and construction were appropriated in fiscal year 1956.

The purpose of the building was described to the Congress at the time that the appropriation for its construction was being considered as follows: To illustrate by means of these (the Smithsonian's) historic collections the cultural and technological development of our nation from colonial times. To place before the millions who visit the Nation's Capital each year a stimulating permanent exposition that commemorates our heritage of freedom and highlights the basic elements of our way of life.

Construction of the Museum of History and Technology was begun October 5, 1959. The building was opened to the public January 23, 1964, and received 5,400,000 visitors during the first year. Attendance as of September 1968 is approaching an annual rate of 6,000,000, approximately 50 percent of the total attendance of the Smithsonian Institution.

A primary objective of this Museum is to interpret life and culture in all its aspects, including its daily, intellectual, and socio-economic life through exposition of the National Collections. It should be the goal of the Museum to institutionalize rapport between objects and scholars. This is accomplished in a variety of ways. Educational and aesthetic exhibits must instill a curiosity in the viewer that leads him to further study in the museum, his school, or his library. Well documented and systematic collections have to be readily available for the research efforts of visiting historians and students. The extension of the knowledge to outsiders, so intrinsic in these collections, is achieved by scholarly and popular publications and by teaching programs at all levels. The ultimate objective, then, becomes a melding of historically representative objects with successful communication of their significance by the staff of the Museum.



The activities of the Museum of History and Technology, current and planned, supplement and reflect the programs of the Smithsonian Institution as a whole. Based on the premise, "that a museum to be a museum in the best sense of the word must live and breathe within and without," the Museum utilizes its unique collections in innovative ways to document and enliven the history of ideas and to explore new dimensions in history. This is done in permanent and special exhibitions, in educational programs at all levels from elementary school to the recognized scholar and with the publication of original research derived from the unparalleled National Collections.

The Museum of History and Technology cooperates with and supplements the program of assistance to other American museums undertaken by the United States National Museum and by the presentation in various media of original research the activities of the scientific bureaus.

Its exhibits serve not only for the edification and education of the visiting public but also as a proving ground for experimentation with new techniques in communication of the relationship of the individual to the evolving society.



## MUSEUM OF NATURAL HISTORY

The act of establishment of the Smithsonian Institution in 1846 called for the collection, classification, and arrangement by the Smithsonian of "objects of natural history, plants, and geological and mineralogical specimens." From 1846 to 1858 the Museum was exclusively maintained with income from James Smithson's bequest. The original Smithsonian Institution building housed the private collections of James Smithson and Secretary Spencer F. Baird, collections resulting from fieldwork, and collections received from several surveys organized by the War Department. In 1856, Secretary Henry expressed the hope that Congress would appropriate funds for the support of the Museum. In 1858, funds for exhibition cases were made available and the United States National Museum was established. The collections grew enormously and the necessity for housing them resulted in the construction of the United States National Museum in 1881 (the present Arts and Industries building). In 1903, Congress appropriated funds for the Natural History building which was completed in 1911.

The Museum, the largest of the bureaus of the Institution, is an international center for the natural sciences, maintaining the largest collections in the nation, as well as the largest scientific program of original research on man, plants, animals, rocks, and minerals, and fossil organisms--their classifications, distribution, and relationship to the environment. It is an important focal point for cooperative research and educational activities with Federal agencies, universities, and other scientific institutions. In addition, there is a close working relationship between the Museum of Natural History and the other departments of the Smithsonian engaged in biological and geological research problems.

Caretaking of the National Collections of natural history (in excess of 50 million specimens) is a major responsibility of the Museum of Natural History. This includes not only the acquiring and maintaining of the collections but also making them available for study by scientists within and outside the Museum. In addition, the scientific staff of the Museum conducts research on the collections leading to a better understanding of the natural world and the processes that mold it. The plants, animals, and fossils of the world are described so that they may be recognized by systematic biologists and other scientists concerned with learning about the world's environment for the benefit of man. These studies involve descriptions of not only the external characteristics, but the internal ones, the interrelationships of the species, their geographic range, and their ecological interactions within the total environment. They provide critical data for further studies of pollution, medicine, development of food sources, and extraterrestrial materials.

Through its exhibits, the Museum of Natural History interprets for millions of visitors the history of the plant, its bewildering diversity of life, and the interrelationships between animals, plants, and their environment. The scientific faculty and supporting staff of the Museum





contribute to the intellectual content and conceptual development of these exhibits. The exhibits are utilized in curriculum-oriented tours for school children from the primary grades through high school. For most of the classes and the majority of the casual visitors, the exhibits represent their primary opportunity to learn more of the world about them.

The tremendous scope of the National Collections and the facilities available make it possible for the Museum of Natural History to undertake educational activities of many different types. The intellectual resources of its scientific staff make the Museum a much sought-after participant in joint educational efforts with universities. Through educational agreements between universities and the Museum of Natural History, a substantial number of staff members teach courses, train graduate students, or develop seminars and field courses.

The Office of Systematics was established in 1965 as a focal point to extend and to enhance the study of systematic biology within both the Smithsonian Institution and the entire structure of the biological sciences. More specifically, the programs of this office involve the study of all types of organisms, their interrelationships, and evolutionary history. Because its objectives necessarily are closely related to and interdependent with the mission of the Museum of Natural History, the office is treated administratively as a part of the Museum.

The effect of these broad programs of basic research is that although the Office of Systematics seeks to develop support for conventional systematic endeavors in the five discipline-oriented departments of the Museum, it is increasingly concerned with projects of an interdisciplinary, problem-oriented nature. It continues to assist the development of computer applications for handling bibliographic information, collections data, and statistical evaluation of systematic information. Palynology, chemotaxonomy, and biochemistry, as they relate to systematic research, are other areas for future attention.





## NATIONAL AIR AND SPACE MUSEUM

The Smithsonian's interest in aeronautics and space flight is of long standing. Since 1876 the Institution has been gathering and safeguarding examples of kites, balloons, aeronautical equipment, and flightcraft, including the Wright Brothers' 1903 "Flyer", Lindbergh's "Spirit of St. Louis," and John Glenn's "Friendship 7."

The National Air and Space Museum (established by Public Law 722, August 12, 1946, and reconstituted by amendment under Public Law 89-509 signed by President Johnson on July 19, 1966) 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 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.

The National Air and Space Museum has a three-fold mission... For the average citizen, its exhibits must clearly, logically, and attractively give to the casual, nontechnical visitor a better understanding of our flight heritage, our present situation, and the future possibilities in air and space... For the research-minded segment of the visiting public, particularly for the student of aerospace history and technology, a responsibility exists to provide and to maintain behind the presentation of public exhibits, adequate facilities for reference and research... For the much smaller group of engineers and technicians who wish to study actual hardware, a separate facility, with many more specimens than can be publicly displayed must be maintained to satisfy their special needs.

In addition to the specimens currently displayed in the very limited facilities at present available, the Museum's reserve collections, concentrated principally on a 15-acre facility at Silver Hill, Maryland, contain some 200 aircraft of all types of great technical and historical significance (most of which are irreplaceable); more than 300 engines, nearly 1,000 air and spacecraft models, and a vast assortment of ancillary equipment. Supplementing the physical specimens are extensive collections of documentary material, art works, and memorabilia that are available to students in historical, biographical, and technical areas.



Legislation authorizing construction of an Air and Space Museum building on the Mall, which had been before the Congress since early 1964, was signed into law on July 19, 1966. In addition, the legislation changed the name of the Museum officially to the National Air and Space Museum and expanded the membership of the Museum's Advisory Board to include additional Federal agencies concerned with aerospace activities.

A monumental structure that will accommodate more than 50,000 visitors daily, the new Museum building will make possible the first comprehensive display of the national aerospace collection, less than five percent of which is now available for viewing. Special exhibition areas will feature educational displays explaining aerospace environmental science and technology. Also included in the Museum will be an extensive research center with a library and study, seminar, and conference rooms. Scholars, writers, historians, and engineers will work with the Museum's extensive reference library to create an unrivaled center of learning in the history and development of air and space exploration. Funds have not as yet been appropriated for the construction of the Museum.



## NATIONAL ARMED FORCES MUSEUM ADVISORY BOARD

The National Armed Forces Museum Advisory Board was established by Public Law 87-186, approved August 30, 1961, to advise and assist the Regents of the Smithsonian Institution on matters concerned with the portrayal of the contributions which the Armed Forces of the United States have made to American society and culture. The Secretary of Defense and the Secretary of the Smithsonian Institution are ex officio members; other members are appointed by the President.

Under the Public Law, the Congress authorized expansion of the Smithsonian Institution's facilities for portraying Armed Forces contributions, and directed the Institution's Board of Regents, with the advice and assistance of the Advisory Board, to investigate lands and buildings in and near the District of Columbia suitable for the display of military collections and to submit recommendations to the Congress with respect to the acquisition of lands and buildings for such use.

The Advisory Board, on the basis of studies executed by its staff (including a careful investigation of all possible sites in the Washington, D. C. area), has recommended to the Board of Regents that the Institution's facilities be expanded to include a National Armed Forces Museum Park and that the Institution seek to acquire certain lands in the Fort Foote area of Prince George's County, Maryland, as a site for the museum park. The Advisory Board also has recommended that the Institution arrange with the Department of the Interior for joint use of certain facilities at Fort Washington, Maryland, as elements of the museum park.

The Board of Regents has given its approval to the above recommendations and, in January 1967, in view of rising land values and the threat posed by private development, decided that the Institution move without delay to seek legislative authority for acquiring the necessary lands in the Fort Foote area. In October 1967, at the request of the Smithsonian Institution, legislation was introduced in both the Senate and the House of Representatives which would authorize the Board of Regents of the Institution to acquire the necessary lands. Congressional action on these bills is pending.

Also affecting the desired site are those provisions of the recently-enacted omnibus Federal highway bill (Public Law 90-495), under which the Department of the Interior is authorized to purchase lands along the Potomac shoreline in Prince George's County, Maryland, including all lands in the Fort Foote area.





The Advisory Board, through its staff, conducts planning with regard to the concept of the proposed Museum Park, seeking fresh and innovative approaches that will encourage creative scholarship in all aspects of Armed Forces contributions to national development from the colonial period to the present day; provide a broad appreciation of the issues raised by military security in a democratic society; and relate the museum in a dynamic way to current national trends and contemporary thinking and to existing Smithsonian programs. In addition, the Smithsonian is locating, acquiring, and preserving significant military objects for use in the displays and study collections of the Museum Park.

Under the broad concept expressed in Public Law 87-186, the proposed Museum Park is to consist, in part, of a study center for scholarly research into the meaning of war and its effect on civilization. The Advisory Board, to supplement planning of its own, seeks the advice of academicians and museologists to define objectives and programs of the study center and to determine its relationship to the museum proper. In December 1967, for example, the Advisory Board sponsored a conference of distinguished historians to consider and make specific recommendations regarding these matters. Their recommendations, approved by both the Advisory Board and the Board of Regents in January 1968, look to early appointment of a chairman of study center activities, responsible for establishing the nucleus of a staff and for organizing initial programs; and to establishment of a committee of eminent scholars in the field of military history to provide a closer link between the Smithsonian and the academic world.





## ANACOSTIA NEIGHBORHOOD MUSEUM

On September 15, 1967, a former movie theater in the southeast corner of Washington, D. C., reopened its doors as the Anacostia Neighborhood Museum, a new experimental branch of the Smithsonian Institution. The idea for a small satellite museum located in a low-income urban setting grew out of a conference on museums and educations held in August 1966. Jointly sponsored by the Smithsonian and the United States Office of Education the conference sought "to begin to discover ways of making more effective educational use of the more than 5,000 museums that exist in the United States."

The Museum provides an environment for open, nondirected learning 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 potentially available to them. The neighborhood museum is not viewed as a substitute for use of the city's cultural resources, but as a doorway or bridge to greater use of them.

As a museum complex, the Smithsonian Institution is an educational resource, open to the general public for "increase and diffusion of knowledge among men." While million of visitors use the Smithsonian annually for pleasure and learning, it is all too clear that large sectors of the Washington urban community do not do so.

This is perhaps not surprising. In a city where 262,000 people, or approximately one-third of the total population, live at virtually a subsistence level, with incomes inadequate for decent housing, sufficient food and clothing, and other necessities, it is not surprising that large numbers of the poor are unable to afford the carfare for a trip to a museum, if they have time to think of museums at all. 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--would appear to have real educational potential. Many objects speak poignantly 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 rock. Nor must he be a devotee 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. And since it is clear that these children and adults do not, and perhaps cannot, take advantage of opportunities now available to them to learn about the wider world through existing cultural facilities, it seems well worth trying to bring some part of the cultural resources of their society to them, in the form of a neighborhood museum.

The Neighborhood Museum is open seven days a week at times most convenient for potential visitors. Its programs include the following:

- Frequently changing exhibits drawn from Smithsonian collections in art, history, and science. Objects include things which may be touched and tinkered with, as well as simply observed.
- Workshops, clubs and classes related to the exhibits, including trips and use of resources other than the Neighborhood Museum itself. These activities are instituted in response to participants' interests and, to the degree possible, are 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 who are not ordinarily attracted by conventional museum programs, or to pre-test experimental approaches for ultimate use within the Smithsonian.

The mere accessibility of the neighborhood museum does not insure intensive neighborhood use. The museum's staff is responsible for encouraging maximum use of the facility. For this reason, the staff is drawn from individuals with demonstrated skill in community work, and includes on a part-time basis, a number of neighborhood residents. Thus, the Smithsonian provides the scientific and technical skills necessary to fill the museum with exhibits; the staff provides the educational and organizational skills needed to fill the museum with people.



## NATIONAL COLLECTION OF FINE ARTS

The Gallery which has evolved into the present National Collection of Fine Arts traces its legislative authority to the Act of Establishment of the Smithsonian Institution in 1846. This Federal Collection of traditional and contemporary American art has been the custodian of an ever-increasing national heritage of valuable donations and deposits of art, until at present some 8,000 pieces are included in its holdings.

The National Collection of Fine Arts is instructed "to encourage the development of contemporary art and to effect the widest distribution and cultivation in matters of such art." (20 U.S.C. 76c). In the practical application of this charter, the gallery

1. Provides a repository for Government art, with concern for conservation of art belonging to the Government
2. Lends art to Government agencies, the White House, and embassies
3. Encourages the development of American art whenever possible
4. Promotes the appreciation of art on a national scale by permanent and special exhibits in its gallery and by sponsoring traveling exhibits within the United States and internationally
5. Sponsors the study of art including developing a national study and archival center
6. Represents the Government in art including serving as United States host to foreign embassies in exhibitions
7. Encourages crafts.

The move to its greatly enlarged new quarters in the handsome 19th-century classical-revival Old Patent Office building took place in 1967. The formal opening of the galleries to the public occurred in May 1968.

With its varied collections of paintings, sculpture, and the decorative arts, supported by an art reference library, clipping files, photographs, and archives, the National Collection of Fine Arts offers an excellent opportunity to exhibit and study various aspects in the development of American art. The survey of American art of the 18th and 19th centuries culminates in the contemporary section, which demonstrates the rich store of talent summed up in American painting today as American art moves into a position of leadership on the world scene.





## FREER GALLERY OF ART

The building, the collection, and an endowment fund were the gift of Charles Lang Freer of Detroit in 1906. The objectives of the Freer Gallery of Art were clearly set forth by the founder in his will. The Gallery is to engage in: (a) the study of the civilizations of the Far East and (b) the promotion of the highest ideals of beauty. It is under the second provision that oriental objects of the highest quality are purchased to augment the collections. As the number of Near Eastern objects has increased, the first provision has gradually broadened in recent years to include the study of Near Eastern civilizations as well.

The Freer Gallery collections are highly specialized in the field of oriental art. In round numbers they comprise some 4,000 Chinese objects, 2,000 Japanese, and 3,000 from the Near East and India. Other miscellaneous subheadings include the 1,500 works of American art collected by Mr. Freer. Chinese bronzes, Chinese paintings, and Chinese ceramics form especially strong parts of the collections. In the Japanese field the Gallery is probably strongest in paintings and has a good collection of ceramics. In the Near East its principal strength is in the field of Persian miniatures and early Persian metalwork.

The research projects on which various members of the staff are engaged are primarily concerned with the cultural origins of the objects in the collection. The Gallery is recognized as an established research center in its field and is visited by scholars and students from all over the world who consult the staff, use the extensive library resources, and work with the objects themselves.





## NATIONAL PORTRAIT GALLERY

The Gallery was created as a bureau of the Smithsonian Institution under Public Law 87-443, approved April 27, 1962, to "function as a free public museum for the exhibition and study of portraiture and statuary depicting men and women who have made significant contributions to the history, development, and culture of the people of the United States of America, and the artists who created such portraits and statuary."

To carry out the provisions of the law the Gallery displays, in both permanent and temporary exhibitions, likenesses of a number of people important in American history, many more being held in a study collection. Wherever possible, the Gallery prefers a faithful likeness taken from life. The objectives of the National Portrait Gallery's acquisition policy is to assure that likenesses acquired are of persons who have contributed significantly to the country; that appropriate recognition is given to various professions and occupations; and that equitable representation is achieved across the years from earliest colonial times to the present.

The Gallery is located in one of the Capital's oldest public structures, the old Patent Office building, which is shared with the National Collection of Fine Arts. Renamed the Fine Arts and Portrait Galleries building, the building, which dates from 1836, is well suited to gallery purposes and makes a distinguished addition to the Smithsonian museum complex.

Having started its life at least one hundred years late, the Gallery is operating at a disadvantage in that most portraits of the "Founding Fathers" have already found homes in other institutions. However, the Gallery hopes to appeal to those who still have in their possession portraits of significance as a worthy repository for such likenesses.

In seeking to augment its slender collection by a gift and purchase, the Gallery emphasizes its interest in likenesses in all media, the sitter in all instances being the primary consideration. Its present exhibition collection numbers some 500 portraits; its study collections run into many thousands and consist mainly of engraved portraits and photographs.

Not just an art museum, the National Portrait Gallery will become a study center for those seeking information on distinguished Americans and the artists who portrayed them. The Gallery contemplates a program including extensive biographical, archival, and iconographical materials, a skilled staff of librarians and scholars who will engage in their own research as well as assist professional visitors and students, and publications, the means by which the influence of the Gallery will be most widely felt. It will



maintain a biographical and iconographical archive related not only to those persons represented in the collections but to many more of whom the Gallery is not fortunate to possess likenesses.

The Gallery is developing a Catalogue of American Portraits for the use of scholars in history and art history and as a source to other institutions concerned with American portraiture and biography. Modern techniques, including automatic data processing, are being used to make this national inventory a valuable reference resource.

The Gallery hopes to enlist a widespread interest throughout the country both in its collections and in its program. As the only museum concerned purely with portraiture in the country, the Gallery will be an especially helpful tool for those whose major concern is American history.



## JOSEPH H. HIRSHHORN MUSEUM AND SCULPTURE GARDEN

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, by an agreement signed on May 17, 1966. .

The Hirshhorn Collection is a living assemblage of modern art, containing more than 1,500 pieces of sculpture and over 4,000 paintings and drawings, all valued in excess of \$25,000,000. The collection explores the vitality and change of the 20th century without ignoring the background conditions out of which it grew. Mr. Hirshhorn is continuously adding to the collection and has agreed to give \$1,000,000 for future acquisitions.

Public Law 89-788, approved by the President on November 7, 1966, provides for the establishment of the Joseph H. Hirshhorn Museum and Sculpture Garden, to be located on the Mall between Seventh and Ninth Streets, Madison Drive and Independence Avenue.

With funds appropriated in fiscal year 1968, an architect was retained to prepare plans and specifications, and with funds appropriated in fiscal year 1969 construction will be started. Construction will be completed in the spring of 1971, at which time the Hirshhorn Collection will be moved from New York to Washington, D. C. and the new building will be prepared for opening to the public in October 1971.

When completed the Museum will conduct a full program of exhibition, study, educational activities, research and publication related to modern art, thereby using this valuable collection for maximum public benefit.





## DIVISION OF PERFORMING ARTS

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 fields of cultural history and ethnology. Such 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.

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 responsibility 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 Folklife 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 in 1967 and 515,000 in 1968, included many of the best remaining craftsmen, musicians, singers, and dancers representing old patterns of life. A concurrent conference of university and museum scholars in 1967 was concerned with the preservation of fast-disappearing elements of our community crafts and traditional arts. Studies have 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, entertainment, 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.





## SMITHSONIAN ASTROPHYSICAL OBSERVATORY

The Smithsonian Astrophysical Observatory (SAO) was established in 1890 by Dr. Samuel Langley, third Secretary of the Smithsonian. In 1955 it was moved to its present location in Cambridge, Massachusetts where its work, although fully independent, became closely integrated with that of the Harvard College Observatory. The current research of the Observatory reflects the desire to learn the relationships between man and the universe. SAO scientists derive data for astrophysical study from a variety of resources--gamma-ray detectors, radio telescopes, optical instruments, satellite observations and experiments, and terrestrial study of meteorites, cosmic dust, and lunar material. They use these data in investigations involving the structure, composition, and gravity field of the earth; the temperature, pressure, and other characteristics of the upper atmosphere; the history, orbits, and compositions of other bodies in the solar system; the nature of stellar processes; and the origin of the universe.

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).

Radio astronomy has developed rapidly since the Second World War and now provides a rich source of new astrophysical information. Observations of discrete spectral lines can give clues to processes on the atomic and molecular scale and study of quasars (quasistellar radio sources) can yield knowledge about these strange objects that seem to emit vast amounts of energy by some process not yet understood. Most recently, SAO has been investigating possible explanations of the newly detected rapidly pulsating radio sources.

Gamma-ray astronomy is the detection and analysis of gamma rays from astronomical objects. This field occupies an anchor position at the high-energy extreme of the electromagnetic spectrum; these high-energy processes play important roles in astrophysical phenomena. In June 1968, the 10-meter reflector was installed at the Mount Hopkins Observatory, Arizona. It will measure sources of high-energy gamma rays from suspected gamma-ray emitters such as the Crab Nebula and pulsating radio sources. SAO is the only observatory in the United States pursuing this branch of astronomy with major ground-based instrumentation and thus is essentially the national facility for this work. Balloon flights to study low- and medium-energy gamma radiation are also being conducted.

The Observatory has personnel and laboratories investigating the petrology, mineralogy, metallurgy, and isotopic composition of meteorites and cosmic dust. These studies strive to reveal the history and evolution



of the solar system as recorded in extraterrestrial materials. Observatory scientists have been designated by the National Aeronautics and Space Administration to be principal investigators for specific properties and aspects of the lunar dust samples and preparations are well under way for the analysis of the returned samples.

The development of infrared astronomy in the past few years is best described as explosive. Already, observational work shows numerous new and unsuspected phenomena and an extraordinary new list of important research areas is developing. This includes radiation from quasars and infrared nebulae that might possibly be new stars in their earliest stage of formation.

The need for stellar observations for confirmation of theories has led to SAO's procuring a 60-inch telescope for installation at the Mount Hopkins Observatory, Arizona in 1969. This instrument will also be used for investigations of planetary atmospheres and for infrared astronomy.

Modern spectrometer development is being performed at SAO to produce several new photometric instruments to obtain and record observational data. To utilize these new high-resolution instruments fully, both in visible and in infrared light, SAO is studying design concepts for a very large telescope of several-hundred-inch equivalent aperture. This major optical reflector, probably to be installed on the peak of Mount Hopkins within the next five years, will greatly extend the work of the 60-inch telescope.

As part of the nation's Orbiting Astronomical Observatory program, the SAO Telescope experiment package has been accepted for launch in the fall of 1968. The information received from it will be processed and analyzed largely by use of computers.

SAO's program in atomic and molecular astrophysics embraces a wide range of fundamental studies. Atomic and molecular processes play a major role in a diverse range of astrophysical phenomena, including those occurring in plasmas, shock waves, nuclear and solid state physics, and planetary atmospheres.

Maintaining its recognized position of leadership in several areas of theoretical astrophysics, the Observatory staff makes significant contributions to topics such as stellar atmospheres and the evolution and mechanics of the solar system. The Observatory continues to pioneer in the use of high-speed digital computers for solving complex astrophysical problems. A major step forward was made when the Observatory obtained an electronic computer of advanced capability.



Studies of planets and satellites in the solar system, including investigations that bear on the earth as a planet, are making substantial advances. This has been possible largely because the network of 12 Baker-Nunn satellite-tracking cameras in 11 countries provides the basic observational data. To provide the necessary data, the Baker-Nunn cameras track satellites, including three balloon satellites specially launched for SAO. Almost everything known about the atmospheric density and the gravitational field above 200 kilometers is a direct result of the observations by these cameras. The development of a laser ranging system for use with the cameras will increase the accuracy considerably.

In many respects, SAO acts as the national meteor observatory. Optical observations of comets are made by the Baker-Nunn tracking network. The distribution of its stations around the world makes possible nearly continuous observations of bright comets, yielding data not otherwise available anywhere in the world. Unknown nongravitational forces acting on cometary orbits have been found. Studies such as this have provided supporting evidence for the theory, first proposed in 1950, that such nongravitational variations may be caused by the ejection of material from a rotating comet nucleus.





## SMITHSONIAN TROPICAL RESEARCH INSTITUTE

The immediate predecessor, or original nucleus, of the Tropical Research Institute was established to administer Barro Colorado Island located in Gatun Lake, near the Center of Panama. The island, approximately 3,600 acres in area, was set aside as a natural reserve by Act of Congress in 1922, and a subsequent proclamation by the Governor of the Canal Zone in 1923.

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, and the staff of other bureaus of the Smithsonian; 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 post-doctoral; and, 5) by providing technical and scientific information and counsel to other institutions, both private and Governmental.

The Smithsonian Tropical Research Institute is the only United States field laboratory of its kind in the American tropics today. 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 their economic development and exploration. 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 interest. 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.

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.

The research activities of the bureau staff have increased in both amount and variety. The research covers all aspects of the ecology and behavior of most terrestrial and freshwater tropical organisms and also certain types of studies on tropical climates and geology. Fields receiving particular attention recently have included behavior studies of insects, fish and birds, systematics of insects and arachnids, communication system of moths, birds and primates, and ecology of species diversity in vertebrates and higher plants. In addition, multidisciplinary research is conducted between the staff of the Institute, the Office of Oceanography and Limnology, and the Office of Ecology.

The Institute now provides 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 provides 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.

The maintenance of the reserve is an important function. The staff must census and plot the distribution of different types of organisms on the island and record climatic fluctuations to provide essential "background" information on which to base research.

The research facilities of the Institute are varied. The laboratory maintained on Barro Colorado Island includes 1,200 square feet of working space, a small herbarium, extensive series of cages and pens



for animals and constant temperature chambers. Additional facilities are available elsewhere on the 54 square miles of the Island or at the marine research stations at Fort Amador on the Pacific and Galeta Island on the Atlantic Coast.

Since its establishment, the scientific staff of the bureau has guided the work of undergraduate and graduate students from other institutions visiting Barro Colorado. During the last two years, however, the educational activities of the bureau have become much more extensive and more formal. This is largely due to the inauguration of several types of fellowship or grant-in-aid programs, to support studies at the marine stations as well as Barro Colorado. Bureau scientists are supervising the work of all students holding fellowships or internships, and have organized a regular series of seminars on current research in biology for their benefit. These are attended by visiting scientists and students, as well as personnel from other scientific and technical institutions of the isthmian region, such as the Middle America Research Unit, the Gorgas Memorial Laboratory, the U. S. Army Tropical Test Center, the Gorgas and Coco Solo Hospitals, and the Battelle Memorial Institute.

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 Inter-oceanic Canal Study Commission.



## RADIATION BIOLOGICAL LABORATORY

The Radiation Biology Laboratory (RBL) was founded in 1929 as a division of the Astrophysical Observatory, which, from its establishment in 1890, had been interested in the effects of solar radiation incident upon the earth. All life on the earth's surface is dependent upon solar radiation as the ultimate source of energy. All biological systems, from the unicellular through the spectrum of multicellular organisms, including man himself, to the entire biosphere, can be thought of as open-ended thermodynamic systems through which energy flows. This is a very complex interrelated system, no part of which can continue to function unaltered very long when any other part is altered or destroyed.

In order for man to make the best use of his environment and to control it in beneficial ways, it is essential that these interactions and their consequences be understood. The biosphere is a quasihomeostatic system. It remains apparently stable for long periods of time, and the results of environmental change often do not become apparent until dramatic, sometimes irreversible, changes have been effected. Some present-day manifestations, now universally recognized, of altered environment presenting serious implications for life systems are atmospheric and water pollution.

Historically, the Astrophysical Observatory pioneered in systematic observation and interpretation of atmospheric phenomena and weather prognostication, leading to the establishment of the weather bureau. Dr. Charles G. Abbot, first Director of the Astrophysical Observatory, Secretary of the Smithsonian, and founder of the Radiation Biology Laboratory, in his studies for determination of the solar constant during the period from about 1900 to 1910, made notable and singular contributions in measurement of solar energy.

The program of the RBL, from the initial charge that it be concerned with the effects of the sun's energy on earth's life, has been devoted exclusively to study of the responses of living organisms to various qualities and intensities of radiant energy and to determination of the influence of various factors in the environment--light, temperature, humidity, atmospheric content--on growth and development cycles of plants. The laboratory has been credited with major contributions in photobiology, which include the first detailed action spectra of such diverse responses as photosynthesis, photocontrol of seed germination, the induction and reversal of photomorphogenesis, and phototropism.





With advances in instrumentation technology, it has become possible to devise a sophisticated system for acquiring a continuous series of solar energy measurements, and for the past four years the RBL has continued in its pioneering tradition by setting out to collect long-term physical measurements data in a program to correlate daily and seasonal variations in spectral quality of natural daylight with biological responses of growth and development.

In order to understand the biochemical and biophysical mechanisms or processes involved in regulatory biological response systems, biological materials must be grown and studied in the laboratory under precisely controlled conditions. When these mechanisms have been isolated, identified and described, then they must be studied outside the laboratory, in the growing organism in its natural environment, to determine their roles, their responses, their influences in controlling growth and development. The controlling factors, as well as the measured parameters of biological growth and development, require monitoring for long periods of time.

As a corollary to the serious concern with deleterious effects on living systems from air pollutants there has been speculation that less of the sun's energy is reaching the earth's surface. There are agencies now engaged in measuring total radiation, but with no systematic analysis of the data collected; at least one agency measures ultraviolet energy penetrating through the atmosphere and reacting with smog components. The program of solar energy measurements and biological response correlation at the RBL, however, fills a significant gap in efforts to provide understanding of the interacting factors that man must adjust and control in order to maintain a habitable environment. A comparison of measurements made at the beginning of the century by Dr. Abbot with data collected at RBL during the past several years offers convincing evidence that during this sixty years there has been a reduction of about 16 percent in total incident energy. There are essentially no data available to indicate what the long term effects of such reductions will be upon crop and food production as the total energy is reduced. The measuring instruments in the RBL program are highly accurate, and they are selective--a point that is most important when it is considered that certain distinct and narrow wavelength bands are significant in inducing growth and development responses, thus implying that the kind of light, and perhaps not the total radiation, penetrating the atmosphere may be most important to survival.



There are at present no data available that define the changes in color quality of incoming solar radiation. Many biological systems are known to depend upon minute light signals for regulating sexual behavior, for migratory responses and for seasonal control of growth and development. Thus, it is crucial that the measurements be made on a continuous schedule, using primary physical measurements standards. The program being developed here has been premised upon specialized experience in the development of technique and technology in instrumentation and physical measurements combined with a uniquely wide-range experimental biology program encompassing the several disciplines of biochemistry, biophysics, plant physiology, electron microscopy, and cytogenetics. The RBL is staffed with professional research scientists competent in these specialized fields, who work cooperatively on interdisciplinary problems. To the maximum extent possible in the Laboratory's present housing, facilities necessary to the biological research aspects have been developed, such as constant condition rooms to provide controlled radiant energy, temperature and humidity, greenhouse space, general physiology and chemistry laboratories, with appropriate instruments and equipment. Their physical measurements facilities include precisely controlled sources of radiant energy and X-ray equipment, spectrophotometers, thermopiles, photo-multiplier detectors. Other facilities include a library, and electronic, optical, instrument and other shops.

The Laboratory's carbon dating section offers other research opportunities, as well as a service facility. By utilization of the fact that all living systems are incorporating and metabolizing carbon compounds, it is possible to date the age of specimens by measuring precisely the  $C^{14}$  content. The Laboratory regularly provides other researchers at the Smithsonian with carbon-dating service, handling samples of archeologic and geologic interest by carbon-14 techniques. An improved system has been developed in the Laboratory for quantitatively removing radioactive radon from samples by passing carbon dioxide through an activated charcoal trap at  $-40^{\circ}\text{C}$ . This method now makes it possible to count radiocarbon samples immediately without the 30 to 40 day delay which was previously necessary. Projects concerned with dating of water samples from glacial fiords and with dendrochronology in the southwest United States are also in progress.



## CONSERVATION ANALYTICAL LABORATORY

To serve the various museums of the Smithsonian Institution, a Conservation Analytical Laboratory functions under the administration of the Office of the Director General of Museums.

The objectives of the Laboratory's activity are broadly as follows:

1. To ascertain and to advise on the suitability of environmental conditions found in the museums for the display and storage of specific types of museum objects and to suggest remedial action if necessary
2. To advise on conservation procedures to be used in the museums
3. To treat objects which present special problems or require more specialized equipment than is available in departmental laboratories
4. To analyze museum objects or their materials (e.g. pigments, fibers, alloys, and corrosion products) in accordance with the research needs of curators.

Achievement of these goals requires the following, taking goals in order as listed above:

1. Apparatus and skills necessary for the measurement of environmental conditions, for example, temperature, relative humidity, pollution by dust and harmful vapors, level of illumination and of ultra-violet radiation. Access to the literature of deterioration related to these conditions
2. The acquisition of information on conservation procedures and its dissemination to curators and to departmental laboratory technicians. Acquisition may necessitate both searches of the literature and the scientific examination of objects proposed for conservation. Dissemination is normally through personal contact and through the formal reports made in answer to requests by curators but lectures and seminars may be helpful on occasion.
3. Treatment of objects frequently involves experimental research into the suitability of known techniques of conservation for application to a specific object and the development of new methods. For this, laboratory facilities and personnel having scientific and manipulative skills are essential.





4. Analysis necessitates elaborate scientific equipment and skilled scientists. Equipment and procedures differ from those employed in industry either because sampling of museum objects is not permitted or because the samples available are particularly minute.

The Laboratory has equipment for physical and chemical analysis. This includes instrumentation for X-ray spectrography and X-ray diffraction, optical emission spectrography, equipment for preparing, examining, and photographing cross sections of metals, an infrared spectrophotometer, and accessory equipment.





## OFFICE OF ECOLOGY

There is an urgent need for increasing our knowledge of the living components of the environment as a basis for maintaining environmental quality and assuring man's cultural development toward a life of greater fulfillment. The byproducts of human progress are rapidly modifying our environment and dictate that a concerted interdisciplinary effort must be made to understand the relationships between man, animals, and plants before the efforts of human technology cause irreversible damage to the world we live in.

The origin of the Office of Ecology (SOE), which was established on July 1, 1965, lies in the recognition of the need for cooperation between various scientific disciplines in research relevant to the ecological problems of societies. The historical roots for a program in ecology extend over nearly the entire span of the Smithsonian's 122 years, particularly with reference to the need for biological collections as a basis for precise identification of the components of ecosystems. The Smithsonian, with the largest natural history collections in the world, as well as one of the largest scientific programs of original research on man, plants, animals, rocks, and minerals is a natural center of activity for ecological research.

The SOE is a program office--not a research bureau. It was created to encourage, support, and coordinate ecological research within the various bureaus of the Smithsonian Institution and between the Smithsonian and other research organizations. The SOE provides advice on ecological research, finances ecological related travel, coordinates the research of various professionals, and provides "seed money" for ecological research.

The primary goal of the program is to advance basic ecological knowledge at all levels of biological integration, through ecosystem-oriented studies, and the preparation of basic descriptions of ecosystems. The SOE, by being a focus and catalyst of activity, acts to achieve this goal by developing and offering: (1) a program of research and education at the Chesapeake Bay Center for Field Biology (CBCFB), (2) an international program of ecological studies, and (3) support of research in Smithsonian bureaus such as the Museum of Natural History, the Smithsonian Tropical Research Institute, and the Radiation Biology Laboratory.

The Chesapeake Bay Center for Field Biology through its function as a facility providing for education and research in environmental biology, aids in achieving the national effort to stem the deteriorating quality of our environment. The CBCFB provides basic facilities for research and education; along with land representative of the densely populated Washington-Baltimore region, the CBCFB occupies an important segment of the Chesapeake Bay, the latter being the most important bay on the eastern coast of the United States from the standpoint of economics and recreational resources. With its areas of mature forests, salt marshes, eroding bluffs, sandy beaches, and shallow estuaries, the CBCFB constitutes an ecological



baseline against which to compare other systems in this rapidly changing region, and offers a variety of opportunities for long-term ecological studies. The research conducted here will contribute toward understanding the processes that control populations and the stability of ecosystems. Such knowledge will not only have significance in ecological theory, but will also be of practical importance to the management of natural systems. The Center is being used increasingly by scientists from the Smithsonian, area universities, and Federal agencies.

Throughout its entire history, the scientific efforts of the Smithsonian Institution have had a marked international orientation. Our understanding of the structure and functioning of ecosystems within the United States is enhanced by comparative studies in other regions of the world. The objective is an understanding of the ecosphere itself. Studies in foreign countries serve two basic purposes: (1) They result in trained local personnel who provide information useful to the United States and to the host country; and (2) They provide American scientists with the experience and data required for comparisons with similar ecological situations in the United States.

The SOE is qualified for this activity because the staff has had extensive research experience abroad and is well acquainted with key individuals in foreign governments and international organizations.

The international program of the SOE emphasizes studies of population regulation (Ceylon, India, Congo, East Africa), ethology or animal behavior (Ceylon, Congo, East Africa, Indonesia), the energetics of plant and animal communities (Poland, India), vegetation studies as a foundation for intelligent management (Ceylon, India, Tunisia, Korea), and man's effects on ecological systems (Tunisia, Korea, Indonesia).

The various bureaus of the Smithsonian possess a wealth of resources for the study of ecological systems. The SOE supports research of individual scientists in these bureaus where it is felt that this assistance will encourage and contribute to establishing the forms of interdisciplinary cooperation that are required for the effective study of ecosystem phenomena. The Museum of Natural History contributes its staff competence in the biological, anthropological, and geological sciences, and uses its vast collections and laboratories to form a base resource that is necessary for any study of the interrelationship of life forms. The Smithsonian Tropical Research Institute, located in the Canal Zone, provides a natural preserve and basic data concerning tropical ecosystems and the Radiation Biology Laboratory furnishes information on the effects of energy upon the life processes of man, animals, and plants.



## OFFICE OF OCEANOGRAPHY AND LIMNOLOGY

The Smithsonian Institution has been engaged in studies of marine organisms for more than one hundred years. Its first extensive oceanographic collections came from the 1838-42 Wilkes' round-the-world expedition to investigate the commercial whaling industry. Recognizing that more than 71 percent of this planet's surface is comprised by the seas and that knowledge about the contained biota and sediments is very meager, the Smithsonian established an Office of Oceanography and Limnology.

The Office of Oceanography and Limnology provides service and research support to Smithsonian bureaus engaged in biological studies: the Museum of Natural History, the Radiation Biology Laboratory, and the Smithsonian Tropical Research Institute. It serves as a focal point for bringing the scientific resources of the Smithsonian to bear on international problems, such as estuarine pollution, environmental prediction, food from the sea, and biological fouling and sound interference.

At the national level, through its Oceanographic Sorting Center, the Office provides a data center for marine biological and geological identifications and systematics services. Serving as a national referral service in all kinds of specimen-based activities, from field collecting to the disposition of identified species in permanent repositories, the Smithsonian Oceanographic Sorting Center facilitates the productive involvement of scientists within and outside the Smithsonian in aquatic problems of local, national, and international concern.

The Sorting Center meets the need for a facility to coordinate the collecting of natural history specimens from the ocean and to provide services insuring that the collections are processed for their intrinsic scientific values. The Center receives bulk samples from Governmental and private sources; separates them into appropriate taxa for identification by specialists; and obtains and coordinates the station data to provide maximum environmental information with the specimens.

Through the Sorting Center, the Office involves appropriate identification specialists of the world in meeting the needs of the mission-oriented agencies. The problem is a massive one because of the vast number of undescribed, unidentified marine specimens. More than 500,000 species exist in the oceans. The coordinating function of the Office provides a mechanism for bringing user and producer together.







## CENTER FOR THE STUDY OF MAN

The Center for the Study of Man was established in 1968 by the Smithsonian Institution following a report and recommendations by an ad hoc committee consisting of four outstanding anthropologists asked to review the total operation of the Office of Anthropology of the Museum of Natural History.

The Center has been organized to assume responsibility for the operation and development of the research program components of the Office of Anthropology. It functions directly under the Secretary and its membership includes both Smithsonian and non-Smithsonian scholars. By providing a focus for the interdisciplinary study of man, the Center hopes to insure that the resources of the Smithsonian will be efficiently and effectively used for the study of a rapidly changing civilization.

The primary objective of the Center is to plan and coordinate research programs in areas of urgent anthropology. Many of the unique characteristics that distinguish various cultures and subcultures are being destroyed by the spread of mass media, rapid transportation, greater literacy, and the general mobility of groups in our civilization. Urgent anthropology involves the study of these cultures before they are altered and while they still can be accurately documented. The Center maintains a small permanent staff whose primary job is to administer and coordinate the program. The actual research is performed by personnel of other activities of the Smithsonian, such as the Office of Anthropology, Museum of History and Technology, Office of Ecology, and scholars from other organizations. The Center will be an important means for unifying Smithsonian research scholars with their colleagues in universities and other institutions in programs that normally will cut across disciplinary lines. They will be assigned specific areas of study and their efforts will be coordinated by the Center. Their association with the Center will last only the length of time it takes to complete their research, so there will be a continuous change in the research staff as each phase of the research ends and another begins.

At the present time, the Center is engaged in two high priority projects in urgent anthropology: The Handbook of North American Indians and the study of American subcultures. The Indians passed their customs and history from generation to generation by word-of-mouth rather than by the use of written documents. Each year the number of older tribal members available to supply information concerning history and customs decreases. In order to update the 60-year-old Handbook of North American Indians, which is the primary authoritative text in this field, it is necessary to gather the information from the few remaining members of these tribes who can supply the information, while they are still available.



In addition, social and economic influences are blending distinctive cultural traits and are causing a disappearance of some subcultures. These cultures must be documented and studied while they still exist as distinct entities and while the results of this research may be applied to the solution of many of our local and national problems. For example, information concerning the evolution and status of the Negro subcultures in America or the customs of various immigrant groups is not only of scientific value, but it is necessary for the effective planning and implementation of many social and economic programs. Research of this type is planned and lists of researchers competent to perform the research in these areas have been compiled.



## THE CENTER FOR SHORT-LIVED PHENOMENA

The investigation of short-lived natural phenomena is a difficult problem because they are unexpected; they are transient in nature, and they often occur in remote locations. Yet many of these events are of unusual scientific significance. In order to provide the scientific community with a means of rapidly responding to these occurrences, the Center for Short-Lived Phenomena was established in fiscal year 1968.

The Center serves as a clearing house for the receipt and dissemination of timely information concerning rare natural events which might otherwise go unobserved or uninvestigated, such as remote volcanic eruptions and earthquakes, the birth of new islands, the fall of meteorites and large fireballs, and sudden changes in biological and ecological systems.

Reports are received from a wide range of sources, including news media, private citizens, individual scientists, and scientific observatories. These reports are made available to scientists and others who become correspondents of the Center and indicate their desire to receive them. Reports are transmitted by radio, cable, telephone, or air mail. The mode of transmittal depends on the correspondent's ability to respond to the event.

During the first eight months of calendar 1968, the Center participated in 33 geophysical, astrophysical and biological events, including the birth of an island, five volcanic eruptions, eight major earthquakes, seven fireballs, three fish kills, two oil tanker spills, a locust swarm, a major drought, a meteorite fall, a seiche, a mussel poisoning, a sea surge, and the disappearance of an island. These events led to four major expeditions and two follow-up expeditions in addition to the usual investigations. Over 85 scientific publications have resulted from the Center's first eight months of operation. The Center's work immediately received an enthusiastic response from scientific organizations throughout the world. It has been besieged with requests from universities, foundations, Federal agencies, and scientific societies, asking to become part of the Center's reporting system. In eight months, its correspondents grew from 108 in 17 countries, to 403 in 71 countries, representing every major scientific discipline. Thirty-five Federal agencies are users of the Center's services.

These scientists and organizations are asked to cooperate with the Center by reporting events, obtaining additional information about events that occur in their areas, and providing assistance to research teams that might be sent to their areas to investigate events and to make measurements in event areas while environmental changes are occurring.



The Center for Short-Lived Phenomena hopes to encourage the kind of responsiveness that will enable teams to be mobilized and dispatched to take maximum advantage of the research opportunities provided by events such as the Krakatao eruption, the Torrey Canyon spill, the Sikote-Aline meteorite shower, the building of the volcano Surtsey, the Great Alaska earthquake, the Tunguska meteorite, and other important, though smaller events. Rapid receipt of events reports will permit research teams, with their instruments and equipment to enter event areas in as short a time as possible to collect important data that might otherwise be irretrievably lost to science.





## SMITHSONIAN RESEARCH AWARDS PROGRAM

The Smithsonian Research Awards Program was established in fiscal year 1966 to provide funds for research and education in fields of scholarship of interest to the scientific staff. Initially, the program served to finance promising projects for which support was not available through the regular plans of operations of the Smithsonian's bureaus and previously would have been sought from the National Science Foundation.

Today, the Research Awards Program helps to meet a serious problem confronting many scientists in the Smithsonian Institution and other academic institutions who are engaged in field-oriented fundamental research, namely, the need to take advantage of unexpected opportunities to investigate biological and natural events occurring in the field. It 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 Smithsonian Research Awards Advisory Committee reviews all proposals and recommends that support be given to those having the greatest scientific merit. Careful consideration is given to the competence of the investigator, the relevance of the research, and the facilities that are available.

In addition to worthwhile publications resulting from research supported through the Research Awards Program, an initial research effort activated by a research award, in many case, has been continued through funding by other Federal granting agencies, and research and development foundations.



## OFFICE OF ACADEMIC PROGRAMS

From the time of its establishment the Smithsonian has served education, through offering facilities where visiting students might conduct research and by encouraging the development of graduate schools, in line with Joseph Henry's declaration, "Cooperation and not monopoly is the motto which indicates the spirit of the Smithsonian operations." In 1901 the Smithsonian helped to secure the passage of basic authorizing legislation to make available its own "facilities for study and research," and those of Government research establishments generally, to students and other qualified investigators "under such rules and regulations as the heads of the departments and bureaus mentioned may prescribe." (20 U.S.C. § 91). The President's memorandum of September 13, 1965, "Strengthening Academic Capability . . ." enjoined Federal research establishments to conduct their programs "with a view to strengthening academic institutions." The Federal Council for Science and Technology in a recent report urges Government laboratories to take the initiative in establishing joint activities with universities so as to make their facilities available "to the maximum extent practical." The Office of Academic Programs implements this policy through a wide variety of cooperative agreements with universities and by systematically fostering visiting research opportunities for students and junior investigators. These opportunities are widely publicized in scholarly journals and through annual distribution of an analytical digest, Smithsonian Research Opportunities.

The Smithsonian aims to serve the academic community as a national center of research training in subject areas where it excells, thereby extending on a wide front the benefits of public investment in its research and making a distinctive contribution to the future supply of teachers and scholars. Smithsonian activities in supervision and formal instruction also yield substantial benefits in helping to sustain the quality of research by providing an academic environment, which is the most advantageous setting for intellectual inquiry. Graduate teaching by Smithsonian Institution staff brings with it a heightened awareness of trends in the development of knowledge and thus constructively influences the design of research. Students take new methods and findings rapidly into account, accelerating the process of discovery and the communication of results. With policy guidance and administrative support from the Office of Academic Programs members of the Institution's professional staff select trainees and design instruction. This network of consultation and decision, operating within the professional domain, guarantees that a productive equilibrium is maintained between the reinforcing functions of teaching and research.

Funds appropriated for the stipends and allowances of visiting investigators are administered by a Division of Fellowships, which also continuously surveys the interests and organization of the university community. The Division's efforts in institutional research include



particular concentration on the academic activities of the Washington metropolitan area, with a community academic registry, and a regular academic calendar covering Government and independent research establishments as well as universities. The Office of Academic Programs is planning Institution-wide offerings of special seminars and hopes to become able to assist members of the staff in the scheduling and management of professional conferences.

The Office of Academic Programs is also responsible for relations with formal education below the university level. A Division of Elementary and Secondary Education oversees relations with the nation's school systems. Through a program of escorted school visits, relying largely on volunteers from civic organizations, the major exhibit halls have been brought into active use as supplementary educational resources. A small group of staff instructors prepares teaching guides, answers inquiries from schools and members of the public, and trains volunteer docents. The Division guides the development of supplementary teaching materials based upon the collections and reference resources of the Institution, adapting them for use in a wide variety of educational situations. The Institution's services to primary and secondary education help to implement national policies aimed at increasing the effectiveness of education and to guarantee that public resources of information, images, and materials in collections are made fully available.





## OFFICE OF INTERNATIONAL ACTIVITIES

The Office of International Activities seeks to establish cooperative research programs with institutions of higher learning in other countries and to foster programs for the international exchange of persons in the sciences and humanities of traditional concern to the Institution. The Office administers the Smithsonian's special foreign currency program and the joint Smithsonian-Organization of American States fellowship program for Latin American graduate students in the biological sciences. It also provides advisory services to the Department of State and various private organizations on exchange of persons in fields of Smithsonian competence.

In 1965 the Smithsonian Institution inaugurated a program of foreign currency support for American institutions of higher learning in the so-called "Public Law 480 excess countries." These are nations in which the United States Government holds amounts of foreign currencies, derived from the sale of surplus agricultural commodities, which the Treasury Department has determined to be in excess of the normal requirements of the United States.

Under this program American universities or museums may apply to the Smithsonian for foreign currency grants to cover the costs of field expeditions or research in the excess currency countries. The Institution will consider grant proposals in the anthropological sciences in general, in systematic and environmental biology, and in astrophysics. In the anthropological sciences the Smithsonian is especially interested in using its grant resources for projects in those excess-currency countries where little or no archeological or ethnological investigations have been carried out by American institutions. In the biological sciences the Institution welcomes project proposals which can contribute to the objectives of the International Biological Program.

The Pan American Union's Fellowship Program provides grants, from three months to one year in duration, to Latin American graduate and post-graduate students interested in pursuing field studies in environmental biology at the Smithsonian Tropical Research Institute. For those primarily interested in taxonomic study of collections, similar opportunities may be arranged at the Smithsonian's Museum of Natural History.

The Office of International Activities welcomes inquiries, whether from foreign scholars coming to the United States or Americans going abroad, concerning research or training opportunities in the scientific and humanistic disciplines of interest to the Smithsonian and in museum technology and museum administration. By agreement with the Department of State, the Office provides this kind of advisory service, including programming for foreign grantees during their visits to the United States, for the Department's and other Federal exchange of persons' programs;



but the Smithsonian is equally interested in extending similar service to individual scholars and to privately sponsored programs.

In encouraging exchanges of museum professionals, the Smithsonian works especially closely with the American Association of Museums to provide increased opportunities for training and experimental research in the museum professions.



## OFFICE OF EXHIBITS

The Office of Exhibits, in consultation with museum scientists and historians, designs, prepares, and installs exhibits in Smithsonian museums. It occasionally prepares circulating exhibits for the Smithsonian Traveling Exhibition Service. The Office was established officially in September 1955 and existing exhibits production personnel were consolidated. This action was largely the result of the authorization for the construction of the Museum of History and Technology. Even prior to this action by Congress, however, during the years 1950 through 1954, considerable planning had been done to update and improve exhibits which were then extant, especially in the Museum of Natural History. The need to provide exhibits for the new museum and the desire to modernize the older exhibits coalesced into the Office of Exhibits.

The persons who had been consolidated into the exhibits group were largely craft workers. Only one or two were naturally gifted or previously trained in the art of designing exhibits. The first hurdle was the training of existing personnel, wherever possible, and the recruitment of additional trained persons. The recruitment of skilled designers was difficult because there were few in the general labor market.

Over the years, the Office of Exhibits has been responsible for more than 3,500 permanent exhibits units and an increasing number of special and temporary exhibits. In fact, a much larger proportion of the exhibits budget and effort is now being expended in these temporary and special exhibits rather than the permanent program. The pressure to design and produce large numbers of exhibits has led to a high degree of specialization resulting in a superior product not often matched in the field of museum exhibits.

The Office of Exhibits continues to develop new and innovative techniques in the field of exhibits including freeze-dry taxidermy, skeletal maceration, new uses of audiovisual materials and recently has developed a capability for producing exhibits-oriented movies.

The large numbers of exhibits of art, history, and science and the huge and varied audience visiting Smithsonian buildings provide outstanding opportunities to experiment with and study the effectiveness of exhibits and the reaction of viewers to them. Experiments and plans are being made to investigate basic factors of the viewer's involvement with museum objects and his perception of exhibits.

The training of museum technicians visiting the Office of Exhibits from all points of the world has become an accepted responsibility to the smaller museums of the country.



## OFFICE OF PUBLIC AFFAIRS

Since its establishment in 1967, the Office of Public Affairs has devoted its energies to broadening and enriching the many channels of communication through which it serves both visitors to the Smithsonian and the public at large.

The major operating premise of this Office is that the Smithsonian fully performs its education function only when it broadly informs and communicates with the nation's public by all practical means. The Office is organized to this end.

Film reports concerned with Smithsonian activities are produced by television networks, local stations, the United States Information Agency, and foreign broadcasting companies. These reports deal with the research, conservation, educational activities of the Institution, and documentaries on its projects. Radio activities include preparation of programs on Smithsonian activities for broadcast in the United States and abroad, concert series, and broad participation in interviews, discussions, and panel shows. The Smithsonian Film Theater presents weekly educational films, loans slides and films to educational institutions, and arranges special film showings. A television film-clip service will broaden the Institution's news and photography programs. Hundreds of news releases, features, and radio releases covering all areas of Smithsonian activities are issued annually. Press previews and conferences are arranged for major events, such as the opening of museums. The Torch and the Associate, monthly news publications, and the monthly Smithsonian Calendar of Events are widely circulated. Up-to-the-minute information on daily events and exhibits is provided to tens of thousands of callers on the recorded telephone service Dial-A-Museum. From information furnished by the Smithsonian Astrophysical Observatory, the Dial-A-Satellite service provides thousands of people with information enabling them to view artificial satellites as well as celestial bodies.





## INTERNATIONAL EXCHANGE SERVICE

The International Exchange Service was established in 1849 to provide a means for the distribution of Smithsonian publications to other countries. This method of exchange proved so successful that other organizations in the United States were permitted to use the Service for sending their publications to other countries and to receive in return publications from foreign organizations.

In 1867 legislation (14 Stat. 573) provided that official documents shall be exchanged through the agency of the Smithsonian Institution. The International Exchange Service is the bureau of the Smithsonian Institution responsible for carrying out the functions assigned to the Smithsonian by treaties, conventions, and other international agreements for the international exchange of publications. The Service is an expression of the Smithsonian's role in "the diffusion of knowledge". Publications transmitted through the Service have aided foreign schools, colleges, universities, medical and dental libraries by providing the libraries with reference material for study and teaching.

Addressed packages of publications are received from colleges, universities, scientific societies, and individuals in the United States for forwarding to similar organizations in other countries.

Addressed packages of publications are received from Government agencies and Congressional committees for transmission to addressees in other countries.

Official United States publications, including the Federal Register and the Congressional Record are received daily from the United States Government Printing Office. The publications are assembled and packed for shipping or mailing to the depository libraries in other countries. In exchange, the official publications of other countries, including parliamentary documents, are received and forwarded to the Library of Congress. This exchange is based on 14 Stat. 573, as amended, various bi-lateral treaties between the United States and other countries, Conventions, and other international agreements.

The weekly issues of the patent specifications are sent to the exchange libraries in other countries. In return, the foreign patent specifications are received and sent to the United States Patent Office.



## INFORMATION SYSTEMS DIVISION

This office was established in the spring of 1966 in response to the growing awareness within the Smithsonian Institution, that it had to take advantage of computer technology or face the possibility of losing masses of information associated with its collections. Later in the spring of 1968, in announcing its official opening, Secretary Ripley stated that the objectives of the Information Systems Division would be, "experimentation leading to better information-retrieval techniques and better understanding of the man-machine interaction, particularly as applied to multi-computer tele-processing and multi-programming environment." Further, "The Information Systems Division serves as a retainer, interpreter, and a diagnostician of information problems within the Smithsonian Institution, and to the extent that its resources permit, it provides automatic data processing and systems engineering expertise to the museum community in general."

To meet its objectives, by the end of 1968, the Smithsonian Information Systems Division, located on the third floor of the Arts and Industries building's southwest court, had acquired a variety of automatic data processing equipment. In addition, the Division has telecommunication access to the computer at the Smithsonian Astrophysical Observatory in Cambridge, Massachusetts. Additional support is available at the Smithsonian Science Information Exchange, in Washington, D. C., and at the Center for Computer Sciences and Technology at the National Bureau of Standards in Gaithersburg, Maryland. As an indication of its immediate success, Information Systems Division's installation at the Mall continually operates on the basis of three eight-hour shifts daily.

The Information Systems Division is comprised of an information retrieval section, a mathematical computation section, and a management systems section. The information retrieval section is concerned with information systems used for indexing and data retrieval. The mathematical computations section provides mathematical analysis and computer programming to aid Smithsonian scientists in presenting and interpreting their research data. The management systems section provides support to the administrative, curatorial, and research activities requiring automatic data processing of business or fiscal data.

The staff of the Division contains experts in various areas of information processing. This group provides synergistic cross-fertilization which makes each individual stronger and more valuable than each would be alone. The recently developed "Global Reference Index" is an example of such collaboration. Techniques used are not those usually associated with the natural sciences. It was the knowledge of mathematics, of algorithm structure, and of computer techniques, combined with the traditional means of identifying a point on the globe, which produced this national index.



During the year, Information Systems offered several training programs to Federal personnel in computer programming. It provided self-study material for the scientific and curatorial staff, and established a library of statistical programs. Under preparation is a booklet describing in detail the facilities of the Division and relating their capabilities to the activities and needs of the Institution. Museums and universities from around the world have a keen interest in the technological aspects of data processing and information storage techniques developed at the Division. Specific technical advice and information were provided to the major museums in Canada, England, Mexico, and Sweden, concerning implementation of computer techniques for museum purposes. The Smithsonian is viewed internationally as the leader in this area.

Within the boundaries of the United States, the Smithsonian continues to be the chief influence in the application of automatic data processing to institutional problems. The American Museum of Natural History, Museum Computer Network (a consortium of primarily New York City museums for the purpose of establishing a computerized information network), and numerous colleges and universities look to the Smithsonian to continue to provide advances in this area.





## SMITHSONIAN INSTITUTION LIBRARIES

The Library of the Smithsonian Institution was founded by the Act of Organization in 1846, and was to consist of "a complete collection of the transactions and proceedings of all the learned societies in the world" and the "more important current periodical publications, and other works necessary in preparing periodical reports." Through a rapidly expanding exchange program, using the publications of the Smithsonian, the Institution was a national reference and bibliographical center. As the library continued to grow, however, adequate housing and care presented serious problems. In 1866, when a considerable amount of new space in the Capitol was made available to the Library of Congress, the two libraries were merged by an Act of Congress, authorizing the transfer of the Library of the Smithsonian Institution to the custody of the Library of Congress. At the time of the transfer, a small basic reference collection was retained at the Institution. As time went on, the Institution was made responsible by the Government for scientific and cultural enterprises involving collections of books. Today, the Smithsonian Institution Libraries system encompasses libraries in practically all of the Smithsonian's bureaus, and contains material on all of the subjects with which the work of the Institution is involved.

The Libraries' collections now contain more than 600,000 pieces. The Libraries' program contains three distinct goals: (1) to meet the immediate needs of the Institution's staff and programs; (2) to create innovative services and contributions to knowledge in library sciences; and (3) to incorporate into the system the pertinent materials from among those items in the valuable Smithsonian collections that are uncataloged.

In achieving its goals the library program is concentrating on the following areas of activity: (a) systematization of library effort; (b) enhancement of the development of research collections; (c) improvement of physical and intellectual access to the Libraries' collections; (d) creation of staff competence in library and information science; (e) enlarging the information flow from the Smithsonian Institution to other museums; (f) improve scientists' utilization of information resources through seminars, workshops, classes, lectures, and research projects in information services.



## SMITHSONIAN INSTITUTION PRESS

Joseph Henry, the first Secretary of the Smithsonian Institution, chose to translate the founder's charge for the "diffusion of knowledge" into a program of publications. His formal plan for the Institution included proposals for (1) a series of reports of basic research "giving an account of the new discoveries in science," and (2) occasional "separate treatises on subjects of general interest."

The first of these proposals was launched forthwith, the first monograph in the Smithsonian series appearing in 1848. The flow of research papers and monographs since then has been continuous. These represent the efforts of Smithsonian scientists and their colleagues at institutions of learning across the United States. Currently, about 100 publications per annum appear in eight active series, disseminating newly acquired facts, synoptic interpretations of data, or original theory in the fields of anthropology, astrophysics, biology, geology, history, and technology. Most of these published materials are funded by Congressional appropriation, though some are paid for by earmarked private funds of the Institution.

Since the Federal Government has seen fit to support basic research, the publication activity of the Smithsonian is simply and fundamentally an extension of that research. The specific recognition by the Federal Government of the unity of research and publication firmly grounds the historic plan for Institutional publication activities.

Effectuation of Secretary Henry's second publication proposal did not occur in a programmatic way until the 1960's. In 1964, the Smithsonian was admitted to the Association of American University Presses; and, in 1966, the publications division acquired its present name and the form of a book publishing house. The Press now publishes about 20 books per annum and markets them in the book trade. This program is supported entirely by the private general funds of the Institution.

To complete the Smithsonian publication program, the Press produces and distributes popular guides, pamphlets, booklets, and information leaflets in the number of about 20 per annum. All of this material deals with the public activity of the museums, and with their exhibits and collections. It is an extension of a basic Smithsonian program, that of public education. Many of the popular publications are sold at the Museum Shops, and thus are published at the expense of Smithsonian private funds. The information leaflets which serve to orient visitors to the several museums on the Mall, and which are freely available, are printed at the Government Printing Office with Federal funds.



The Press also furnishes the Institution with a variety of internal manuals, reports, specimen labels, and directories. To assist in the provision of printed materials, it administers a small branch installation of the Government Printing Office. Chief among the Smithsonian's official publications is the annual report, Smithsonian Year. It is also, by law, responsible for publication of the annual reports of the American Historical Association. All such material is produced through the use of appropriated Federal funds.

The Director of the Press reports to the Secretary of the Institution. He is also Chairman of the Editorial Policy Committee, which seats seven other professional staff members of the Institution and which reviews publication matters and performance for advice to the Secretary and the Press. In addition to the Director's office, there are four operating sections. The Editorial Section, under the Managing Editor, prepares manuscripts and illustrations for the printer. The Production Section, under the Managing Designer, designs, schedules, and procures printing. The Promotion Section, under the Promotion Manager, is responsible for sales representation, advertising, and various promotions for privately funded publications. The Business Office and Warehouse, under the Business Manager in a separate location, fulfills orders for, ships, and stores in-print Smithsonian publications.





## COUNCIL ON COMMUNICATION

The Council on Communication was established by the Smithsonian Institution in 1967 to aid those responsible for communication policy and practice in the United States to develop more adequate communication between people, within social institutions and between people and recorded knowledge, thought, and art. This evidence of the Smithsonian's interest in the field of communication is presaged by its primary charter to increase and diffuse knowledge among men.

The spectacular activity and advance in almost all fields of scientific endeavor, in technological achievement, and in economic development in the past 30 years have given rise to the deliberate generation of massive amounts of information. The storage, retrieval, transfer, and use of this information, both within individual disciplines and across discipline lines have evolved as major areas for research, development, and operation, and have themselves been areas of spectacular technological developments. Of even further consequence, the impact of new communication technologies on various media has resulted in displacement of traditional lines, sources, and intensities of influence on social behavior, and on political and economic decision-making. At present there is still much to be understood about the processes and techniques of communication of information in order to achieve full exploitation of available knowledge in the formulation of public policies for action toward the solution of national and international problems.

The attempt to respond to these trends in the United States has resulted in a patchwork of communication policies and practices. It is important to develop more integrated, more efficient, and more effective national policies for communication. A number of organizations are concerned with parts of the overall problem; for example, several committees of the Congress, the Federal Communications Commission, the Federal Trade Commission, the ad hoc Interagency Task Group on Telecommunications, the Public Broadcasting Corporation, the White House Committee on Scientific and Technical Information, the National Academy of Science's Committee on Scientific and Technical Communication, several university groups, and the Office of Telecommunications Management.

But no group is concerned with communication as a basic societal function, badly in need of study, repair, and improvement. No group is concerned with "communication" as a means of eliminating the sources of tension between people and nations; nor is any group concerned with assessing the impact on the United States of the total, complex array of both new and old communication and information processing and transfer technologies. The Council on Communication will grasp these nettlesome issues as its primary concerns.





The immediate need is for the development of a clearer understanding of the impact of the new technology and the potential of its exploitation. The Council on Communication, to consist of about 15 national leaders in science, humanities, education, Government and industry, with evidenced understanding and involvement in a wide array of communication enterprises will:

- Identify the more important issues, as judged within the broad context outlined above, and identify and publicize significant results from the major efforts already underway in limited-focus sectors.
- Sponsor studies and experiments to develop greater understanding of these issues and possible solutions. The Council may also serve Federal agencies and others which wish to have such studies and experiments performed.
- Discuss, and sponsor discussions of, the above studies and experiments, to foster better understanding of the communication function.
- Recommend desirable policies aimed at more adequate communication to the Congress, the Executive Departments and agencies, the private sector, and the general public.

The uniqueness of this program rests in its breadth of interests, its divorcement from an immediate mission-directed information processing service, its effort to interrelate the information processing technologies to national and international social problems, and finally its service to those bodies concerned with public policies, their establishment and their achievement. In addition, there are within the Institution units that can accommodate research, experiments, and demonstrations of new methods and media for information processing and communication designed to test some of the Council's ideas. The Institution has already begun to examine the methods of organizing the work of these various units in order to make the Institution fully responsive to demands made upon it in terms of all of its available information resources. This is being accomplished through the means of an Advisory Group on Information Technology, consisting of the directors of the major communication departments of the Institution.



## SCIENCE INFORMATION EXCHANGE

The Science Information Exchange (SIE) was established almost twenty years ago when the budgets for Federal research were expanding rapidly. Expenditures for medical research during that time rose from three million to thirty million dollars in two to three years. Farsighted research administrators as long ago as 1949 realized that it would be difficult to manage these multi-million-dollar programs efficiently, unless they exchanged timely information about research tasks that were being planned or actually in progress.

As a result, seven Federal agencies agreed to exchange information on their current plans and activities and to support a clearinghouse to handle the information exchange. The clearinghouse was "to facilitate the planning and management of scientific research by furnishing information about research-in-progress to scientists, research program managers, and research administrators."

As a specialized information service, SIE has several characteristics that clearly distinguish it from the technical libraries and most of the documentation centers and services.

The SIE deals only with records of research planned or actually in progress, not yet completed or ready for publication. It gives special attention to the inter- and multidisciplinary ramifications of modern research, and it is uniquely oriented towards information for research management.

The Exchange now receives about 100,000 research records a year, which are revised, renewed or updated at least annually. These records are voluntarily provided by about 900 cooperating and participating agencies that support or carry out substantial research programs. They include all Federal agencies, about 150 of the major private foundations, many universities, State government programs, some industry and some foreign research. New sources are continually solicited and added with a substantial input growth rate leading to a nearly comprehensive national inventory of currently active research projects.

From each record about 30 information elements are extracted describing in more or less detail who supports the project, who does it, where, when, how much, and a 200-word technical summary of what the principal investigator intends to accomplish.



All in all, about three million discrete information elements go into a sophisticated computer system in such a way that any one element or any combination of elements can be selected and retrieved as specified by the user.

There are several key features to SIE's service. First, SIE provides, as a central clearinghouse, uniform indexing regardless of the source of the material. All projects are analyzed by the same staff (a group of some 50 scientists and engineers). This feature deserves special mention. Although decentralized files of any agency's program are required at each agency or institution for adequate program characterization, such separate files do pose a problem with respect to information available for outside users. Each organization awarding grants and/or contracts, or having an extensive research program of its own, is primarily concerned with interpretation of these projects in terms of its own basic mission and function. Information about such research may or may not come to the attention of other groups with different or related missions. The supporting or performing organization cannot be expected to concern itself with maintaining elaborate and detailed indexing in all peripheral fields. It seldom has the requirement to retrieve this information for its own use.

The second feature is SIE's basic concern for the problems of research management at all levels, which necessitates continuing attention to the multidisciplinary aspects of research. This orientation towards research management is explicit in SIE's charter. It is implicit in the nature of the information handled and how it is used. The individual investigator wants to know who else is working on similar projects, to avoid waste of his time and money on useless duplication. This is one of his management problems. The administrators of multimillion-dollar programs with thousands of related projects need to know how to distribute support over broad subject fields. For both, the purpose is the same--better management of programs and projects--only the dimensions are different.

When SIE was established almost 20 years ago, it began with a small number of records in the medical sciences. The volume of input records and the output services was small and easily handled with card catalogs and manual files. As the volume grew and the scope of interest broadened to all the life, physical, social, and engineering sciences, SIE's methods progressed to punch cards with mechanical equipment for sorting, selecting, and collating.





About ten years ago, an electronic computer was first introduced. Since then SIE has progressed through several larger computer systems to keep pace with the increasing workloads and demands. At present, SIE is a fully automated computer-based information system in a practical production line system. A detailed cost accounting system insures efficiency and economy and provides positive management control at cost-benefits commensurate with the mission which is to provide up-to-date information on research actually in progress for the scientific community.



## MANAGEMENT SUPPORT

The Management Support division represents a consolidation of various activities that provide Institution-wide service. Management Support supplies special services to assist the Secretary and Assistant Secretaries, and provides certain agency-level administrative requirements. Management Support consists of the following: Administrative Systems, Duplicating, the Equal Employment Opportunity Office, General Counsel, Smithsonian Archives, and the Travel Services Office.

Administrative Systems Division--This Division is responsible for providing management analysis and assistance activities in the development of sound business administration and management improvement programs within the Institution. This unit develops organizational, functional, staffing, and flow charts, procedural manuals, and other administrative issuances; makes studies and special surveys; provides management advisory services; and maintains the forms management program.

Duplicating Section--This section provides for all duplicating requirements of the Institution. Included are office memoranda, manual issuances, forms, news releases, and materials required by the research, curatorial, and exhibits activities.

Office of Equal Employment Opportunity--This Office carries out the mandate of the Equal Employment Opportunity Law. The Office assists applicants in finding employment regardless of age, religion, color, or sex.

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

Smithsonian 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.

Travel Services--This Office arranges for all staff travel for the Smithsonian.



## OFFICE OF THE TREASURER

The Office of the Treasurer manages the income and expenditures of the Institution. It provides the Secretary with financial recommendations related to Smithsonian resource allocation.

The Treasurer's office is composed of the Office of Programming and Budget, the Contracts Office, the Fiscal Division, and the Internal Audit Office. These sections provide analytical, technical, and cost accounting support in assembling the financial implications of development alternatives. Long-range planning and annual budgeting in public appropriations, endowment income, and grants and contracts, center in the Treasurer's office.

The Contracts Office maintains the records and controls which ensure the legal and efficient conduct of Smithsonian contract research activity. The Fiscal Division provides control and accountability over all funds, property, and other assets for which the Institution is responsible. The Internal Audit Office provides independent appraisal of the effectiveness and efficiency with which financial and operating responsibilities of the organization are being performed.

The objective of this concentrated activity is to formulate the best possible financial policies to help facilitate the achievement of the goals of the Smithsonian. This is accomplished by maintaining a suitable system of financial records from which information needed by Congress, other agencies, and authorities having control responsibilities, internal management, and the general public can be extracted.



## OFFICE OF PERSONNEL AND MANAGEMENT RESOURCES

The Office of Personnel and Management Resources provides specialized services in employment, position classification, employee relations, employee training, and salary and wage administration. In addition, it assists the Secretary by providing consultation and planning in the area of human resources. The Office conducts studies in organizational and behavioral sciences. It is also responsible for formulating policy and coordinating the activities of the Health Services Section, which provides health services to the Smithsonian staff and to museum visitors.

The Secretary of the Smithsonian Institution is responsible for effective personnel management throughout the establishment and is charged with the management of his human resources in a manner that will stimulate and motivate employees, and be consistent with efficient and equitable personnel management practices. Under Executive Order 9830, each agency head designates the director of personnel to serve as the adviser and manager of personnel resources. The Director of Personnel and Management Resources carries these responsibilities within the Smithsonian Institution.





## OFFICE OF THE REGISTRAR

The Office of the Registrar was established officially in 1881 to serve the United States National Museum as a central point for recording specimens and objects coming into the collections, shipping, and controlling correspondence. While retaining these responsibilities, the Office's services have been broadened to include a variety of essential services supporting the Smithsonian's research, education, collection management, and exhibition programs. Its total principal functions may be summarized in the following categories:

Accessions--Responsible for proper accessioning of all specimens received for the collections of the Museum of Natural History and the Museum of History and Technology including assembling, processing, recording, and filing the papers comprising the documentation for the receipt and legal ownership of the collections.

Transportation and records--Receives and records all shipments of specimens, equipment, supplies, exhibits, art objects, and library materials for the Institution and distributes them to appropriate offices. Likewise, ships outgoing materials, maintaining records of distribution. Assures that cargo and mailings are handled by the safest, most efficient, and economical means in the best interest of the Government.

Customs--Conducts the customs work for the entry of foreign shipments for the Institution, preparing formal consumption and appraisement entries for materials and specimens and obtaining free entry for a wide variety of items.

Mail--Manages the central Smithsonian mail operation of all official agency-wide mail functions in coordination with the United States Post Office, including the planning, budgeting, and scheduling of the activity and the personnel.

Travel--Accomplishes necessary coordination through diplomatic channels of matters relating to Smithsonian field work in foreign countries. Responsible for documents for official foreign travel of all staff members, authorizing inoculations, preparing passport and visa request letters, State Department messages to embassies, letters for collecting or work and equipment entry permits into foreign countries, and letters of introduction.

Correspondence and examination and report materials--Receives, controls for prompt and appropriate reply official museum correspondence, and receives and distributes specimens sent by the public for identification.

Annual Report--Prepares, edits, and proofreads the accession lists of materials and donors and the statistical tables for the distribution and total number of specimens for the Museum of Natural History and the Museum of History and Technology reports.



## PHOTOGRAPHIC SERVICES DIVISION

The Photographic Services Division was established in 1959 through recommendations brought about as the result of an Institution-wide survey of photographic service needs and available facilities.

This Division is charged with the supplying of all types of photographic and related services that the Smithsonian Institution may require. This involves fulfilling photographic requests, obtaining outside contractual services and the rendering of technical assistance and training to the Smithsonian staff members. The Division supports programs of research, documentation, and conservation of collections, exhibitions, education, training, publication, and public service.

In view of the importance of photographic services to the entire Institution, the centralized photo organization was formed to exercise a more stable and positive control over the application of procedures and techniques. Centralization allows the practical shifting of personnel, equipment, supplies, and workload as the circumstances warrant. An individual laboratory is hemmed in to its own small and limited capabilities. A single administrative functioning permits great economies in the purchasing of volume and standardized supplies and equipment for all Smithsonian laboratories.



## SUPPLY DIVISION

The Supply Division was in operation as a separate working unit of the Smithsonian Institution prior to the year 1910.

The Supply Division procures supplies, materials, contractual services, and equipment essential to the accomplishment of research, curatorial, exhibition preparation, and other Smithsonian activities. It stocks and issues office, laboratory, and other supplies required in daily operations. It operates an active property management program, obtaining excess property in lieu of new procurement whenever possible. The Division maintains property records and takes periodic inventories to assure adequate control, accountability, and effective utilization of all equipment items.

Over the years the Smithsonian's research, exhibit, and educational programs have steadily increased in scope and complexity. These increases were necessary to fulfill the Smithsonian's public responsibility in these areas. With this growth there has been created greater demand for common office, laboratory, workshop supplies, and materials in order to provide a quality level of Smithsonian output. For economy and efficiency, the services of contracting and stocking are centrally provided by the Supply Division. The activities of the Supply Division are in accordance with Title 41, Code of Federal Regulations--principally Chapters I and 101.





## BUILDINGS MANAGEMENT DEPARTMENT

The activities for which the Buildings Management Department is responsible today can be traced back in the history of the Smithsonian to the Act of Establishment of the Smithsonian Institution of August 10, 1846. This Act provided "... That the Secretary of the board of regents shall take charge of the building and property of said institution. "

The intent of the Congress was expressed many times in debates prior to the 1846 enactment of this law insofar as maintaining and protecting the property of the Smithsonian. A cogent illustration of this was contained in Senate Bill S. 259 proposed on February 17, 1841, which provided ... "That the Officers of the National Institution for the Promotion of Science, together with the superintendent (now Secretary) of the Smithsonian Institution, ... shall have power to plan and erect the necessary buildings, to lay out the grounds, to preserve and repair the same ... and to establish regulations for preservation of the property ... " (parenthetical explanation added)

In 1881, a reorganization of the United States National Museum of the Smithsonian provided that "The force of mechanics, watchmen, engineers and firemen, laborers, messengers, and cleaners have been reorganized, ... " These employees were required to assume a uniform cap of blue cloth with the words "U. S. National Museum"; the superintendent and master mechanics also had the names of their offices on the front.

In 1885, when the various Departments of the U. S. National Museum carried alphabetical designations, there is found Departments 'K' and 'L', which were described as follows: Department 'K' (Buildings and Labor) was subdivided: (1) police and inspection, (2) mechanics and labor, (3) construction and repairs, (4) cleaning and public comfort, and (5) heating and lighting. Department 'L' (Electric Service) was responsible for the care of the instruments used in connection with the telephone service, time service, burglar-alarm service, and watch clock service.

The activities of this unit remained organizationally in the U. S. National Museum for some 100 years. Various titles were used to identify the head of the unit. In 1914 he was called Superintendent of Construction and Labor; in 1944 it was Superintendent of Buildings and Labor. In the September 1948 organization chart the unit was shown as the Division of Maintenance and Operation. In 1949, the Superintendent's identity was detached from the United States National Museum.

On October 24, 1951, the President approved a bill passed by the 82nd Congress (Public Law 206), relating to the policing of the buildings and grounds of the Smithsonian Institution and its constituent bureaus. Among other provisions, this Act authorized the Secretary of the Institution to designate Smithsonian employees as special policemen with power to enforce regulations and make arrests in connection with the policing of our buildings and grounds.



In 1957, there was a Buildings Management Service with three units under it--Protection, Operations, and Maintenance. In 1961, the title was changed to the Buildings Management Department, composed of the following units: Office of the Director (since 1965), Mechanical Services Division, Building Services Division, and the Protection Division.

The Buildings Management Department protects, maintains, and operates eight major Smithsonian buildings, including the original Smithsonian 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 Museum. It performs all or a combination of these functions for some seven other research, collection and service facilities, for example, the Chesapeake Bay Center for Field Biology, the Belmont Conference Center, the Oceanographic Sorting Center, and the Silver Hill facility which includes restoration and preservation of air and space objects, and houses collections of aircraft, memorabilia, and the objects of science, technology, art, and natural history.

The Department provides utilities (water, gas, steam, electricity, and compressed air), including servicing, repairing, and operating refrigeration, heating, temperature and humidity control systems, and related machinery and accessories; furnishes communications and transportation; furnishes protection services for the buildings of the Institution; provides custodial services; maintains and operates elevators, escalators, furnishes elevator operators and checkroom attendants; provides for basic fire and smoke detection, security and safety services; performs repairs, improvements, and alterations to the buildings and facilities; refinishes and paints interior areas on a scheduled basis; and is responsible for the safety, physical security, and disaster programs. This department provides engineering and construction services for the Smithsonian projects, and supervises construction and contract work. On specific projects, coordinates work performed by architects and engineers, and acts as liaison with consultants, contractors, the General Services Administration, and the Smithsonian staff.

The Buildings Management Department also provides special custodial, protection, and fabrication services in support of research activities, exhibits, and other public events, and the care of the National Collections.





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