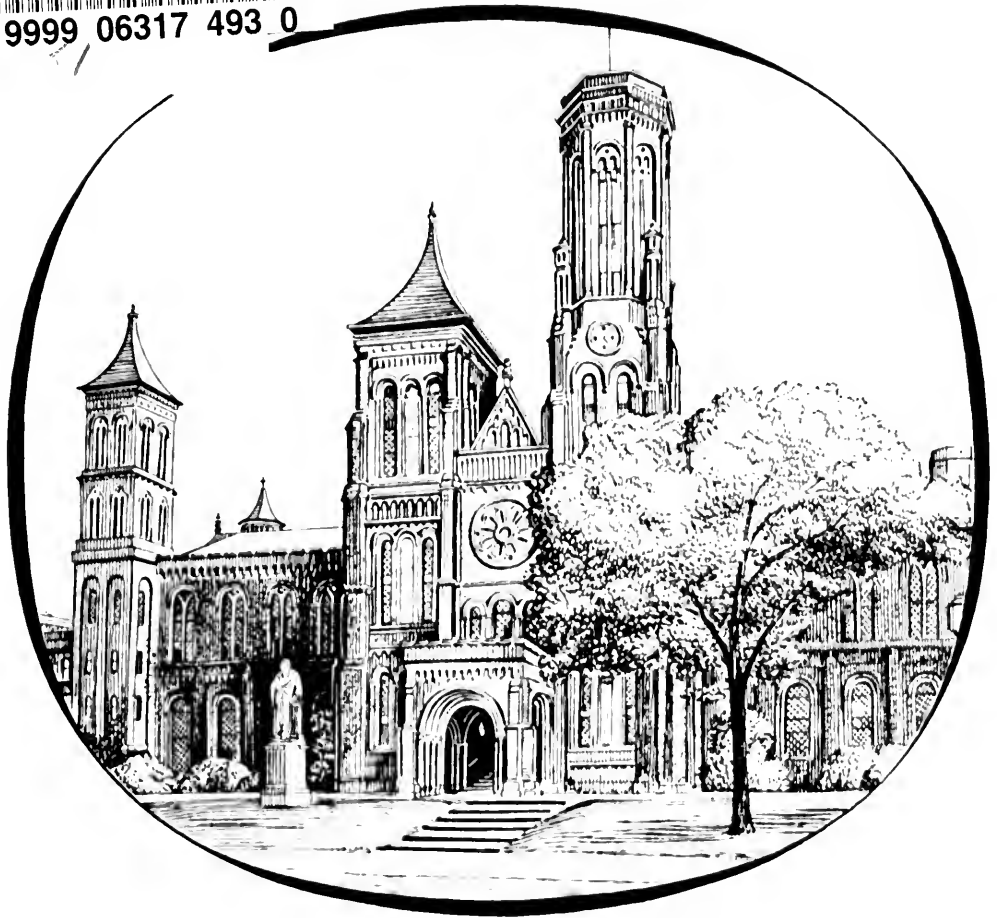


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Smithsonian Year

1981

Smithsonian Year · 1981



The fascinating *Coral Reef* installed in the Sea Life Hall at the National Museum of American History marks the first time it has been possible to keep a large reef community—including the corals—alive and functioning in isolation from the sea.

Smithsonian Year • 1981

ANNUAL REPORT OF THE
SMITHSONIAN INSTITUTION
FOR THE YEAR ENDED
SEPTEMBER 30, 1981



Smithsonian Institution Press • City of Washington • 1982

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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, who in 1826 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." After receiving the property and accepting the trust, Congress incorporated the Institution in an "establishment," whose statutory members are the President, the Vice President, the Chief Justice, and the heads of the executive departments, and vested responsibility for administering the trust in the Smithsonian Board of Regents.

THE ESTABLISHMENT

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George H. W. Bush, *Vice President of the United States*
Warren E. Burger, *Chief Justice of the United States*
Alexander M. Haig, Jr., *Secretary of State*
Donald Regan, *Secretary of the Treasury*
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Andrew L. Lewis, Jr., *Secretary of Transportation*
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Board of Regents and Secretary • September 30, 1981

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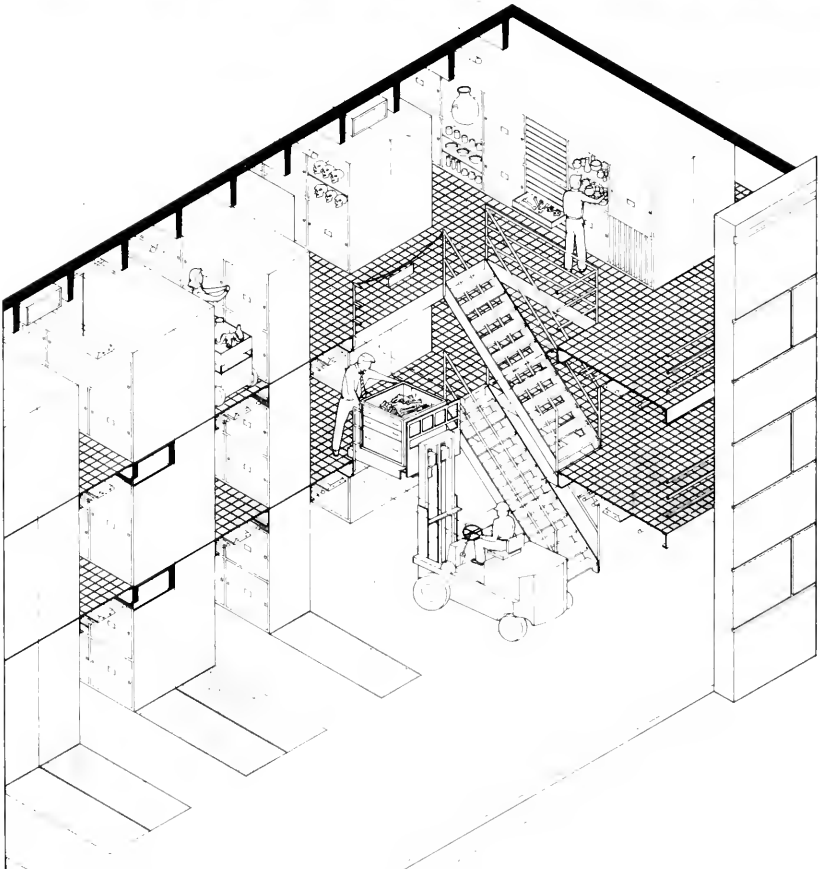
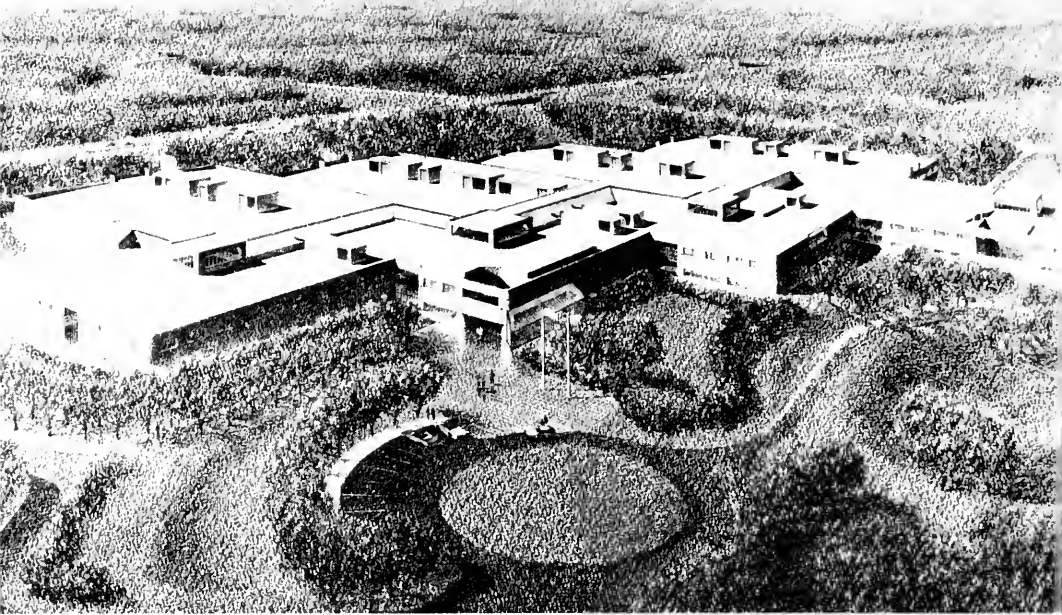
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Smithsonian Year • 1981

STATEMENT BY THE SECRETARY



The Museum Support Center, shown here in rendering and in isometric projection, is under construction at Silver Hill, Maryland, with opening planned for 1983.

Conservation in Nature and in Culture

S. DILLON RIPLEY

"The future is something which everyone reaches at the rate of sixty minutes an hour, whatever he does, whoever he is." C. S. LEWIS

IN THIS MOMENTOUS YEAR just past, the Smithsonian has seen the fulfillment of an epoch of planning. Shifting uncomfortably like a hen sitting on too many eggs, making a little tuck here and a ruffle of feathers there, trying to encompass an ever-larger nest, the Institution has been stretched and pushed into an imminent state of disarray. For years, like all museums, loathe to give up what may be the remainders of the past, we have had to make do with cramped corridors, ever-shrinking attic spaces, the imminent loss of knowing what it is we have or where we started. Our collections have threatened to lose their utility, sinking under the very weight of accretion. Last year saw the final breakthrough with a generous Congress agreeing to expressed needs of the past many years. The Institution got off to a running start in January 1981; we now are proceeding at a record pace, ahead of schedule, and—dare we admit it—narrowly under budget to create the best, biggest, and most sophisticated and efficient atmospherically controlled storage and retrieval center in the Union.

Can we achieve this monumental task? I believe we can, and the portents so far are with us. The Museum Support Center as it is titled, all 308,566 square feet of it, will be opened in 1983. Say what one may, this "trip" has been necessary. If anywhere, if anyone, the Smithsonian must realize its destiny to build a storage and retrieval center second to none, to preserve the materials, the evidence of all that has made this Nation, rich, proud, careless and

vainglorious, the extraordinary creation that it is. Somewhere within this heap, this litter, lies the truth. For that we must keep this material with care, conserve it as if life would depend on it—for our future and for life itself.

Curiously enough almost no one these days understands what the word "conservative" means. The so-called media, TV, press, radio, the varieties of slogan-peddling called "communications," all readily define "conservative" in political terms: *conservative* versus *liberal*. This fashionable interpretation is of course meaningless, conjuring up stereotype visions, Grant Wood's famous portrait of the middle western farm couple outside their American Gothic farmhouse, opposed to a shaggy, curly-haired professor with horn-rims, smoking almost anything.

Conservatives—both men and women—are supposed to wear business clothes, lips pursed tightly in expressions of determination and discipline, and virtually march when they walk or jog to the beat of a predetermined drum. Nonconservatives, dressed loosely, always informally, in mussy clothes smile in a relaxed friendly manner, thinking always of others, moving by impulse perhaps, "making it" to a distant threnody of wood notes wild.

In museum circles, as in research circles, "conservative" means something entirely different, symbolizing a profession, a whole career. Museum people do not really pursue their careers mostly in attics, although the popular slogan for the Smithsonian, "the Nation's Attic," serves up endless images of dusty, dark crannies stuffed with old-fashioned trunks, old clothes, abandoned radio sets and broken toys. "Conservative" in museum terms means conservation, the care of thousands of objects, testaments to man's creativity, or evidences of creation, the hand of nature or of God, which lie about us always.

In America, museum people and many research people lead lives of quiet desperation, buoyed up only by the inner conviction of the importance of their task. Conservation of at least part of mankind's creation before it all vanishes on the dust heaps of history becomes a sacred task, the dictates of which marry totally disparate components. On the one hand things must be preserved with exquisite care; on the other, time is of the essence, before what is to be cared for floats away in the inexorable process of decay. In this work the curator always loses something, a little piece here and there, a

fragment of the evidence. But to keep something is better. To conserve even bits and pieces of history is a measure of the curator's success. Speed connotes haste, and haste connotes waste. But without some measure of speed too much is lost, for America is a continuing example at every level of wastefulness. Humans are consumers more than creators. We all live unconsciously on mounds or heaps of the debris of past lives. All our history or what is left of it can be found in dry privies or charnel heaps. There is an old New England maxim at the very heart of American prudence and thrift which assumes some degree of carelessness:

"Use it up, wear it out
make it do, or do without."

The last two words are the most important if you think about it. They convey our mood. "Conservative," then, means to conserve. But what an anomaly that is in popular terms. People in business or government tend not to be able to conserve. Business means forward momentum. Dollars imply development. Government moves forward erratically, a juggernaut, propelled by legislation often read through a glass darkly, mirroring forgotten crises. Business and government both proceed on the understanding that growth is the only truth. In such a context "conservative" is a recessive word.

Today the mood of America is "conservative." I hope it augurs well for what the word really means: "to take care, to mind the lessons of history, to keep the testament of the past." Perhaps America has turned an invisible corner. We who live with museum principles in mind should take heart that at last Americans and nationals of other nations who throng our halls, seem to have a new respect for what we can demonstrate through the conservation of objects, retrieved with speed but with care, before it is too late.

The other side of the term should be of equal or greater value, conservation of nature. Here again museum workers and our associated colleagues in biological research bring home the contrast between endless growth and the preservation of what is left. These past twenty years have demonstrated, even to poll-takers, the existence of a solid block of public concern in favor of conservation of our environment. In political terms what an anomaly this is! Here for once the terms contravene each other. Conservatives, i.e.,

"business," in favor of endless growth, are following a spendthrift trail. Liberals, i.e., "fiddlers," living on organic food, careless of the future or of economics, are becoming ecofreaks—crazy for conservation. But how silly this is. It cannot be the sign of a liberal to be a conservator of the environment, any more than it need be a sign of a conservative to be a disciple of conspicuous waste. Let conservatives and liberals (in the political sense—if indeed the labels are valid any more?) take heart from the fact that conservation is here to stay, a way of life on which our future will be judged. What greater obligation do we have than to be conservators of the things of mankind or of nature? Without the one we become rootless, adrift, undisciplined even, lost amid shifting sands. Without the other we have with certainty lost our future.

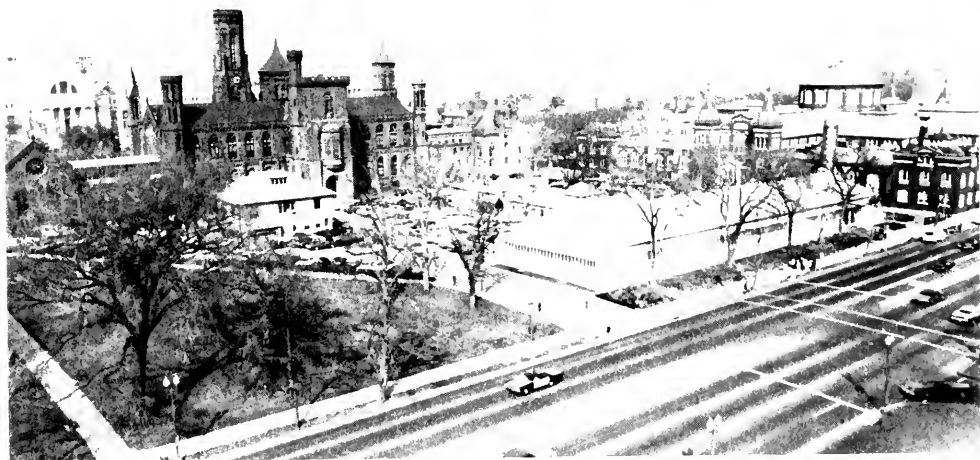
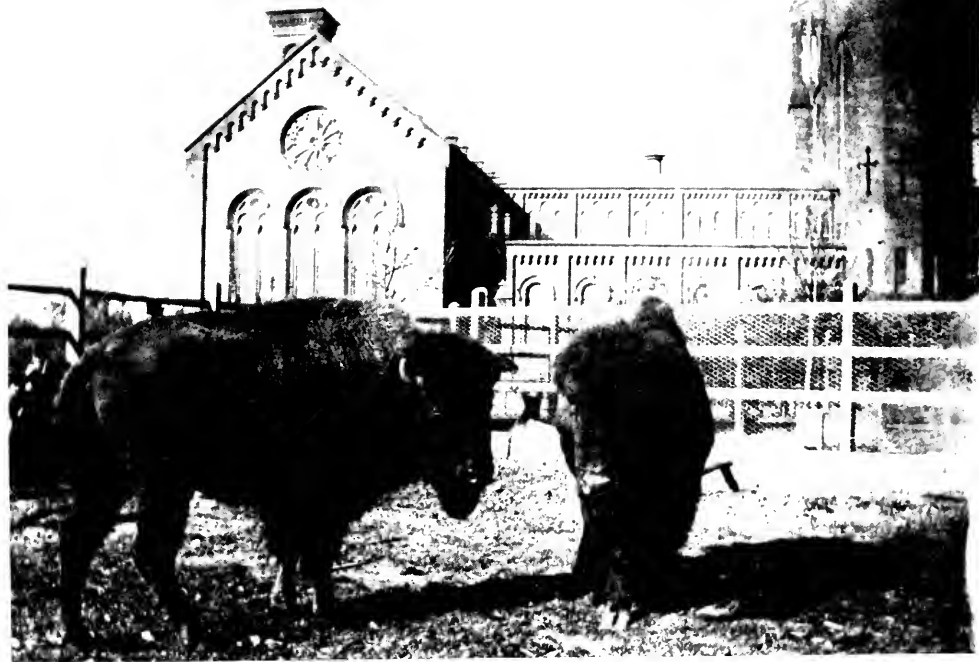
One of the advantages of the new Museum Support Center is that we shall for the first time be able to "decompress," to spread out most everything, to see what we have altogether and in what condition. Whether going to the new center or staying in one of the museums, we will have room to examine everything. Already the Institution is in the throes of a giant inventory, supported now for three years with a special appropriation. In some collections, the inventory is completed, one hundred percent; in others, only partially so. Over all, we are a little more than half-way through. As a result, the numbers of objects are beginning to appear in fact, in contrast to the educated guesswork of the past.

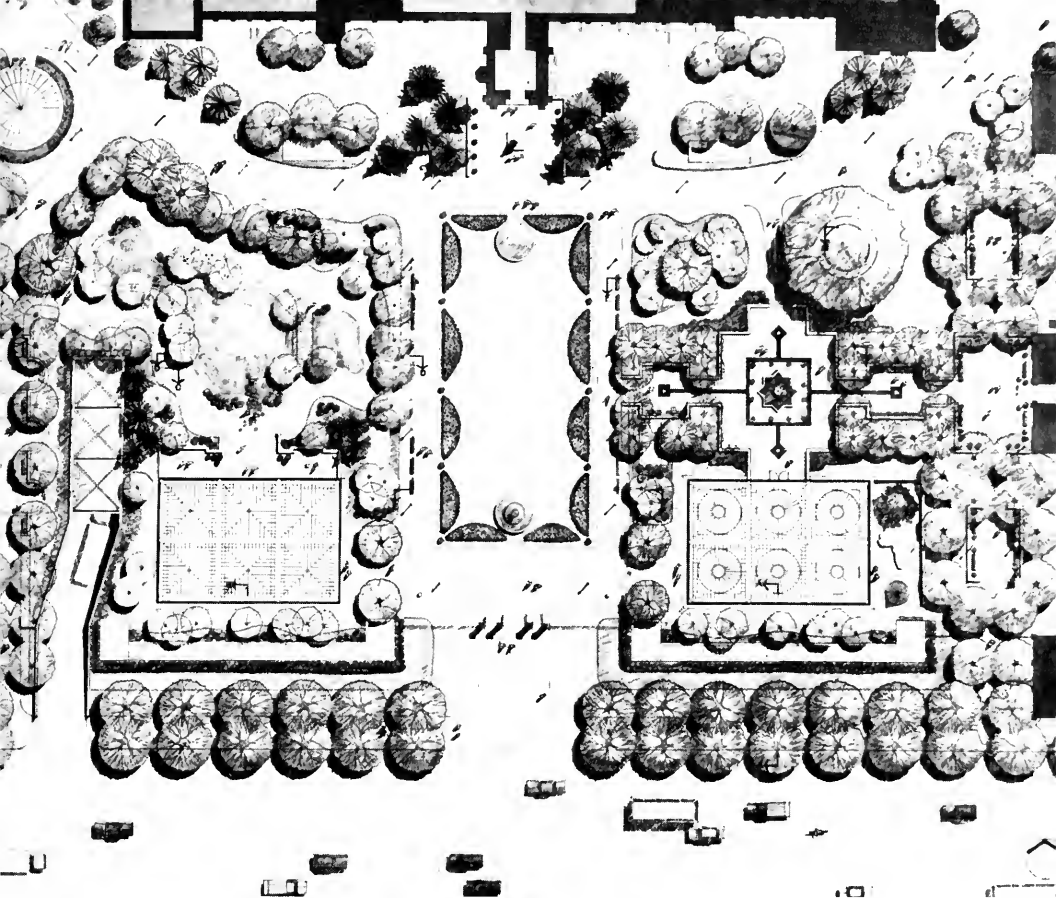
Only now can we begin to form a comprehensive listing of objects or lots of objects in certain collections to be conserved, to be studied for loans or possibly to be disposed of as duplicates, and to make all the future curatorial decisions that will have to be made in the next quarter century. In the end, we will not only know what we have for the first time in every department, but we will have a rational idea of what to do with it. I believe that we will save money in the long run by being able to make valid and wholly merited decisions on what to *keep* once we are totally sure of what we *have*. This of course excludes the obviously priceless or unique objects. These we know already, and most of them are well cared for and well documented. But on the fringes of all collections there are hard decisions to be made about objects that surface, come to a curator's attention, because they had just been put away a while back for a decision later on.

This next generation, in time, will be a voyage of discovery for our own curators, rediscovering things so put aside. It will be an enormous job and a very heavy responsibility for working curators to dig in and excavate in the collections themselves. We welcome it as a test of the staff and their aptitude in the work.

If the future catches up with us all too speedily, we can certainly realize that life admits of no delays. These are parlous days for building anything. We in the Smithsonian have been lucky in that we have created buildings with minimal overruns, sometimes indeed under budget. But inflation is all around us. It is a cancer that has been creeping up on us "on little cat feet" since the 1890s, according to an elderly cousin of mine. But it is here, and we can only hope that these years will finally see a realization of what Hemingway called "the first panacea for a mismanaged country." That relentless liberal said, "The first panacea for a mismanaged nation is inflation of the currency; the second is war. Both bring a temporary prosperity; both bring a permanent ruin." He should have lived on to see the complex of conflicting pressures we live under today.

These are hard years in which to summon the resolve to build anything. And yet the Smithsonian has an extraordinary opportunity to perform a signal service for the nation and it is our hope that we can do so, with imagination and understanding for the future. Another realm of space, another project to build may seem uncalled for in these uncertain days, but we have ample reasons to do so. On the one hand our government is committed to strengthening the peace through marshaling the power and military strength to maintain it. On the other hand we conceive a need to strengthen understanding with the vast arc of nations stretching from the Atlantic shores of Africa across Eurasia, as the geographers term it, "the eastern Mediterranean," and on to the shores of the Pacific. Here live two-thirds of the world's population, too few nations among which are really understood by Americans. In the city of Washington there are more than eighty embassies whose occupants represent the majority of peoples of the world. Yet they have no real means for representing their cultural history and traditions to Americans. We lack a theater, a window from which to demonstrate their long and fundamental role in our own history. Whether because of the roots of intellectual development for the





The Quadrangle project, pictured here in a plan showing Independence Avenue (*at bottom, foreground*) and the Smithsonian Castle (*at top, background*), addresses the need to strengthen our nation's understanding of the vast arc of nations stretching from Africa across Eurasia and on to the shores of the Pacific. The Quadrangle space, the old South Yard of the Smithsonian, has had a multitude of uses over the years. In the 1880s, bison (*facing page, at top*) and other live animals were kept (for study by Smithsonian taxidermists) in pens on the south side of the Castle—here the beginnings of our National Zoo! *In the center (facing page)* is a view from Independence Avenue in late 1975, just before the area was cleared, showing various buildings behind the Castle: the Victorian carriage house *to the left*, the first Smithsonian observatory buildings dating from the 1890s *towards the right*, and the World War I "quonset" hut originally erected by the U.S. Army Air Service for development of World War I aircraft and later used by the National Air Museum (now NASM) to display historic aircraft. *At bottom (facing page)* is a contemporary view of the Castle showing the Freer Gallery of Art *to the left*, the Arts and Industries Building *to the right*, and the Castle itself *at center*—with the existing parking lot and adjacent Victorian Garden (first developed in 1976).

Western world in mathematics, medicine and astronomy in the Arab tradition, whether in religion, law and philosophy in Judaism and the roots of Christianity, whether in philosophy and invention and technology in Asia and Africa, Americans are still unaccustomed to understanding the close cultural links between themselves and the worlds of Africa and Asia. Only with such understanding can peace come through mutual respect coupled with the urgency of the need for environmental survival, the new conservatism of which I have written.

The speed at which we live, the triumphs of invention have done nothing to assuage our need for mutual understanding on which peace must depend. Speed of communication seems to exacerbate tension. Instant television replays of events abroad, usually colorful events such as riots or warfare, excite us into an eventual state of satiety. We spend most of our lives today receiving short-range signals of despair, starvation, disease, war—apocalyptic visions circulate through the air, in the name of keeping up with the news. More often than not, these are the only signals emanating from Africa or Asia which reach the public mind.

Nor does transportation and its miracles assist us in the search for understanding. Jet-assisted tour groups take the place of time for contemplation or for reading history or biography. "I've done southern Asia" or "I've been to Africa" is the answer as one comes back exhausted from a ten-day all-packaged tour, bulging shopping bags and kaleidoscopic impressions replacing reflection or appreciation. This manic approach to travel seems to replace contemplation. It is no recipe for understanding.

Our hope is to create a Quadrangle space adjacent to the Smithsonian buildings in our south garden area. Here in an atmosphere of quiet mini-parks we hope to create two adjoining museums, interlocking below the surface, lighted by skylights, with ceremonial entrance pavilions symbolizing the worlds of Africa and Asia, and their riches, their fundamental meaning for us all. Is it not vastly important that the annual visitors to the Mall, representing nearly ten percent of our population, should have an opportunity to assimilate some of the significance of this luminous majority, a majority who are too little understood or valued for their vital interconnections with us at every level? James Smithson spoke of his hope for the increase and diffusion of knowledge

among *all* mankind. This Institution was to benefit all, not merely Americans, but how better could we thus benefit Americans?

Our Quadrangle plan calls for the centering here of educational programs to spread out across the country, of exhibitions to travel to far places, of meetings, discussions, seminars, occasions at which representatives of all these nations could foregather and communicate. The strength of our nation comes from understanding, not merely from weapons. We need reminders of the origins of civilization in two-thirds of the world, of its diffusion spreading out through the moral suasion of religion as it evolved across the Middle East and Asia and the unequivocal force it remains today. If a sheathed sword is a symbol of peace, so too will be our garden, our Quadrangle, a center for illumination, and for hope.

This Institution must reaffirm what is our conviction, that all mankind is our concern. Our folk festival has demonstrated our concern for interpreting the minority interests and cultures here. The Woodrow Wilson Center next door in the Castle has demonstrated the wisdom of discourse, of debate freed from politics. In the same way, cultural history and tradition must be defused, stayed from politicization, if any degree of understanding is to be achieved. The certain death of our Quadrangle plan would be to have it seem to be *used*, to assume political meaning. These are dangerous days, and passions and suspicions lie close to the surface of man's thinking, exacerbated by technology, fed by fears of ultimate destruction. To survive we must revive respect for historical and religious traditions of all kinds, and for self-discipline. It should be the goal of every government. We persist, rightly I think, in believing that it is our own goal, the conviction of Americans.

Several of our exhibitions this year past gave a foretaste of those to be seen in the Quadrangle's galleries: *Renaissance of Islam: The Art of the Mamluks*, which opened at the Smithsonian and is now circulating under the auspices of the Smithsonian Institution Traveling Exhibition Service, is an unprecedented exhibition of diverse arts produced in the most creative age in medieval Islam. *The Arts of Ancient Egypt: Treasures on Another Scale*, a collection of pharaonic treasures, was part of the "Egypt Today" symposium sponsored in the Washington area in part by the Resident

Associates Program. And *5000 Years of Korean Art*, the inaugural exhibition in the Thomas M. Evans Gallery, illustrated with some 345 objects the richness and diversity of Korean artistic traditions.

Other exhibitions, not so directly tied to efforts at developing an understanding of other cultures, but an understanding of our own, were unveiled in measured pace, freshening our face and adding rich new experiences to the cumulative identity of the Smithsonian. Each is a testament to the fulfillment of our mandate to conserve that part of mankind's creation entrusted to us.

At the National Museum of American History (formerly the National Museum of History and Technology) *Jefferson and Science* highlighted the scientific pursuits of Thomas Jefferson; *Perfect in Her Place* traced the struggles and successes of women at work in industrial America; and *Images of Labor* commemorated the one-hundredth anniversary of the founding of the American Federation of Labor. At the Hirshhorn Museum, *The Avant-Garde in Russia, 1910-1930: New Perspectives*, presented art from the tumultuous pre-Revolutionary period. The National Portrait Gallery opened *Champions of American Sport*, an eye-catching tribute to one hundred athletes from the 1830s to the present, including such personalities as Babe Ruth, Willie Shoemaker, Ben Hogan, Sonja Henie, Muhammed Ali, Billie Jean King, Jesse Owens, Johnny Weismuller, and Jack Nicklaus. After leaving the gallery, the exhibition began its travels to Chicago, Los Angeles, and New York. *Jet Aviation*, summarizing the first forty years of jet aviation (1930-70) by tracing the evolution of commercial and military jet aircraft and highlighting the careers and contribution of jet-age engineers and designers, opened at the National Air and Space Museum. *Anna J. Cooper: A Voice from the South*, an exhibition bringing this remarkable woman to life in the broad context of her time—the several decades before and after the turn of the century—opened to much critical acclaim at the Anacostia Neighborhood Museum.

Conservation does not mean "sealed away or removed from experience." Some objects must even be brought to life so that we may experience their meaning more completely. So it was with our celebration of the birthday of the 150-year-old locomotive, *John Bull*, which operated under its own steam before the public along the Chessie System tracks near Georgetown. Bellowing smoke, steam, and cinders, the train chugged out of the past, recreating an experience of the earliest days of rail travel.



Dr. Esin Atil (back to camera), exhibition curator for the show titled *Renaissance of Islam: Art of the Mamluks*, points out a detail to Mr. and Mrs. Harry Grey of United Technologies, Ambassador of the Arab League Clovis Maksoud, and Mrs. Alfred Atherton, wife of the U.S. ambassador to Egypt.



As part of the opening festivities of the exhibition *5000 Years of Korean Art* in the Thomas M. Evans Gallery at NMNH and dedication of the gallery, Korean musicians performed there and in the museum's rotunda. Below. Professor Milo Cleveland Beach of Williams College—a scholar chosen in 1980 as fourth Smithsonian Regents Fellow—prepares works for the Freer's exhibition on *The Imperial Image: Paintings for the Mughal Court*. Focus of this exhibition is the great body of work produced in northern India in the 100-year period from 1560 on.



While our exhibition program conserves for all that part of mankind's creation entrusted to us, our colleagues in biological research provide the foundation for conservation of what remains.

The Radiation Biology Laboratory's continued study of photosynthetic utilization efficiency in plants growing under artificial lights shows that lamps developed commercially for horticultural applications yield no higher photosynthetic utilization efficiencies than some of the most common lamps developed for lighting applications.

Our curator of invertebrate zoology, Meredith Jones, during innovative research on giant sea worms off the Galapagos, discovered that bacteria in the worms' guts produced an enzyme that could transform sulfur and use the resulting energy to make ATP—a chemical crucial to the formation of carbohydrates.

The National Zoological Park opened its new Ape House, creating an environment that will promote social interaction among our apes and help insure their survival in captivity. The Zoo received the Edward H. Bean award from The American Association of Zoological Parks and Aquariums for notable breeding accomplishment with captive Chinese alligators, and John Eisenberg was presented the Merriam Award by the American Mammal Society.

Taking notice of years of this endeavor to conserve our past and future, the Smithsonian Astrophysical Observatory celebrated the twenty-fifth anniversary of its move to Cambridge, and the National Air and Space Museum the fifth anniversary of its opening.

International research and collaboration by Smithsonian scholars, an embodiment of Joseph Henry's concept of global correspondents, reaches into almost every country on the earth. Although the exchange of letters, objects, and scientists has greatly expanded with the advent of modern transportation and technology, the scholar-to-scholar basis envisioned by Henry is, in general, maintained. The pursuit of knowledge blurs all distinctions and ideologies that may exist among scholars. During the course of the year, the Office of International Activities arranged 82 programs for visiting foreign dignitaries, numbering 276 persons, including 16 groups totaling 117 from the People's Republic of China alone. Thirty-eight programs of other institutions at home and abroad were assisted in developing contacts with the Institution. In December 1980, following a proposal to Vice Premier Fang Yi, an agreement to foster

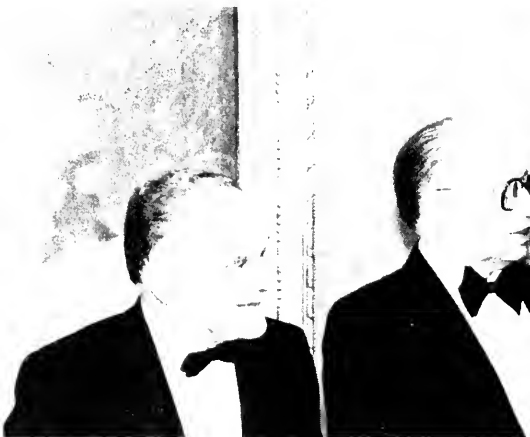
joint research with the Chinese Academy of Sciences, People's Republic of China, was signed. Collaborative research was started in July 1981 when Chinese scholars joined the Smithsonian's Pleistocene archeological excavation in Colorado. In the fall, Smithsonian scientists from the National Museum of Natural History/Museum of Man and Tropical Research Institute conducted research in marine invertebrate biology and paleobiology in China.

During the course of the year, we were pleased to welcome special guests to the Smithsonian. The Prime Minister of Korea was here to present the Smithsonian with a check for \$1 million as an earnest of Korean support for our Quadrangle project, and the Prime Minister of Japan and Mrs. Suzuki planted a beautiful flowering cherry, *Prunus incisa*, to symbolize our partnership in its development. Mrs. Jihan El-Sadat opened our exhibitions celebrating "Egypt Today." Their Imperial Highnesses Prince and Princess Hitachi, His Royal Highness Prince Charles, and His Highness the Aga Khan and Princess Sarilla were here to learn of us and added luster by their presence.

Recognizing that not everyone can travel to us for our exhibitions, performances, and activities centered here, we endeavored, through many means, to reach our national and international constituency. Our book and record publishing activities are part of this effort to make our many faces available throughout the land. This year saw the release of *Classic Country*, an eight-record anthology of this important American musical idiom. Smithsonian Exposition Books' *Fire of Life: The Smithsonian Book of the Sun*, with contributions by many of our staff, traced man's understanding of the sun from his early worship through today's developments in solar technology.

Performing arts events at the Smithsonian brought lecture demonstrations and performances by troupes—from all over the world—like the Kathakali Music Drama from India, the Philippine Dance Company, and Japanese Kabuki dancers, which added explanations of their origins for contrast with our own. Music of earlier ages was played on authentic instruments as the composers intended. Instruments like the Servais violoncello created by Stradivari in 1701, donated this year to the Division of Musical Instruments by Charlotte V. Bergen, were brought to life again.

The Festival of American Folklife continued to appeal to a vast



Quadrangle development brought many important visitors and a bustle of activities providing a glimpse of our dream for the site. Prime Minister of Japan and Mrs. Suzuki saw the model and planted a flowering cherry tree (top). Prime Minister Begin of Israel visited with Vice-President and Mrs. Bush (center). Prince and Princess Hitachi of Japan (bottom) restated their country's partnership with ours in working toward the goals affirmed in the Quadrangle.



Secretary Ripley and Qian Sangiang, Vice-President of the Chinese Academy of Sciences, People's Republic of China, sign an agreement to foster joint research and exchanges (top). Mrs. Sadat (center) is shown with Director Lawton at the Freer Gallery during "Egypt Today" symposium activities. Below. His Excellency Lee Kwang-Pyo, Minister of Culture and Information of the Republic of Korea, and Secretary Ripley open the major exhibition 5000 Years of Korean Art.





His Royal Highness Prince Charles (Great Britain) is shown inspecting the historic Albatros D.Va during his May 1st visit to the National Air and Space Museum. He is accompanied by Secretary Ripley and NASM Assistant Director Walter Boyne. *Below.* President Reagan visited the exhibition *George Catlin: The Artist and the American Indian* with Catlin expert William Truettner, Curator of 18th and 19th Century Painting and Sculpture at the Smithsonian's National Museum of American Art.



audience, and in addition to the usual demonstrations and exhibition of crafts, ethnic food, and musical performances, this year we had a special exhibition on Folklore for the Deaf. Visitors learned something about what it is like to grow up deaf through dramas by deaf actors and instruction in American sign language as well as displays of flashing-light alarm clocks and other ingenious signaling devices.

Few have been as persistent in the furtherance of culture in America as Joseph Hirshhorn, with whose sudden death on August 31 we have suffered an irreparable loss. History will recall this great man for his magnificent contribution to the Smithsonian, and through the Institution to people the world over. In the annals of the Smithsonian he has earned, and he shall always have, a special place of his own. But Joe has been an irresistible presence in all our lives, and it is almost impossible to imagine Washington, the Smithsonian, and his museum without him. He was—as he was apt to say of anyone from a guard at the museum to the president of the United States—truly a darling man.

It seems that never a year passes at the Smithsonian without a number of changes in our senior staff, and this year has been no exception. We were sorry to receive the resignation of Marvin Sadik, the vivacious, scholarly, and articulate director of the National Portrait Gallery since 1969, who left to labor in other cultural vineyards—but only after we could present him with the Secretary's Gold Medal for Exceptional Service. Nearly simultaneously, we were all extremely shocked and saddened by the untimely death of Joshua Taylor, the Director of the National Museum of American Art (formerly the National Collection of Fine Arts). Josh's contributions to Smithsonian life will be surfacing for years to come. Professor and scholar, Josh's greatest legacy has been the interdependent roles of public education and scholarship in the museum setting.

Another sad departure this year resulted from the death of Raymond Mondor, a former personnel expert who became our first ombudsman in 1977. Ray pioneered in this important office, and his compassionate demeanor and thorough knowledge combined to establish the ombudsman as an effective tool in employee relations. We were pleased to appoint John Lang, formerly of the General Counsel's Office, to take up where Ray had left off.

During the last year, we were fortunate to attract two outstanding officials from the International Communication Agency. Dr. John Reinhardt, the former director of ICA, has agreed to serve as acting director of the National Museum of African Art during Warren Robbins's absence on sabbatical. (It should be noted, too, that Jean Salan of the museum has been serving as the acting deputy director.) And Dr. Alice Ilchman, formerly associate director for educational and cultural affairs at the ICA, served as a consultant to the Institution on the subject of overseas research institutions. She has gone on, now, to become the president of Sarah Lawrence College. We had to give up the invaluable services of another senior woman, Miss Jean Smith, who retired this year as deputy director for the Smithsonian Libraries. For more than twelve years a steady force in the development of our library system, Miss Smith has earned the time she will now devote to her own intellectual pursuits as a research associate in the library.

The Smithsonian lost a very special friend this year in the death of Margaret McNamara, the founder, key proponent, and chairman of Reading Is Fundamental, Inc. This year's and previous annual reports delineate the remarkable achievements of this organization, now only fifteen years old. We shall all miss Margaret's presence in RIF affairs, but shall be going on, from strength to strength, with our new chairman, Anne Richardson, in the spirit of Margaret and with her vision for literacy in America.

Board of Regents

THE BOARD OF REGENTS held three formal meetings during the last year. Additional meetings of the Regents' Executive Committee, the Audit and Review Committee, the Personnel Committee, and the Investment Policy Committee were held throughout the year and reported at the Regents' meetings.

The first meeting of the Board of Regents was held on January 26, 1981, in the Regents' Room of the Smithsonian Castle and was called to order by the Chancellor. The Personnel Committee reported finding no evidence of conflict of interest in the financial statements of the senior staff of the Institution. In recognition of his work on behalf of the Audit and Review Committee, in addition to his continuing role on that committee and on the National Portrait Gallery Commission, the Regents conferred upon former Regent Senator Robert B. Morgan the title of Regent Emeritus, with all the rights and responsibilities thereof.

The Treasurer reviewed financial developments since the last Regents' meeting in September 1980, and summarized the fiscal year 1980 results, which are presented in *Smithsonian Year 1980*. It was noted that federal funds totaling \$137,144,000 were appropriated to the Institution for fiscal year 1981, including an unanticipated \$5 million provided for the Museum Support Center to permit its construction as originally planned. The Regents were briefed on the Office of Management and Budget allowance for fiscal year 1982 and the Institution's consolidated budget as submitted to the Congress. The Investment Policy Committee reported on its meeting of December 8, 1980, and analyzed the performances of the three investment managers. With the Board's approval the Chancellor appointed Regent Emeritus Thomas J. Watson, Jr., to the Investment Policy Committee.

The Regents discussed and approved the Five-Year Prospectus for fiscal years 1982-1986. It was noted that the projected increases

in the Institution's budget during that time are primarily due to inflation. The Regents agreed with the Secretary's suggestion that in the future the Prospectus would include projections beyond a five-year period for certain activities.

Noting the historical significance of the "Smithsonian Park" and its suitability for underground development, the Secretary discussed a revised model of the Quadrangle and the need to accommodate therein a Center for Eastern Art, the National Museum of African Art, the Smithsonian Institution Traveling Exhibition Service, the Resident and National Associate programs, and kindred activities. He reported that rising construction costs are necessitating reconfigurations of the proposed structure, and that efforts are being made to stay within original estimates. The Secretary also reported that domestic and foreign committees had been formed to raise funds from corporations and foundations. Of paramount importance was the approval of the Quadrangle concept by the National Capital Planning Commission.

With the Board and the Congress appropriating the additional funds needed to meet escalated costs, the Smithsonian was able to sign a contract for construction of the Museum Support Center as planned. The Secretary outlined the steps which resulted in full funding and assured the Regents that complete progress reports would be available.

The Regents approved revised bylaws of the Commission of the National Museum of American Art, recommended by the commission at its meeting on December 4, 1980, to reflect the Regents' delegation of authority to the Secretary for approving accessions and dispositions, and other policies and procedures adopted by the Regents in 1970. The Regents also approved the bylaws recommended by the National Portrait Gallery Commission on January 15, 1981, similarly recognizing the Regents' delegation to the Secretary of authority for approving accessions and dispositions in accord with the policies and procedures laid down by the Board. The latter bylaws also increased the membership from eleven to fifteen and provided for standing committees.

In other actions, the Regents appointed Senator Goldwater to the National Portrait Gallery Commission and to its chairmanship and appointed Dr. Milton Ratner to the National Museum of African Art Commission.

In recognition of his timely donation, which enabled the Institution to develop a special exhibitions gallery in the National Museum of Natural History/Museum of Man, the Regents named the new facility the Thomas M. Evans Gallery.

The Secretary presented a series of status reports on the Museum of Man, the Equal Opportunity Program, major construction projects, the Smithsonian Tropical Research Institute, litigation, legislation, publishing, and television.

A dinner for the Regents was held in the Renwick Gallery on Sunday evening, January 25. The Chancellor welcomed new Regents, Vice President Bush and Congressman Boland, and introduced the Secretary, who presented the Smithsonian Associates' Corporate Founders' Medal to Mr. David Rockefeller and the Chase Manhattan Bank in recognition of their donation to the Smithsonian of the magnificent "Chase Manhattan Bank Money Collection." The Secretary also presented to the Honorable Lucien N. Nedzi, retiring from the U.S. House of Representatives, a piece of smithsonite and a citation of gratitude for his fine service as chairman of the House Subcommittee on Libraries and Memorials (1971-1981).

The spring meeting of the Board of Regents, May 4, 1981, was preceded that morning by the dedication of the Langley Theater in the National Air and Space Museum. Senator Goldwater spoke of the significant aeronautical work of Samuel P. Langley, third Secretary of the Smithsonian, and of Messrs. Burden's and Webb's great achievements in promoting what is now considered the world's most popular museum. Dr. Hinners, director of the museum, awarded certificates of appreciation to Messrs. James Greenwell and Wolfgang Gadson, National Air and Space Museum staff, who heroically rescued a woman from the Metro tracks.

Following the dedication, the Regents' meeting was called to order by the Chancellor, who welcomed the new Senator Regent E. J. "Jake" Garn. The Executive Committee reported on its meeting of April 6, 1981, where, in addition to considering the entire array of agenda items, the committee noted with pleasure that in a poll the Regents had unanimously voted to award the Henry Medal to Mr. Burden in recognition of his manifold services to the Smithsonian as a friend and Regent since 1962. The medal was presented at the May 3 Regents' Dinner (see below).

The Audit and Review Committee reported on its meeting of April 28, 1981, where it reviewed with Coopers and Lybrand the Smithsonian's trust fund financial statements for fiscal year 1980 and the recommendations to management for "fine tuning" accounting procedures and automatic data processing operations. Briefed by the Treasurer and Assistant Secretary for Administration on the scope of operations and controls in auxiliary activities, the committee suggested that these activities are integral to successful educational outreach and, properly managed, are stimuli to the market for educational products.

The Treasurer reported that, as part of the government-wide budget reductions, the Office of Management and Budget reduced the Institution's pay supplemental request by \$732,000 to a total of \$4,613,000, and reduced the federal full-time permanent employment ceiling by 113 positions, from 3,340 to 3,227. It was noted that a hiring freeze would be continued indefinitely to meet the reduced ceiling and that savings from that freeze and other OMB restrictions would be used to cover the unfinanced portion of the supplemental requirement. The Board approved the Secretary's recommendation that \$500,000 of unrestricted trust funds be set aside as a reserve for possible television production costs. With respect to fiscal year 1982, the Treasurer noted that OMB deferred until fiscal year 1983 the Quadrangle construction money, but allowed the Institution to request from the Congress an amount of \$1 million for Quadrangle planning. In further action by OMB, the full-time permanent employment ceiling previously allowed for fiscal year 1982 was reduced by ninety-six and an associated reduction of \$1.8 million was also applied, reducing the salaries and expenses request from \$136,886,000 to \$135,086,000. The Secretary commented on the friendly and constructive congressional appropriations hearings.

Referring to the growth of budget figures in the Five-Year Prospectus, the Secretary introduced a study which discounted those budget estimates into constant 1981 dollars and thus gave a measure of the real growth of the Institution. Real growth of gross operating funds from 1970 to 1981 was at a compound annual rate of 6.5 percent; for the next five years, with gross revenues from auxiliary activities increasing at a more modest rate, real growth is expected to decline to a rate of 4 percent. Net operating funds,

exclusive of trust fund auxiliary activity expenses, are expected to continue at approximately the same 4 percent growth rate as from 1970 to 1981.

The Investment Policy Committee reported that, as of March 31, 1981, the total value of the Institution's endowment under outside management was \$86,761,000. It was noted that the total Smithsonian endowment funds have been out-performing standard market indices for the first time since December 1979.

The Secretary reviewed the status of the Quadrangle project, lamenting the fact that the deferral of construction from fiscal year 1982 to 1983 would lead to increased costs due to inflation. He noted that all requirements under the National Historic Preservation Act have been completed and that progress has been made in raising funds from American corporations, individuals, and foundations. The Secretary also outlined strategies for eliciting support in the Far East, Middle East, and Africa.

The Secretary reported that the Council of the Cooper-Hewitt Museum, established in 1978 to advise the Secretary on the museum's activities, had drafted its bylaws, and the Secretary recommended a list of members of the council. To formalize the role of the council, the Regents approved the bylaws and appointed the following individuals to the council: Rosemary Corroon, Joanne du Pont, Harmon Goldstone, August Heckscher, Karen Johnson Keland, Russell Lynes, Gilbert C. Maurer, Kenneth Miller, Amanda Ross, Arthur Ross, Robert Sarnoff, and Marietta Tree. In a separate action, the Regents appointed Professor Barbara Novak to the Commission of the National Portrait Gallery.

The Secretary gave a detailed report on the construction of the Museum Support Center and progress in the Institution-wide inventory. Dr. Gell-Mann pointed out that the Museum Support Center affords the Smithsonian a great opportunity to develop a first-rate program in archeometry, which the Regents affirmed in passing Dr. Gell-Mann's resolution.

The Regents noted the death of Joshua C. Taylor on April 26, and voted to record their profound regret: "Scholar, educator, and connoisseur, his manifold contributions to the National Museum of American Art will be of lasting significance both in the Smithsonian and in the world of learning."

The Secretary reported that Ambassador John Reinhardt will

serve as Acting Director of the National Museum of African Art, while Warren Robbins takes a sabbatical for purposes of studying, collecting, and writing. He also reported that Tom Wolf, formerly Director of Cultural Affairs at ABC-TV News, will come to the Institution for six months to study possible Smithsonian television programming from marketing and production points of view.

Other reports from the Secretary included the International Year of Disabled Persons, the Security of the National Collections, the Equal Opportunity Program, the Museum of Man, legislation, litigation, and construction projects. It was noted that the Secretary had received Belgium's highest civilian honor, the Order of Leopold, on April 22, and the Medal of Honor from the National Society for the Daughters of the American Revolution on April 30; the Regents offered their unanimous consent and congratulations to Mr. Ripley.

The Regents' Dinner was held on Sunday evening, May 3, at the Paul E. Garber Facility of the National Air and Space Museum in Suitland, Maryland. The Chancellor presented the Henry Medal to William Armistead Moale Burden: ". . . In grateful salute to this perceptive man, the Regents of the Smithsonian Institution are proud to present to him the Henry Medal for his outstanding service." As approved by the Regents at their January meeting, the Secretary then presented Langley medals for aerodromics to Drs. Robert T. Jones and Charles Stark Draper.

On behalf of the Chancellor, Mr. Webb, Chairman of the Executive Committee, called the Regents' autumn meeting to order in the Regents' Room at 9:30 A.M., September 14, 1981. The meeting began with a memorial tribute to the late Joseph H. Hirshhorn, "a friend, a colleague, and an incomparable patron who shared with us all his passion for art." The Regents noted his extraordinary gift of contemporary art to the nation and sent their best wishes to Mrs. Hirshhorn and the family.

Reporting on the Executive Committee meeting of August 17, 1981, Mr. Webb said that the committee reviewed all the business before the Institution and commended to the Regents' attention the agenda papers for the autumn meeting. The Executive Committee lamented the recent death of Harold F. Linder, a founding member of the Regents' Investment Policy Committee whose counsel and interest would be sorely missed.



The late Joseph H. Hirshhorn is shown at a reception in his museum with Director and Mrs. Abram Lerner in June 1981. *Below.* Joshua C. Taylor, Director of the National Museum of American Art from 1970 until his death on April 26, 1981, was scholar, university professor, educator, mentor, beloved presence at the Smithsonian. A scholarship fund is established in his name to support research in American art at NMAA.



The Regents noted with interest that the Audit and Review Committee and the Personnel Committee planned a joint meeting in October 1981 to review the Smithsonian's procedures for personal financial disclosure and related standards of professional conduct. Other items on the committees' agenda will include a mid-audit conference with Coopers and Lybrand, consideration of recommendations on an indemnity bylaw and insurance against personal liability of individual Regents, and a review of computer services at the Institution. The committees also looked forward to discussing procedures for guaranteed construction and repair services.

The Treasurer noted that the Institution is receiving the full amount of the fiscal year 1981 supplemental federal budget request, and is also receiving an unsolicited \$200,000 for the celebration of President Franklin Delano Roosevelt's one hundredth birthday. He also reported that the fiscal year 1981 trust funds would conclude the year at the break-even level with certain stated variances from earlier projections. The Treasurer summarized the varying House and Senate actions in the budget request for fiscal year 1982, which actions were being appealed to the conference committee. With projections that net income will be lower than in the previous year, the general fund budget expenditures would also be lower, and a break-even budget is in sight; the Regents approved a fiscal year 1982 trust fund budget and authorized the Secretary to expend funds provided in the fiscal year 1982 federal budget.

The Regents also approved the fiscal year 1983 consolidated budget forwarded to the Office of Management and Budget. The federal budget recognizes stringent budget restraints throughout the government and proposes no new programmatic starts, but rather emphasizes the security and maintenance of the Smithsonian buildings and the national collections, the requirements of the Museum Support Center, and the computerization and modernization of equipment.

The Investment Policy Committee though reporting a slight decline in the total value of the Smithsonian endowment funds for the quarter ended June 30, 1981, was pleased to note the favorable performance of all three investment management firms in the last three years.

The Regents discussed the fact that the Act of August 10, 1846 (20 U.S.C. 41 *et seq.*), which established the Smithsonian, provided

for the payment of 6 percent per year on funds deriving from the bequest of James Smithson that are on permanent loan to the United States Treasury. It was noted that inflation and rising interest rates have rendered the statutory rate uncompetitive, and the Regents therefore voted to seek legislation to adjust that rate to the current average yield of the outstanding marketable securities of the United States Government, less 25 basis points (with a minimum of 6 percent).

The staff presented the Regents with a draft and summary tables of the Five-Year Prospectus for fiscal years 1983–1987. The text highlighted progress over the past year in Smithsonian's programs and delineated expectations for fiscal year 1982 and for the planning and budget period of fiscal years 1983–87. At the Secretary's suggestion, a new chapter forecast program and facility aspirations through 1995. The Regents looked forward to commenting on the draft and to approving a revised draft in January 1982.

The Secretary noted progress in the prospective authorization and appropriation of \$1 million for Quadrangle planning in House and Senate actions to date. He reported that additional technical and design studies, recent unexpectedly high levels of construction industry cost escalations, and a year's delay in the proposed starting date indicate that the earlier estimate for the Quadrangle, despite certain reductions in the scope of the project, will increase by about 50 percent to a new total of \$75 million. Reporting on fund-raising, the Secretary acknowledged recent donations and pledges which amounted to over \$7 million, including unrestricted trust fund transfers and interest. Additional pledges appeared imminent from the Middle East and other sources. Since the Institution will be seeking through the OMB and the Congress the federal share of Quadrangle construction funds, \$36 million, in its fiscal year 1983 budget request, the Regents requested their congressional members to introduce and support legislation authorizing the Board to construct the Quadrangle.

In recognition of his great scientific achievements and outstanding leadership of the Smithsonian Astrophysical Observatory, the Regents voted to name the Mount Hopkins, Arizona, Observatory "The Fred Lawrence Whipple Observatory." The Regents also appointed Mrs. Joan Kaplan Davidson to a three-year term on the Council of the Cooper-Hewitt Museum and asked their con-



John Bull, oldest operable locomotive in the world, steams along tracks near the C&O Canal in Washington as part of the engine's 150th anniversary celebration.

gressional members to seek legislation reauthorizing the National Museum Act at \$1 million annually for fiscal years 1983–1985.

The Secretary outlined a series of status reports on the Museum Support Center, the inventory, and collections management; legislation; other major construction projects; the Smithsonian Science Information Exchange; museum security; litigation; television; and personnel matters.

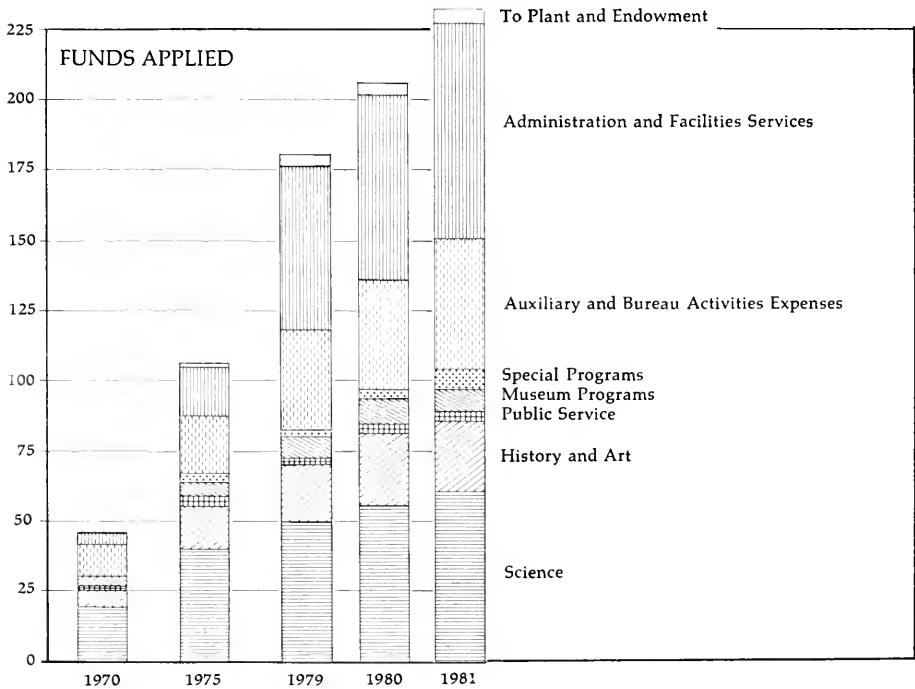
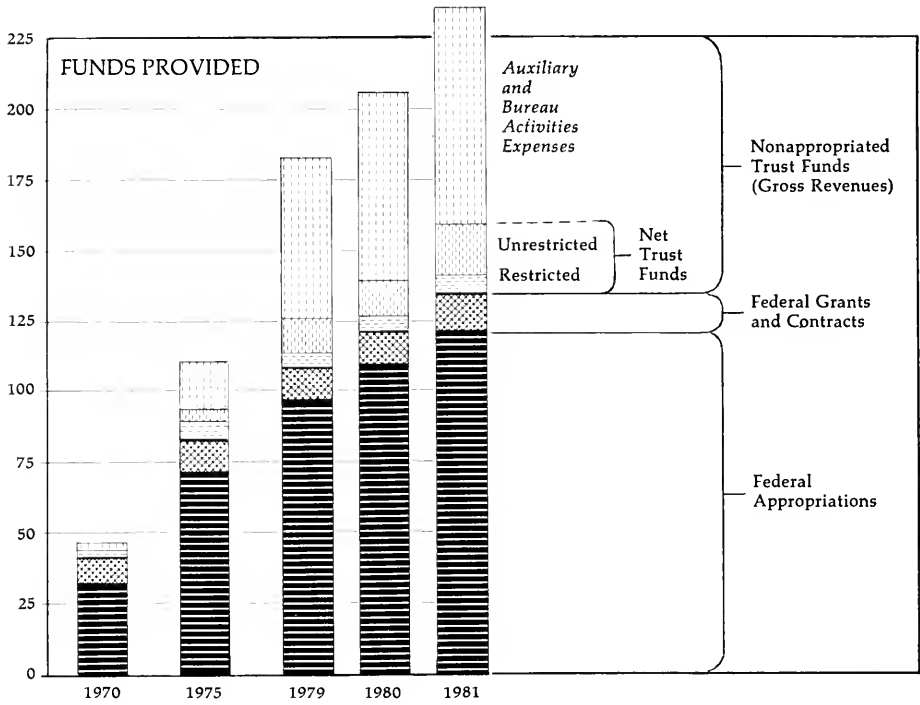
Following the meeting, the Regents were driven to Georgetown where they boarded the National Museum of American History's 1836 railroad passenger car for a ride behind that museum's 150-year-old *John Bull* locomotive to Fletcher's Landing, where they enjoyed an alfresco luncheon with a period menu.

The traditional Regents' dinner was held the preceding evening, Sunday, September 13, 1981, in the Balcony Gallery of the Hirshhorn Museum and Sculpture Garden. Of special interest was the dedication of the renovated sculpture garden, which now features improved aesthetics and full accessibility to the handicapped.

SMITHSONIAN INSTITUTION OPERATING FUNDS

Fiscal Years 1970, 1975, and 1979-1981

(In \$1,000,000's)



FINANCIAL REPORT

CHRISTIAN C. HOHENLOHE, TREASURER

SUMMARY: During this past fiscal year, the Smithsonian continued its wide range of activities in exhibits, research, publication, and public education. The diversity of the Institution's programs is reflected in the diversity of funding sources which support these endeavors. While the majority of the operating budget is provided annually from federal appropriations, indispensable support is also obtained from gifts and grants, from investment income, and from earned revenues of auxiliary activities. This combination of support from Congress, foundations, federal agencies, individuals, and the general public, has enabled the Institution to perform significant accomplishments during the year, as reported elsewhere in this volume.

The bar chart on the facing page outlines the overall source and application of the Institution's operating budget for fiscal year 1981 and prior periods. While the growth pattern of past years is evident again in fiscal year 1981, these increased revenues were more a function of inflation than expansion of programs and were therefore devoted in large measure to offsetting the higher costs of personnel, supplies, utilities, maintenance, and acquisitions. Due to a hiring freeze during most of the year on civil service personnel as well as self-imposed limitations on other hires, the full-time staff of the Institution grew only one percent, primarily in the areas of facilities protection and maintenance and the auxiliary activities.

In the current climate of budgetary restraint, the Institution was treated by Congress with supportive understanding. The total federal appropriation of \$142 million, of which \$122 million was for

operating purposes, provided base resources for research and education, for conservation and study of the national collections, for renovation and maintenance of Smithsonian facilities, and for administrative and support services, as well as assisting the Institution in meeting unavoidable cost increases due to inflation. The appropriation also provided further significant funding for constructing and equipping the Museum Support Center in Suitland, Maryland, which will provide essential storage and conservation facilities for the national collections, and program funding for selected exhibition and collection management projects.

While federal appropriations provide the core support for the Institution's programs, and are expected to do so in the future, non-appropriated trust funds from various sources are also vital to the research and outreach efforts. In recognition of this need as well as of the value of services provided, strong public financial support continued last year through the Smithsonian Associates programs, other educational auxiliary activities, gifts from individuals, and grants from foundations and corporations. Net revenues from these nonappropriated sources, after deduction of operating expenses and the sales cost of auxiliary activities, were higher than the prior year. Thus in addition to meeting ongoing program commitments—such as the Regents' Collections Acquisition, Scholarly Studies, and Educational Outreach programs, pre- and post-doctoral fellowships, and operating allotments to certain bureaux—the Institution followed the practice of prior years in transferring some \$2.5 million of unrestricted trust funds into endowment. Funds were also made available for the Museum Support Center to augment the federal contribution to this endeavor.

There was further progress during the year in raising nonappropriated funds for the Quadrangle, the future site of two museums of the cultures of Asia and Africa. With a \$1 million gift from the Government of Korea during the year, as well as gifts from individuals, foundations, and corporations and unrestricted moneys designated to the project, total nonappropriated funds received for the project in fiscal year 1981 were \$3,455,000. The partnership of federal appropriations with direct public support, evident in other Smithsonian programs, will be an essential part of the financial plan for this venture.

TABLE 1. *Financial Summary*
(In \$1,000's)

	FY 1979	FY 1980	FY 1981
INSTITUTIONAL OPERATING FUNDS			
FUNDS PROVIDED:			
Federal Appropriations—Salaries & Expenses	\$ 98,202	\$107,764	\$122,478
Federal Agency Grants & Contracts	11,412	12,947	14,172
Nonappropriated Trust Funds:			
For Restricted Purposes	4,577	5,339	6,378
For Unrestricted & Special Purposes:			
Auxiliary & Bureau Activities Revenues—Gross	67,360	75,150	88,381
Less Related Expenses	<u>(57,557)</u>	<u>(65,933)</u>	<u>(75,924)</u>
Auxiliary & Bureau Activities Net Revenue	9,803	9,217	12,457
Investment, Gift, and Other Income	3,394	3,825	4,887
Total Net Unrest. & Special Purpose Revenue	13,197	13,042	17,344
Total Nonappropriated Trust Funds*—Gross	75,331	84,314	99,646
—Net	17,774	18,381	23,722
Total Operating Funds Provided—Gross	184,945	205,025	236,296
—Net	<u>\$127,388</u>	<u>\$139,092</u>	<u>\$160,372</u>
FUNDS APPLIED:			
Science	\$ 53,002	\$ 57,907	\$ 62,703
Less SAO Overhead Recovery	(1,850)	(2,196)	(2,470)
History & Art	20,245	26,224	25,614
Public Service	2,927	3,129	3,421
Museum Programs	8,003	8,974	8,084
Special Programs	2,692	3,204	7,284
Associates and Business Management	304	345	312
Administration—Federal**	7,071	8,048	8,782
—Nonappropriated Trust Funds	4,134	4,937	5,740
Less Smithsonian Overhead Recovery	(4,038)	(4,379)	(5,014)
Facilities Services	27,790	30,630	36,501
Total Operating Funds Applied	120,280	136,823	150,957
Transfers (Nonappropriated Trust Funds)			
Unrestricted Funds—To Plant	1,857	1,342	2,550
—To Endowments	2,671	2,031	2,550
Restricted Funds—To Endowments	413	757	108
Total Operating Funds Applied & Transferred Out	<u>\$125,221</u>	<u>\$140,953</u>	<u>\$156,165***</u>
CHANGES IN NONAPPROPRIATED TRUST FUND BALANCES:			
Restricted Purpose (Incl. Fed. Agency Gr. & Contracts) ...	\$ 171	\$ (225)	\$ 1,276
Unrestricted—General Purpose	33	36	42
—Special Purpose	1,963	(1,672)	2,704
Total	<u>\$ 2,167</u>	<u>\$ (1,861)</u>	<u>\$ 4,022</u>
YEAR-END BALANCES—NONAPPROPRIATED TRUST FUNDS:			
Restricted Purpose	\$ 4,900	\$ 4,675	\$ 5,951
Unrestricted—General Purpose	4,965	5,001	5,043
—Special Purpose	11,567	9,895	12,599
Total	<u>\$ 21,432</u>	<u>\$ 19,571</u>	<u>\$ 23,593</u>
OTHER FEDERAL APPROPRIATIONS			
Smithsonian Science Information Exchange	\$ 2,063	\$ —	\$ —
Special Foreign Currency Program	3,700	4,200	3,650
Construction	6,575	32,100	15,829
Total Federal Appropriations (Incl. S&E above)	<u>\$110,540</u>	<u>\$144,064</u>	<u>\$141,957</u>

*Figures do not include gifts and other income directly to Plant and Endowment Funds: FY 1979—\$96,000; FY 1980—\$1,211,000; FY 1981—\$2,696,000.

**Includes unobligated funds returned to Treasury: FY 1979—\$47,000; FY 1980—\$267,000; FY 1981—\$64,000.

***Excludes \$185,000 available for FDR Centennial through FY 1982.

Operating Funds—Sources and Application

Once again, the overall operating budget of the Institution has shown substantial growth over the past year, as displayed in Table 1 as well as the bar chart. Total gross operating funds grew from \$205,025,000 in fiscal year 1980 to \$236,296,000 in fiscal year 1981, an increase of \$31,271,000 or 15 percent. Of the total available operating funds, 52 percent were derived from federal appropriations, 6 percent from federal agency grants and contracts, and 42 percent from nonappropriated sources, approximately the same ratios as in recent years.

The growth in net operating funds, after deduction of the expenses of the nonappropriated auxiliary and bureau activities, was also 15 percent, or \$21,280,000 over the prior year. Those net operating funds, which support a wide range of Smithsonian programs, were obtained 76 percent from federal appropriations, 9 percent from federal agency grants and contracts, and 15 percent from nonappropriated sources. Application of these funds by all Smithsonian bureaux is outlined in Table 2, with further supporting detail in other tables.

FEDERAL APPROPRIATION

The Institution received a federal appropriation for operating purposes in fiscal year 1981 of \$122,478,000, an increase of \$14.7 million, or 14 percent, over fiscal year 1980. The apparent growth represented by this increase was in large part attributable to inflation in the areas of pay, utilities, rent, and other objects of expense, which, following the pattern of recent years, continued to absorb the major portion, over \$9.6 million, of increased funding. Beyond these inflationary increases, however, \$5.1 million was allowed for a number of program needs throughout the Institution. While almost half of the programmatic increase was for the purchase of equipment for the Museum Support Center, to be phased over a period of several years, significant support also was received for the development of major new exhibitions in the History and Art museums; for expenses of the Tropical Research Institute resulting from implementation of the Panama Canal Treaty; for protection, administrative, and maintenance requirements; and for a variety of other

needs primarily related to the conservation and management of the collections.

In order to meet a reduced federal personnel ceiling imposed by the Office of Management and Budget, the Institution maintained a hiring freeze throughout most of the year. Dollar savings of \$1.4 million resulted from this employment freeze as well as other spending limitations imposed by the Office of Management and Budget.

FEDERAL AGENCY GRANTS AND CONTRACTS

Support from federal agencies, in the form of grants and contracts, primarily for the Institution's research programs, totaled \$14.2 million for fiscal year 1981, an increase of 9 percent over fiscal year 1980. As may be seen in Table 3, the major source of grant and contract support was the National Aeronautics and Space Administration, primarily for research programs of the Smithsonian Astrophysical Observatory (SAO). Significant programs at SAO were experiments in high energy astrophysics, hydrogen maser construction, and satellite tracking. Other important research programs receiving support were the medical entomology project at the National Museum of Natural History, supported by the Department of the Army; research into conservation of wild primates conducted by the National Zoological Park with funds from the United States Fish and Wildlife Service; and the National Science Foundation support to the Chesapeake Bay Center for Environmental Studies (via the Chesapeake Research Consortium) for ecological studies on a major tributary of the Chesapeake Bay.

NONAPPROPRIATED TRUST FUNDS

The Institution's nonappropriated trust fund revenues totaled \$99,646,000 in fiscal year 1981, while net revenues available for support of Institutional programs, after exclusion of expenses necessary to generate auxiliary and bureau activity revenues, totaled \$23,722,000. Displayed in Tables 2, 4, and 5 are the bureaux of the Institution utilizing these funds.

Restricted fund revenues, which may only be used for specific purposes, were \$6,378,000 for the year, made up of \$2,978,000 from gifts and grants, \$2,591,000 from investment income, and \$809,000 from other sources, primarily fund-raising activities at the Archives of American Art and sales desk activities at the Freer Gallery of

TABLE 2. *Source and Application of Operating Funds*
Year Ended September 30, 1981

(Excludes Special Foreign Currency Funds, Plant Funds, and Endowments)
(In \$1,000's)

Funds	Nonfederal Funds						
	Federal funds	Total non-federal funds	Unrestricted			Restricted	
			General	Auxiliary activities	Special purpose	General	Grants and contracts
FUND BALANCES 10/1/80 ...	\$ —	\$ 19,571	\$ 5,001	\$ —	\$ 9,895	\$ 4,574	\$ 101
FUNDS PROVIDED							
Federal Appropriations	122,478	—	—	—	—	—	—
Investment Income	—	6,303	3,123	—	589	2,591	—
Grants and Contracts	—	14,172	—	—	—	—	14,172
Gifts	—	4,421	15	1,329	99	2,978	—
Sales and Revenue	—	87,052	—	83,719	3,333	—	—
Other	—	1,870	55	—	1,006	809	—
Total Provided	<u>122,478</u>	<u>113,818</u>	<u>3,193</u>	<u>85,048</u>	<u>5,027</u>	<u>6,378</u>	<u>14,172</u>
Total Available	<u>\$122,478</u>	<u>\$133,389</u>	<u>\$ 8,194</u>	<u>\$85,048</u>	<u>\$14,922</u>	<u>\$10,952</u>	<u>\$14,273</u>
FUNDS APPLIED							
<i>Science:</i>							
Assistant Secretary	\$ 328	\$ 366	\$ 28	\$ —	\$ 11	\$ 140	\$ 187
Natl. Mus. of Nat. History	15,677	2,539	206	—	680	531	1,122
Astrophysical Observatory	5,370	14,416	2,479	—	432	101	11,404
Less Overhead Recovery	—	(2,470)	(2,470)	—	—	—	—
Tropical Research Inst.	2,773	339	59	—	202	78	—
Radiation Biology Lab.	1,999	169	—	—	98	13	58
Natl. Air & Space Museum	6,152	2,001	14	—	1,765	109	113
Chesapeake Bay Center	869	522	83	—	141	34	264
Natl. Zoological Park	9,221	416	21	—	118	28	249
Center for Study of Man	603	18	—	—	—	18	—
Fort Pierce Bureau	—	389	—	—	—	389	—
Total Science	<u>42,992</u>	<u>18,705</u>	<u>420</u>	<u>—</u>	<u>3,447</u>	<u>1,441</u>	<u>13,397</u>
<i>History and Art:</i>							
Assistant Secretary	351	117	86	—	17	1	13
Natl. Mus. Am. History	8,072	974	96	—	647	231	—
Natl. Mus. American Art	3,557	422	207	—	149	34	32
Natl. Portrait Gallery	2,613	378	36	—	44	297	1
Hirshhorn Museum	2,431	1,197	26	—	677	494	—
Freer Gallery of Art	727	1,296	10	—	45	1,241	—
Archives of American Art	542	451	1	—	3	447	—
Cooper-Hewitt Museum	702	1,464	364	—	788	287	25
Natl. Mus. of African Art.	621	420	163	—	170	83	4
Total History and Art ..	<u>19,616</u>	<u>6,719</u>	<u>989</u>	<u>—</u>	<u>2,540</u>	<u>3,115</u>	<u>75</u>
<i>Public Service:</i>							
Assistant Secretary	184	1	1	—	—	—	—
Reception Center	20	395	395	—	—	—	—
Telecommunications	55	305	237	—	68	—	—
Anacostia Museum	529	48	26	—	20	2	—
Intl. Exchange Service	346	—	—	—	—	—	—
Performing Arts	387	4,813	—	4,561	114	130	8
Smithsonian Press	847	2,146	—	2,091	—	55	—
Exposition Books	—	4,725	—	4,725	—	—	—
Total Public Service	<u>2,368</u>	<u>12,433</u>	<u>659</u>	<u>11,377</u>	<u>202</u>	<u>187</u>	<u>8</u>

TABLE 2. Source and Application of Operating Funds—continued
Year Ended September 30, 1981

(Excludes Special Foreign Currency Funds, Plant Funds, and Endowments)
(In \$1,000's)

Funds	Fed- eral funds	Total non- federal funds	Nonfederal Funds				
			Unrestricted			Restricted	
			Gen- eral	Aux- iliary activ- ities	Spe- cial pur- pose	Gen- eral	Grants and con- tracts
<i>Museum Programs:</i>							
Assistant Secretary	747	149	45	—	25	18	61
Registrar	126	—	—	—	—	—	—
Conserv. Analytical Lab.	788	2	—	—	2	—	—
Libraries	2,976	217	207	—	—	10	—
Exhibits	1,312	14	—	—	14	—	—
Traveling Exhib. Service	192	1,491	—	1,166	55	244	26
Archives	430	44	43	—	1	—	—
National Museum Act	795	—	—	—	—	—	—
Total Museum Programs ..	7,366	1,917	295	1,166	97	272	87
<i>Special Programs:</i>							
Am. Studies & Folklife Pgm. ...	534	793	540	—	51	17	185
Intl. Environmental Pgm.	468	—	—	—	—	—	—
Academic & Educational Pgm. .	562	856	129	—	691	36	—
Collections Mgt./Inventory	587	—	—	—	—	—	—
Major Exhibition Program	739	—	—	—	—	—	—
Museum Support Center	2,767	—	—	—	—	—	—
Total Special Programs ..	5,657	1,649	669	—	742	53	185
Associate Programs	—	44,533	260	44,219	13	11	30
Business Management	—	16,769	—	16,769	—	—	—
Administration	8,718	5,888	5,365	148	96	193	86
Less Overhead Recovery	—	(5,014)	(5,014)	—	—	—	—
Facilities Services	35,512	989	1,014	—	(48)	23	—
<i>Transfers Out/(In):</i>							
Treasury	64*	—	—	—	—	—	—
Coll. Acq., Schol. St., Outrch. .	—	—	2,000	—	(2,000)	—	—
Liability Reserves	—	—	230	—	(230)	—	—
Net Auxiliary Activities	—	—	(10,979)	10,979	—	—	—
Other Designated Purposes	—	—	2,196	390	(2,589)	3	—
Plant	—	2,550	2,526	—	24	—	—
Endowment	—	2,658	2,521	—	29	108	—
Total Transfers	64	5,208	(1,506)	11,369	(4,766)	111	—
Total Funds Applied	\$122,293	\$109,796	\$ 3,151	\$85,048	\$ 2,323	\$ 5,406	\$13,868
FUND BALANCES 9/30/81	\$ 185**	\$ 23,593	\$ 5,043	\$ —	\$12,599	\$ 5,546	\$ 405

*Unobligated funds returned to Treasury.

**Funds available for FDR Centennial through FY 1982.

TABLE 3. *Grants and Contracts—Expenditures*
(In \$1,000's)

<i>Federal Agencies</i>	<i>FY 1979</i>	<i>FY 1980</i>	<i>FY 1981</i>
Department of Defense	\$ 1,079	\$ 1,078	\$ 703
Department of Energy	304	340	407
Department of Health and Human Services	288	280	283
Department of Interior	65	197	244
National Aeronautics and Space Administration*	8,919	9,832	10,663
National Endowments for the Arts and Humanities	105	118	57
National Science Foundation**	385	651	784
Other	345	386	727
Total	<u>\$11,490</u>	<u>\$12,882</u>	<u>\$13,868</u>

*Includes \$583 (FY 1979), \$554 (FY 1980), and \$813 (FY 1981) in subcontracts from other organizations receiving prime contract funding from NASA.

**Includes \$112 (FY 1980), and \$208 (FY 1981) in NSF subcontracts from the Chesapeake Research Consortium.

Art. Endowment income, as detailed more fully below, provides funding to the Fort Pierce Bureau for research in oceanography, major operating support to the Freer Gallery of Art, as well as a number of other specific research projects at the Institution. Significant gifts were received during the year for exhibitions of the National Museum of American History, the National Museum of Natural History, the National Portrait Gallery, the Smithsonian Institution Traveling Exhibition Service, and the Cooper-Hewitt Museum. Major collection acquisition support was received by the Hirshhorn Museum and Sculpture Garden and the National Museum of American Art, which also obtained a large grant for collections conservation.

Unrestricted Special Purpose funds are comprised of bureau activity revenues, such as the membership and educational programs at the National Museum of African Art and the Cooper-Hewitt Museum, sales shops at the Cooper-Hewitt Museum and the National Air and Space Museum (NASM), and the theaters at NASM; investment income earned on bureau fund balances; shared revenues for those bureaux housing centrally run concession and museum shop activities; and continuing allocations of funds for fellowship awards (\$948,000), the Regents' Collections Acquisition, Scholarly Studies,

TABLE 4. *Restricted Operating Trust Funds**
Fiscal Years 1979-1981
(In \$1,000's)

<i>Item</i>	<i>Investment</i>	<i>Gifts</i>	<i>Misc.</i>	<i>Total revenue</i>	<i>Deductions</i>	<i>Transfers in (out)</i>	<i>Net increase (decrease)</i>	<i>Fund balance end of year</i>
FY 1979—Total	<u>\$2,075</u>	<u>\$1,775</u>	<u>\$ 727</u>	<u>\$4,577</u>	<u>\$3,983</u>	<u>\$ (345)</u>	<u>\$ 249</u>	<u>\$4,864</u>
FY 1980—Total	<u>\$2,349</u>	<u>\$2,257</u>	<u>\$ 733</u>	<u>\$5,339</u>	<u>\$4,856</u>	<u>\$ (773)</u>	<u>\$ (290)</u>	<u>\$4,574</u>
FY 1981:								
National Museum of								
Natural History	\$ 189	\$ 440	\$ (4)	\$ 625	\$ 531	\$ 13	\$ 107	\$ 576
Astrophysical								
Observatory	13	130	(30)	113	101	(3)	9	20
Tropical Research								
Institute	20	57	10	87	78	—	9	65
National Air and								
Space Museum	60	4	—	64	109	(12)	(57)	90
Chesapeake Bay Center	11	—	—	11	34	—	(23)	82
Fort Pierce Bureau	761	—	—	761	389	—	372	813
Other Science	220	149	84	453	199	(79)	175	530
National Museum of								
American History	59	294	4	357	231	—	126	458
National Museum of								
American Art	63	254	3	320	34	—	286	341
National Portrait Gallery . . .	42	82	(3)	121	297	—	(176)	233
Hirshhorn Museum	39	235	—	274	494	—	(220)	280
Freer Gallery of Art	910	32	476	1,418	1,241	—	177	810
Archives of								
American Art	28	210	212	450	447	—	3	271
Cooper-Hewitt Museum	36	253	55	344	287	—	57	313
National Museum of								
African Art	2	11	1	14	83	—	(69)	4
Traveling Exhibition								
Service	25	224	—	249	244	—	5	154
All Other	<u>113</u>	<u>603</u>	<u>1</u>	<u>717</u>	<u>496</u>	<u>(30)</u>	<u>191</u>	<u>506</u>
Total FY 1981	<u>\$2,591</u>	<u>\$2,978</u>	<u>\$ 809</u>	<u>\$6,378</u>	<u>\$5,295</u>	<u>\$ (111)</u>	<u>\$ 972</u>	<u>\$5,546</u>

*Does not include Federal Agency Grants and Contracts.

TABLE 5. *Unrestricted Special Purpose Funds*
Fiscal Year 1981—Obligations
(In \$1,000's)

Item	Revenue				Deductions			Net increase (decrease)	Fund balance end of year
	Investment	Bureau activities	Gifts and other revenue	Total revenue	Transfers in (out)	Program expense	Bureau activity expense		
FY 1979	\$254	\$2,039	\$ 661	\$2,954	\$3,707	\$3,262	\$1,436	\$ 1,963	\$11,567
FY 1980	\$430	\$2,049	\$ 771	\$3,250	\$4,252	\$7,361	\$1,813	\$ (1,672)	\$ 9,895
FY 1981:									
National Museum of Natural History	\$ 46	\$ —	\$ 65	\$ 111	\$ 637	\$ 680	\$ —	\$ 68	\$ 334
Astrophysical Observatory ..	6	112	104	222	414	320	112	204	534
Tropical Research Institute	—	66	—	66	158	140	62	22	90
National Air and Space Museum	268	2,183	77	2,528	(365)	498	1,267	398	2,838
Chesapeake Bay Center	—	32	11	43	109	118	23	11	25
National Zoological Park ..	132	—	230	362	52	118	—	296	1,295
Other Science ...	24	—	27	51	109	109	—	51	148
National Museum of American History	24	32	25	81	394	596	51	(172)	273
National Museum of American Art	15	6	132	153	82	146	3	86	197
National Portrait Gallery	4	8	30	42	35	36	8	33	62
Hirshhorn Museum	16	—	8	24	679	677	—	26	149
Freer Gallery of Art	—	—	—	—	49	45	—	4	32
Cooper-Hewitt Museum	8	661	116	785	12	304	484	9	33
National Museum of African Art	—	130	7	137	(15)	(5)	175	(48)	2
Liability Reserves	—	—	—	—	230	—	—	230	3,330
Unallocated Coll. Acq., Schol. St. and Outreach .	—	—	—	—	(232)	—	—	(232)	270
Fellowships	—	—	—	—	696	630	—	66	473
Museum Support Center Equip. .	—	—	—	—	750	—	—	750	750
Other	46	103	273	422	972	432	60	902	1,764
Total FY 1981	\$589	\$3,333	\$1,105	\$5,027	\$4,766	\$4,844	\$2,245	\$ 2,704	\$12,599

and Educational Outreach programs (\$2 million per year), as well as funds provided for other designated purposes.

Unrestricted General Purpose funds revenue, which is available for general Institutional purposes, is derived primarily from investment income and auxiliary activity net revenues. As displayed in Table 6, net general unrestricted funds, after deduction of auxiliary activity expenses, totaled \$14,562,000 in fiscal year 1981, a somewhat better result than the prior year. This improved performance was due to the higher interest rates during the year, which benefited the short-term investments of the Institution, and to the auxiliary activities. These activities are listed in Table 7, and as may be seen therein, the Smithsonian Associates programs, including the *Smithsonian* magazine, generate the majority of the revenues on both a gross and net basis. The magazine continued to enjoy widespread acceptance, increasing once again the number of subscribing National Associates; the Contributing Associates program, providing unrestricted gift support to the Institution, also showed modest growth.

Important educational products and public services are provided as well by the other auxiliary activities, such as the Smithsonian Institution Press, Smithsonian Institution Traveling Exhibition Service, and the Smithsonian Exposition Books. On an overall basis, these other activities provided a financial return to the Institution at approximately the same rate as in fiscal year 1980.

The growth in unrestricted funds allowed continued support for a number of administrative and programmatic activities as well as some contributions towards new endeavors and facilities development. Activities receiving major operating support include the Visitor Information and Associates' Reception Center, the Folklife Program, the Cooper-Hewitt Museum, and the Office of Telecommunications, while smaller amounts for specific programs were allotted to numerous other units. Special emphasis was placed on affirmative action efforts with funding allotted for the establishment of a cooperative education program. In addition to the operating support provided the Office of Telecommunications, an amount of \$500,000 was set aside in fiscal year 1981 for future exploration of potential television production by the Institution. Special funding was also provided for the major exhibition, *5,000 Years of Korean Art*, in

TABLE 6. *Unrestricted Trust Funds—General and Auxiliary Activities*
Fiscal Years 1979–1981
(In \$1,000's)

<i>Item</i>	<i>FY 1979</i>	<i>FY 1980</i>	<i>FY 1981</i>
FUNDS PROVIDED			
General Income:			
Investments	\$ 2,276	\$ 2,470	\$ 3,123
Gifts	163	14	15
Miscellaneous	40	140	55
Total General Income	2,479	2,624	3,193
Auxiliary Activities Income (Net):			
Associates	6,429	6,113	8,691
Business Management			
—Museum Shops	287	1,022	631
—Concessions and Parking	1,641	1,938	1,978
—Other	(245)	(191)	(251)
Performing Arts	177	(75)	(186)
Smithsonian Press	292	252	231
Exposition Books	1,036	305	536
Traveling Exhibitions	(142)	(268)	(226)
Photo Services	(275)	(115)	(35)
Total Auxiliary Activities	9,200	8,981	11,369
Total Funds Provided (Net)	11,679	11,605	14,562
EXPENDITURES AND TRANSFERS			
Administrative and Program Expense	9,231	10,535	12,141
Less Administrative Recovery	5,888	6,575	7,484
Net Expense	3,343	3,960	4,657
Less Transfers:			
To Special Purpose			
for Program Purposes	3,879	4,307	4,816
To Plant Funds	1,853	1,281	2,526
To Endowment Funds	2,571	2,021	2,521
NET ADDITION TO FUND BALANCE ..	33	36	42
ENDING FUND BALANCE	\$ 4,965	\$ 5,001	\$ 5,043

TABLE 7. *Auxiliary Activities Fiscal Years 1979–1981*
(In \$1,000's)

<i>Activity</i>	<i>Sales and other revenue</i>	<i>Gifts</i>	<i>Less cost of sales</i>	<i>Gross revenue</i>	<i>Ex-penses</i>	<i>Net revenue***</i> <i>(loss)</i>
FY 1979	\$64,846	\$ 475	\$31,884	\$33,437	\$24,237	\$ 9,200
FY 1980	\$72,203	\$ 898	\$41,569	\$31,532	\$22,551	\$ 8,981
FY 1981:						
Associates	\$51,581	\$1,329	\$34,551	\$18,359	\$ 9,668	\$ 8,691
Business Management:						
—Museum Shops*	16,074	—	8,335	7,739	7,108	631
—Concessions/Parking .	2,682	—	35	2,647	669	1,978
—Other**	371	—	—	371	622	(251)
Performing Arts	4,375	—	1,113	3,262	3,448	(186)
Smithsonian Press	2,322	—	688	1,634	1,403	231
Exposition Books	5,261	—	1,101	4,160	3,624	536
Traveling Exhibitions	940	—	—	940	1,166	(226)
Photo Services						
(Administration)	113	—	43	70	105	(35)
Total FY 1981	\$83,719	\$1,329	\$45,866	\$39,182	\$27,813	\$11,369

*Includes Museum Shops and Mail Order.

**Includes Business Management Office and Belmont.

***Before revenue-sharing transfers to participating Smithsonian bureaux of \$397,000 (FY 1979); \$381,000 (FY 1980); and \$390,000 (FY 1981).

the new Thomas Mellon Evans Special Exhibits Gallery in the National Museum of Natural History. Transfers to special purpose funds included continuing allotments for the Collections Acquisition, Scholarly Studies, and Educational Outreach programs (\$2 million), the Fluid Research program of small grants to Smithsonian scientists (\$200,000), and the Smithsonian Fellowship program, which provides stipend support to pre- and post-doctoral fellows (\$948,000), as well as a one-time transfer of \$750,000 for conservation equipment at the Museum Support Center.

Some \$2.5 million was added to the Institution's unrestricted endowment funds to ensure a stable source of current revenues for future years. As described below, transfers were also made to plant

funds to support facilities development, notably \$750,000 towards construction of the Museum Support Center and \$1.3 million towards Quadrangle development.

Special Foreign Currency Program

A separate appropriation was received for the Special Foreign Currency Program of \$3,650,000 equivalent in excess foreign currencies. These currencies, accumulated from sales of surplus agricultural commodities under Public Law 83-480, have been determined by the Treasury Department to be in excess of the normal needs of the United States. Some \$2.9 million of this appropriation was used to provide grants to United States institutions for field research and advanced professional training in the countries of Burma, Egypt, India, and Pakistan, in fields of traditional Smithsonian interest and competence. The remaining \$750,000 was added to a reserve of Indian rupees, established in fiscal year 1980 to support future programs of the American Institute of Indian Studies after the supply of excess rupees is depleted. Obligation of these funds by research discipline and country is provided in Table 8.

Construction

Funds appropriated for construction and renovation projects at the Institution totaled \$15,829,000 in fiscal year 1981, as shown in Table 9. With the support and encouragement of the Congress, the Institution continued to accelerate its efforts to meet the essential renovation needs of a large and complex physical plant. An appropriation of \$7,539,000 under the Restoration and Renovation of Buildings account represented a 44 percent increase over the previous year. The funding permitted progress in facade, roof, and terrace repairs; systems and structural modifications to further energy efficiency; renovations to comply with legislative requirements on occupational health and safety as well as the needs of disabled persons; and modification and improvement of existing facilities for

TABLE 8. *Special Foreign Currency Program*
Fiscal Year 1981—Obligations
(In \$1,000's)

Country	Archaeology	Systematic and environmental biology	Astrophysics and earth sciences	Museum programs	Grant administration	Total
Burma	\$ 20	\$ —	\$ —	\$ —	\$ 1	\$ 21
Egypt	286	50	150	41	242	769
India	2,318*	268	24	175	44	2,829
Pakistan	—	84	—	—	—	84
Total	<u>\$2,624</u>	<u>\$ 402</u>	<u>\$ 174</u>	<u>\$ 216</u>	<u>\$ 287</u>	<u>\$3,703</u>

*Includes the obligation of \$750,000 for a forward-funded reserve for the American Institute of Indian Studies.

TABLE 9. *Construction and Plant Funds Fiscal Years 1979–1981*
(In \$1,000's)

Sources	FY 1979	FY 1980	FY 1981
FUNDS PROVIDED			
Federal Appropriations:			
National Zoological Park	\$ 3,900	\$ 6,250	\$ 3,290
Museum Support Center	575	20,600*	5,000
Restoration & Renovation of Buildings ..	2,100	5,250	7,539
Total Federal Appropriations	<u>6,575</u>	<u>32,100</u>	<u>15,829</u>
Nonappropriated Trust Funds:			
Income—Gift and Other			
Cooper-Hewitt Museum	—	104	175
Horticulture Greenhouse	—	—	11
Special Exhibits Gallery	—	—	307
Quadrangle	5	1,051	2,115
Total Income	<u>5</u>	<u>1,155</u>	<u>2,608</u>
Transfers from Current Funds:			
Chesapeake Bay Center	411	39	300
National Museum of African Art	4	22	24
Museum Support Center	—	—	750
East Garden	10	241	110
Quadrangle	1,385	1,040	1,340
Tropical Research Institute	47	—	26
Total Transfers	<u>1,857</u>	<u>1,342</u>	<u>2,550</u>
Total Funds Provided	<u>\$ 8,437</u>	<u>\$34,597</u>	<u>\$20,987</u>

*Obligation authority of \$19 million deferred until FY 1981 on instructions from Office of Management and Budget.

program or safety needs. An amount of \$3,290,000 was received for renovation and construction of Zoo facilities, including construction of the Monkey Island Exhibit, which is the final project in the development of the Central Area of Rock Creek Park; construction of a small mammal breeding facility and design of hardy bird yards at the Front Royal Conservation and Research Center; and the necessary restoration and renovation work at both Rock Creek and Front Royal. And finally, an additional \$5 million was provided for construction of the Museum Support Center. Construction bids received by the Institution for this project exceeded the Institution's original estimate by some \$7 million. This appropriation, together with the \$20.6 million appropriated in fiscal year 1980 and \$2.5 million committed from the Institution's nonappropriated trust funds, provides sufficient funding to complete the project as planned.

During the year, nonappropriated trust funds totaling \$2,550,000 were transferred from operating accounts to construction and land acquisition, and a further \$2,608,000 was received from gifts and investment income. The majority of these funds—\$3,455,000—was for Quadrangle development, and a further \$775,000 of pledges was received toward the project. Major gifts were also received for construction of the Special Exhibits Gallery in the National Museum of Natural History as well as for renovation work at the Cooper-Hewitt Museum. An amount of \$750,000 was allocated to Museum Support Center construction for which, as noted above, the Institution has committed an amount of \$2.5 million in nonappropriated trust funds. Transfers also were made for major land acquisition at the Chesapeake Bay Center, mortgage payments on property occupied by the National Museum of African Art, construction of a greenhouse at the Tropical Research Institute in Panama, and additional costs associated with development of the garden area to the east of the Arts and Industries Building.

Endowment and Similar Funds

As of September 30, 1981, the market value of the Smithsonian Endowment Funds was \$79,025,000, as compared to \$78,390,000 on September 30, 1980. Of this total, \$77,972,000 is invested in the

TABLE 10. *Endowment and Similar Funds September 30, 1981*

	<i>Book value</i>	<i>Market value</i>
ASSETS		
Pooled Consolidated Endowment Funds:		
Cash and Equivalents	\$ 715,006	\$ 715,006
Bonds	16,029,705	14,849,789
Convertible Bonds	461,550	560,000
Stocks	<u>57,204,501</u>	<u>61,847,366</u>
Total Pooled Funds	<u>74,410,762</u>	<u>77,972,161</u>
Nonpooled Endowment Funds:		
Notes Receivable	35,794	35,794
Loan to U.S. Treasury in Perpetuity	1,000,000	1,000,000
Bonds	9,769	8,600
Common Stocks	<u>1,999</u>	<u>8,100</u>
Total Nonpooled Funds	<u>1,047,562</u>	<u>1,052,494</u>
Total Endowment and Similar Fund Balances ..	<u>\$75,458,324</u>	<u>\$79,024,655</u>
FUND BALANCES		
Unrestricted Purpose: True Endowment	\$ 2,808,369	\$ 3,480,402
Quasi Endowment	<u>28,054,405</u>	<u>27,813,668</u>
Total Unrestricted Purpose	<u>30,862,774</u>	<u>31,294,070</u>
Restricted Purpose: True Endowment	33,513,631	36,216,512
Quasi Endowment	<u>11,081,919</u>	<u>11,514,073</u>
Total Restricted Purpose	<u>44,595,550</u>	<u>47,730,585</u>
Total Endowment and Similar Fund Balances ..	<u>\$75,458,324</u>	<u>\$79,024,655</u>

Pooled Consolidated Endowment Fund under outside investment management; \$1 million is on permanent deposit with the United States Treasury; and the remaining \$53,000 is held in miscellaneous securities. As shown in Table 10, restricted endowment funds, the income of which may be used only for purposes specified by the donor, comprise 60 percent of the total, or \$47,731,000. The remaining 40 percent, or \$31,294,000, are unrestricted endowment funds with the income available for general Institutional purposes. Certain of these unrestricted funds, such as the Lindbergh Chair of Aerospace History Endowment at the National Air and Space Museum, have been designated internally for specific purposes, as noted in Table 13, which lists all endowments of the Institution.

TABLE 11. *Market Values of Pooled Consolidated Endowment Funds*
(In \$1,000's)

<i>Fund</i>	9/30/77	9/30/78	9/30/79	9/30/80	9/30/81
Unrestricted	\$12,525	\$18,114	\$22,614	\$28,384	\$30,399
Freer	15,410	16,807	18,303	20,771	20,472
Other Restricted . . .	<u>18,944</u>	<u>22,109</u>	<u>24,639</u>	<u>28,175</u>	<u>27,101</u>
Total	<u>\$46,879</u>	<u>\$57,030</u>	<u>\$65,556</u>	<u>\$77,330</u>	<u>\$77,972</u>

The investment of the Pooled Consolidated Endowment Fund is managed by three outside professional investment advisory firms under the oversight of the Investment Policy Committee and the Treasurer and subject to policy guidelines established by the Board of Regents. At the conclusion of fiscal year 1981, the firms (with their respective portion of the Fund) were Fiduciary Trust Company of New York (50 percent), Batterymarch Financial Management Corp. (31 percent), and Torray Clark & Company (19 percent). During fiscal year 1981, the total rate of return for these funds, as calculated by an independent investment measurement service, was +2.8 percent (including interest and dividend yield as well as market value depreciation), as compared to -3.4 percent for the Dow Jones Industrial Average and -2.7 percent for the Standard & Poor's 500 Average (both calculated on the same basis). Market values of the major components of this fund for prior years are shown in Table 11, and activity during the past year, in Table 12.

The Smithsonian utilizes the Total Return Income policy which defines total investment return as yield (interest and dividends) plus appreciation, including both realized and unrealized capital gains. A portion of this return is made available for expenditure each year, and the remainder is retained as principal. This total return income payout is determined in advance each year by the Board of Regents based on studies of anticipated interest and dividend yields, the In-

TABLE 12. *Changes in Pooled Consolidated Endowment Funds
for Fiscal Year 1981*
(In \$1,000's)

<i>Fund</i>	<i>Market value 9/30/80</i>	<i>Gifts and trans- fers</i>	<i>Inter- est and divi- dends*</i>	<i>Income paid out</i>	<i>Sub- total</i>	<i>Market value in- crease (de- crease)</i>	<i>Market value 9/30/81</i>
Unrestricted	\$28,384	\$ 2,529	\$ 1,611	\$ 1,157	\$31,367	\$ (968)	\$30,399
Freer	20,771	—	1,164	839	21,096	(624)	20,472
Other Restricted . . .	28,175	(760)	1,568	1,132	27,851	(750)	27,101
Total	<u>\$77,330</u>	<u>\$ 1,769</u>	<u>\$ 4,343</u>	<u>\$ 3,128</u>	<u>\$80,314</u>	<u>\$ (2,342)</u>	<u>\$77,972</u>

*Income earned less managers' fees of \$363,000.

stitution's programmatic needs, inflationary factors, and the five-year running average of market values adjusted for capital additions or withdrawals. The income payout rate for fiscal year 1981 to endowments in the Pooled Consolidated Endowment Fund constituted a 10 percent increase over the previous year, and a further increase of 8 percent for restricted endowments has been approved for fiscal year 1982. Even after the income payout of \$3,128,000 in fiscal year 1981, \$1,215,000 of excess interest and dividend yield was available for reinvestment into endowment principal.

Included in Table 12 as additions to the endowment funds were approximately \$2.5 million transferred from unrestricted funds, as mentioned above, and gifts of \$116,000. These additions were partially offset by a withdrawal of \$976,000 from the Johnson Fund, which, together with the Hunterdon Fund, was formerly described as Endowment Number 3. This withdrawal, representing prior year income that had accumulated in principal, was made to reimburse the Harbor Branch Foundation for support of the Johnson Sea-Link submersible program, and similar funding from the Johnson Fund will be provided in the future.

A full listing of all endowment funds is shown on Table 13. Detail of the securities held in the Pooled Consolidated Endowment Fund as of September 30, 1981, may be obtained upon request from the Treasurer of the Institution.

TABLE 13. Endowment Funds September 30, 1981

Fund	Principal		Income	
	Book value	Market value	Net income	Unexpended balance
UNRESTRICTED PURPOSE—TRUE:				
Avery Fund*	\$ 89,352	\$ 113,989	\$ 4,940	\$ —0—
Higbee, Harry, Memorial*	25,024	31,864	1,423	—0—
Hodgkins Fund*	72,318	78,587	10,183	—0—
Morrow, Dwight W.	263,547	312,004	8,037	—0—
Mussinan, Alfred	48,746	57,320	2,350	—0—
Olmsted, Helen A.	1,574	2,001	82	—0—
Poore, Lucy T. and George W.*	337,774	444,498	18,734	—0—
Porter, Henry Kirke, Memorial	546,178	723,771	29,680	—0—
Sanford, George H.*	2,798	3,348	158	—0—
Smithson, James*	541,380	541,380	32,483	—0—
Walcott, Charles D. and Mary Vaux, Research (Designated)*	879,678	1,171,640	48,023	48,979
Subtotal	2,808,369	3,480,402	156,093	48,979
UNRESTRICTED PURPOSE—QUASI:				
Forrest, Robert Lee	2,509,445	2,181,148	89,442	—0—
General Endowment*	23,379,368	23,553,292	880,174	—0—
Goddard, Robert H.	19,853	17,273	708	—0—
Habel, Dr. S.*	500	500	30	—0—
Hart, Gustavus E.	1,170	1,292	53	—0—
Henry, Caroline	2,902	3,188	131	—0—
Henry, Joseph and Harriet A.	117,129	127,514	5,229	—0—
Heys, Maude C.	239,183	212,238	8,703	—0—
Hinton, Carrie Susan	61,299	62,010	2,543	—0—
Lambert, Paula C.	109,434	113,905	4,671	—0—
Medinus, Grace L.	2,362	2,111	87	—0—
Rhees, William Jones*	1,722	1,826	86	—0—
Safford, Clara Louise	108,079	99,134	4,065	—0—
Smithsonian Bequest Fund	40,501	37,096	601	—0—
Taggart, Ganson	933	1,208	49	—0—
Abbott, William L. (Designated)	284,473	309,165	12,678	1,424
Barstow, Frederic D. (Designated)	2,384	2,584	106	3,285
Lindbergh Chair of Aerospace History (Designated)	1,155,986	1,070,774	43,909	51,538
Lindbergh, Charles A. (Designated)	7,648	8,198	961	4,115
Lyon, Marcus Ward, Jr. (Designated)	10,034	9,212	378	776
Subtotal	28,054,405	27,813,668	1,054,604	61,138
Total Unrestricted Purpose	\$30,862,774	\$31,294,070	\$ 1,210,697	\$ 110,117
RESTRICTED PURPOSE—TRUE:				
Arthur, James	\$ 76,298	\$ 101,264	\$ 4,153	\$ 8,854
Baird, Spencer Fullerton	69,700	90,519	3,712	8,166
Barney, Alice Pike, Memorial	54,711	72,566	2,976	17,413
Batchelor, Emma E.	77,648	75,062	3,078	34,158
Beauregard, Catherine, Memorial	93,459	101,405	4,158	18,082
Brown, Roland W.	62,364	69,595	2,854	16,477
Canfield, Frederick A.	74,528	111,570	4,575	214
Casey, Thomas Lincoln	29,922	32,510	1,333	1,847
Chamberlain, Frances Lea	53,717	71,251	2,922	11,954
Cooper Fund for Paleobiology	27,688	27,662	1,101	959
Division of Mammals Curators Fund	4,103	4,267	175	3,171
Drake Foundation	383,447	384,778	15,686	45,832
Dykes, Charles, Bequest	102,757	111,603	4,576	21,819
Eickemeyer, Florence Brevoort	20,733	27,492	1,127	11,661
Freer, Charles L.	18,908,174	20,471,689	839,484	572,009
Grimm, Sergei N.	73,364	63,979	656	669
Guggenheim, Daniel and Florence	280,426	261,285	10,714	11,460
Hamilton, James*	3,277	3,596	195	399
Henderson, Edward P., Meteorite Fund	753	900	37	261
Hewitt, Eleanor G., Repair Fund	16,524	16,427	674	726
Hewitt, Sarah Cooper	97,777	96,965	3,976	4,253
Hitchcock, Albert S.	3,017	4,057	166	851
Hodgkins Fund*	100,000	100,000	6,000	13,073

TABLE 13. *Endowment Funds September 30, 1981—continued*

Fund	Principal		Income	
	Book value	Market value	Net income	Unexpended balance
Hrdlicka, Ales and Marie	112,961	126,069	5,170	7,492
Hughes, Bruce	36,518	48,487	1,988	17,237
Johnson, Seward, Trust Fund for Oceanography	7,803,670	8,514,478	375,889	619,376
Kellogg, Remington, Memorial	58,276	52,513	2,141	6,459
Kramar, Nada	6,375	6,628	272	1,471
Lindsey, Jessie H.*	11,380	10,272	799	4,209
Maxwell, Mary E.	37,421	49,679	2,037	10,982
Milliken, H. Oothout, Memorial	488	483	20	20
Mineral Endowment	220,977	223,111	9,149	124
Mitchell, William A.	30,050	30,521	1,252	2,705
Natural History and Conservation	39,872	39,722	1,539	—0—
Nelson, Edward William	44,982	56,258	2,307	2,477
Petrocelli, Joseph, Memorial	14,150	18,844	773	15,628
Reid, Addison T.*	53,452	57,105	2,551	12,182
Roebling Fund	230,223	303,901	12,462	266
Rollins, Miriam and William	431,978	506,336	20,520	21,191
Shryock Endowment for Docents	1,516	1,440	59	94
Sims, George W.	5,186	4,452	91	91
Sprague Fund	3,007,384	3,027,731	122,707	2,317
Springer, Frank	34,482	45,349	1,860	25,423
Stern, Harold P., Memorial	317,303	321,329	13,170	19,038
Stevenson, John A., Mycological Library	11,495	12,390	508	320
Walcott, Charles D. and Mary Vaux, Research	277,444	315,443	12,762	15,615
Walcott Research Fund, Botanical Publications	109,852	141,144	5,788	7,657
Zerbee, Frances Brinckle	1,809	2,385	98	2,945
Subtotal	<u>33,513,631</u>	<u>36,216,512</u>	<u>1,510,240</u>	<u>1,599,627</u>
RESTRICTED PURPOSE—QUASI:				
Armstrong, Edwin James	6,260	6,159	253	253
Au Panier Fleuri	48,050	41,962	1,721	1,831
Bacon, Virginia Purdy	213,564	210,609	8,636	31,556
Becker, George F.	367,310	364,524	14,948	—0—
Desautels, Paul E.	22,725	24,938	999	—0—
Gaver, Gordon	2,844	2,964	121	1,608
Hachenberg, George P. and Caroline	9,714	11,080	454	950
Hanson, Martin Gustav and Caroline R.	21,219	23,045	945	4,338
Hillyer, Virgil	15,690	17,049	699	5,972
Hunterdon Endowment	6,956,321	7,417,421	308,383	191,781
Johnson, E. R. Fenimore	18,687	17,063	700	9,219
Loeb, Morris	208,781	228,556	9,372	19,717
Long, Annette E. and Edith C.	1,040	1,412	58	328
Myer, Catherine Walden	48,226	52,382	2,148	4,932
Noyes, Frank B.	2,336	2,640	108	1,314
Noyes, Pauline Riggs	22,623	19,773	811	853
Pell, Cornelia Livingston	17,728	19,338	793	625
Ramsey, Adm. and Mrs. Dewitt Clinton*	693,040	648,079	26,762	5,145
Rathbun, Richard, Memorial	25,425	27,707	1,136	17,724
Roebling Solar Research	58,285	59,572	2,443	5,740
Ruef, Bertha M.	72,870	66,494	2,727	7,733
Schultz, Leonard P.	18,510	20,043	821	9,172
Seidell, Atherton	1,459,261	1,440,168	59,057	160,147
Smithsonian Agency Account	439,627	430,981	17,059	—0—
Strong, Julia D.	23,898	26,036	1,068	1,623
Witherspoon, Thomas A., Memorial	307,885	334,078	13,700	6,666
Subtotal	<u>11,081,919</u>	<u>11,514,073</u>	<u>475,922</u>	<u>489,227</u>
Total Restricted Purpose	<u>\$44,595,550</u>	<u>\$47,730,585</u>	<u>\$ 1,986,162</u>	<u>\$ 2,088,854</u>
TOTAL ENDOWMENT FUNDS	<u>\$75,458,324</u>	<u>\$79,024,655</u>	<u>\$ 3,196,859</u>	<u>\$ 2,198,971</u>

*Invested all or in part in U.S. Treasury or other nonpooled investments.

**Total Return Income payout; does not include \$218,000 of interest income for investment of unexpended income balances.

Related Organizations

The Smithsonian Science Information Exchange, Inc. (SSIE) has served as a national source for information on research in progress since its founding in 1949. Incorporated by the Smithsonian in 1971 as a nonprofit entity, SSIE received funding through an annual contract from the Smithsonian, equal to the appropriation provided the Smithsonian for this purpose. Since fiscal year 1980, appropriations for the exchange have been made to the Department of Commerce in anticipation of the integration of the functions of SSIE into the National Technical Information Service. During this period, the Smithsonian has continued to provide the exchange with administrative and fiscal services on a contract basis. As a result of federal hiring freezes and budgetary reductions, plans for integration have been indefinitely postponed. In view of the substantial financial uncertainty faced by SSIE and its effect on the future ability of the exchange to operate in an effective manner, the SSIE Board of Directors resolved that SSIE would cease operations no later than October 30, 1981. The database and other physical assets of the exchange are scheduled to be transferred to the Commerce Department, and plans are proceeding to dissolve the corporation.

Reading is Fundamental, Inc. (RIF), associated with the Institution since 1968, is an independent, separately incorporated entity dedicated to the improvement of reading abilities in children. Primary support is derived from private contributions and a federal contract with the Department of Education to operate the federal Inexpensive Book Distribution Program. Administrative services are provided by the Institution on a contract basis.

The Woodrow Wilson International Center for Scholars, the National Gallery of Art, and the John F. Kennedy Center for the Performing Arts were established by Congress within the Institution but are administered by separate boards of trustees. Independent financial reports are prepared by each of these organizations. Office space and fiscal and other administrative and support services are provided the Woodrow Wilson International Center for Scholars on a reimbursement basis.

The Friends of the National Zoo (FONZ) is an independent, nonprofit corporation working closely with the National Zoological Park. It operates, under contract, a number of beneficial concessions

for the National Zoo; FONZ provided concession and rental fees to the Zoo amounting to approximately \$202,000 during calendar year 1980 (FONZ's fiscal year). In addition, FONZ contributed other important financial and volunteer support to Zoo programs. Financial affairs of this organization are disclosed separately elsewhere in *Smithsonian Year 1981*.

Accounting and Auditing

The nonappropriated trust funds of the Institution are audited annually by an independent public accounting firm; the report of Coopers & Lybrand is contained in the following pages. Additional reviews are conducted annually on a number of Smithsonian activities by the internal audit staff. Additionally, the Defense Contract Audit Agency conducts an annual audit of grants and contracts received from federal agencies, as well as their allocated administrative costs.

The Audit and Review Committee of the Regents met during the year pursuant to their responsibility, under the bylaws of the Institution, for reviewing the Smithsonian's accounting systems and internal financial controls; for facilitating communication between the Board of Regents and auditors from the internal audit staff, the independent accounting firm, and the General Accounting Office; and for reviewing operations of the Institution for compliance with approved programs and policies.



Traditional music, dance, crafts, and demonstrations are presented at the Festival of American Folklife, an annual celebration of the cultural traditions of this country. Supported by a combination of outside gifts and grants, the Institution's non-appropriated trust funds, and federal appropriations, the Festival reflects the diversity of funding sources for the Institution's programs. Sampled here, from the 1981 Festival, are dancers whose performances were designed to introduce hearing audiences to concepts of deaf communication (*top*), and Ojibwa Indians from the Upper Peninsula of Michigan who demonstrated canoe making on the National Mall.



COOPERS & LYBRAND

CERTIFIED PUBLIC ACCOUNTANTS

To the Board of Regents
Smithsonian Institution

We have examined the balance sheet of the Trust Funds of Smithsonian Institution as of September 30, 1981 and the related statement of financial activity for the year then ended. Our examination was made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances. We previously examined and reported upon the statements of the Trust Funds of Smithsonian Institution for the year ended September 30, 1980, totals of which are included in the accompanying financial statements for comparative purposes only.

The statements of the Trust Funds of Smithsonian Institution do not include the accounts of the National Gallery of Art, the John F. Kennedy Center for the Performing Arts or other departments, bureaus and programs administered by the Smithsonian Institution under federal appropriations as detailed in Note 2 to the financial statements.

In our opinion, the financial statements for the year ended September 30, 1981, referred to above, present fairly the financial position of the Trust Funds of Smithsonian Institution as of September 30, 1981, and the results of operations and changes in fund balances for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

COOPERS & LYBRAND

1800 M Street, N.W.
Washington, D.C. 20036
December 2, 1981

SMITHSONIAN INSTITUTION—TRUST FUNDS
Balance Sheet

September 30, 1981

(with comparative totals for September 30, 1980)

	<i>Current funds</i>
<hr/>	
ASSETS:	
Cash	\$ 1,092,016
Investments (Notes 3 and 5)	28,526,435
Receivables (Note 4)	12,618,660
Interfund receivables	—
Merchandise inventory (Note 1)	7,464,010
Prepaid and deferred expense (Note 1)	7,534,919
Property and equipment (Notes 1 and 6)	1,420,486
	<u>\$58,656,526</u>
LIABILITIES:	
Accounts payable and accrued expenses	\$ 8,121,769
Deposits held in custody for other organizations (Note 2) .	1,958,329
Interfund payables	8,270,529
Deferred revenue (Note 1)	16,712,953
Total liabilities	<u>35,063,580</u>
FUND BALANCES (Note 1):	
Current:	
Unrestricted general purpose	5,042,459
Special purpose	12,599,061
Restricted	5,951,426
Endowment and similar funds (Note 5)	—
Plant funds (Note 6)	—
Total fund balances	<u>23,592,946</u>
	<u>\$58,656,526</u>
<hr/>	

The accompanying notes are an integral part of the financial statements.

<i>Endowment and similar funds</i>	<i>Plant funds</i>	<i>Total, all funds</i>	<i>Totals, 1980</i>
\$ 36,625	\$ —	\$ 1,128,641	\$ 81,122
74,707,523	—	103,233,958	85,693,264
35,794	—	12,654,454	11,089,622
678,382	7,592,147	8,270,529	4,272,661
—	—	7,464,010	6,244,380
—	—	7,534,919	7,294,999
—	14,024,283	15,444,769	14,012,745
<u>\$75,458,324</u>	<u>\$21,616,430</u>	<u>\$155,731,280</u>	<u>\$128,688,793</u>
\$ —	\$ 304,763	\$ 8,426,532	\$ 5,968,872
—	—	1,958,329	1,218,910
—	—	8,270,529	4,272,661
—	—	16,712,953	17,063,378
—	304,763	35,368,343	28,523,821
—	—	5,042,459	5,000,736
—	—	12,599,061	9,895,106
—	—	5,951,426	4,675,330
75,458,324	—	75,458,324	64,422,312
—	21,311,667	21,311,667	16,171,488
<u>75,458,324</u>	<u>21,311,667</u>	<u>120,362,937</u>	<u>100,164,972</u>
<u>\$75,458,324</u>	<u>\$21,616,430</u>	<u>\$155,731,280</u>	<u>\$128,688,793</u>

SMITHSONIAN INSTITUTION—TRUST FUNDS
Statement of Financial Activity
Year ended September 30, 1981
(with comparative totals for the year ended September 30, 1980)

	Current funds			
	Total current funds	Unrestricted		
		Total unrestricted funds	General purpose	
REVENUE AND OTHER ADDITIONS:				
Auxiliary activities revenue	\$ 87,052,047	\$87,052,047	\$ —	
Federal grants and contracts	14,171,827	—	—	
Investment income (net of \$362,585 for management and custodian fees)	7,517,027	4,165,614	3,536,117	
Net gain on sale of securities	—	—	—	
Gifts, bequests and foundation grants	4,420,917	1,442,526	15,148	
Additions to plant fund	—	—	—	
Rentals, fees, commissions and other	2,540,536	1,731,527	725,081	
Total revenue and other additions	<u>115,702,354</u>	<u>94,391,714</u>	<u>4,276,346</u>	
EXPENDITURES AND OTHER DEDUCTIONS:				
Research and educational expenditures	23,512,377	7,712,912	3,046,286	
Administrative expenditures	9,095,394	5,731,672	2,281,093	
Auxiliary activities expenditures	72,650,533	72,650,533	—	
Expenditures for acquisition of plant	—	—	—	
Retirement of indebtedness	—	—	—	
Interest on indebtedness	—	—	—	
Endowment reimbursement (Note 5)	—	—	—	
Total expenditures and other deductions ..	<u>105,258,304</u>	<u>86,095,117</u>	<u>5,327,379</u>	
Excess of revenue and other additions over (under) expenditures and other deductions	<u>10,444,050</u>	<u>8,296,597</u>	<u>(1,051,033)</u>	
TRANSFERS AMONG FUNDS—				
ADDITIONS (DEDUCTIONS):				
Mandatory principal and interest on notes	(23,970)	(23,970)	—	
Portion of investment yield appropriated (Note 5) .	(1,214,397)	(454,289)	(413,664)	
Purchase of property and equipment for plant fund.	(242,598)	(242,598)	(242,598)	
Future plant acquisitions	(2,243,524)	(2,243,524)	(2,243,524)	
Income added to endowment principal	(107,988)	—	—	
Appropriated as quasi endowment	(2,549,799)	(2,549,799)	(2,521,053)	
For designated purposes	(40,000)	(36,739)	(4,465,160)	
Net increase in auxiliary activities	—	—	10,978,755	
Total transfers among funds	<u>(6,422,276)</u>	<u>(5,550,919)</u>	<u>1,092,756</u>	
Net increase for the year	4,021,774	2,745,678	41,723	
Fund balances at beginning of year	19,571,172	14,895,842	5,000,736	
Fund balances at end of year	<u>\$ 23,592,946</u>	<u>\$17,641,520</u>	<u>\$ 5,042,459</u>	

The accompanying notes are an integral part of the financial statements.

<i>Auxiliary activities</i>	<i>Special purpose</i>	<i>Restricted</i>	<i>Endowment and similar funds</i>	<i>Plant funds</i>	<i>Totals, all funds</i>	<i>Totals, 1980</i>
\$83,719,087	\$ 3,332,960	\$ —	\$ —	\$ —	\$ 87,052,047	\$ 74,251,010
—	—	14,171,827	—	—	14,171,827	12,946,943
—	629,497	3,351,413	—	638,992	8,156,019	6,407,402
—	—	—	8,052,520	—	8,052,520	1,999,209
1,328,593	98,785	2,978,391	87,497	1,969,038	6,477,452	4,379,096
—	—	—	—	1,486,583	1,486,583	665,896
—	1,006,446	809,009	—	—	2,540,536	2,225,672
<u>85,047,680</u>	<u>5,067,688</u>	<u>21,310,640</u>	<u>8,140,017</u>	<u>4,094,613</u>	<u>127,936,984</u>	<u>102,875,228</u>
—	4,666,626	15,799,465	—	—	23,512,377	24,472,580
2,966,312	484,267	3,363,722	—	—	9,095,394	8,077,438
70,712,531	1,938,002	—	—	—	72,650,533	63,079,852
—	—	—	—	1,480,557	1,480,557	623,691
—	—	—	—	6,026	6,026	42,205
—	—	—	—	17,943	17,943	19,166
—	—	—	976,189	—	976,189	—
<u>73,678,843</u>	<u>7,088,895</u>	<u>19,163,187</u>	<u>976,189</u>	<u>1,504,526</u>	<u>107,739,019</u>	<u>96,314,932</u>
<u>11,368,837</u>	<u>(2,021,207)</u>	<u>2,147,453</u>	<u>7,163,828</u>	<u>2,590,087</u>	<u>20,197,965</u>	<u>6,560,296</u>
—	(23,970)	—	—	23,970	—	—
—	(40,625)	(760,108)	1,214,397	—	—	—
—	—	—	—	242,598	—	—
—	—	—	—	2,243,524	—	—
—	—	(107,988)	107,988	—	—	—
—	(28,746)	—	2,549,799	—	—	—
(390,082)	4,818,503	(3,261)	—	40,000	—	—
<u>(10,978,755)</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
<u>(11,368,837)</u>	<u>4,725,162</u>	<u>(871,357)</u>	<u>3,872,184</u>	<u>2,550,092</u>	<u>—</u>	<u>—</u>
—	2,703,955	1,276,096	11,036,012	5,140,179	20,197,965	6,560,296
—	9,895,106	4,675,330	64,422,312	16,171,488	100,164,972	93,604,676
<u>\$ —</u>	<u>\$12,599,061</u>	<u>\$ 5,951,426</u>	<u>\$75,458,324</u>	<u>\$21,311,667</u>	<u>\$120,362,937</u>	<u>\$100,164,972</u>

SMITHSONIAN INSTITUTION—TRUST FUNDS
Notes to Financial Statements

1. *Summary of significant accounting policies*

Basis of presentation. The financial statements of Smithsonian Institution—Trust Funds (Institution) have been prepared on the accrual basis.

Fund accounting. To ensure observance of limitations and restrictions placed on the use of resources available to the Institution, the accounts of the Institution are maintained in accordance with the principles of fund accounting. This is the procedure by which resources for various purposes are classified for accounting and reporting purposes into funds established according to their nature and purposes. Separate accounts are maintained for each fund; however, in the accompanying financial statements, funds that have similar characteristics have been combined into fund groups. Accordingly, all financial transactions have been recorded and reported by fund group.

The assets, liabilities and fund balances of the Institution are reported in self-balancing fund groups as follows:

Current funds, which include unrestricted and restricted resources, represent the portion of expendable funds that is available for support of Institution operations. Separate subfund groups of current unrestricted funds have been reflected in the financial statements for auxiliary activities (representing primarily the revenue and expenditures of the Smithsonian Associates Program, including the *Smithsonian Magazine*, and museum shop sales) and for special purposes (representing internally segregated funds for certain designated purposes). Amounts restricted by the donor for specific purposes are also segregated from other current funds.

Endowment and similar funds include funds that are subject to restrictions of gift instruments requiring in perpetuity that the principal be invested and the income only be used. Also classified as endowment and similar funds are gifts which will allow the expenditure of principal but only under certain specified conditions and quasi-endowment funds. Quasi-endowment funds are funds established by the governing board for the same purposes as endowment funds; however, any portion of such funds may be expended. Restricted quasi-endowment funds represent gifts for restricted purposes where there is no stipulation that the principal be maintained in perpetuity or for a period of time, but the governing board has elected to invest the principal and expend only the income for the purpose stipulated by the donor.

Plant funds represent resources restricted for future plant acquisitions and funds expended for plant.

All gains and losses arising from the sale, collection or other disposition of investments are accounted for in the fund in which the related assets are recorded. Income from investments is accounted for in a similar manner, except for income derived from investments of endowment and similar funds, which is accounted for in the fund to which it is restricted or, if unrestricted, as revenue in unrestricted current funds.

Inventories. Inventories are carried at the lower of average cost, computed on a first-in, first-out method, or net realizable value.

Deferred revenue and expense. Revenue from subscriptions to *Smithsonian Magazine* is recorded as income over the period of the related subscription, which is one year. Costs related to obtaining subscriptions to *Smithsonian Magazine* are charged against income over the period of the subscription.

The Institution recognizes revenue and charges expenses of other auxiliary activities during the period in which the activity is conducted.

Works of art, living or other specimens. In accordance with the practice generally followed by museums, works of art and living or other specimens are not reflected in the accompanying financial statements.

Property and equipment. Capital improvements and equipment purchased with Trust Funds and utilized in income-producing activities are capitalized in the current unrestricted fund at cost and are depreciated on a straight-line basis over their estimated useful lives of three to ten years. All other capital improvements and equipment purchased with Trust Funds are expensed currently.

Real estate (land and buildings) are recorded in the plant fund at cost, to the extent that restricted or unrestricted funds were expended therefor, or appraised value at date of gift, except for gifts of certain islands in the Chesapeake Bay and the Carnegie Mansion, which have been recorded at nominal values. In accordance with the practice of many museums, depreciation on buildings is not recorded.

Land, buildings, fixtures and equipment which were acquired with federal funds are not reflected in the accompanying financial statements.

Government contracts. The Institution has a number of contracts with the U.S. Government, which primarily provide for cost reimbursement to the Institution. Contract revenue is recognized when billable or received.

Contributed services. A substantial number of unpaid volunteers have made significant contributions of their time in the furtherance of the Institution's programs. The value of this contributed time is not reflected in these statements since it is not susceptible to objective measurement or valuation.

2. *Related activities*

The Trust Funds reflect the receipt and expenditure of funds obtained from private sources, from federal grants and contracts and from certain business activities related to the operations of the Institution.

Federal appropriations, which are not reflected in the accompanying financial statements, provide major support for the operations and administration of the educational and research programs of the Institution's many museums, art

galleries and other bureaus, as well as for the maintenance and construction of related buildings and facilities. In addition, land, buildings and other assets acquired with federal funds are not reflected in the accompanying financial statements.

The following federal appropriations were received by the Institution for the fiscal year ended September 30, 1981:

Operating funds	\$122,478,000
Special foreign currency program	3,650,000
Construction funds	<u>15,829,000</u>
	<u>\$141,957,000</u>

The Institution provides fiscal and administrative services to several separately incorporated organizations in which certain officials of the Institution serve on the governing boards. The amounts paid to the Institution by these organizations for the aforementioned services, together with rent for Institution facilities occupied, etc., totaled approximately \$408,000 for the year ended September 30, 1981. The following summarizes the approximate expenditures of these organizations for the fiscal year ended September 30, 1981 as reflected in their individual financial statements and which are not included in the accompanying financial statements of the Institution:

Smithsonian Science Information Exchange	\$3,400,000
Reading Is Fundamental, Inc.	\$8,900,000
Woodrow Wilson International Center for Scholars—Trust Funds	\$3,200,000

The Institution is continuing to work with the U.S. Department of Commerce to effect a transfer of the Smithsonian Science Information Exchange (Exchange) operations to the U.S. Department of Commerce. The Exchange has ceased operations as of October 31, 1981 and is awaiting final approval of fiscal year 1982 appropriations to sustain them in perfecting an orderly liquidation.

3. Investments

Investments are recorded at cost, if purchased, or fair market value at date of acquisition, if acquired by gift. At September 30, 1981, investments are composed of the following:

	<u>Carrying value</u>	<u>Market value</u>
Current funds:		
Certificates of deposit	\$ 12,307,814	\$ 12,307,814
Commercial paper	2,931,913	2,900,000
Overnight money market account	1,785,000	1,785,000
U.S. government and quasi-government obligations	11,276,081	10,679,338
Common stock	169,280	117,835
Preferred stock	56,347	41,034
	<u>28,526,435</u>	<u>27,831,021</u>

Endowment and similar funds:

Loan to U.S. Treasury	1,000,000	1,000,000
U.S. government and quasi-government obligations	8,487,773	7,984,259
Corporate bonds	7,959,718	7,434,129
Common stock	55,986,140	60,745,716
Preferred stock	1,273,892	1,109,750
	<u>74,707,523</u>	<u>78,273,854</u>
	<u>\$103,233,958</u>	<u>\$106,104,875</u>

Substantially all of the investments of the endowment and similar funds are pooled on a market value basis (consolidated fund) with each individual fund subscribing to or disposing of units on the basis of the value per unit at market value at the beginning of the month within which the transaction takes place. Of the total units, each having a market value of \$134.12, 289,797 units were owned by endowment and 291,564 units were owned by quasi-endowment at September 30, 1981.

The following tabulation summarizes changes in relationships between cost and market values of the pooled investments:

	<i>Market</i>	<i>Cost</i>	<i>Net change</i>	<i>Market value per unit</i>
End of year	<u>\$77,972,161</u>	<u>\$74,410,762</u>	<u>\$ 3,561,399</u>	<u>\$134.12</u>
Beginning of year	\$77,329,906	\$63,371,084	13,958,822	136.08
Decrease in unrealized net gain for year			(10,397,423)	—
Realized net gains for year			8,052,520	—
Total net change for year			<u>\$ (2,344,903)</u>	<u>\$ (1.96)</u>

4. *Receivables*

Receivables at September 30, 1981 included the following:

Current funds

Accounts receivable, auxiliary activities; net of allowance for doubtful accounts of \$539,769 in 1981	\$ 9,624,382
Unbilled costs and fees from grants and contracts	626,972
Interest and dividends receivable	1,707,940
Other	659,366
	<u>12,618,660</u>

Endowment and similar funds

Notes receivable	<u>35,794</u>
Total, all funds	<u>\$12,654,454</u>

5. *Endowment and similar funds*

Endowment and similar funds at September 30, 1981 are summarized as follows:

Endowment funds, income available for:	
Restricted purposes	\$33,513,631
Unrestricted purposes	2,808,369
	<u>36,322,000</u>
Quasi-endowment funds, principal and income available for:	
Restricted purposes	11,081,919
Unrestricted purposes	28,054,405
	<u>39,136,324</u>
Total endowment and similar funds	<u>\$75,458,324</u>

The Institution utilizes the "total return" approach to investment management of endowment funds and quasi-endowment funds. Under this approach, the total investment return is considered to include realized and unrealized gains and losses in addition to interest and dividends. An amount equal to the difference between interest and dividends earned during the year and the amount computed under the total return formula is transferred to or from the current funds.

In applying this approach, it is the Institution's policy to provide, as being available for current expenditures, an amount taking into consideration such factors, as, but not limited to: (1) 4½% of the five-year average of the market value of each fund (adjusted for gifts and transfers during this period), (2) current dividend and interest yield, (3) support needs for bureaus and scientists and (4) inflationary factors as measured by the Consumer Price Index; however, where the market value of the assets of any endowment fund is less than 110% of the historic dollar value (value of gifts at date of donation), the amount provided is limited to only interest and dividends received. The total return factor for 1981 was \$5.50 per unit of fund participation. The total return applied for 1981 was \$3,128,478.

Endowment reimbursement represents payment of income, which had accumulated in principal of the endowment funds, in accordance with a settlement related to a lawsuit.

6. Property and equipment

At September 30, 1981, property and equipment which has been capitalized (see Note 1) is comprised of the following:

<i>Current funds</i>	
Capital improvements	\$ 1,712,318
Equipment	1,059,153
Leasehold improvements	179,962
Less accumulated depreciation and amortization	<u>1,530,947</u>
	1,420,486
<i>Plant funds</i>	
Land and buildings	<u>14,024,283</u>
Total, all funds	<u>\$15,444,769</u>

Depreciation and amortization expense reflected in expenditures of the current funds for 1981 was \$397,399.

The balance of the plant fund at September 30, 1981 includes \$7,463,658 of unexpended plant funds.

7. Pension plan

The Institution has a retirement plan in which substantially all employees of the Trust Funds are eligible to participate. Under the plan, both the Institution and employees contribute stipulated percentages of salary which are used to purchase individual annuities, the rights to which are immediately vested with the employees. The cost of the plan for the year ended September 30, 1981 was \$2,436,155. It is the policy of the Institution to fund plan costs accrued currently. There are no unfunded prior service costs under the plan.

8. Income taxes

The Institution is exempt from income taxation under the provisions of Section 501(c)(3) of the Internal Revenue Code. Organizations described in that section are taxable only on their unrelated business income. The Internal Revenue Service is presently considering a request for technical advice pertaining to whether income derived from several of the Institution's activities is subject to tax as unrelated business income. If the Institution's position is upheld, no tax would be imposed on this income.

It is the opinion of the Institution that it is also exempt from taxation as an instrumentality of the United States as defined in Section 501(c)(1) of the Code. Organizations described in that section are exempt from all income taxation. The Institution has not yet sought such dual status.

Management believes that any income taxes required as a result of settlement of these matters would not have a material effect upon the financial position of the Institution.



In a behind-the-scenes shot of exhibition installation, workers are seen unpacking a bronze Buddhist finial for display in the Evans Gallery at NMNH. The show *5000 Years of Korean Art* included gold crowns, Buddhist sculptures, celadon pottery, scroll paintings, and other treasures from Korean museums, universities, and private collections.

SCIENCE

DAVID CHALLINOR,
ASSISTANT SECRETARY FOR SCIENCE

Chesapeake Bay Center for Environmental Studies

Estuaries include some of the most productive bodies of water in the world. They are exceedingly complex systems because they represent areas where fresh water from the land and salt water from the oceans meet and interact. Scientists from the Chesapeake Bay Center for Environmental Studies (CBCES) are seeking to understand how fresh water entering the Chesapeake Bay estuary is influenced by the quality of rainfall and the types of land-use patterns found in the bay's watershed. The site for this work is Rhode River, a tributary to the Chesapeake Bay, located near Annapolis, Maryland. In conjunction with these efforts, education programs of the center are developing methods and materials for improving public understanding of these dynamic and important ecological systems.

AIRSHED AND WATERSHED STUDIES

The chemical composition and volume of precipitation falling in the Rhode River watershed have been measured by David Correll since 1973 to evaluate the effects of precipitation on the ecosystem. The relative importance of nitrogen loading due to both precipitation and land runoff were evaluated for a five-year period. Year-to-year variations were large, but in an average year the amount of readily available nitrogen entering the estuary was about the same as from precipitation, falling directly upon the water's surface, and

land runoff from all sources. During the summer and fall, precipitation was the largest source of nitrogen.

Runoff was compared for a one-year period from three small, single land-use watersheds representative of the most abundant land-use types on the watershed (forest, row crops, and cattle pastures). Annual area yields of total phosphorus were over six times as high for row crops as for forest or pastureland. Annual area yields of total nitrogen were twice as high for pasture and five times as high for row crops as for forest. A much higher proportion of this nitrogen from the pasture and cropland was nitrate. Total phosphorus in soil was higher in the pasture and cornfield than in the forest, especially in subsoils, but total soil nitrogen was lower in cropland surface soils than in the forest. Soil nitrate was somewhat lower in the forest, but higher than expected from discharge data.

ESTUARINE RESEARCH

In continuing studies of the benthic (bottom dwelling) invertebrate communities of the Rhode River estuary, Anson Hines is investigating the seasonal cycles and population dynamics of the twenty-five major species of clams, crustaceans, and worms in the system. The benthic communities undergo an annual cycle with a high peak of recruitment in spring, followed by a rapid decline in summer, and a secondary, minor recruitment in fall. Warming water temperatures in February and March probably stimulate the spring burst of reproductive activity, which results in heavy larval settlement and high densities of up to fifty thousand organisms per square meter. Although all sampling stations exhibited this general cycle, there has been considerable variation in the densities of organisms between locations in the estuary.

The precise timing of the peak densities and declines also varies between locations within a year and between years within a location. Moreover, the species composition of the spring peak of recruitment is highly variable between locations and between years. For example, in 1980, the spring increase at some locations resulted mainly from a massive settlement of a polychaete worm, *Scolecopides viridis*, which attained peak densities of over forty-five thousand worms per square meter; whereas, in 1981, the spring increase at other locations resulted in recruitment of high densities

of the amphipod crustacean, *Corophium lacustre*. At other stations, the recruitment was composed of a more balanced mix of several species. Particular attention is being given to the five species of clams in the estuary. One species, the brackish water clam (*Rangia cuneata*), showed continued poor recruitment and population decline; while the balthic clam (*Macoma balthica*) had a very successful settlement of up to forty-five hundred clams per square meter in 1981, but predators consumed most of the juvenile clams during the summer. Other species of clams, including the commercial soft clam (*Mya arenaria*), maintained more stable populations. Survival of larger clams depends on the timing of their larval recruitment relative to the activity of predators. Clams that settle early in the spring or late in the fall, may have time to grow large enough to burrow below the reach of predatory blue crabs and fish. Stomachs of blue crabs contain large numbers of small clams early in the summer, but few clams late in the summer.

In studies of fish populations of the Rhode River estuary, Hines and Joseph Miklas have documented major declines of several key species. Pickerel, which had an extremely successful year-class in 1980, show a complete year-class failure in 1981, probably as a result of high salinities during a prolonged drought. Record high salinities during the fall of 1980 also apparently prevented the Rhode River population of carp from moving out of a shallow creek and into deep water to spend the winter. About one thousand to five thousand carp were trapped in the creek by the salinity wedge during a prolonged winter cold spell. Nearly 800 carp died in the frozen creek, but large numbers of carp were present in the creek again in the summer of 1981. Populations of yellow and white perch have continued to decline drastically; in 1981, no spawning fish of either species were trapped in the area. Populations of other species of minnows and juvenile fish remain plentiful in the Rhode River estuary, however.

Anson Hines is also studying the evolutionary and ecological inter-relationships of reproduction, growth, and size in the life history strategies of crabs from the east and west coasts of North America. Analysis of patterns of reproductive output in nineteen species from seven families of crabs shows that weight of the egg mass is evolutionarily limited by the volume of the body cavity to about ten percent of the female's body weight, but that egg size

and number of broods per season are major variables that regulate fecundity. The relationship of egg size to rates of larval development and growth to sexual maturity are being compared in five species of spider crabs that have a wide range in mature size.

The movement of nutrients within the Rhode River ecosystem was studied for a thirteen-month period by David Correll. Organic matter, nitrogen, and phosphorus budgets were calculated among the 2,300 hectares upland watershed dominated by agriculture and secondary successional vegetation, 88 hectares of tidal marshes and mudflats, and the estuarine open water basin. Less organic matter moved out to the estuary (27 tonnes of carbon) than was discharged into the intertidal zone from the watersheds (71 tonnes) and deposited in precipitation (3.4 tonnes). Of the 2.7 tonnes of phosphorus discharged from uplands into the intertidal zone, only 1.9 tonnes moved into the estuary. Generally, high discharges of phosphorus from the watersheds were followed in a week or two by high discharges into the estuary from the intertidal zone. Orthophosphate constituted a significantly lower fraction of the phosphorus that moved into the estuary (38%) than of the phosphorus that was discharged from the watershed (49%). Of the ten tons of nitrogen that were discharged from the watershed into the intertidal zone, only 7.4 tons moved into the estuary. These data indicate overall removal and storage of nutrients from land runoff by the intertidal zone. When land runoff was low, the intertidal zone scavenged nutrients from tidal waters. Only when high runoff occurred due to storms, were some of the stored nutrients flushed from the intertidal zone.

Studies of the factors that affect the penetration of sunlight into the estuary and of the effects of this light upon algae were continued by Maria Faust and David Correll in cooperation with Jack Pierce of the Museum of Natural History and William Klein and Bernard Goldberg of the Radiation Biology Laboratory. Although the spectral distribution of incident light is similar on clear and cloudy days, the attenuation of this light in the water column is much more rapid on clear days. The wave length of maximum intensity and maximum percent penetration for downwelling light shifted between 550 and 600 nanometers in cold weather and between 600 and 650 nanometers in warm weather, especially at times of high turbidity and in the presence of dense

plankton blooms. Attenuation coefficients were also found to have different patterns for clear sky conditions than for heavily overcast days. On clear days, attenuation declined steeply with depth for all spectral bands. On cloudy days, the attenuation coefficient declined with depth in the blue portion of the spectrum, but increased with depth in the red end of the spectrum, while yellow light or total downwelling light were attenuated at a constant rate with depth. Generally, very little light penetrated to a depth of 3 meters. Factors which affected light penetration the most were cloud cover, wave height, suspended mineral particulate concentration, and chlorophyll concentrations. Most of the variability in light penetration could be explained by variations in ten parameters which were measured at five locations, coincident with light measurements each week for a complete year.

Measurements by Maria Faust in controlled growth chambers indicated that a red tide, forming dinoflagellate species *Prorocentrum mariae-leboriae*, can utilize a wide range of wavelengths of the visible spectrum for growth and pigment synthesis. In the bottom waters, where only faint light of green and red wavelengths is available, the number of *P. mariae-leboriae* and other species are as numerous as those close to the surface. Studies are in progress to determine the photosynthetic utilization of green to orange radiation by *P. mariae-leboriae* and the role of such accessory pigments as peridinin and chlorophyll c in this process.

Dennis Whigham, Margaret McWethy, and John O'Neill have completed the first 2½ years of a study to determine the impact of mosquito ditching on the ecology of Chesapeake Bay brackish wetlands. Extensive ditching produced no deleterious effects on water quality parameters in adjacent estuarine water, and mosquito populations were eliminated from the three experimentally treated areas. Shifts in dominance patterns within the wetland vegetation occurred in response to the ditching, and the changes were related to the depth of the water table that was maintained in the experimental areas. Water tables were maintained near the wetland surface in one treated area, and only minor shifts in vegetation occurred with *Spartina patens* (saltmarsh hay) becoming the dominant species. Water tables were lower at the two other experimental sites, and vegetation shifted to a dominance of *Distichlis spicata* (Spike grass) in the first year. Two undesirable shrubby

species—*Iva frutescens* (Marsh elder) and *Baccharis halimifolia* (Sea-myrtle)—invaded the two sites during the first year and were the dominant species by the third growing season.

UPLAND ECOLOGY

Upland plant ecology projects were continued on long-term studies of plant populations and on successional processes in forested environments. One project focused on gaps produced in the forest canopy by tree-falls. These events create small-scale disturbances that provide sites for species colonization. Dan Higman and Dennis Whigham have been monitoring recruitment, mortality, and growth in several tree-fall gaps in the mature forests at CBCES. They have found that several species typical of young forests—*Liquidambar styraciflua* (Sweet gum) and *Liriodendron tulipifera* (Tulip poplar)—immediately invade the gaps, but that most do not survive for more than one year. They have also found that the dynamics of invasion and mortality vary in different parts of the gaps. Understory shrubs and small-statured tree species are also important in the dynamics of gap invasion because they have the potential to increase rapidly in number by sprouting or clonal spreading.

The dynamics of early successional environments are being studied by Robert Tabisz and Dennis Whigham. One interesting weed of cultivated fields is *Ipomoea hederacea* (Morning glory). *Ipomoea* is almost an obligate species in corn fields and disappears very quickly from fields that are abandoned. At the same time, an enormous seed pool lies buried in the successional fields, insuring that when fallow areas are returned to cultivation, *Ipomoea* becomes the dominant weed species again. Results of several experiments have shown that *Ipomoea* is eliminated during the first year after abandonment because it is an inept competitor for nutrients due to a poorly developed root system. Plants that are able to survive during the first year only rarely produce seeds so that few propagules are produced in the first year. Since only seeds on the soil surface will germinate, very few *Ipomoea* will be present in the second and succeeding years.

Whigham and James Lynch have initiated detailed studies on population dynamics of canopy trees with emphasis on the production and survival of fruits of nut-bearing species. Preliminary

results show that predation levels are very high, and that the success of predators, mainly mice, in finding fruits is dependent upon fruit density.

Lynch has been involved with projects concerning terrestrial animals, particularly insects, birds, and mammals. He and Whigham have recently completed a study of the impact of habitat fragmentation on forest bird communities in six Maryland counties. The results indicate that many bird species, particularly those that migrate to the neotropics during the nonbreeding season, react negatively to reduced forest area, plant diversity and increased isolation. Permanently resident bird species are much less likely to be affected by these factors.

Lynch has continued his long-term studies of the structure and dynamics of ant communities at CBCES and comparative sites in Florida and the Caribbean region. This research has attempted to quantify the relative importance of season, time of day, habitat, microhabitat, and food type in ecologically segregating ant species. Additional experiments have been aimed at increasing the understanding of behavioral interactions as mediators of foraging success in ants.

A continuing study by Lynch, Whigham, and Edward Balinsky is documenting the impact of White-tailed deer (*Odocoileus virginianus*) on regeneration of forest trees in several study plots. Preliminary results indicate that unusually high-density deer populations found on certain islands in Chesapeake Bay completely suppress tree regeneration, but the more typical densities of deer that occur at CBCES have relatively little impact on survivorship of forest trees.

EDUCATION

Another primary goal of CBCES is increased understanding of the relationship between people and their environments. In an education context, both research and materials development have been directed towards this end. In one recent example, John Balling, John Falk, and Ruth Aronson collaborated with the education staff and docents of the National Zoological Park (NZP) to study the effects of various pre-trip programs on student learning and behavior on a single-visit field trip to the park. This eighteen-month study involved approximately 950 fourth-grade children.

All children were pre-tested well in advance of their trip to the Zoo. One week prior to their field trip, each class of students in the experimental groups received one of nine pre-trip programs especially designed for this study by the education staff at NZP. The major part of the students' field trip was a highly structured docent-led tour of the aquatic mammals section (Beaver Valley) of the NZP. The tour included discussions of the aquatic adaptations and habitat of the polar bear, California sea lion, gray seal, and river otter. During the tour, observers recorded the behavior of the children. Following the tour, students received two post-tests; one several days later, and one approximately ninety days later to test for longer term retention.

Three distinctly different types of pre-trip material and three different kinds of presentation were factorially crossed for a total of nine separate programs. Using the theory of advanced organizers, one set of pre-trip material included largely cognitive, factual information about the animals the students were to see at the Zoo. Another kit relied heavily on previous research done at CBCES, suggesting that children need some orientation to a novel environment before they can successfully attend to a prescribed task. Therefore, the orientation kit presented information about the appearance of the Zoo and the location of various animals, the bathrooms, eating places, and gift shops, among other things. The final type of material used was based upon zoo educators' concern that children learn to observe animals carefully, to note similarities and differences in both structure and behavior. Through slides and other tasks, this observation kit emphasized comparative looking and detection of details.

Each type of pre-trip material was presented in the students' home classroom in one of three ways: by a trained individual from the Zoo who came to the classroom, by the classroom teacher who had previously gone through a workshop explaining the material and the nature of the field trip, and by the classroom teacher who had simply been mailed the materials with instructions for their use. Interest in these three presentation modes derives from the fact that they represent considerably different amounts and types of resource allocation on the part of a zoo (or any other similar informal education institution). Sending a Zoo staff member out to the classroom is expensive, time-consuming, and draws people

away from duties at the park. Running teacher workshops is more efficient, but it still takes considerable staff time. Clearly, mailing materials to teachers places the least demand on the Zoo education staff. However, the overriding concern is the quality of the experience the children have at the Zoo. Only if one of the more intensive techniques produced significantly better results would there be a reason to expand energy and resources on it.

The results completed to date have shown that children can learn a great deal from a trip to the Zoo; there were highly significant gains from pre- to post-test in all groups who took the trip (and none in the control group that did not take the trip). Further, almost all of what was learned on the trip was retained for at least 90 days, as the decline in test scores after this interval was very slight. Compared to the learning that took place from the trip itself, the effects of the pre-trip programs were relatively small; however, there were some significant results. Overall, the orientation materials had the strongest effect in that all groups receiving the orientation program performed significantly better than controls. Although the cognitive material provided some benefit, it tended to be specific to a subset of items of the test involving conceptual information about aquatic mammals. The observation materials, in general, had little effect. There was also some tendency for the groups who received their pre-trip program from a teacher with workshop experience to score better than the groups whose presentations had been by Zoo personnel or by teachers with no workshop background. The results of this study provide support for the notion that children have a strong need to acquire general knowledge about the environments in which they find themselves. If the environment is relatively novel, this need to attend to the setting will interfere, to some degree, with other tasks imposed upon them by a teacher or docent. However, a pre-trip program that emphasizes environmental or setting information and provides the children with some sense of the place they are to visit can reduce this interference, thereby enhancing achievement of the educational goals of the trip.

Another long-standing research interest at the CBCEs has been environmental influences on human behavior and ways in which human preferences for various landscapes are formed. John Balling and John Falk have been exploring the effects that man's evolutionary history may have on these preferences. Underlying much of

their work is the hypothesis that human evolution, in large part, took place along or near river courses in the East African savanna. Preferences for natural settings with scattered trees, short grass, and some type of water body may, therefore, reflect an innate preference for the environment in which much of our biological (and psychological) apparatus evolved.

Previous research by Balling and Falk has shown strong preferences by Americans for savanna-like settings. In order to validate these findings in light of evolutionary, rather than cultural, influences, cross-cultural data was required. Falk collected data from two populations of Nigerians living in the rain forest belt of West Africa. These subjects shared very different cultural and environmental experiences than the North American populations sampled. Preliminary analysis of the data shows an overwhelming preference by rural Nigerians for savanna over all other biomes sampled. Evidence for an acclimatization preference for the biome most closely resembling one's native surroundings also showed up as in the American samples. In this case, rain forest was the second most preferred biome, while deciduous forest was ranked second by mid-Atlantic Americans. These cross-cultural findings lend strong support to Falk and Balling's evolutionary basis for landscape preference theory.

The Smithsonian Family Learning Project (SFLP) is a series of written educational materials designed to allow families to explore the ecology of their homes and the science integral to their everyday lives. Under the direction of John Falk, staff members Laurie Greenberg and Jamie Harms are developing a series of learning activities, focused on home-related subjects, for parents and their children to do together at home. To date, activity packets have been developed and tested in five areas: lawn, houseplant, and pet ecology; home energy use; and food science. Each packet includes games, experiments, and creative projects that provide the tools for families to discover the dynamics of these systems in their home environment. In one of the activities, families learn about the role of proteins in different flours by baking bread. In another, they take on the roles of pet owners and other community citizens to solve problems associated with pet ownership.

As new activities are developed, they are trial tested by families in both organized workshops and at home. Through a monthly ac-

tivity mailing, Greenberg and Harms are able to gather evaluative information from over 1,000 families across the country. Families comment that SFLP activities are valuable tools for promoting quality interactions while providing fun and educational experiences for the whole family.

The National Air and Space Museum

The National Air and Space Museum (NASM) has continued its balanced program of research, exhibits, collections management, education and public service, constantly monitoring its resources so that the needs of each of these areas could be properly addressed as conditions changed. In this regard, while the museum's primary effort has been expanding its research role, it has had to consider the effects of the wear and tear occasioned by the fifty million persons who have visited the building since its opening date, and upon the routine mechanical problems that can be expected with any facility as it ages.

The most evident results of NASM's research efforts lie in its publications and exhibits. In the Aeronautics Department, the biennial publication *Aircraft Engines in Museums Around the World* was completed and distributed. This publication, which is published alternately with its companion volume, *Aircraft in Museums Around the World*, is widely used internationally, and is a very much sought after publication. The *Messerschmitt Me 262: An Arrow to the Future*, by Walter J. Boyne, was published jointly with the Smithsonian Institution Press and Jane's of England; this new publication method opens a wider market for distribution and results in significantly lower unit publication costs. Several other books have been completed in the course of the year, and will be published next year.

The Aeronautics Department has made the preliminary plans for a four-volume history of aviation, which will be completed over the next several years. This is intended to be the definitive history of aviation, and fills a long perceived need in historical research.

The Space Science and Exploration Department devoted much of

its effort to programs for researching and recording the history of space activity. There has been instituted a continuing series of seminars in which visiting and resident scholars delivered talks to staff and guests in the museum. These covered the early development of the Jet Propulsion Laboratory, the history of meteoritics, cosmic evolution, development of earth-resource monitoring satellites, and early studies of turbulent fluid flow. A department-sponsored "proseminar" in May convened more than thirty persons from around the country—nearly the entire field of historians studying space programs—to discuss themes and methods in the history of space studies. A popular symposium titled "Space Science Comes of Age" brought a distinguished panel of twelve space-science pioneers and historians together to discuss the recent history of their field. A volume of essays published in advance under the same title accompanied the public event.

With the aid of Regents Fellow James A. Van Allen, the department helped to establish a special committee of the American Geophysical Union to foster the history of geophysics. Another of the department's curators will continue this line of research toward a monograph history of cosmic ray studies. Dr. Van Allen completed the bulk of a book on his early involvement in the first scientific investigation in space, which uncovered the intense belts of radiation around the Earth that bear his name. He kindly submitted to fourteen hours of oral history interviewing, which has been transcribed and deposited in the museum's oral history collection.

Research has increased at the Center for Earth and Planetary Studies (CEPS) in lunar and planetary photogeology and in terrestrial deserts, due to the addition of data acquired from the Voyager and Landsat spacecraft. Close-up live pictures of Jupiter and Saturn were shown to the public via closed-circuit TV during the Voyager encounters, and copies of the images are being kept in the center's archives for researchers.

The interpretation of lunar orbital geochemical data, gathered by the Apollo 15 and 16 missions, is continuing as an important element in the analysis of lunar highland samples. As part of a "highlands initiative," undertaken by NASA to determine the origin of Apollo 16 samples, research at the center has been instrumental in establishing the extent of lunar nearside and farside rock types.

Several aspects of martian geology were presented at the Third

International Colloquium on Mars. Distinctive terrestrial desert landforms present in the Western Desert of Egypt were compared with analogous features seen in Viking pictures of Mars. These comparisons have resulted in a better understanding of the deposition of sand, erosion of mountains and formation of small surface pits on rocks.

Remote sensing studies of arid lands have concentrated on the spectral analysis of images taken from Earth orbit, and comparisons with laboratory spectra of samples collected in the field. Studies of the reflectance characteristics of rock and sand samples were made in cooperation with several universities, and results are being used to interpret spectral ratios seen in Landsat images of the world's deserts.

During a trip to Egypt, at the invitation of the late President Anwar Sadat, Farouk El-Baz, Research Director for CEPS, received the Order of Merit-First Class of the Arab Republic of Egypt. The award was made as a result of Dr. El-Baz's contributions to space geology.

The numerous publications of the center are listed in Appendix 6.

The Education Services Division (ESD) has accomplished programs, projects, and products to serve the general public, the education community (teachers and students), and other museums.

It is an especially helpful adjunct to the curatorial staff. Nearly four thousand tours were given to over seventy-one thousand people. This year the division has formalized a one-year training schedule and evaluation plan for the specialized tour for the National Air and Space Museum and the Paul E. Garber Facility, which now has daily tours.

The Briefing Room, a center for live demonstrations for museum visitors, teacher workshops, professional meetings, curator lecture series, and scheduled docent training sessions, opened in March. The Briefing Room activities result in an increased awareness and curiosity about air and space, not only in the students, but also in the teachers.

Among NASM's visitors are those who are disabled and may not be able to experience the total visual and auditory excitement of the galleries and artifacts. The ESD has produced captioned thermofoms for the visually impaired which are raised line drawings of fifty artifacts. Audio and print scripts of audio shows used in the

galleries have been prepared for the hearing impaired. Cassette tours of the three most visited galleries are being developed (for visually impaired and physically disabled). These materials are the conduits of information for a specialized audience, who otherwise might not be able to learn, enjoy, or grow in their understanding of the story of flight.

On a national scale, the general public is reached by the Museum's Regional Resource Program. During the 1980-81 academic year, over seventeen thousand people were offered presentations, lectures, slide shows, and workshops by twenty-eight regional resource persons.

Flight, the filmstrip series, has sold over twelve hundred units and has received awards from the Society of Technical Communication, U.S. Industrial Film Festival, and from the Houston Film Festival. The filmstrips are very well received by teachers and are used for classroom and after-school activities.

The *Air & Space* magazine, a small quarterly publication for educators, is an outreach of the museum, combining information from many sources for a condensed overview of the history, science, technology, and social impact of selected aviation and space subjects. The circulation list has been updated; the magazine is distributed to over thirteen thousand educators.

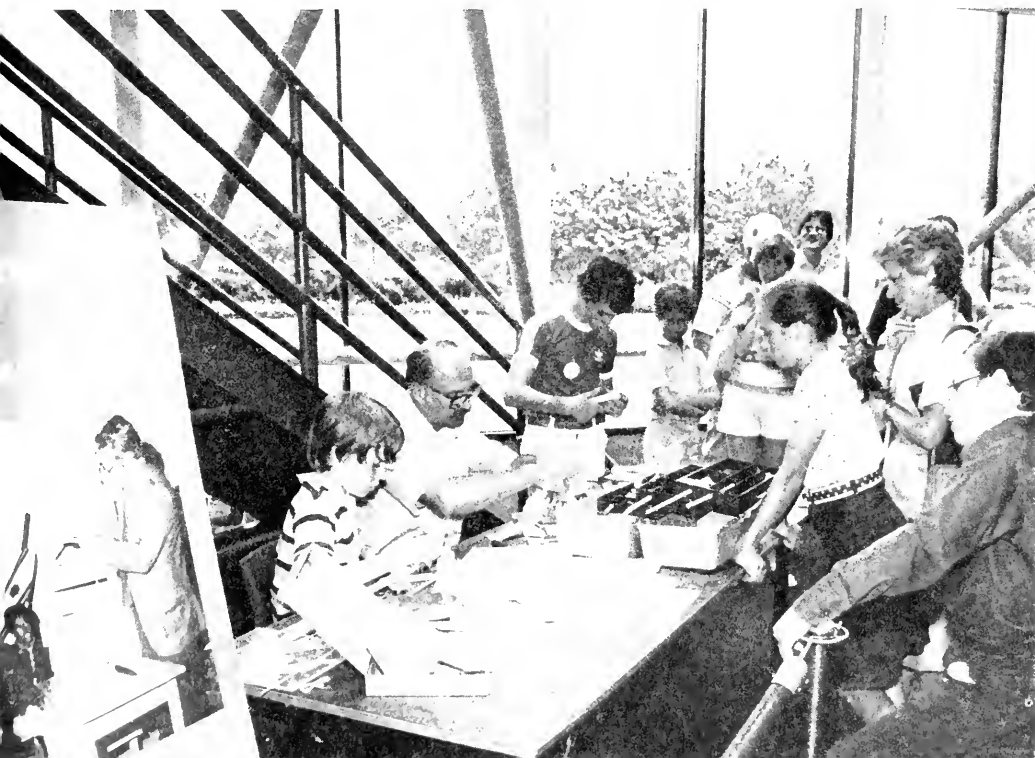
The ESD has developed a NASM intern program that offers a specialized opportunity to help graduate and undergraduate students develop an awareness of the museum world as a source of research. The interns are recruited, screened, and placed in a work environment that promotes initiative and a sense of accomplishment for tasks performed for the museum's and interns' mutual benefit. Fourteen interns were placed during fiscal year 1981.

The Teacher Resource Center opened in May. This facility makes slides, videotapes, books, pamphlets, posters, charts, and learning kits available for teachers to create customized aerospace units for their classes. These units carry the message of aviation and space science education to a greater audience and eventually enhance the students' visit to NASM. Teachers from the Washington metropolitan area use the room on an appointment basis; large teacher workshops traveling to the Washington, D.C., area from several states are scheduled on a rotating basis.

The NASM exhibits program was highlighted by the opening on



Aviation artist Keith Ferris's huge mural for National Air and Space Museum's new Jet Aviation Gallery, opened for NASM's 5th anniversary celebration this year. Among other activities in this museum-wide event was the demonstration on model rocket building (*below*) which drew young and old alike in universal appeal.



July 1, 1981, of the Jet Aviation Gallery in celebration of the museum's fifth anniversary. This gallery features four historic jet aircraft, seven pivotal jet engines, and a huge mural by Keith Ferris depicting the seminal jet aircraft of the time. Perhaps the most interesting part of the exhibit is hidden; the Jet Aviation Gallery audio visuals are entirely video-disc. This is probably the first museum so equipped in the world, and the equipment offers substantial improvements in maintenance costs.

The successful launch and flight of Space Shuttle *Columbia* was celebrated with a new exhibit "America's Space Truck—Space Shuttle," which will be updated to reflect progress in the Space Shuttle program.

The Flight and the Arts Gallery featured a collection of photo-realist paintings in "Assignment Aviation." The collection was donated by Stuart M. Speiser and is complemented by actual flight artifacts similar to those in the paintings.

The first balloon to cross the Atlantic, the *Double Eagle II*, was placed in the Balloons and Airships Gallery in an exhibit commemorating the crossing.

In response to public demand, the Special Aircraft Gallery was redone to feature five famous fighter aircraft. This gallery is used to exhibit recent restorations done at the Paul E. Garber Preservation, Restoration and Storage Facility.

The two IMAX films *To Fly* and *Living Planet* continue to attract large audiences, and major work was completed on a third film, which will premiere in July 1982.

One of the least heralded but most important functions of a museum is the intelligent management of its collection. During this year, NASM made substantial progress in several important areas. The inventory is on schedule, and the Atherton Seidell program of placing NASM's important photographic collection on video-disc is proceeding well. The collection was increased by the careful selection of some important artifacts, including a long sought Beechcraft D-17 Staggerwing and a Boeing B-17G Flying Fortress.

The museum's policy of offering selected programs to groups with specific interest in air and space has been considerably expanded, and has been exceptionally well received. A complete program of evening events, ranging from astronomy lectures to specialized film series, has provided almost nightly offerings to an apparently un-

quenched public thirst for information. These evening programs are reinforced with periodic presentations during the daytime hours in either the Spacearium or Briefing Room, where NASM curators or special guest lecturers cover topics on a close interpersonal basis with visitors.

*National Museum of Man,
Center for the Study of Man*

*NATIONAL HUMAN STUDIES FILM CENTER
(formerly National Anthropological Film Center)*

Studies of the Jyapu people in Nepal, currently underway by Dr. Richard Sorenson, Barbara Johnson, Ragpa Dorjee, and Lain Bangdel of the National Human Studies Film Center (NHSFC), offer new insights into alternative forms of industrious productivity.

In the Jyapu communities, work is approached much the same way sports might be approached in Western cultures: considerable mental, physical, and experimental effort are invested in perfecting the "playing technique." The social enjoyment of joint involvement is a principle reward. A "work ethic," in the Western sense, is not involved. It is a way of life that has played a crucial role in the emergence of the unique civilizational process of the Kathmandu Valley.

Similar collaborative studies among the Tibetan stock people reveal a unifying social pattern of mutual personal regard and respect in which pleasure is typically derived from feeling out and helping to satisfy the interests and desires of others. This culturally specific behavior patterning starts to take hold during early childhood in an extended family. Analysis of research films reveals that this basic habit of life provides for an unusually harmonious life style—even in the hard, arid environment of barren Himalayan valleys of 12,000 feet in elevation.

This response pattern also provides a basis on which the particularly Tibetan response to Buddhism could develop. Endowed with habits of reciprocal respect and sympathy, Tibetan boys entered monasteries run by people like themselves. Participation in the disciplined approach to life was attractive to them, as individual style

and personal impetus were readily incorporated. With the disciplined objectives of the monasteries remaining receptive and tolerant to individual penchant, continuous behavioral and philosophical growth flourished.

Through another visual-data project, the NHSFC learned that the Canela Indians of Brazil have produced a remarkable social solidarity that has anchored a persisting way of life, but with it was a considerable latitude for individuality. This presented a paradoxical situation. Further analysis of the visual-data records revealed that the style of Canela life imparted to the young children provided a basis for simultaneous expressions of individuality and solidarity.

A different pattern of development pertains among the traditional atoll-dwellers of Micronesia who are also participants in an NHSFC research film inquiry. In this part of the world, respect patterns and cognitive interest would seem to sustain a basically harmonious life amid high population densities. Preliminary studies show that formally hierarchical political structures follow age and lines of extended family parentage. However, in spite of this, community life is expressionally democratic. What happens is that age provides increased experience and knowledge. These are valued by the younger members of the community. The system of respect provides the means to satisfy the inquisitive interests of the young.

Still in its early stages is a collaborative inquiry into the cultural heritage of Papua New Guinea. To date this has concentrated upon an unusually traditional representative of an important but little-studied region in the upper Sepik watershed. This research film effort in a Mianmin-speaking Melanesian community preceded all other Western contact or acculturation there. Because this community survives in an exceedingly harsh tropical environment, where severe dietary and health conditions even affect the neurophysiological status of the population, it provides a case study of human adaptability under severe conditions. This project includes collaboration with human studies scholars of the Summer Institute of Linguistics and local experts.

During the year the NHSFC has continued its program to develop increasingly better visual-data resources for scholarly purposes. A total of 185,486 feet of research film have been worked up as visual-data resources on eleven different cultures from seven Third World nations.

The Research Institute on Immigration and Ethnic Studies (RIIES) is now focusing on a specialized program of studies and exhibitions on the Caribbean region as both source and recipient of new immigrants and immigration, and the human experiences and socio-cultural processes that accompany such movements.

During the past fiscal year, RIIES collaborated with the School of Divinity, Howard University, and the Visual Arts Research and Resource Center Relating to the Caribbean/Phelps-Stokes Fund in sponsoring a seminar on "Beliefs, Rituals and Symbols of African Religion—Africa and the Americas;" sponsored an outreach program as its contribution to the Caribbean Segment of the Smithsonian Institution's Festival of American Folklife activities on the Mall.

The director, Dr. Roy Bryce-Laporte, chaired sessions at the Caribbean Studies Association meetings on "The Haitian Immigrants, Refugees and Boat People," and "The Presence of the New Caribbean Immigrants" in St. Thomas, Virgin Islands, and a panel on "Migration of Third World Immigrants to the U.S." at the American Political Science Association meetings in New York City. He participated in the National Immigration Consultation in Washington, D.C., and gave presentations at the D.C. LINKS' forum on "Global Women's Issues," at the Dedicators' tribute to "Dr. George Westerman," and at the Coalicion de Panama/Museum of Natural History, both in New York City. He also gave consultations on "Illegal Immigrants in New York City" to the New York Urban League's Special Task Force.

Dr. Bryce-Laporte was one of the recipients of the Caribbean American Intercultural Organization's "Tribute to Caribbean Scholars in the United States" Award. Also he was among the first recipients of the D.C. Mayor's Annual Arts Award for his contributions to the Washington community. Two publications of RIIES were nominated for the *C. Wright Mills Award* of the Society for the Study of Social Problems meeting in Toronto.



NMNH botanist Dr. Mason Hale spent four weeks in snow-free (dry) valleys of the Antarctic collecting unique lichens that live inside rock. *Below.* NMNH's Dr. Dennis Stanford (*right*) shows Chinese scientists (*from left*) Hu Chang Kang, Gai Pei, and Li Youheng Anhui a paleo-Indian excavation in Colorado.



National Museum of Natural History

THOMAS M. EVANS GALLERY

The new Thomas M. Evans Special Exhibition Gallery opened on July 15, 1981, endowing the National Museum of Natural History (NMNH) with an elegant, versatile, and spacious new first-floor hall.

Designed to accommodate important traveling loan exhibitions and major exhibits organized by the Smithsonian, the gallery is named for Thomas M. Evans, a New York philanthropist whose contribution to the Smithsonian made its construction possible.

Over an eight-month period, workers transformed the first floor foyer hall—which formerly housed an ecology exhibition—into a stylish new gallery with oak floors, a new ceiling and lighting system and a system of fabric-covered adjustable walls. A walled corridor runs the center length of the gallery as a throughway for persons going to and from the museum's first-to-second-floor escalator, Baird Auditorium, and the Associates Court Dining Room.

The gallery—designed by Elizabeth Miles of the Museum Exhibit Office—has the largest exhibit space of any Smithsonian museum on the Mall: 12,460 square feet.

Size is only one of the gallery's attributes; equally important is its economy and flexibility. At a minimum of expense it will be possible to accommodate virtually any traveling exhibition, from the largest down to the smallest, with relative ease.

Evans, a long-time friend and supporter of the Smithsonian exhibition, was honored by Secretary Ripley and Museum Director Richard S. Fiske at a dinner held July 14 before the opening of the new gallery's inaugural exhibit, *5000 Years of Korean Art*.

EXHIBITS

Two spectacular special exhibitions highlighted the 1980–81 season at the NMNH. *5000 Years of Korean Art*, (July 15–September 30, 1981) gave the public the opportunity to view gold crowns, Buddhist sculptures, celadon pottery, scroll paintings, and a wealth of other treasures from Korean national museums, universities, and private collections. The most comprehensive display of Korean art ever brought to the United States, the exhibition was organized by the Asian Art Museum of San Francisco in cooperation with the

National Museum of Korea and funded by the National Endowment for the Humanities.

The museum hosted the debut of the Smithsonian Traveling Exhibition Service's "Renaissance of Islam: Art of the Mamluks," (May 14–July 19, 1981). The first major showing of the art of the Mamluk era in the United States, it contained masterworks of metalwork, glass, ceramics, woodwork, ivory, carpets, textiles, and illuminated manuscripts from the thirteenth to the sixteenth centuries.

While stepping up its showings of large and important special exhibitions, the museum is continuing to carry out scheduled modernization of its permanent exhibit halls. In October 1980, a revolutionary new exhibit aquarium housing a living coral reef, opened in the Sea Life Hall.

The exhibit marks the first time it has been possible to keep a large reef community—including the corals—alive and functioning in isolation from the sea. More than three tons of coral rubble and at least two hundred species of plants and animals were transported from the Caribbean for the exhibit. Housed in a three-thousand-gallon tank system, this "microcosm" reef community is kept alive by high intensity lights, a wave-generating machine, and a battery of monitoring equipment. The exhibit is equipped with an adjoining laboratory area where research is conducted on the reef system. It is the first time an actual research project has ever been located in a museum exhibit area, providing the public with a unique, first-hand opportunity to see scientists at work.

The reef system is a spinoff of eight years of pioneering field investigations in the Caribbean by museum scientist Dr. Walter H. Adey. The project was constructed with a grant from the National Science Foundation's Public Understanding of Science Program. Different versions of the coral reef exhibit will be built with Smithsonian and NSF assistance at other museums in the United States.

The museum's Rotunda Balcony Gallery featured six exhibitions in 1980–81: "Native Flora of Louisiana," "Photographs of Guatemala," "Elizabeth Gwillim Bird Paintings," "Pressed on Paper: Fish Rubbings and Nature Prints," "Galapagos: Born of the Sea," and "Two Bird Painters in Oregon Territory."

The Museum's new first-floor Corridor Gallery opened with a



Housed in a 3,000-gallon tank system at NMNH, the reef community is kept alive by high-intensity lights, a wave-generating machine, and a battery of monitoring equipment. *Below.* NMNH's Dr. Meredith Jones holds a giant tube worm, one of this newly discovered family of deep-sea animals.



display of color nature photographs, "Beyond the Ocean, Beneath a Leaf," by staff member Kjell Sandved.

Other small special shows elsewhere in the museum were: "Photographic Scenes of Contemporary Egypt;" "Peace Corps 20th Anniversary Photographs;" "Diplomats in Buckskin," an exhibit of historic photographs from the Museum's Anthropological Archives of Indian delegations to Washington, D.C.; "Cycles of Sustenance," photographs of World Bank sponsored projects to stimulate food production in the Third World; "Reflections on a Fossil Lake," a collection of fossil plants, fish, birds, insects, and other animals from the Rocky Mountains; a display of "Contemporary Korean-American Arts;" and an exhibit of John Wesley Powell's anthropological manuscripts and artifacts.

ANTHROPOLOGY

This year saw the beginning of the five year Chinese/American New World Human Origins Program under the direction of Dr. Dennis Stanford. Funded by the National Geographic Society and the Wenner-Gren Foundation, and involving an interdisciplinary team of American and Chinese scholars, this program is designed to increase understanding of human origins in the New World, as well as clarify the paleoenvironment and culture history of Asia and North America between one hundred thousand and twelve thousand years ago.

During the summer of 1981, Stanford, with a Chinese archeologist, vertebrate paleontologist, and geologist, participated in excavations at Lamb Springs, a large multi-component archeological site in Colorado, which spans a time period from thirteen thousand years ago to the historic period. The three Chinese scholars visited other paleo-Indian archeological sites and collections in Wyoming, Colorado, Texas, New Mexico, and Arizona.

The second phase of Stanford's project will take him to China's Manchurian Plain to investigate Pleistocene terraces of the Sungari River to search for ancient open-air camp sites, kill sites, butchering stations, and quarries of the kind he has studied in the United States. It is hypothesized that the original colonists of the New World derived from populations which developed in the mainland of China and moved northwest to the Manchurian Plain, eventually following the unglaciated Sungari River, and thence into the New World.

An important beginning in 1981 was made to the understanding of biocultural adaptations and biological evolution of prehistoric populations in South America with the publication of Dr. Douglas H. Ubelaker's *The Ayala Cemetery, A Late Integration Period Burial Site on the South Coast of Ecuador*. This monograph in the *Smithsonian's Contributions to Anthropology* series presents a detailed analysis of fifty-four funerary urns from coastal Ecuador, containing twenty-five primary skeletons dating from 500 B.C. to the time of initial European contact. As a detailed, comprehensive presentation of both biological and cultural information gleaned from prehistoric cemetery excavation, the work is unique in Latin America. Ubelaker's analysis shows an increase through time of characteristics such as cranial deformation, arthritic lipping at the knee, dental caries, evidence of infectious disease and life expectancy. It is hypothesized that an increased dependency upon intensive agriculture may account for dental and arthritic problems and some of the other changes.

Comparative biological data were also published by Ubelaker this year from the Ecuadorean sites of St. Elena on the southern coast and from Cotacollao in the highlands. The skeletal sample from St. Elena has been dated at nearly ten thousand years ago, making it one of the oldest large samples in the Western Hemisphere. Together, these new data present an emerging picture of prehistoric biological evolution that can be correlated with postulated changes and diversity in subsistence, settlement patterns, and other aspects of culture.

Diplomats in Buckskins: A History of Indian Delegations in Washington City, written by Dr. Herman J. Viola, Director of the Smithsonian's National Anthropological Archives, was published in 1981 by the Smithsonian Institution Press. The book, focusing on the nineteenth century, tells the sometimes tragic, often dramatic story of Indian delegations from Colonial times through the present day. In spite of the painful misunderstanding and mistreatment the Indians endured, Viola shows the benefits Indians received from their visits to Washington as each delegation became more adept in handling relations with the federal government.

Archeological fieldwork conducted by Dr. William Fitzhugh resulted in the discovery of the largest, most complex late Maritime Archaic site (4,000–3,400 B.P.) so far known in Central and

Northern Labrador. At Nulliak Cave, evidence of an unexpected extensive settlement was uncovered through the investigation of series of structures, apparently houses, replete with hearths, floor passages, and tools. Large burial mounds and the remains of a caribou trap were also found. The buildings and burials indicate large social groups, perhaps formed into clans, with certain people accorded special status as seen in the elaborate burial and profusion of grave goods.

Fitzhugh's 1980 discoveries, reflecting social organization and domestic life, when combined with his previously obtained data on burial practices and trade patterns, revolutionizes former interpretation of Maritime Archaic culture and has important ramifications for studies of the early archeological cultures of northeastern North America.

Adrienne L. Kaeppler continued her research and writing on Polynesian dance, investigating the meaning, use, and aesthetic principles of structured movement systems in Tonga and Hawaii. She worked in Hawaii with the three major living exponents of *hula pahu* (dance accompanied by wooden drums covered with sharkskin membranes)—the dance type that evolved from sacred temple rituals. She is particularly interested in indigenous Polynesian ideas of what constitutes "dance"—a concept for which they have no over-all term—and the relationship between "dance" movement and the poetry that it projects into visual form as an audio-visual enhancement of social relationships and cultural aesthetics.

BOTANY

Museum botanist Dr. Mason Hale spent four weeks in December and January 1980–81 in the snow-free (dry) valleys of the Antarctic's Transatlantic Mountains, collecting unique lichen that literally live inside rock to survive one of the harshest environments on earth.

No large masses of ice or snow exist in the dry valleys. The glaciers that originally cut the valleys withered away millions of years ago. The mountainous slopes, high plateaus, and steep gorge-like cliffs of the valleys now resemble the landscape of the southwestern U.S. desert. Occasionally, it snows, but the valley's fierce winds soon scour most of the snow away.

Lichen—which grows elsewhere in Antarctica—is not able to survive in its normal form in the dry valleys because of the strong winds that ceaselessly “sandblast” the surface of the rock.

Because the dry valleys are the nearest terrestrial analog to the cold and barren surface of Mars, microbiologists used the valleys in the 1950s and 1960s to test their hypotheses concerning the possibility of the existence of life on the red planet. Traces of a few microorganisms that had been carried into the dry valley by the wind were discovered, but no evidence was found of any indigenous life.

Then in 1977 Dr. Imre Friedmann of Florida State University discovered that there were algae and lichen living in the microscopic niches between rock crystals. During the dark, sub-zero Antarctic winters, the lichens cease their life activities and become “freeze-dried” inside the rock. When the Antarctic summer arrives, the temperature outside remains below freezing, but the sun shining on the rocks allows them to absorb and retain solar heat and keeps the “climate” inside the rock a comfortable 45° F. The lichen thaws out and life resumes. Light penetrates into the porous sandstone and makes photosynthesis possible as far down as a half inch below the surface.

Hale, one of the world’s leading lichenologists, returned to Antarctica with Friedmann to classify the lichens and determine their life cycle and distribution. Hale’s analysis shows the presence of three chemical populations. He collected fertile material that is evidence for at least two crutose lichen genera, *Buellia* and *Lecidea*, each represented by two species in addition to the chemical populations. Much work remains to be done on the taxonomy, morphology, and chemistry of the lichens before anything can be said of their evolution and dispersal and relation to temperate forms.

In addition to their research activities, some museum scientists play key roles as “lawyers” within the scientific community. One of these is museum botanist Dr. Dan H. Nicholson, a leading international authority on correct botanical nomenclature. He represents the Smithsonian—along with other Botany Department staff members—at the meetings of the legislative body that amends the international laws (code) of botanical nomenclature, which is used throughout the world and affects the scientific names of all plants. The group met last August in Sidney, Australia, at the Thirteenth

Annual Botanical Congress. Nicholson is currently nomenclature editor for *Taxon*, the official journal of the International Association of Plant Taxonomists, in which all proposals to amend the code are published.

Museum botanist Dr. Richard H. Eyde looked into a curious chapter in botanical history during the past year: the mysterious mass death in the early nineteenth century, of trees that forested most of Trinidad, a small Brazilian island 700 miles out in the Atlantic Ocean. All that was left was a desolate landscape of arboreal corpses with interlocking branches.

Many explanations have been given for this phenomenon, including diseases and pests, extended drought, volcanic eruptions, high seas, and destructive goats and pigs. After getting the first true identification of the dead trees, Dr. Eyde points out that almost every possible explanation for their death has been given except old age and that this possibility is not as silly as it might seem. In fact, trees do become more susceptible to stress when they reach an advanced age. If introduced goats or pigs prevented young trees from growing, all the old trees could have succumbed together in an extra dry or damp year.

ENTOMOLOGY

Museum entomologist, Dr. Paul Hurd, in a study published in November 1980 that has important economic applications, has determined native American wild bees to be far superior to honeybees as pollinators of North American sunflowers.

Hurd, and colleagues Dr. Wallace E. LaBerge of the Illinois Natural History Survey and Gorton Linsley of the University of California at Berkeley, are authors of "Principal Sunflower Bees of North America with Emphasis on the Southwestern United States (Hymenoptera: Apoidea)," *Smithsonian Contributions to Zoology*, No. 310, 1980.

The Hurd-LaBerge-Linsley study provides a comprehensive list of all sunflower pollinators, classifying them according to their effectiveness. It is the first such guide ever prepared and is intended to provide a basis for the assessment and management of our native bees for pollination of sunflowers in both commercial and native settings.

Of the nearly fifty species of sunflowers native to the Western Hemisphere, it is the "giant" sunflower that is cultivated for its

edible seeds and oils. Useful for salad and cooking oils, shortening and margarine, and as an ingredient in paints, plastics, and industrial lubricants, sunflower oil is also believed to have potential as an economical and renewable source of high-quality fuel for diesel engines. Now that the giant sunflower is a major cash crop, farmers are striving to increase the yield per acre. Employing more effective pollinators is one way of achieving this objective.

In the Soviet Union and other foreign countries, growers have long depended on honeybee colonies to provide pollination for sunflower plants. The scientists believe that because of ignorance the idea that honeybees are the best pollinators of sunflowers spread to this country.

In their three-year study, the scientists surveyed sunflower pollinators in eight areas in Texas, New Mexico, Arizona, and southern California. They recorded data on 9,964 pollinating bees. Seventeen species of native wild bees made up ninety percent of bees observed at the monitored sites.

“Up until now, few people in the United States have realized the role of the native bee,” Dr. Hurd said. “We hope our study will change this view and make growers aware of how important it is to maintain natural areas around sunflower fields for the wild bees to use as nesting sites.”

Another study underway addresses the many biogeographical influences—including Africa to the south and Europe to the north—that contribute to the composition of Israel’s fauna. The Israel Academy of Sciences and Humanities is currently undertaking the first comprehensive systematic classification of this fauna, a project in which museum entomologist Dr. Wayne Mathis is participating.

Dr. Wayne Mathis made two field trips to Israel in 1980–81 for a study of Ephydriadae (shorefly) family of flies, which eventually is to be published in the Academy’s Fauna Palaestina series. Accompanied by Dr. Amon Friedberg (Tel Aviv University), Dr. Mathis made a collection of twelve thousand to fifteen thousand shorefly specimens mostly in northern Israel (Golan Heights, the upper Gallilee, and Hula Valley) and in the Sinai. This rich and versatile family of flies—eighty to one hundred species—is of importance because it thrives in a variety of habitats ranging from the saline conditions of the Dead Sea to freshwater areas. Dr. Bryan H. Cogan of the British Museum, is coauthor of the study.

INVERTEBRATE ZOOLOGY

After three years of intensive research, the museum's Dr. Meredith L. Jones and other scientists reported in July 1981 that giant worms found growing on the deep sea floor are a new family of animals that owe their existence to a heretofore unknown strategy for energy derivation based on chemosynthesis.

The giant worms live on the seafloor at geothermal springs occurring in a geologically active region of the East Pacific where lava sometimes erupts between separating zones of oceanic crust. Ordinarily, water at depths of a mile and a half is a frigid 36° F.; animal life is scattered and sparse. But in these rift areas, hot water from the earth's interior—rich in hydrogen sulfide—flows up through fissures or vents in newly solidified sea floor lava. Living and thriving in these pockets of warm water are diverse communities of animals, including giant tube worms with no mouths or digestive systems. How do these worms and other animals survive, let alone flourish, in this toxic environment? Puzzled researchers who found the worms shipped them to Dr. Jones, one of the world's leading experts on the anatomy of worms. It became his job to determine what known species, genus and family of worms—if any—they represented.

At first, the giant worm's anatomy was totally alien to Jones, but after awhile it became apparent that it was related to that of two smaller species of worms, described about eight years ago, belonging to the order Pogonophora (or "beard bearer"). At that point, Jones and other scientists had tacitly assumed that the giant worms probably were nourished by absorbing organic molecules through the tentacular surface of their plumed tip or across their body surfaces. This picture was consistent with the prevailing belief that the smaller pogonophoran worms received nourishment by absorbing organic molecules from the deep sea mud in which they lived.

But then the news arrived that two British and two Norwegian scientists had assayed the environment in which the small pogonophoran worms lived and could not find enough organic material in the mud to make it possible for the worms to survive, much less reproduce and grow. How, Jones wondered, could much larger worms without mouths or guts be getting nourishment?

Shortly after, Jones came upon a tiny clue that would eventually lead to solution of the puzzle. While dissecting giant tube worm tissue from the trunk of the worm's body, he spotted some tiny yellow flecks. Suspecting that they might be grains of sulfur, he asked mineralogists at the museum to test them. His hunch proved correct. The flecks were crystals of pure sulfur—an extraordinarily unusual substance to find in an organism.

Jones thought there had to be some relationship between the sulfide environment in which they lived and the sulfur crystals. The giant tube worms must have worked out a mechanism to get rid of sulfide that came across the plume or body wall. Somehow, they were detoxifying the sulfide.

A few weeks later, Jones gave a lecture on the worms at Harvard University. He mentioned the crystals of sulfur to a Harvard graduate student, Colleen M. Cavanaugh, who immediately told him that she thought bacteria might be producing the sulfur.

Jones sent specimens of tissue to Cavanaugh and to Stephen L. Gardiner at the University of North Carolina. Using sophisticated microscopic techniques, both confirmed the presence of sulfur-containing bacteria.

Another major piece of the puzzle fell into place when Dr. Horst Felbeck of the Scripps Institution of Oceanography in San Diego reported that in the worm's trunk region he had found several key enzymes identical to plant enzymes that convert inorganic carbon to useful organic carbon in the form of carbohydrates. It soon became clear that bacteria were living in the worms' trunks by the billions and they contained enzymes that could transform the hydrogen sulfide and use the resulting energy to make adenosine triphosphate, an energy-carrying chemical crucial to the formation of carbohydrates.

The last critical link in the chain of discovery was forged by Dr. Greg H. Rau of the University of California at Los Angeles. His studies suggested that organic carbon manufactured by the bacteria was being incorporated into the muscle structure of the worms themselves, thus ruling out the possibility that the worms were somehow getting carbon from some other sources in their environment.

Dr. Jones's description and name for the new worm—*Riftia pachyptila* Jones—was reported in *Science* magazine along with the

other scientists' findings on how the worms get nourishment. Many questions about the worm are yet to be resolved, including how the worms reproduce, how they get from one deep sea vent to another, and where they originally evolved.

MINERAL SCIENCES

"Volcanoes of the World," the most comprehensive summary of global volcanism ever assembled, was published in August 1981 after ten years of research by staffers of the Museum's Department of Mineral Sciences. It is expected to be an invaluable source of information for scientists, historians, students or any other reader interested in the history and effects of volcanoes.

The detailed reference book covers 5,564 eruptions, arranged chronologically with data on duration, explosive magnitude, and volume of products (when known); and 1,343 volcanoes active in the last 10,000 years, arranged by region with data on locations, heights, types, known eruptive history, and behavioral characteristics.

In addition, there are 5,345 volcano names, synonyms, and feature names, arranged alphabetically and cross-referenced; a list of 709 references, arranged chronologically by region, constituting a selective guide to the volcanological literature; and a world map with volcano locations and cross-referencing numbers shown.

The ten-year effort to produce the directory was led by the museum's Dr. Tom Simkin, who took over direction of the project after it was launched by Dr. William Melson in 1972.

Simkin hopes the book will interest a broad audience and that feedback from the readers will help in the continuing effort to improve the volcanological record.

Because the book's data is concentrated in a computer data bank, feedback can be quickly incorporated to build an increasingly complete record of global volcanism. The data bank is already being used for studies ranging from plate tectonic maps to tidal influences on volcanism.

The five other coauthors of the directory are: Lee Siebert, a museum specialist in the Mineral Sciences Department, who compiled useful geographic, historic, and volcanological information on the world's volcanoes; Lindsay McClelland, leader of the museum's Scientific Event Alert Network, who gathered information on con-

temporary eruptions; David Bridge, operations manager for the museum's Automatic Data Processing Program, who made it possible to produce the book's computer-generated camera-ready data tables; Christopher Newhall of the U.S. Geological Survey, who compiled the directory's explosivity index; and Dr. J. H. Latter, a New Zealand geologist, who contributed considerable information on foreign volcanoes in regions such as Canada.

Museum scientists continued in 1981 with the characterization and description of the meteorites collected in the past four years in Antarctica by National Science Foundation expeditions. Approximately 300 of the 750 specimens collected have been classified and described by Dr. Brian Mason in the *Antarctic Meteorite Newsletter*.

The Antarctic iron meteorites are being studied and described by Dr. Roy S. Clarke, Jr. One of these, a twenty-three-pound iron specimen from Antarctic's Allen Hills, achieved a special status in the annals of meteoritic science.

As the specimen was being sliced with the department's metal-cutting saw, the saw suddenly stopped and refused to cut further. X-ray diffraction studies of the material conducted by Dr. Daniel E. Appleman and Daphne E. Ross disclosed the presence of tiny crystals of diamonds, together with two other forms of carbon: a rare mineral called lonsdaleite, chemically identical with, but having a different crystal structure than, diamond; and graphite, the familiar form of carbon used in lead pencils.

Only one other iron meteorite has been found to contain diamonds: the Canyon Diablo meteorite that formed the mile-wide Meteor Crater in Arizona about fifty thousand years ago.

The diamonds in the Canyon Diablo meteorite seem to have been produced when the meteorite hit the earth and shockwaves converted natural carbon (graphite) in the meteorite into diamonds. But being small, the Antarctic meteorite would have been slowed down as it came through the atmosphere, and it would have hit the ice at too low a speed to create a crater. Therefore, Clarke believes the diamonds must have formed before then, probably as the result of two asteroids colliding with each other. Thus the meteorite is a piece from the collision.

Clarke, Appleman, and Ross reported their discovery in the magazine *Nature*.

For a number of years, museum paleobiologists Dr. Richard S. Boardman and Dr. Alan Cheetham have been working toward an improved understanding of the biology of bryozoans—aquatic, mostly marine, invertebrate animals that form permanently attached colonies.

The Boardman and Cheetham research, which supports a new classification of the Bryozoa phylum, is being published in detail in the first volume of the revision of the Bryozoa in the *Treatise on Invertebrate Paleontology* and in a textbook on *Invertebrate Paleontology* to be published by W. H. Freeman. The textbook has twenty-five contributing authors and is being organized and edited by Drs. Boardman, Cheetham, and A. J. Rowell of the University of Kansas.

Dr. Boardman has just finished a study of Triassic and Jurassic Bryozoa to investigate the fate of four bryozoan orders which supposedly became extinct at the close of the Permian. Only a fifth order has continued after this time. Boardman thinks that parts of this single order are derived from the extinct orders, and that major revisions of bryozoan phylogeny and classification are needed. The finished manuscript entitled, "Origin of Post-Triassic Stenolaemata (Bryozoa)," has been sent to *Paleobiology* for publication.

New material, consisting of Tertiary and Recent Bryozoa Dr. Boardman collected on a five-week trip to Australia in October and November 1980, is expected to provide new biologic information.

Many fossil bryozoans grew in the form of miniature trees, but have been preserved only as separated fragments. Dr. Cheetham, in collaboration with Lee Ann Hayek, Smithsonian Office of Computer Services, and Erik Thomsen, University of Aarhus, Denmark, developed mathematical methods to analyze branching patterns and branch tapering gradients in these fossil treelike forms. This has enabled them to reconstruct the form of a whole colony of these fossils and compare them with living species. Their findings were published in *Paleobiology*.

In an extension of this project, a three-dimensional model of a miniature treelike fossil bryozoan was built and placed in a flume so that Cheetham and Thomsen could study it under the stress of flowing water and measure its mechanical properties and resistance to breaking up. This permitted precise estimation of limiting physical conditions under which fossil species of this form could have grown.

North America's tree-loving grey and fox squirrels are really living fossils, which have changed very little in their anatomy in the last thirty-five million years, according to Museum mammalogist Dr. Richard Thorington and vertebrate paleobiologist Dr. Robert Emry.

The conclusion of the two scientists is based on studies of the oldest known fossil squirrel, *Protosciurus*, discovered recently by Dr. Emry in Wyoming's White River Formation. Fragments of fossil squirrels had been found before in Oligocene deposits, but Emry's is an almost complete skeleton. The jaw muscles of the fossil squirrel differ from the modern squirrel's but otherwise it is almost identical to a modern tree squirrel.

Dr. Thorington has also been conducting a study of flying squirrels with Dr. Lawrence R. Heaney of the University of Michigan, focusing on how size differences might influence the gliding capabilities of various sized species of squirrels.

The smallest flying squirrels are only seven inches long, whereas the largest are thirty-six inches long. Using hand gliding as an analogy, Thorington and Heaney concluded that the largest flying squirrels must glide faster than the small ones, and that one of the main problems for a large flying squirrel is the speed at which it lands. They discovered that to cope with the problem the large flying squirrels have different shaped gliding membranes from the small ones to enable them to land at lower air speed than they otherwise could.

South America's vast freshwater fish fauna is very poorly known, but a study now underway by museum ichthyologist Dr. Richard Vari is remedying this situation to a great extent in one major region of the continent—the Guyanas.

For the past two years, Vari has been surveying the fish of Surinam's Corantijn River where the World Bank is funding a vast hydroelectric project.

When the project is completed, the Corantijn River will be diverted into a tributary, the Kabalebo River, which will be dammed and impounded at two or three points.

Both the diversion and the impoundment lakes are expected to have major effects on the fish fauna—a source of food for the several thousand people living on the lower reaches of the river.

Vari's study, undertaken for the Surinamese Government and the

World Bank, is the first comprehensive inventory of that region's fish fauna. More than 230 species have been observed and collected, and considerable information has been gathered about their life history, breeding behavior, ecology, and food requirements. Dr. Vari has been assisted in the field by Dr. Lynne Parenti, a Smithsonian postdoctoral fellow. The approximately fifty-five thousand specimens that they have amassed is the largest freshwater South American fish collection ever acquired by the museum. Studies of the material are now underway.

FORT PIERCE BUREAU

Administrative responsibility for the Smithsonian's Fort Pierce Bureau was transferred in March 1981 to the director of the NMNH from the Smithsonian's Office of Grants and Risk Management. The bureau, located on the Indian River near Fort Pierce, Florida, conducts research in marine biology with emphasis on studies of life histories and systematics of selected marine organisms of the Indian River and nearby continental shelf. Smithsonian facilities—including a laboratory barge—are located in the compound of the Harbor Branch Foundation, a not-for-profit corporation, established primarily for research in the marine sciences and for the development of tools and systems for underwater oceanographic research.

Museum scientists work at Fort Pierce in cooperation with Harbor Branch Foundation scientists and engineers. Currently, Dr. Martin Buzas is conducting a study of the distribution and systematics of Indian River foraminifera and examining the relationship between the chemistry of the Indian River environment and foraminifera; Dr. Robert Gore is studying Indian River crustaceans; Dr. Mary E. Rice is studying the life histories of selected species of sipunculan worms from the coast of Florida and from the Caribbean; and Dr. David Pawson has been using the Harbor Branch submersible, *Johnson-Sea-Link*, to study deepwater holothurians (sea cucumbers) off the coast of Florida.

OFFICE OF EDUCATION

While continuing its services to schools in 1980-81, the Office of Education turned its attention to finding new ways to serve adults and family groups visiting the museum. Regular, adult tours began to be scheduled in the early afternoon, featuring opportunities to

see new or especially popular exhibits with the guidance of knowledgeable docents. With a small grant from Outreach Funds, it was possible to stage four special family-audience programs related to museum exhibits: *Sea Rhythms* celebrated the museum's new coral reef; *A South American Christmas*, with Peruvian musicians and Andean craftspersons, was presented over the holidays in the South American exhibit area; *Brother Ah and the Sounds of Awareness* honored Black History Month with traditional music from Africa, the Caribbean, and the Americas; and a dance performance titled *Bugs, or How to Taste with the Feet, Smell with the Knees and Wear a Skeleton on the Outside* was chosen to relate to the Insect Zoo.

A grant from the Office of the Assistant Secretary for Public Service supported a small pilot program for gifted high school students from the District of Columbia and Prince George's County. Under the supervision of Sarah Gagne, fifteen students were provided with an introduction to the various departments in the museum. Each was subsequently placed in one of the curatorial departments for a part-time, voluntary project on which the student wrote and presented a report. In addition to this special program, the office is providing an increasing number of multivisit, in-depth tours for secondary-school students.

With the opening of the new Thomas M. Evans Gallery, the office is seeking to provide appropriate educational programs for the special exhibits. Docents for both the Mamluk and the Korean exhibits were recruited and trained so that regular adult tours could be scheduled.

The Free Film and Lecture Series continues to offer a wide variety of natural history and anthropological films to the public. Thirteen curators presented illustrated lectures, and Dr. Gus Van Beek introduced and fielded questions on six Fridays in October and November with the series, *The Christians: A Stunning Tapestry of History and Culture*.

The outreach to special audiences continued this year in cooperation with the National Zoological Park and the Museum of African Art. Numbers of people using the Naturalist Center increased significantly as new services and programs were offered. The Discovery Room continued to operate at peak capacity with more than 105,000 visitors this year.

PUBLIC SYMPOSIUM

Therapsids, the mammal-like reptiles that gave rise to the first mammals about two-hundred million years ago, have long been of interest to scientists as documents of one of the great evolutionary transitions in the history of life. The first major scientific conference about these strange looking beasts—the dominant four-legged animals on Earth 250–230 million years ago—was held in June 1981 at the Smithsonian, jointly organized by the museum and the Laboratory of Brain Evolution and Behavior, National Institute of Mental Health. Among the twenty-five leading scientists in the fields of paleontology, physiology, and ecology participating in the conference were the museum's Dr. Nicholas Hotton, Dr. George Zug, and Dr. Leo Hickey.

HANDBOOK OF NORTH AMERICAN INDIANS

During 1981, editing and typesetting were completed on *Subarctic*, the fourth volume in the series, scheduled for publication late in 1981. This volume focuses on the significance of the natural environment in affecting major aspects of the Indian cultures of Canada and interior Alaska. Editing and typesetting were begun on the second part of *Southwest* (volume 10), which covers all non-Puebloan peoples. The first part of *Southwest* (volume 9) was published in 1980.

The first two volumes, *California* and *Northeast*, issued in 1978, continue to sell and are both in their third printing. The complete encyclopedia, published under the general editorship of NMNH's Dr. William C. Sturtevant, will consist of twenty volumes.

SMITHSONIAN OCEANOGRAPHIC SORTING CENTER

Notable collections arriving at the center in 1980–81 included a quantity of trawl fishes from the Hawaiian Islands and African freshwater fishes from Lake Malawi. Collections of benthic invertebrates came in from the Azores, the Philippines, Colombia, Okinawa, Hawaii, and the Solomon Islands. Dr. Gordon Hendler continued field studies of coral reef brittlestars in Belize and Panama. With the help of Dr. Klaus Ruetzler, Ms. Barbara Littman, and Mr. Kjell Sandved, Hendler used 16-mm elapsed-time underwater photography to observe the fishing behavior of basketstars and the activity of brittlestars that clean sponges.

SCIENTIFIC EVENT ALERT NETWORK

Notable geophysical events reported by the Scientific Event Alert Network in its monthly *Bulletin* during 1981 included: the continuation of episodic lava extrusion at Mount St. Helens; major explosive eruptions in the USSR and the Mariana Islands that injected ash into the stratosphere; repeated extrusion of lava flows on Reunion Island; two destructive earthquakes in Iran; and meteorite falls in Yemen and Oregon.

Since April 1981, data gathered by the Scientific Event Alert Network (SEAN) on strandings of marine mammals and turtles have been entered directly into museum research files maintained in the Smithsonian's Honeywell computer. Each month's data is compiled in the computer to produce the tabular mammal and turtle sections of the *SEAN Bulletin*. Some of the more significant marine mammal strandings and sightings of 1981 involved animals found outside of their normal ranges: a *Hyperoodon ampullatus*, never previously reported south of Rhode Island, sighted off North Carolina; a *Cystophora cristata*, not usually found south of the Gulf of St. Lawrence, observed off Massachusetts; and strandings of *Kogia simus* and *Kogia breviceps* on the California coast, rare there, but fairly common in the waters off Hawaii and the East Coast of North America.

OFFICE OF THE REGISTRAR

The National Museum of Natural History Office of the Registrar continued to register incoming and outgoing collections, provide donor information to the museum and the public and provide registration workshops for the museum staff. The office participated in the Museum Registration Methods Workshop with approximately twenty-six participants from the United States, Canada, and England, and also accepted an intern from Kuwait for six months of training in Registration and Museum Storage.

During the year, the office recorded approximately 1,200 incoming collections and 1,700 accessions. Outgoing shipments processed through the office totaled approximately 4,500. Out of the total number of outgoing shipments, 1,890 loan transactions were recorded.

The office has been very active in describing the registration system for future automation plans. Each segment of the manual system has been described and documented.

MUSEUM SUPPORT CENTER

Construction began in January 1981 on the Smithsonian's Museum Support Center—urgently needed by the National Museum of Natural History for collection storage space—and with favorable weather proceeded ahead of schedule through fiscal year 1981. The general contractor is the George Hyman Construction Company of Bethesda, Maryland. The scheduled completion date for the \$29 million project is January 9, 1983. Located on an eighty-two-acre site in the southern half of the Suitland Federal Center, the 303,000-square-foot building will consist of a two-level laboratory and research area connected to four large storage pod units.

INVENTORY

The base-line collection inventory at the National Museum of Natural History was nearly sixty-five percent complete by the end of fiscal year 1981 and is on schedule. Valuable specimen types and many specimens to be moved to the new Museum Support Center are being inventoried on an item-by-item basis, and the remainder of the museum's collection of over 60 million objects is being inventoried in batches of specimens. The total computerized data base for the inventory will consist of over 2.3 million records, of which nearly 1.5 million were on file by the end of fiscal year 1981. Completed or near completion are inventories of archeology/ethnology objects, major groups of type specimens of plants, invertebrate animals, vertebrates and fossil organisms, valuable mollusks, certain families and orders of insects, invertebrates, mammals and birds, the Cambrian, Ordovician, Silurian, and Devonian stratigraphic suites of fossils, the egg and nest collection, fish tank collection, groups of reptiles and amphibians, the gem, mineral and rock collections, and the collection of the Smithsonian Oceanographic Sorting Center.

BUILDING IMPROVEMENTS

A major study of the heating, ventilating, and air conditioning systems of the museum was undertaken to determine the course of future improvements in these systems. When implemented in future years, these improvements will be of significant benefit to the collections, our visitors, and staff.

Significant progress was made in improving the building's fire protection systems. Complete fire detection and suppression systems were installed in the museum's two wings.

The renovation of rest-rooms, designed to provide access to the disabled, was accomplished as a part of the museum's plan for improved accessibility.

National Zoological Park

Each fiscal year is a continuum of efforts beginning in 1889 to the present and proceeding into the future. The National Zoological Park (NZP) is staffed with intelligent, dedicated, well-trained, and highly motivated, employees, who are among the best zoo people assembled to accomplish our mission. This includes everyone in the organization from janitors to scientists. Although fiscal year 1981 presented personnel and budgetary reductions—problems we have not faced for many years—the staff demonstrated creativity, initiative, and great diligence when confronted with these changing conditions. As a result, the Zoo moved forward in all areas. Our animal acquisitions, management, health, and breeding programs flourished; planned construction and renovation projects proceeded reasonably well on schedule; the scientific programs continued productive research, presenting new insights into animal ecology, behavior, and breeding; and the support services program kept the grounds and facilities in even better condition than heretofore. Thus, in this year of challenge, the Zoo continued its progress, development, and achievements through superb staff response to budgetary and personnel constraints.

ANIMAL COLLECTION AND EXHIBITS

Upon completion of construction in November 1980, the Great Ape House was turned over to the Zoo by the contractor. The orangutans were the first to occupy the building, followed later by the gorillas. The educational, information signs and labeling were installed; and, after technical adjustments, the building was quietly opened to the public Easter week of 1981. The public acceptance of the building and exhibition has been very pleasing.

There are seven large, 1½-inch-thick glass-fronted exhibit areas for the animals. In each animal's area are artificial climbing "trees"



In this year of challenge, the National Zoo continued its progress, development, and achievements through superb staff response to budgetary constraints. Shown here is the main entrance to the brand new Great Ape House, opened to the public during Easter Week this year. *Below.* In this interior view of the Great Ape House, visitors observe Nikumba, a male lowland gorilla (*left*) and Femelle, the female. The animals' acceptance of their new enclosure has been dramatic as they become more content and responsive to each other . . . and to the public.



made of steel gunitite. It was thrilling to see mature gorillas and orangutans, who had never before had more than pipes and wooden shelves, climbing on their new trees. Especially gratifying is the animals' acceptance of their new quarters. They seem much more content and responsive to each other, as well as to the public.

Unseen by the public, but appreciated by the animals and keepers, are large retiring areas for the animals, an off-exhibit quarantine area, and wide spaces for safe and easy servicing of the animals by the keepers.

The grass-covered outside yards are separated from the visitors by a combination of dry moats and glass walls. Trees and gymnastic play apparatus will be installed in these areas next year.

The building is now occupied by six mature gorillas, three males and three females—Nikumba, Tomoka, Hercules, Femelle, Sylvia, and M'wasi, respectively. Hercules and Sylvia are on loan from the Baltimore Zoological Park, and M'wasi is on loan from the New York Zoological Park. Also occupying the building are a mature pair of orangutans, Atjeh and Pensi, and two juvenile orangutans, Bonnie and Azy.

After the 1980 annual Christmas Pageant of Peace on the Ellipse, the Zoo's reindeer herd was transferred from Rock Creek to the Conservation and Research Center in Front Royal, Virginia. There they accepted readily their fifty-acre pasture, enjoying the space and natural forage. This year their antlers were more magnificent than they have ever been.

The various animal breeding programs have continued. Among these are the golden lion tamarin (two-hundredth birth in September 1981), lesser panda, various crane species, Bali mynah, Eld's deer, Pere David's deer, bactrian camel, maned wolf, bush dog, tree kangaroo, binturong, and other animals whose reproduction continues to proceed satisfactorily. At the Conservation and Research Center, the yards for hardy birds (pheasants) were completed, and occupancy is beginning. Reproduction at the Bird House in Rock Creek has also been satisfactory. Among those birds reproducing were the ground cuckoos, red-breasted geese, and—for the first time at the Zoo—five double-wattled cassowary chicks were hatched. In February 1981, our lone kiwi was sent on breeding loan to the San Diego Zoo.

During the latter part of fiscal year 1981, the Great Flight Room

in the Bird House was closed to the public while a large fiberglass, steel-reinforced "tree" was built. It was completed in mid-September. The birds immediately explored and accepted their new perching areas on this tree, which has pockets for plants, a hidden watering system, and numerous knot-holes for potential nests.

The following animals were shipped to the Peking Zoo this year as part of an exchange agreement with the National Zoological Park: four cranes, two swans, six parakeets, one adult male mandrill, and two male and two female Canada geese.

Four bongo calves were born this year at Rock Creek. Tarun, the male Indian rhinoceros, was sent on loan to the New York Zoological Park, where he joins his son and two females. Patrick, his seven-year old son, is several inches taller at the shoulder and weighs more than his father. A captive-born pair of two-year-old white rhinoceroses, Milton and Stormy, were received on loan from King's Dominion, Doswell, Virginia.

The frustrating saga of the giant-panda breeding continues. Hsing-Hsing, our fertile thirteen-year-old male panda, has failed over the past four seasons to properly mount and breed Ling-Ling, the female. For this year's breeding season in April, the London Zoological Society graciously lent us their fertile male panda, Chia-Chia, with the hope that he would sire an offspring. After many weeks of preparation and negotiation, Chia-Chia arrived in March and settled in very well. Every new animal coming into the Zoo must undergo at least a thirty-day quarantine period to insure that it is free of any infectious agent that might contaminate the collection. For unknown reasons, Ling-Ling came into estrus three weeks earlier than expected. As a result, after the quarantine period, the two animals had not had the planned slow, gradual introductions to each other. On April 11, when Ling-Ling came into estrus, they were placed together. However, the normal panda roughhousing and fighting to establish male dominance turned into a serious fight. Chia-Chia completely dominated Ling-Ling and severely bit her hind legs repeatedly before Zoo personnel could separate the animals. Ling-Ling was so sore in her hind legs she could not stand. By the time she was able to walk again, she was out of estrus, so the breeding attempt for this year was another failure. On June 6, 1981, Chia-Chia returned to London and arrived in good shape. Once again we look forward to next April when Ling-Ling comes



In ever-continuing efforts to produce giant panda offspring, Chia-Chia (*shown*) was brought to Washington on breeding loan from the London Zoo. *Below*. In a more successful saga, four bongo calves were born this year at Rock Creek, among them this young calf (*left foreground*).



into estrus. In September, the giant panda pair began being rotated into each other's enclosures as a preliminary to possibly putting them together in their yards during the day when the weather gets colder.

In September 1981 the American Association of Zoological Parks and Aquariums presented to the NZP the Edward H. Bean Award in recognition for the most notable birth in 1981: the Chinese alligator. This award is the most prestigious given by the American Association of Zoological Parks and Aquariums. It was shared jointly by the New York Zoological Park and the National Zoo as a result of a cooperative breeding loan. In 1937 a pair of Chinese alligators was obtained by Dr. William Mann on his East Indies expedition. While the pair was at NZP, eggs were laid but none hatched. In 1975 the pair was sent to the New York Zoological Park and then shipped to the Rockefeller Wildlife Center in Louisiana, which has special breeding enclosures. In 1976 the NZP male died, and in 1979 the NZP female was permitted to enter the neighboring enclosure containing a pair owned by the New York Zoological Park. In 1980 the New York Zoological Park female hatched a clutch of four eggs and the NZP female produced a clutch of eggs out of which eighteen hatched. These are the first known breedings and hatchings of Chinese alligators in captivity. These reptiles are among the world's most endangered animals.

Another milestone in captive breeding involved an NZP-owned Liberian narrow-nosed, female, crocodile on loan to the Atlanta Zoo to be paired with their male. After six years together without results, the pair was sent to a specially designed facility at the Crandon Park Zoo, Miami, Florida. There the female showed her first nesting behavior and laid two eggs, which did not hatch. However, in the fall of 1980 she laid eighteen eggs, thirteen of which seemed fertile. This breeding is the first United States success with this species and may be the first captive breeding outside of Africa.

A management training program was established for the animal keepers. Three keepers were selected to receive broad and diverse training in management and care of zoo animals. Once they have completed the total training, they will be collection managers.

CONSTRUCTION

Remodeling of the Reptile House started in February 1980 and the building was turned over to the Zoo by the contractor in mid-

September 1981 after completion. The curator and animal keepers are currently preparing the exhibition areas' decoration and reintroducing the animals to their renovated quarters. The various reptiles and amphibians had been in a holding area while the renovation was underway. With the new environmental-control conditions installed in the building, there should be a surge in reproduction and scientific studies within the next few years. Located in the area behind the Reptile House are three new, small houses, for indoor exhibits of crocodiles, and four outside yards and pools. The Reptile will not be completed until early in fiscal year 1982.

The basement of the Reptile House has been remodeled for a nocturnal exhibition of various animals, primarily small mammals. For the National Zoological Park this is a new exhibit technique and will not be occupied and opened to the public until later within the next fiscal year.

Since the acquisition of the Conservation and Research Center, Front Royal, Virginia, the staff has spent many hours planning for the future expansion of the center. Work has started on a new hoofed-stock facility scheduled for completion in the first quarter of 1982. During this fiscal year a long-range development plan for animal facilities and services has been underway. Although most of the formal architectural planning has been done this fiscal year, it will not be completed until early in fiscal year 1982.

Plans for Monkey Island and the first phase of the Aquatic Vertebrates exhibits have been progressing. Construction on these two projects will be initiated in future fiscal years.

RESEARCH

The programs in scientific research and conservation continue. The work in Nepal is reduced primarily to an advisory capacity and the Venezuelan field studies are beginning to move into the final write-up stage.

Dr. Christen Wemmer's studies on the Sulawesi civet are moving forward. As a result of last year's field trip, several animals are now in the Jakarta Zoo where, it is hoped, they will breed. It has been found that this animal is more widespread, with a higher population, than was originally believed. Dr. Daryl Boness has made two field study trips concerning pinnipeds. One trip was to the north-eastern Atlantic area to continue investigations into gray seals, and

the other trip was to the Pacific coast concerning a study on the California sea lion. Dr. Katherine Ralls continues her studies of the sea otter on the West Coast, with research periods in California and Alaska. Dr. Mitchell Bush spent several weeks in South Africa on a cheetah breeding study in a cooperative research effort with the Pretoria Zoo and the Wildlife Veterinarian Society of South Africa.

Dr. Eugene Morton pursued his field studies into neotropical birds in Panama and, this year, made one visit to Cuba. Dr. John Eisenberg, accompanied by scientists from the Cuban Academy of Sciences, conducted a field study of the Cuban solenodon in the Sierra Madre mountains of Cuba. Dr. Dale Marcellini's field work in Puerto Rico on the enolis goes forward.

Mr. Miles Roberts spent a month in Nepal studying the lesser panda in a continuation of his research on this animal. Dr. Melvin Sunquist went to Nepal to advise on radio-tracking of gavials and their plans for reintroduction of this animal into its native habitat. Dr. Christen Wemmer also visited Nepal and, while there, assisted in the immobilization and capture of a great one-horned rhinoceros for the Nepalese game department.

Drs. Kleiman, Eisenberg, Seidensticker, Wemmer, and Sunquist consulted with colleagues in India and visited several national parks concerning the parks' problems and the possibility of future collaborative work on several different species of animals.

A training program has been established for our staff and guest students in radio-tracking techniques. There have been several students from overseas who have spent time observing and participating in this program. This summer there was a six-weeks' course at the Conservation and Research Center on radio-tracking and wildlife-censusing techniques conducted for students participating in a cooperative primate training program. The National Zoo's staff is involved in advisory and managerial aspects of this program.

A nutrition laboratory has been established, and we are developing an analysis program of foods and diets at the National Zoo as well as a comparative milk analysis of various animals. Dr. Mitchell Bush continues his studies of techniques of semen collection, analysis, and storage for a variety of species.

In April 1982, Drs. Eisenberg and Seidensticker, and Mr. Ross Simons, from the Assistant Secretary for Science's office, spent three weeks in China to discuss the possibility of developing a long-term

research program in a national forest in the Sichuan mountains, to study the ecology of the area, with emphasis on the giant panda. Plans were formulated, and negotiations with the Chinese authorities began. In September, a delegation from China visited the Smithsonian Institution for final negotiations, but an agreement was not reached. Should an agreement be made, preliminary plans are that, early next spring, members of the staff will go to China to establish a camp and begin studies. Throughout the year, Zoo and other Smithsonian staff will visit the study site for varying periods of investigation. Dr. Melvin Sunquist would be in residence for most of the year.

The long-term study—initiated at the Conservation and Research Center—on the native wildlife, involving numerous censusing techniques, has resulted in some interesting data. On the Center property, there has been no hunting for seven years. We found that there was a spring population of fifty-nine deer, thirty-seven raccoons, and five opossums per square kilometer. The ground-hog census has not been completed, but it is obvious that there is a large population. One startling occurrence was the discovery this year of endemic rabies in wild raccoons; there have been six confirmed cases. This is apparently the first time there is an opportunity to follow a rabies outbreak with a population under study. Much interesting data will be gathered over the next few years about the effects on the wildlife population.

The heavy deer population on the center's property is affecting the undergrowth in the forest and has, for the past two years, depleted our alfalfa production. This year seven hundred acres in the central part of the center's campus, which includes the primary alfalfa field, have been blocked off with what we believe is a deer-proof fence. In September there was a drive to remove the deer from this fenced area, and about one hundred deer were known to have been chased out, probably one hundred evaded the drive. Plans are proceeding for a deer-cropping effort this year through a controlled public hunt. The plan is to reduce the number of wild white-tail deer to a level compatible with available food.

In September Dr. John F. Eisenberg's book, *The Mammalian Radiations*, was published by the University of Chicago Press. The book is a cumulation of many years of study and observation, and promises to be an important aid in the study of mammals and their

ecology. At the American Mammal Society meeting this year, Dr. Eisenberg received the J. Hart Merriam award for outstanding contributions to mammalogy. This is a distinguished honor for him, the zoo, and the Smithsonian Institution.

This has been a very scientifically productive year for the National Zoological Park.

PERSONNEL

This fiscal year has resulted in a reduction of the NZP's staffing level. The Zoo reached the new man-year level of 297 employees from the previous level of 327. Naturally, there were many adjustments and some anxiety among the staff; however, we met the new ceiling through attrition and imaginative personnel management.

On January 1, 1981, the Office of Education was reassigned from the Office of Animal Programs and placed under the Office of the Director. Dr. Robert J. Hoage, Special Assistant to the Director, was assigned Coordinator of the Offices of Public Information and Education. A peer review of our education programs was conducted in August, and a final decision on this report has not yet been made.

FRIENDS OF THE NATIONAL ZOO

This year the Friends of the National Zoo (FONZ) continued even more vigorously with their programs of support in education and science. The guide program for school children continues to provide a worthwhile service to younger visitors. The fourth-grade, junior-high, and high-school programs, which have been developed jointly with the Office of Education, continue to be an exciting experience for the students. The busing program continues to be popular with the children and school systems.

This year the Smithsonian Institution renewed the FONZ contracts for operating gift, food, and parking concessions located at the Zoo.

The NZP staff appreciates very much the continuing support of the FONZ in the intern and postdoctoral programs, as well as support of the Zoo's various scientific programs both here and overseas. Many of these projects would not be possible without this monetary support. The contributions and support provided by the FONZ to the NZP's programs also includes the time given by a group of well-trained, dedicated, and talented volunteers.

Most of the FONZ-generated revenues were derived from sales of

food, merchandise, and public parking services. Financial information for calendar year 1980 is provided in detail below. In addition, a percentage of the restaurant and parking concessions is available directly to the Smithsonian for the benefit of the National Zoo and is reported as income in the Financial Report of the Smithsonian Institution.

FRIENDS OF THE NATIONAL ZOO

Financial Report for the Period

January 1–December 31, 1980

[In \$1,000's]

	Net revenue	Expense	Net increase/ (decrease) to fund balance
FUND BALANCE @ 1/1/80			\$ 724
SERVICES			
Membership	\$ 241	\$ 192	49
Publications	67	77	(10)
Education ¹	49	339	(290)
Zoo Services ²	2,493	2,040 ³	453
Totals	\$2,850	\$2,648	\$ 202
FUND BALANCE @ 12/31/80 ..			\$ 926 ⁴

¹ Excludes services worth an estimated \$118,243 contributed by volunteers to FONZ.

² Includes gift shops, parking services, and food services.

³ Includes \$201,650 paid during this period to the Smithsonian under contractual arrangement.

⁴ Net worth, including fixed assets, to be used for the benefit of educational and scientific work at the National Zoological Park.

Office of Biological Conservation

The Office of Biological Conservation (obc), in its third year, has continued to provide many of the Institution's responses to requests for scientific information and advice on aspects of biological and environmental conservation.

In order to apprise Smithsonian colleagues and the scientific and conservation community of current areas of environmental interest, bureau contributions and the recent relevant literature, the office has produced a "Biological Conservation Newsletter" which is circulated on a monthly basis.

For the purpose of stimulating concern among students and the general public, the office has been actively engaged in the preparation of a color-illustrated book entitled, *Endangered Plants of the United States*. The textual portions of the book have been completed, and provide a consideration of the vegetation and physiography of the United States in relation to the 150 endangered and threatened plant species whose status is discussed. The text will be complemented by 150 full-page color representations of the plants.

The Smithsonian Institution-Threatened Plants Committee (IUCN) Latin America Project has finished a compilation of the names of eight thousand candidate endangered, vulnerable, and rare plant species for Middle America (Mexico and Central America). The candidate species, obtained by canvassing the literature, are arranged by country and have been sent to scientists and local authorities for comments regarding their population status. The final draft list of candidate species, based on these solicited comments, is expected to be completed by the end of this calendar year.

The second phase of the project, which concerns the flora of South America, has begun with a request for contributors to recommend species that deserve immediate priority for conservation. Information on species known to be threatened is being assembled for "red data sheets," which will be included in the IUCN's forthcoming volume of the *Plant Red Data Book*. Expected to be published at the end of 1982, the newly expanded volume will include fifty to one hundred data sheets for Middle and South America.

The director, as the Smithsonian representative on the Species Survival Commission (SSC) of the IUCN, presented a Situation Report for North America at the fifty-fourth SSC meeting. The report em-

phasized the need to standardize the criteria used to develop status determinations for endangered flora, recognize the importance of threatened species in terms of their utility to people, and educate the interested public by means of popular books.

At a meeting of the Organization Committee for the Regional Workshop on Conservation of Tropical Plant Resources in South-east Asia, held in New Delhi during the 1981 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), a workshop was planned for January 1982, during which a cooperative project involving the Smithsonian Institution and the government of India will be developed for assessing the status of endangered plant taxa, their wild relatives, and genetic resources in India.

The obc, in conjunction with the Center for Earth and Planetary Studies of the National Air and Space Museum and botanists from the Suez Canal University, Ismailia, Egypt, is also involved in developing a study of the relationships between soils and vegetation communities in the Sinai peninsula in order to help recommend natural areas for preservation.

The director submitted five papers for the Thirteenth International Botanical Congress held in Sydney, Australia: "International Approaches to the Conservation of Wild Orchids," "Tropical African Viewpoints on Conservation and Botanical Gardens," "Threatened Plants of the Americas," "The Plight of the World's Vanishing Flora," and "Plant Conservation, A Message for the Future."

As commissioner, the director continued to serve as Smithsonian representative on the International Convention Advisory Commission (ICAC), which advises the secretary of the interior on scientific matters pertaining to the CITES, particularly on the granting of specific import and export permits for trade in species listed in the Appendices to the Convention.

The obc was awarded a contract to provide illustrations of ten plant species (three carnivorous *Sarracenia*s, seven cacti) most frequently found in international trade, which will be utilized in a United States identification manual for customs inspectors enforcing the CITES at ports of entry.

The office continued its role in supporting the Charles Darwin Foundation for the Galapagos Isles and has provided sizable financial input into the Seychelles Islands Foundation through fund-raising efforts.

Office of Fellowships and Grants

The Office of Fellowships and Grants (OFG) continues to serve as an Institution link with scholarly organizations throughout the world. It brings scientists and scholars to all parts of the Smithsonian to utilize the unique resources available as well as to interact with professional staff. The office also encourages cooperative research with universities, museums, and research organizations in the fields of art, history, and science. At present, two major activities are managed and developed by the office: Academic Programs and the Smithsonian Foreign Currency Program.

Academic programs at the Smithsonian support and assist visiting students and scholars, providing opportunities for research to be conducted at Smithsonian facilities in conjunction with staff members. Residential appointments are offered at the undergraduate, graduate, and professional levels.

The Smithsonian also enhances the quality of its research and extends the reach of its scholarly efforts through the Smithsonian Foreign Currency Program (SFCP). The SFCP offers grants to the Smithsonian and other U.S. scholarly institutions for research in a limited number of foreign countries where "excess currencies" are available. It is particularly effective in strengthening the "increase and diffusion of knowledge" on an international scale.

ACADEMIC PROGRAMS

Academic programs at the Smithsonian are an important complement to those offered at universities. The national collections and the curators who study them are unparalleled resources, not available anywhere else, essential to scholarly research. In general, university education is based primarily on the study of books or artifact reproductions. At the Smithsonian, historical and anthropological objects, original works of art, natural history specimens, living plants, animals, and entire ecosystems are available for study. The educational experience, which combines university study with field research, is one that is significantly enhanced, and the breadth of field opportunities at the Smithsonian is unmatched.

The Office of Fellowships and Grants administered a variety of academic appointments in fiscal year 1981. The program of Smith-

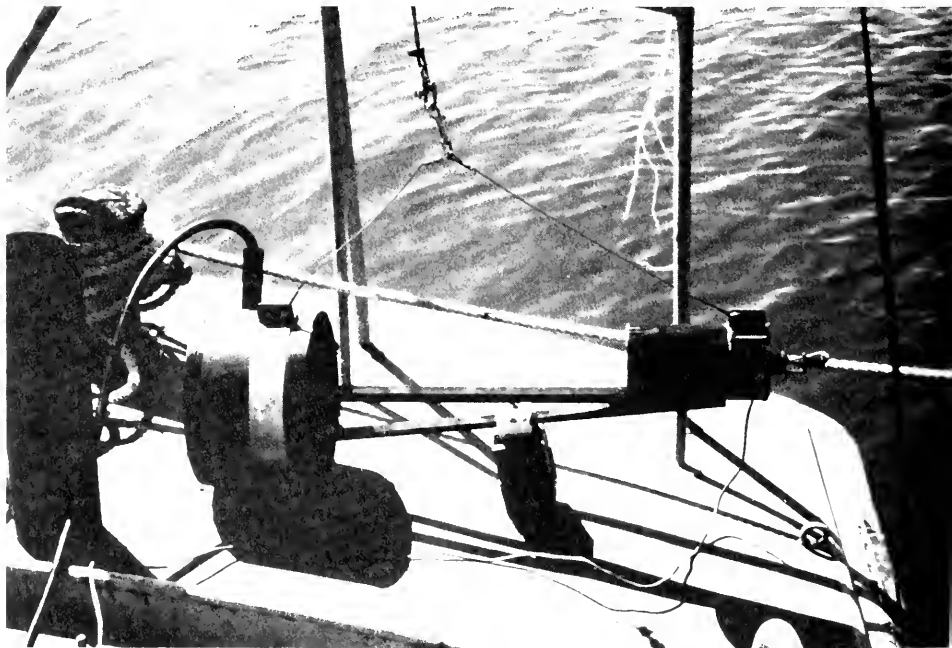
sonian pre- and postdoctoral fellowships, begun in 1965, awarded fifty-seven fellowships during 1980–81. These appointees pursue independent research projects under the guidance of staff advisors for periods of six months to one year in residence at one of the Institution's bureaus or field sites. This year, topics of study for Smithsonian fellows included: skeletal biology of ancient Near East human populations; observational studies of families in natural environments; higher classification of the species-rich hairstreak butterflies; iconography of American feminism; the early years of the National Institutes of Health; and art and taste in Boston from 1907 to 1929.

The visiting graduate student program offered twelve ten-week awards during 1981. The participants are usually junior graduate students beginning to explore avenues that develop into dissertation research. This year, visiting graduate students studied antemortem tooth discoloration; herbaceous diversity of tropical forest understory; the Samuel A. Murray collection at the Hirshhorn; and analysis of new meteorites in the S.I. collections. The support of short-term visitors was also continued by the office. Twenty-three persons spent from one week to a month at the Institution, studying collections and conducting research.

A number of senior fellowships continued to be offered at the Institution. One of the pioneers of the space program and discoverer of the Earth's radiation belts, Dr. James Van Allen, from the University of Iowa, spent eight months at the National Air and Space Museum (NASM) as a Smithsonian Regents Fellow. During his stay, he worked on a history of the space program to be published for the twenty-fifth anniversary of the space age. Dr. Van Allen's tenure provides the base for future scholarly studies of astronautic history conducted at NASM. In September of 1981, Dr. Lawrence W. Levine from the University of California at Berkeley came to the Institution to spend the year as a Regents Fellow at the National Museum of American History. He will be working on his current research topic, "The American people and the great depression: culture and consciousness during the 1930s." The end of fiscal year 1981 also marked the arrival of Dr. Joseph E. Harris from Howard University, the first Smithsonian Secretary's Fellow who will complete his research and publication on the Ethiopian Research Council. The NASM's appointment as



John Hanley, former predoctoral fellow under an Office of Fellowships and Grants program—now a geologist with the U.S. Geological Survey—conducts a fossil identification workshop for the National Associate Regional Events Program. *Below.* The Radiation Biology Lab's spectral turbidometer is being prepared for submersion from the boat deck whence it is lowered by winch.



Lindbergh Professor was awarded to R. E. G. Davies, internationally recognized for his work on the history of the worlds' airlines. He will continue these studies.

During 1981, a number of bureaus continued to offer support for appointments to visiting scientists and scholars in cooperation with the OFG. These awards made possible visits to the Smithsonian by persons who may not be eligible for the pre- and postdoctoral program, for example, scholars at mid-career.

A survey of past fellows has recently been completed, and the results are being compiled. Preliminary review shows that the 260 persons responding published a total of 961 articles and 55 books. Last year four former fellows participated in the National Associates Regional Events Program.

Internship activities during 1981 continued to expand. The National Air and Space Museum increased the number of summer appointees from three to nine students. The Cooper-Hewitt Museum also expanded summer internship offerings and appointed three students under the Sidney and Celia Siegel Fellowship Fund. The OFG also assumed the administration of certain academic appointments at the National Zoological Park (NZP) and the Chesapeake Bay Center for Environmental Studies (CBCES). Ten students were selected to take part in the research at the CBCES and three students have begun studies as part of the NZP Primate Conservation Training Program. Eight students arrived in August to take part in the second Smith College-Smithsonian Program in American Studies. The students will again conduct research projects under the direction of staff members and will also attend a seminar course conducted by Smithsonian staff.

The survey of Smithsonian internships conducted in 1980 by the OFG was reviewed and evaluated by a task force of bureaus and office representatives. The task force developed a policy statement covering internships throughout the Institution as a guide to bureau heads, administrators, internship coordinators, internship advisors and interns themselves. The development of policies and procedures on this subject is a major accomplishment as the value of an internship in academic courses of study is increasingly widely recognized.

In cooperation with the Office of Equal Opportunity, the OFG has undertaken new initiatives aimed at improving minority par-

ticipation in Smithsonian Academic programs. Using networks of minority scholars and students, and focusing on the 117 historically black colleges, considerable success was achieved in the 1981 summer academic internship appointments. For the fall, a similar effort is underway, including staff visits to several historically black colleges and continued development of the networks by which candidates can be found whose needs are fulfilled by Smithsonian programs. Both student interns and visiting faculty fellows are sought in this effort.

SMITHSONIAN FOREIGN CURRENCY PROGRAM

The Smithsonian Foreign Currency Program (SFCP) awards grants to support the research interests of American institutions, including the Smithsonian, in those countries in which the United States holds blocked currencies derived largely from past sales of surplus agricultural commodities under Public Law 480. The program is active in countries in which the Treasury Department declares United States holdings of these currencies to be in excess of normal federal requirements, including, in 1981, Burma, Egypt, Guinea, India, and Pakistan. Research projects are moving toward conclusion under program support in the former excess-currency countries of Poland, Sri Lanka, Tunisia, and Yugoslavia.

This year, projects ranged through many disciplines, including archeological investigation of land-use patterns in India; geological investigations of the Egyptian desert; analysis of the disappearing court language of Burma; anthropometric analysis of dental malocclusion in Punjabi youths; systematic studies of blennoid and soleiid fishes in India; palynological survey of selected areas of Pakistan; and anthropological examination of the role of women in rice cultivation in India. The SFCP supported the travel of ten presidents of historically black colleges to India to meet with counterparts there in an effort to develop linkages between similar institutions.

In 1981, preparation continued for the termination, at the end of the year, of excess currency funds in Egypt. The SFCP has been the principal supporter of American archaeological and historical research in Egypt and of the Cairo Center of the American Research Center in Egypt, a consortium of American institutions with research interests in Egypt. The contribution of U.S. scholars

has been highly significant; therefore, the Smithsonian continues to urge government and university officials to plan for replacement funding for the future.

The Smithsonian added another increment in 1981 to the forward-funded reserve for the American Institute of Indian Studies (AIIS), initiated in 1980, for use when surplus currencies are no longer available in India. The AIIS, a consortium of thirty-four United States institutions, is the most successful U.S. scholarly presence in India, bringing more than one hundred fellows to that country yearly, operating an archaeological documentation center at Benares, and conducting language, translation, and publication programs. The AIIS has received program funding for the past fourteen years. Through incremental appropriations, the Smithsonian hopes to establish a fund of up to a \$20 million equivalent in Indian rupees for future AIIS activities.

The Smithsonian received a fiscal year 1981 appropriation of \$3.65 million in "excess" currencies to support projects in anthropology and archaeology, systematic and environmental biology, astrophysics and earth sciences, and museum professional fields, and to add to the AIIS forward-funded reserve. From its inception in fiscal year 1966 through fiscal year 1981, the SFCP has awarded about \$45.5 million in foreign currency grants to 221 institutions in forty states and the District of Columbia.

Through the Smithsonian Foreign Currency Program and other relationships, the Institution has a long-term interest in American research centers abroad. In spring 1981, Dr. Alice Ilchman was retained by the Smithsonian to study the Institution's role in securing the future of such centers and developing their activities further. As part of the response to Dr. Ilchman's recommendations, the Office of Fellowships and Grants is assisting these centers in forming a cooperative organization for advancement of the interests shared by all. An OFG staff member is acting as secretary to the new organization for several months as it creates a structure and program.

Radiation Biology Laboratory

Plant growth and development are influenced by many environmental factors. The Radiation Biology Laboratory (RBL) has emphasized the study of one of these, light, as a major, controlling factor. Light is periodically present in the environment with a precise timing that varies seasonally in the percentage of each twenty-four hour cycle as the earth rotates around the sun. Thus, plants have evolved processes which utilize sunlight and its periodic variations in two major ways.

First, plants have developed photosynthetic structures that capture large amounts of light energy and store it as chemical, potential energy; i.e., energy-rich molecules that serve as food for all living organisms are formed by photosynthesis. Second, plants utilize light signals—in ways that are incompletely understood at present—at the molecular level to regulate the utilization of available energy for growth. These regulatory processes are known as photomorphogenesis and include responses such as flowering, germination of seeds, and elongation growth. They respond not only to changes in light intensity and duration, but also to specific colors of light. The research areas of the RBL have continued to measure environmental factors, especially sunlight, and how they are utilized in photosynthesis and photomorphogenesis in the regulation of plant development. Specifically, these areas are: (1) environmental processes and energy flow in biological systems, such as photosynthesis, water relations, and carbon metabolism; (2) regulatory processes of plants, such as membrane synthesis and pigment synthesis; (3) measurement of the amount, duration, and color quality of sunlight present in the environment; and (4) age determination of biological artifacts based upon their radiocarbon content.

ENVIRONMENTAL BIOLOGY

The relative effectiveness of different colors of incident radiation for photosynthesis was determined first many years ago in the RBL and was subsequently measured for numerous species by other investigators. This action spectrum for photosynthesis indicates that an ideal artificial source of photosynthetically active radiation would be one that generates only the wavelengths (colors) of

radiation that are most effectively utilized. A source could be considered to be one hundred percent efficient if it produced radiation of a single color that coincides with the action spectrum maximum. A broad-band source, such as sunlight, consisting of many colors of light, is only fifty to sixty percent efficient for photosynthesis when compared in this manner.

The conversion of electrical to radiant energy by various electrical lamps used in horticulture and growth chambers was measured in relation to their photosynthetic utilization efficiencies. However, the lamps with the highest photosynthetic utilization efficiencies did not produce plants with normal developmental characteristics. It was found that the lamps commercially developed for horticultural applications yield no higher photosynthetic utilization efficiencies than some of the most common lamps developed for lighting applications. These results indicate that compromises are necessary to obtain maximum photosynthetic conversions of costly radiation provided by electrical sources and at the same time to maintain a suitable balance of colors needed for the desired photomorphogenic responses leading to normal developmental characteristics.

When the photosynthetic efficiency of plants occurring in salt marshes on the Chesapeake Bay was measured, it was found to decline from June through the remainder of the growing season and is correlated with an increase in the water stress within the leaves.

During the past year, a study was initiated to determine how growth and photosynthesis in salt marshes are inhibited by water stress, the first step of which was to characterize the daily and seasonal patterns of water potential. Water potential is defined in terms of the free energy of water in the plant compared to the free energy of pure water at the same temperature and pressure and is readily measurable in the field. Plant water potential declines as water loss, accumulation of salt from the soil, and small molecules from photosynthetic activity increase in leaf tissue throughout the day.

Water potential in the leaves of species adapted to salt marshes was found to be much lower than it is in plants adapted to forests and grasslands, and dramatically lower than in agricultural species. *Spartina alterniflora* and *Distichlis spicata*, two species that com-

monly form large tracts of salt marsh along the Atlantic coastline of North America, develop daytime water potentials approximately five times lower than would be required to stop photosynthesis and growth in corn. In fact, only plants from extremely arid environments have lower water potentials than these salt marsh species.

An interpretation of these measurements is that the ability to develop low water potentials through accumulation of salt and organic compounds (perhaps directly from photosynthesis) is a strategy for survival in an environment in which high salt and low oxygen in the soil work against the plant's ability to take up water. If the plant could not lower its water potential, water uptake from the soil could not keep pace with evaporative demand, and water loss would soon reduce turgor, resulting in the cessation of growth. Dessication is the single most common stress for all land plants. Knowledge of the mechanisms by which wild species have adapted to environments in which dessication is brought about by water loss or salt accumulation may ultimately permit economically important species to grow in environments where they are now unable to grow.

The monitoring of the color quality of daylight continues. As the accumulated data for several years indicate, there are complex changes in the values obtained from year to year. The determination of precise descriptions of the periodic fluctuations will require a long-term monitoring of both sun and sky components.

Precision instruments have been designed for monitoring the short wavelength portions of sunlight (ultraviolet B radiation, UVB). Since 1975, when these measurements were initiated, no consistent trend, either decrease or increase, in the fluctuations of the amounts of UVB has been observed. It is concluded that no significant changes in the ozone layer, which regulates the amount of UVB received from the sun, have occurred. These measurements are continuing at both the Rockville and Panama stations.

Another facet of the spectral monitoring of sunlight has been implemented with measurements near sunrise and sunset by a high precision device capable of accurately integrating data for two restricted wavelengths of light, 660 and 730 nanometers. These two wavelengths are important in controlling photomorphogenesis. Changes have been observed on a horizontal surface in the ratio

of one wavelength to another. Measurements are in progress to determine if the same or larger magnitude changes occur in light directly from the solar beam. The changes so far noted are at very low levels of light around sunrise and sunset, but do not occur every day.

Underwater radiometric equipment has been devised to study the light penetration into estuarine waters along the Chesapeake Bay in a collaborative project with Chesapeake Bay Center for Environmental Studies and the National Museum of Natural History. A portable unit makes measurements at various places so that some understanding of the spatial relationships can be gained. Another unit, one that is stationary, is underwater at a mean depth of two meters. It monitors the spectral quality of light penetrating the water from sunrise to sunset every day of the year. The unit is removed every few months for maintenance and then is replaced. A duplicate of this unit monitors the spectral quality of daylight that falls on the water surface. A fourth unit is being used to do turbidity studies using the same spectral bands that are being monitored. Periodic changes, approximately five days long, in the light penetration of the estuary have been observed. A much larger data set will be needed to be sure this phenomenon is not an artifact or a short-lived event that may not occur from year to year. This instrument, with its integrating capabilities, can make high precision measurements in extremely turbid waters. The measurements will assist in correctly describing the aquatic light environment in the Rhode River estuary at the Chesapeake Bay.

Solar spectral quality and quantity affect not only the vegetative productivity and growth of plants through photosynthesis, but also in a much more subtle manner, their reproductive behavior. It has been known since the 1920s that many plants are capable of reproducing in response to changes in the relative length of the day throughout the year. This phenomenon has come to be known as photoperiodism. Two factors are known to be important for the control of this phenomenon, one is the presence in the environment of a suitable light signal to tell the plant, with some precision, how long the daylength is, and the other is an internal detector mechanism required to perceive such a signal.

It has been known for some time that the universal plant pigment, phytochrome, is the probable detector molecule or photo-

receptor. Based on the fact that this pigment exists as two interconvertible forms, it was thought that the daylength timing was related to the time required for one form to revert to the other. However, critical measurements of the rates of this interconversion have shown this not to be the case. In the laboratory, for at least one group of plants, it has been found that the response appears to be mediated rather by the relative levels of the two forms of the pigment that coexist in specific ratios depending on the quality of the light. It was also found that this response required very high energies of light with an optimal spectral composition. As the spectral composition changes from this optimum, the amount of energy required increases.

Laboratory measurements of the spectral composition of solar daylight indicate that, throughout most of the day, the relative energies are suboptimal. At twilight, however, as the total energy decreases, the relative energy shifts toward more optimal ratios. This shift was also found to occur with increasing shade when the light is passed through a series of leaves, as might occur under a forest canopy. Thus, it appears that this shift in relative energy might be the environmental light signal for photoperiodism.

The sensitivity of the plant itself to optimal spectral ratios was found to vary by fifty-fold during the course of the day. Thus, even when all of the proper light signals are present, the plant will only respond when they occur at the proper time. This internal regulation appears to be a function of the biological clock of the plant and, as such, is coupled to numerous biochemical and physiological events. As evidence for this, it has recently been found that the phase of the fifty-fold change in sensitivity is determined by the time when a light pulse is given. Normally maximum sensitivity occurs during the second half of the day. A light pulse given at this time changes the maximum sensitivity to the first half of the day. This change in time of sensitivity effectively shortens the daylength requirement and reinforces the initial stimulation.

The mechanism of how optimal ratios of the phytochrome pigment interact with this internal clock to both promote flowering and set the phase of sensitivity to the external light environment are the subjects of further investigation. The possibility that photosynthesis is somehow involved in this response has recently been

excluded by demonstrating that plants, grown on a herbicide that produces plants without any chlorophyll, still show the same variation in response to light, at the same times during the day, as do normal green plants.

A specific example of the effects of spectral quality on reproduction occurs in the peanut. White light radiation stimulates the elongation of the plant gynophore, the fruiting body of the fertilized plant flower, and inhibits development of the embryo and pod. Elongation of this gynophore decreases as the levels of blue, white, red, and far-red radiation are decreased. Only when the radiation levels are decreased below a threshold level, which differs for each spectral quality, are embryo and pod development initiated. The threshold in the number of photons required for white and red radiation is lower than the threshold for far-red. The reversibility of the induction of these developmental characteristics by red and far-red radiation at the threshold values indicates the involvement of the photomorphogenic pigment phytochrome.

REGULATORY BIOLOGY

Phytochrome, the major photoreceptor for light-mediated development in higher plants is a colored protein that can be isolated and purified in the laboratory. Light converts an inactive form of the molecule to an active form, thereby initiating a chain of biochemical events leading to a physiological response. This light-mediated activation of the purified phytochrome molecule is being studied. It has been determined that a limited portion of the protein surface is altered on conversion to the active form. This site, which is believed to be a biologically active site, is located by binding to the dye Cibacron blue 3GA.

Limited proteolysis has been used to further characterize the dye binding domain. It has been found that the one hundred twenty thousand dalton peptide of naturally occurring phytochrome can be broken down to smaller fragments in the size range of sixty thousand to forty thousand daltons. Two fragments of about forty thousand daltons have been produced—one containing a colored chromophore and one not. Both of these bind to the dye, but with different affinities. It is believed that this is the result of proteolytic cleavage of the binding domain itself. These peptide fragments are being collected for further characterization.

The mechanism by which salicylic acid induces flowering in duckweed plants has been studied by using radioactive salicylic acid. Short-term uptake experiments indicate the acid is taken up rapidly and part of it is converted to a bound form of salicylic acid. When the acid is removed from the medium, its effect on flowering ceases almost immediately, but the level of both free and bound salicylic acid remains fairly constant in a culture for at least five days after the acid is removed from the medium. If a labeled four-frond colony is placed in control medium and allowed to grow until sixteen fronds are present, over ninety percent of the radioactivity is found in the original four fronds. Differential centrifugation shows no evidence for association of radioactive salicylic acid with any cell organelle. These results indicate that the acid does not move from parent to daughter frond and apparently is bound soon after being taken up. Thus, it probably acts during the uptake process or very soon thereafter.

Chloroplasts synthesize some of their polypeptides on ribosomes that differ from the ribosomes of the cytoplasm. A large portion of the chloroplast is composed of membranous sacs (thylakoids) in which the electron transport reactions of photosynthesis take place. Some of the polypeptides of these thylakoids are made in the chloroplast on chloroplast ribosomes, and some are made in the cytoplasm on cytoplasm ribosomes. Thylakoids of the alga *Chlamydomonas*, and thylakoids of other plants have thylakoid-bound ribosomes bound to them. Previous work suggested that the thylakoid-bound chloroplast ribosomes might be specifically involved in synthesizing polypeptides that are added to the thylakoids.

Messenger RNA (m-RNA) associated with thylakoids has been isolated and translated in vitro in the wheat-germ protein synthesis system. The protein products formed have been analyzed using an antibody to total chloroplast membrane polypeptides. Preliminary analyses indicate that some of the labeled protein products are chloroplast-synthesized thylakoid polypeptides.

Antibodies to a number of chloroplast synthesized polypeptides have been prepared and characterized. These antibodies are currently being used to analyze the products formed when thylakoid-bound m-RNA is translated in vitro.

Under light-limiting conditions in red and blue-green algae, a

large portion of the radiant energy from the sun is harvested by specialized supramolecular phycobiliprotein complexes (phycobilisomes). Since energy transfer within the phycobilisomes, and from the phycobilisomes to photosynthetic membranes is known to be highly efficient, it is of interest to determine the phycobilisome composition and the link to the photosynthetic membrane.

In the red alga *Porphyridium cruentum*, it was established that the phycobilisomes are closely spaced on the photosynthetic membranes with about four hundred fifty phycobilisomes per square micrometer, virtually covering the entire surface. Isolation of photosynthetic vesicles with the same phycobilisome density was accomplished, and it was shown that they were as photosynthetically active as whole cells and, furthermore, transferred excitation energy to chlorophyll as evidenced by a high fluorescence ratio ($F_{695 \text{ nm}}/F_{685 \text{ nm}} = 1.1$). Accomplishment of this phase, serving as an assay for functional phycobilisome-membrane attachment, is essential for being able to ascertain in-vitro reattachment. The phycobilisome composition of *Porphyridium cruentum* is highly complex. It consists of at least eighteen polypeptides, about half of which possess chromophores, and half of which are colorless. The colorless ones, assumed to be involved in phycobiliprotein-phycobiliprotein linking were present primarily in the core fraction. In the core they presumably link allophycocyanin and phycocyanins. Isolation and purification is proceeding toward identification of components involved in anchoring the phycobilisome to the photosynthetic membrane.

Phytoene, a forty-carbon colorless compound, is a precursor of the carotenoid pigments, and phytoene is synthesized from a five-carbon compound, isopentenyl-pyrophosphate (IPP), by a series of reactions. The biosynthetic pathway in the fungus *Neurospora crassa* using cell-free enzyme extracts has been studied. The conversion of IPP to phytoene requires both soluble and membrane-bound enzymes. The enzyme which converts geranylgeranyl pyrophosphate (GGPP) to phytoene is membrane-bound and regulated by blue light. This enzyme is absent in an *albino-2* mutant. The conversion of IPP to GGPP is catalyzed by soluble enzymes, and at least one of these (probably a prenyltransferase) is regulated by blue light. The soluble activity required for the biosynthesis of GGPP is at a reduced level in an *albino-3* mutant. In an *albino-1*

mutant, the enzymes required for phytoene biosynthesis from IPP have been shown to be present. In this mutant, the block in carotenoid biosynthesis is the conversion of phytoene to the carotenoid pigments.

Phytoene biosynthesis has also been investigated in another type of albino which is designated *wc-1* (*white collar-1*). This mutant produces normal levels of carotenoid pigment in the conidia, but the mycelia remain albino under all conditions. It is proposed that the white collar phenotype is characteristic of regulatory mutants that are blocked in some part of the initial light-induction process. The results of cell-free studies in the Radiation Biology Laboratory support this hypothesis, since the light-induced increase in both soluble and membrane-bound enzymes, observed in wild-type and albino strains, is absent in the *wc-1* mutant.

Based on these experiments, it was proposed that a number of such genes will be identified by a systematic mutant hunt. The isolation of *wc* mutants may lead to identification of the photoreceptor pigment. Identification of the photoreceptor would be of fundamental importance because of the distinct possibility that this compound is also involved in blue-light effects in higher plants.

The control of carotenoid synthesis in the fungus *Phycomyces* by blue light was previously shown to be a two-stepped process in which one step is induced by low light levels and the second by high light levels. It was suggested last year, from preliminary data in which the relative effectiveness of three wavelengths was measured (365, 405, and 455 nm), that the apparent increase in effectiveness in the ultraviolet at 365 nanometers was due to the presence of two photoreceptors. A carotenoid was implicated for small light doses and a flavin for large light doses. Subsequent data confirmed the increase in relative effectiveness in the ultraviolet, but additional measurements revealed that significant screening occurs in the mycelium by the carotenoid being produced during the long exposure times required for the high light doses. When this screening is taken into account, it is concluded that only a single photoreceptor is required for both the low and high dose components, and the data favor β -carotene as the photoreceptor. Reciprocity data support the conclusion that irradiation of dark-grown cultures elicits the synthesis of a factor that is required before the high light dose component can occur.

CARBON DATING

The laboratory provides analytical service for the research interests of the Institution's staff in providing radiocarbon chronologies for samples of archeological and geological interest. Additionally, a major portion of laboratory research continues to focus upon the early occupations of the Americas and upon the investigation of relationships between changing environment and changing cultures. A series of Late Archaic Indian burials from the southern Connecticut Valley have now been dated to between thirty-three hundred and thirty-one hundred years ago. The burials contained a variety of artifacts previously attributed to other time periods and different regions in the Northeast. Further excavation and dating are being conducted to elucidate what promises to be a complete rearrangement of Indian chronologies in southern New England.

Bottom sediments cored from Munsungan-Chase Lake in north-central Maine have been dated to 12,700 years ago. While done to provide paleoclimate reconstruction of that area in cooperation with the University of Maine's Munsungan Lake archaeological project, the date is of considerable interest in that it suggests, with other sediment dates in Maine, that the last great icesheet of the area was not a part of the Canadian sheet, but a separate ice cover that retreated from all sides rather than simply from south to north as formerly believed. The matter is of great interest to Pleistocene geologists in both the history of glaciations, as well as its implications in glacial dynamics.

Smithsonian Astrophysical Observatory

On April 10, 1981, the Secretary joined several hundred Smithsonian Astrophysical Observatory (SAO) employees and friends in Cambridge, Massachusetts, to celebrate the twenty-fifth anniversary of the observatory's location at Harvard University. Former director Fred Whipple narrated a slide presentation documenting the quarter-century history of SAO's growth during this period and its contributions to the international space program.

Whipple was appointed to SAO in 1955 and shortly thereafter,

at the request of the National Committee for the International Geophysical Year (1957–58), SAO assumed the responsibility for establishing and operating an optical network to track any satellites launched during the upcoming period of intensive atmospheric research. SAO's response was the development of the Baker-Nunn camera, comprised of a Schmidt camera—not unlike those utilized by the Harvard Radio Meteor Project—which was modified by James Baker, and a new mounting system, which was designed for this application by Joseph Nunn. In tandem with these plans was the establishment of a volunteer program called "Moonwatch," charged with making the first acquisition of the satellites and providing the rough orbital positions for camera tracking.

The camera stations eventually numbered twelve in locations around the world, and the Moonwatch volunteers numbered in the hundreds. When the first artificial satellites were launched, SAO stood ready to back them. And, for more than a decade thereafter, these cameras provided optical coverage of satellite passages, as well as information on other astronomical phenomena. Scientific contributions from these efforts were reflected in the publication of the *Smithsonian Standard Earth*, a classic work that refined the size and shape of the earth to unequalled accuracy at the time. (This geodetic measurement would be further refined by data acquired later by lasers that replaced the cameras at most SAO stations.) The *SAO Star Catalog* and accompanying *Atlas* also resulted from SAO's tracking program.

Under Whipple's direction, the observatory pioneered in other areas as well. For example, SAO became a world leader in the theoretical study of stellar interiors; the Prairie Network was established in the hope of photographing bright meteors as they entered the earth's atmosphere and recovering any resultant meteorites. SAO's computer was instrumental in testing the theory that explained the alignments at Stonehenge. The Telescope Project, part of the first Orbiting Astronomical Observatory, mapped the sky in ultraviolet light; and two SAO researchers, in independent programs, were awarded lunar samples from the Apollo missions for study.

Many programs instituted under Whipple's directorship continue to maintain SAO's prominence as a research facility. Planetary research has led to participation in the Pioneer and Voyager mis-

sions. SAO's hydrogen maser clocks are considered the most accurate time-keeping instruments in the world and are the standards for the deep-space tracking networks. Very long baseline interferometry studies are an intrinsic part of a large national program. Balloon-borne gamma-ray studies have led to the development of a large infrared telescope also carried aloft by balloon to map the skies. Finally, the establishment of a new facility—the Mt. Hopkins Observatory—which would allow significant achievement in ground-based astronomy was conceived under Whipple's leadership. This installation has provided the means for active observational programs using both conventional telescopes, whose compatibilities are enhanced by special detectors, and more unusual instruments, such as a ten-meter reflector for gamma-ray studies. More recently, the successful operation of the Multiple Mirror Telescope (MMT) has contributed greatly to the establishment of SAO as a leader in the field of ground-based astronomy—a position SAO had already achieved in the space sciences. (The MMT is a joint project of the Smithsonian Institution and the University of Arizona.) On September 14, 1981, the Board of Regents voted to rename the Mt. Hopkins Observatory in honor of Dr. Fred L. Whipple.

Since the establishment of the Center for Astrophysics in 1973, George B. Field has led the coordinated research programs of the Smithsonian Astrophysical Observatory and the Harvard College Observatory. During this period, solar studies have furnished valuable observations both in the extreme ultraviolet, by use of the Apollo Telescope Mount on Skylab, and in the X-ray regions. Indeed, under the center's auspices, the long-term interests of both observatories were combined in the Langley-Abbot Solar Research Program. At the same time, the Einstein satellite, which carried the first X-ray telescopes capable of providing focused images of X-ray objects in space, gave X-ray astronomers an instrument equal to those available to optical and radio astronomers.

As SAO's second quarter-century in Cambridge began, Secretary Ripley acknowledged his confidence that the observatory would meet the new challenges posed by pursuit of excellence in astrophysics.

Research results of the past year, grouped by the divisions of the Center for Astrophysics, follow.

The Atomic and Molecular Physics Division carries out research in theoretical and experimental physics and chemistry that relates directly to the interpretation of astronomical and aeronautical observations and that enters into theories of the astrophysical phenomena. The accuracy with which the physical condition can be inferred depends directly on the precision and comprehensiveness of the data base of atomic and molecular processes. These atomic and molecular processes are more than diagnostic probes of the physical environment; they are often critical in the determination of the evolution of the astronomical objects. The division's goal is to provide these data and the basic understanding of the processes.

A diverse array of theoretical topics, involving atomic and molecular processes and their application to the interpretation of astrophysical and atmospheric phenomena, is investigated by division members. Their studies concentrate on photodissociation, photoionization, and charge transfer.

Spectroscopic studies of processes and parameters in atomic and molecular physics of importance to astronomy also continue. Particular attention is directed toward the measurement of g -values of weak transitions in atoms and ions and of transition of rotational lines of molecules of interest to studies of interstellar gases and of the earth's middle atmosphere.

Divisional programs are also supported by use of the 6.65-meter scanning spectrometer and Ion-Beam Facility. For example, high-resolution absorption cross-section measurements of the Schumann-Runge bands of O_2 , which occur in the 175–205 nanometer wavelength region and control the penetration of solar radiation into the earth's atmosphere in that region, have been obtained by use of the 6.65-meter scanning spectrometer. The Ion-Beam Facility is being utilized to determine basic properties of multiply charged atomic ions found in high-temperature astrophysical plasmas and in laboratory plasmas being developed by the Department of Energy. Measurements of electron impact excitation cross-sections of triply ionized carbon were accomplished, and experimenters have begun to study this process in singly ionized carbon.

New programs pursued by the division include a laser selective excitation technique developed to measure weak-line oscillator

strength. This new technique has been tested recently with a measurement of the f -value of the Mg I $^1S - ^3P^0$ intersystem line where comparison experimental and theoretical values exist. The technique will be applied in the future to the analogous but one-thousand-times weaker transition in Be I and will provide a useful check on earlier theoretical data. A study of the coherent and nonlinear effects induced on atomic ensembles by high-power, coherent laser radiation has also been carried out and will give a critical assessment of the general applicability of this laser-based approach to study other weak transitions.

HIGH ENERGY ASTROPHYSICS

The principal activities of the High Energy Astrophysics Division are grouped in three main areas: analysis of data obtained in current or previous missions; planning and development of instrumentation for future space missions for orbiting observatories; and continuing research on energetic phenomena in the universe.

This year, scientific activities related to the reduction and analysis of data from the Einstein satellite dominated the division's research. Einstein, the second satellite in the High Energy Astronomy Observatory (HEAO) series, carried the first X-ray telescopes capable of providing focused X-ray images of a wide range of astronomical objects. Other Einstein-related activities emphasized mission planning and target selection; the conservation of the spacecraft attitude-control gas, which was exhausted in April 1981; and the continued direction of and support for the Guest Investigator Program.

Among the highlights of the Einstein research in fiscal year 1981 were the discovery of two galaxies showing strong X-ray activity but no optical activity; the detection of a probable underluminous X-ray active nucleus in the nearby galaxy M81; and the discovery of limitations on the physical state of a confining medium for the emission line clouds found in the outer regions of active Seyfert nuclei.

Since the formation of the center, the division has played a pre-eminent role in developing and using high spatial resolution telescopes and imaging detectors for X-ray astronomy. The X-ray telescope, the imaging proportional counter, and the high resolution imaging detector on the Einstein/HEAO-2 Observatory were designed and developed by division members.

Other substantial data-analysis activities included the HEAO-1,

sas-3, Skylab ATM, and rocket programs. Ongoing hardware design and developments included the Advanced X-ray Astrophysics Facility, the Large Area Modular Array of Reflectors for a Spacelab or oss-2 mission, advanced X-ray imaging detectors, and X-ray spectroscopy for plasma diagnostics.

OPTICAL AND INFRARED ASTRONOMY

The Optical and Infrared Astronomy Division, in addition to conducting astronomical research in the areas of optical and infrared astronomy, has the responsibility for maintaining and upgrading ground-based optical telescope facilities. These include the twenty-four-inch and sixty-inch telescopes and the MMT at Mt. Hopkins, and the Agassiz optical facilities (owned by Harvard College Observatory). (The MMT is a joint operation of the Smithsonian Institution and the University of Arizona.) The division also has an active instrument development group whose main activities have been the continuing development of photon-counting devices (image intensifier and Reticon) for spectroscopic applications and of the CCD camera.

The MMT is still not fully operational; however, in the past year, more than fifty percent of the available time was used for scientific observing. Staff members made use, principally, of the moderate resolution MMT spectrograph, the SAO echelle spectrometer, and the SAO CCD camera. In addition, some work was carried out with the MMT InSb photometer.

The development work on the MMT is concentrated on the thermal configuration and the coalignment system from the point of view of taking advantage of the superb seeing—sometimes better than one second of arc.

A collaborative effort by University of Arizona and SAO computer programmers, engineers, and technicians led to the development of a new telescope coalignment system (TCS) that can adjust the individual telescopes to a common focus as often as four times per second. With the new TCS, which significantly improves the quality of images obtained by the telescope, a video camera is used to look at the six individual images in the focal plane. A small, high-speed computer then interprets these video images and adjusts the movable optics of the MMT to keep the images "stacked"; i.e., at a common focus.

The division also continued to upgrade the capability to provide remote observing for the staff and to provide reduced data using the NOVA and VAX computers. In addition, balloon and satellite studies of the infrared region are under way.

PLANETARY SCIENCES

The Planetary Sciences Division carries out a wide variety of solar system investigations that exclude the sun and concentrate on the analysis of Voyager results, lunar studies, and comets. Of particular importance is research related to the origin of the solar system.

A wide range of investigations is pursued by a member of the Voyager Imaging Team and includes the following areas: detection of aurorae; lightning and bright fireballs in the atmospheres of Jupiter and Saturn; and the measurement and structure of aerosol layers that exist well above the cloud tops of both planets. An investigation of volcanism on Io led to a model for the plumes that compares very favorably with the observed examples. Another division member has utilized Voyager results in studies of Saturnian satellites and rings and is carrying out a detailed calculation of the location of resonances and their theoretical strengths.

A consortium to study the petrography, major and minor element chemistry, and ages of some of the Apollo 16 samples is led by a division geologist who is a participant in the lunar highlands initiative. Current study is focused on rock 67015, a breccia with a light gray, friable matrix from the rim of North Ray Crater. Early results of the study show that the matrix is more variable in a KREEP component and the clasts include at least one variety not found in the adjacent breccias.

Another lunar project is the effort to computer-model the origin of the earth-moon system via accretion of the earth from planetesimals, and formation of a protolunar swarm from planetesimals that are disruptively captured during passage through the earth's Roche zone.

About 550 observations of comets and minor planets were made with the 1.55-meter reflector at the Agassiz Station. The observations of the new comet 1980s played a critical role in the establishment of its orbit, and those of 1980e seem to have been the last obtained of that object.

The rotation periods and vectors of cometary nuclei continued to

be subjects of study. Halley's Comet has been given special attention because of interest in mission planning for 1985. The nucleus rotated in 10^h19^m both in 1835 and 1910, and the axis of rotation is being determined.

Investigations of the solar system have focused on studies of the structure and evolution of isolated giant gaseous protoplanets that are formed as a result of gravitational instabilities in the primitive solar nebula. Current research is concentrating on the possibility that interstellar grains present in the giant gaseous protoplanet can clump together and precipitate gravitationally to the center of the object on a sufficiently short time scale to form a higher density core, which will not be subject to the evaporation process.

A member of the division directs the IAU Central Bureau for Astronomical Telegrams, which issued some 130 *IAU Circulars* and 35 telegram books, and the IAU Minor Planet Center, which issued some 750 *Minor Planet Circulars* during the year. In addition, some 130 minor planets were newly numbered during the year.

RADIO AND GEOASTRONOMY

The Radio and Geoastronomy Division activities included research in Very Long Baseline Interferometry (VLBI); atomic clock development and relativity applications; aeronomy research in mesospheric ozone; geophysics research based on the operation of the SAO laser tracking network; and other research devoted primarily to Space Shuttle applications.

The VLBI group improved the accuracy of relative positional measurements of interstellar masers to better than 100 microseconds of arc including measurements of proper motions. They also constructed the first aperture synthesis map of an OH maser and discovered high velocity mass outflow from a young stellar object in Cepheus A. In addition, maser emission was mapped in the envelopes of M super giants.

Basic research has been carried out to improve the stability of masers and their applications to experimental tests of relativity. Considerable progress has been made by lowering the operating temperature of the maser cavity, and by coating the cavity wall surfaces with such substances as carbon tetrafluoride. The maser group has successfully operated a maser at 26 K. Development continues on masers for space flight operations for relativity, gravity wave,

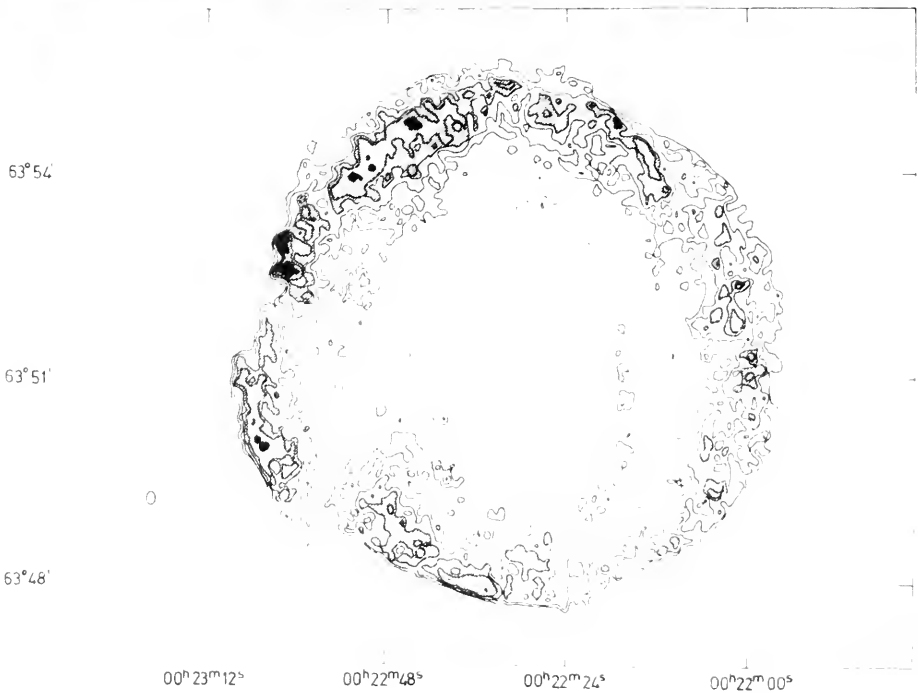
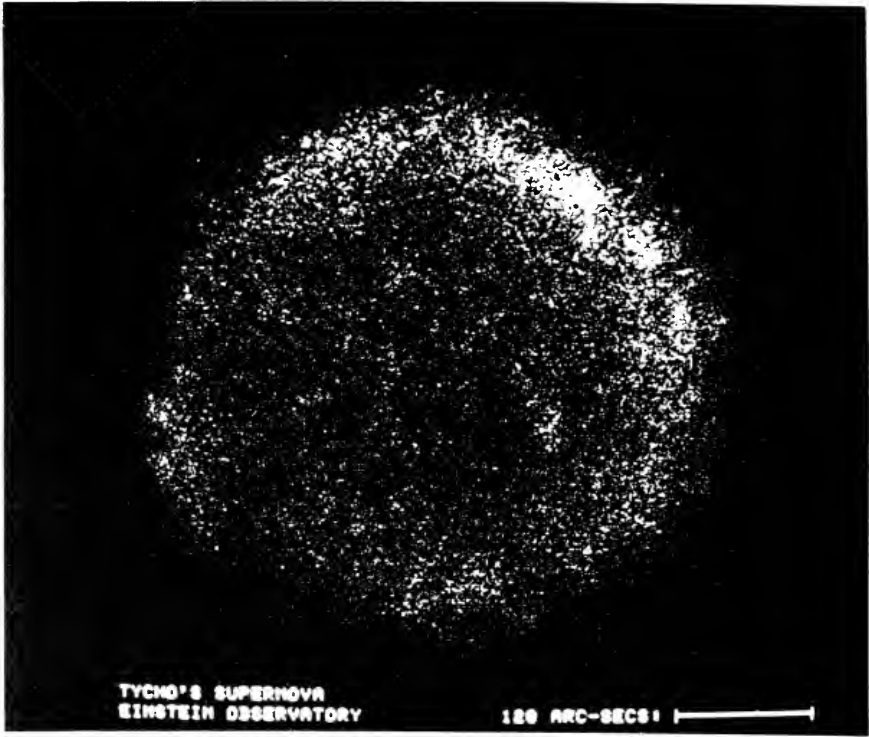
and VLBI applications. Atomic clocks developed by this group were used as precise time standards in the tracking of the Voyager missions to Saturn.

Routine spectroscopic observations were made of stratospheric and mesospheric ozone, using a ground-based spectrometer operating near a wavelength of three millimeters. Inversion of spectra clearly reveals substantial diurnal variations of the ozone mixing ratio with altitude. The aeronomy group collaborated with others to measure other atmospheric molecular species, especially water, as a test of current photochemical theories.

Under NASA support, the division operates three satellite ranging lasers: Arequipa, Peru; Natal, Brazil; and Orroral Valley, Australia. A fourth tracking laser is maintained at Mt. Hopkins. During the past year, the network was upgraded with an improved optical pulse chopper installed at all stations to reduce laser pulse width and improve ranging accuracy. Data handling capabilities were improved by modified software, allowing more direct transmission of data from field stations to SAO. A minicomputer was used in communications; software was adapted for operations on the recently installed DEC VAX 11/780 computer at SAO. All field stations continued local coverage of LAGEOS, GEOS-C and other satellites useful for geodetic applications. In addition, the SAO laser network routinely provides five-day averages of the earth's polar position to the Bureau International de l'Heure.

Basic research in geophysics is concentrated on the short wavelength features of the earth's geoid (~ 100 or ~ 1000 kilometers), which can be measured with satellite-borne radar altimeters. Several chains of seamounts and ridges in the Pacific and Atlantic oceans were studied.

A number of research programs are under way to study the behavior of a very long tether deployed from the Space Shuttle. Among them are use of the tether to deploy a satellite for aeronomy purposes, below the shuttle, at a low altitude where atmospheric drag would severely limit the lifetime of a conventional satellite. A second application of the tether is its use as a very long antenna to inject radio waves into the magnetoionic medium of the earth's ionosphere. The research shows that a deployed tether of one-hundred-kilometer length would permit VLF and ELF signals to be detected with state-of-the-art magneto-metric instrumentation.



The HEAO-2 (Einstein) satellite sent back to SAO unprecedented views of celestial sources of X-rays, including this X-ray picture (*above*) of the Tycho's Supernova which could then be compared with a radio image (*below*) of the same object.

The Solar and Stellar Physics Division pursued a vigorous observational and theoretical program directed toward critical problems pertaining to cool stars and the spectroscopy and behavior of hot astronomical plasmas.

The Langley-Abbot Program provides fundamental support in the area of solar physics and related problems. (This program, funded by the Smithsonian Institution and using data provided by several Harvard satellites, supports intensive coordinated studies of the complex relationship between solar and terrestrial phenomena.) Observational programs at the Mt. Hopkins Observatory, ultraviolet spectroscopic measurements with IUE, HEAO-2 (Einstein) X-ray measurements, and a solar ultraviolet coronagraph program formed the principal ongoing observational component of the division's research. Emphasis is generally on the sun and other cool stars and stellar systems. Ultraviolet observing programs with IUE also include the spectroscopy of supernova remnants, of the interstellar medium, and of cataclysmic variables. Theoretical research continues with particular emphasis on stellar chromospheres, stellar winds, and diagnostic spectroscopy of hot plasmas.

This year's highlights include the first measurement of the temperature and density in the solar-wind acceleration region. The discovery of a decrease in the solar proton temperature with height in the solar corona establishes the need for additional coronal energy input at 1.5 to 4 solar radii. These results were obtained by analysis of rocket-borne ultraviolet coronagraph observations.

Definitive semi-empirical models of components of the solar atmosphere, based on our ultraviolet experiment on Skylab, were published.

An ultraviolet survey of cool stars made with the IUE satellite provided measurements that define the chromospheric and coronal radiative losses, determine the minimum energy requirement of cool stellar atmospheres, and exhibit the enormous range of activity to be found in cool stars.

Stellar analogs of solar activity were discovered to occur in several G and K stars. Short time-scale variability in the Ca K line limits the size of activity to restricted regions of a stellar surface. Fundamental measurements of the modulation of the integrated flux of the chromospheric Ca K feature directly yield the rotation rate of cool

stars. This unique program is a powerful probe of the critically important rotation rates of solar-type stars, which are difficult, if not impossible, to infer from line profiles. The rates of many stars are now known from this survey to be less than previously thought.

THEORETICAL ASTROPHYSICS

The Theoretical Astrophysics Division carries out research on a diverse range of astrophysical phenomena, with theoretical studies often applied to the support and interpretation of observational data. Division members frequently work in collaboration with scientists in other institutions as well as with members of other divisions. In addition, they contribute significantly to the educational programs of the observatories.

The theoretical programs under investigation by division scientists are heavily computer-dependent; however, satellite observations do provide the basis for some.

An IUE program to monitor the variability of Seyfert galaxies simultaneously across the radio-X-ray wavelength range led to a better understanding of the nature of the continuum source. In particular, these observations point to the importance of inverse Compton scattering in the production of X-ray photons in the galaxies that are strong radio sources.

An analysis of the CFA Redshift Survey—which, in essence, weighs the matter contained in clusters of galaxies—was performed. Implied values of the cosmological density parameter Ω were shown to lie in the range 0.07 to 0.6, depending on the assumptions made.

From an investigation of methods of forming galaxies from massive neutrinos, it was concluded that if stable neutrinos have masses on the order of one hundred eV, and if there also exists a more massive unstable neutrino, then galaxy formation is facilitated by massive neutrinos. If the universe has almost critical density, then neutrino halos also ease the constraints on "Big Bang" nucleosynthesis. Baryon halos would produce too much helium and too little deuterium. Contributions from many astrophysicists on this and closely related topics were presented at a "Neighborhood Meeting" on Dark Matter in Galactic Halos and Clusters of Galaxies, which was organized by a division scientist in May 1981.

An investigation of the equilibria and behavior of relativistic,

thermal plasmas has led to the finding that such plasmas, in their optically thin regime, have a maximum temperature for each physical size and develop a negative specific heat at high luminosity.

Work on composite particle models of quarks and leptons led to the discovery of a mechanism whereby composite states, which are kept massless by chiral symmetries in the absence of weak and electromagnetic interactions, could be given a rich mass spectrum by these interactions.

This year, valuable progress was achieved in the understanding of magnetic fields, photodissociation processes, interstellar clouds, accretion flows and mass outflows, radiation processes and the effects of X-rays, the clustering of galaxies, and the hydrodynamics of the solar interior.

Other division members have carried out basic studies of stellar and galactic dynamics, stellar and galactic structure, gravitational theory, radiative transfer, kinetic theory, hydrodynamics, and scattering theory.

Smithsonian Tropical Research Institute

The tropical forests and seas are where the preponderance of life evolved, and the tropics are being altered by human activity at an alarming rate. We find increasing evidence that anthropogenic impacts may be contributing to the worldwide increase in atmospheric CO₂ and to the gradual heating of the earth. Research at the Smithsonian Tropical Research Institute (STRI) is focused on the evolution, ecology, and behavior of tropical organisms. Studies in Panama and other tropical regions provide a basis for explaining how plants and animals survive, cooperate or compete, interact with their environment and propagate their kind. The richness and diversity of tropical life, and lucid examples of adaptation, provide an essential perspective that shows the intricate balance of the natural world. The basic research carried out at STRI, both on Barro Colorado Island and elsewhere, has for more than fifty years enhanced our understanding of the tropical biota and its critical interaction with human populations.

Facilities supporting tropical research at STRI were augmented

during the year. Dr. Michael Robinson, Acting Director, signed an agreement with the University of Panama that will engender mutual cooperation and sharing of facilities. In addition, the government of Panama has announced plans to construct a National Library and archive near STRI offices in Panama City. The new library will form an impressive cultural center, along with STRI's new library to be built on the same site. On Barro Colorado Nature Monument—a fifty-four-hundred hectare tract that includes the island and adjacent mainland—the Panamanian National Guard has cooperated in training thirteen game wardens and patrolling the area. Gilberto Ocaña, STRI Superintendent of the Nature Monument, has succeeded in enlisting the support of local farmers in protecting this forest preserve. With funds from a James Smithson grant, Dr. Alan Smith coordinated the construction of a large plant-growing house, which is now a permanent installation on Barro Colorado Island (BCI). This facility will allow scientists to conduct controlled physiological and ecological studies of the island plants. Joining the STRI staff was Dr. Mark Denny, as marine coordinator and researcher in the area of biomechanics. Dr. Frank Morris, former environmental officer of the Panama Canal Commission, took over administrative duties as Executive Officer, and Ramon Ely is now STRI Facilities Manager.

The studies of 213 visiting scientists and students, as well as those of twenty-four permanent staff members, were aided by efforts of the STRI support staff, grants from the Scholarly Studies program of the Smithsonian Institution, the Edward John Noble Foundation, the Educational Outreach Program of STRI, and the EXXON Corporation. From September, 1980, to September, 1981, a total of fifty-nine pre- and postdoctoral students obtained support from the above agencies, performing independent or cooperative research with the guidance of STRI staff members (see Appendix 4). Results of this research were reported at over seventy-five seminars given at STRI and in numerous scientific journals (see Appendix 6).

Senior scholars who visited STRI with Smithsonian support included Drs. Richard Dawkins, John Maynard Smith, Charles D. Michener, Robert D. Martin, and Edwin Willis. Dr. Robert Trivers spent a year at STRI as a Smithsonian Regents Fellow, and, along with several of the senior scientists, contributed to seminal discussions of evolution and behavior.



Scientists working with STRI carefully search for parasites and check physiological condition of a black vulture before tagging and releasing it as one of the 1,524 birds under study. *Below.* Dr. Michael Robinson, Acting Director of STRI (*left*), and University of Panama Rector Dr. Cedeño Cenci (*center*) sign a mutual cooperation agreement for advancing knowledge of tropical biology.



STRI Director, Ira Rubinoff, returned from sabbatical year as visiting fellow at Wolfson College, Oxford, England, where he completed work on a strategy for preservation of some of the world's remaining tropical moist forests. The plan would provide direct economic incentive for conservation. Funded by proposed contributions from the developed nations, the plan would support a system of one-thousand reserves approximately one-hundred-thousand hectares each, thereby insuring the preservation of approximately ten percent of the world's remaining tropical forests.

The primary goal of the Environmental Studies Program, headed by Dr. Donald Windsor, is the analysis of marine and terrestrial ecosystems. Basic data are being gathered to describe physical and biotic environments of coral reefs and tropical forests. On Barro Colorado Island, seasonal variations in meteorological and soil factors are studied in conjunction with the phenology of forest trees and the fluctuations in selected animal and plant populations. For instance, Dr. Charles Handley is studying the foraging habits and abundance of frugivorous bats, many of which eat mostly figs when available. Allen Herre is studying how the availability of agaonid wasps, the sole pollinators of figs, affects fig production, and whether this is related to the shortage of figs detected in the midrainy season. At Galeta Reef, at the STRI Caribbean Marine Laboratory, Dr. John Cubit is working with Judy Connor, in conjunction with the Ecosystem Analysis Project, and Dr. Roy Caldwell and students. Their work is providing basic descriptions of the coral-reef environment and the distribution and abundance of its biota. These projects yield useful information for formulating resource management policies for Caribbean reefs, as well as a wealth of information on the natural history of reef plants and animals.

The individual research project is still the mainstay of much of the STRI scientific effort. In 1981 Dr. Alan Smith continued his comparative studies of high-altitude, long-lived tropical plants above the treeline, and initiated a study of the elimination of one such species by elephants on Mount Kenya. In the forest of BCI, Dr. Smith began studies on the response of understorey herbs to variation in microenvironment influenced by rainfall, treefalls, and topography. STRI to postdoctoral fellow Lucinda McDade studied the pollination and flowering dynamics of *Pentagonia macrophylla*

and *Pavonia dasypetala*, two species pollinated by hermit hummingbirds. Postdoctoral fellow S. Joseph Wright completed studies of bird species diversity and abundance on eight islands in Gatun Lake, Panama, and predoctoral fellow Francis Putz showed that lianas slow forest regeneration in tree fall gaps and increase the chance of death of trees that bear them.

Dr. Mary West-Eberhard wrote a review on the swarming behavior of tropical social wasps, finding that swarming is coordinated by the deposit of trail pheromones, which are followed by individuals rather than a coherent group. The pheromone is probably derived from glandular products that serve in dominance communication between females in nonswarming social species. The evolution of swarming appears to have arisen from reproductive competition among the queens in populous colonies. Dr. West-Eberhard was invited speaker at the International Symposium on Social Insects in the Tropics in Coccoyoc, Mexico.

The year 1981 saw publication of Dr. Robert L. Dressler's book, *The Orchids, Natural History and Classification* (Harvard University Press), and he participated in the Thirteenth International Botanical Congress in Sydney, Australia, and the Symposium of the International Society for Tropical Ecology in Bhopal, India. Dr. Dressler completed research on the primitive orchid genus *Palmochris*, showing that all plants of a given species flower on the same day, during a period of a few hours, presumably attuned to a subtle environmental cue. He has also summarized and expanded information on humus-collecting shrubs, which short-circuit the nutrient cycle in wet tropical forests by collecting their own discarded leaves and inflorescences.

Dr. Robert Silberglied designed a system to measure the incidence of predator attack on butterflies, and also continued study of hybridization and reproductive isolation in populations of *Anartia*. Dr. Silberglied was invited to attend the meeting of the Royal Entomological Society in London, where he presented new evidence that the brilliant wing colors of many tropical butterflies do not serve, as Darwin had believed, to attract females of the species. Rather, these colors seem to function in communication with other males, minimizing the reproductive competition between them by signaling that a particular territory has already been patrolled for receptive females.

Dr. Olga Linares spent much of the year in the field, studying the ecological factors which affect agricultural practices and the society of the Diola peoples of southern Sénégal. With Dr. Anthony J. Ranere, she edited a volume, *Adaptive Radiations in Prehistoric Panama* (Peabody Museum Monograph, No. 5, Harvard University Press). Senior Scientist Dr. Martin Moynihan concentrated on publishing summaries of studies of cephalopod molluscs in the Caribbean and the social and sexual behavior of coraciiform birds in West Africa. Dr. Moynihan continued studies of cephalopod behavior in the Southwest Pacific, and applied ideas derived from game theory and mimicry to the interpretation of animal behavior.

Dr. David W. Roubik coordinated the activities of fifteen collaborating scientists from Panama, Colombia, and the United States in the study of bee biology and pollination ecology. With assistance from the Scholarly Studies Program and the EXXON Corporation, Dr. Roubik continued to monitor the abundance and pollination preferences of native bees in Panama, to eventually describe the ecological impact of Africanized honeybees, which are entering Panama from Colombia. Dr. Roubik was invited lecturer at the International Symposium on Social Insects in the Tropics and the Fourth Symposium on Parasitology, both in Mexico.

EXXON fellows from the University of Panama, Orlando Castillo and Ameth de Leon, both worked in the Gigante Peninsula of the Barro Colorado Nature Monument, analyzing tree species composition in young forest. These studies are among many thesis projects performed by fellows at STRI, and their results will be compared with those of Dr. Stephen Hubbell, of the University of Iowa, who has coordinated a large-scale study of forest composition on BC1, financed by the National Science Foundation. Dr. Hubbell, Dr. Robin Foster, and associates have mapped trees within a fifty-hectare plot of old forest on BC1. The tagged trees are being identified, and their spatial distribution is being analyzed, which will result in detailed knowledge of forest structure and species recruitment, as well as provide valuable records for future studies.

Dr. William Eberhard was invited to the International Meeting of the American Arachnological Society in Knoxville, Tennessee, where he also studied the behavior of several temperate spider

genera. Dr. Eberhard conducted field research in Panama on the web construction behavior of orb-weaving spiders and performed computer analyses of web photographs, using the computational facilities of STRI. In a departure from his usual studies, he published a major theoretical article in the *Quarterly Review of Biology*, considering the possible role of competition amongst intracellular organelles as an evolutionary force.

Dr. Egbert F. Leigh, Jr., made comparative studies of architecture and leaf arrangements of trees in wind-planed elfin forest of mountain tops in Costa Rica and Malaysia. Drawing from comparative studies of nutrient-starved scrub and mangrove communities, and normal wet lowland tropical forest, Dr. Leigh expects to resolve which architectural features of elfin forest reflect nutrient starvation and which may be related to the unique aspects of elfin forest climate. Dr. Leigh also worked on the mathematical theory of population genetics to try to construct a falsifiable hypothesis of the theory of evolution by natural selection.

Dr. Michael H. Robinson, in addition to serving as deputy director, presented an invited paper at the International Ethology Congress in Oxford, England, entitled "The Evolutionary Arms-Race." Dr. Neal Smith attended the Bird Census Symposium at Asilomar, California, and in addition to two papers presented there, gave fourteen seminars at North American universities. In a study aimed at answering questions of population structure and social organization, Dr. Smith and two collaborators from the University of Panama—Carlos Ayarza and Guillermo Garcia de Paredes—completed a second year of research on the black vulture, *Coragyps atratus*. This scavenging bird is the principal bird species associated with Central and South American cities. Smith and co-workers are endeavoring to document the natural history and dispersal habits of the birds, and have tagged 1,524 birds in the course of their study.

Dr. Peter Glynn gave a graduate seminar course in coral reef ecology at the University of Guam and attended the Fourth International Coral Reef Conference in Manila. In continuing studies of the sea star *Acanthaster*, Dr. Glynn showed that this predator tends to increase the number of species coexisting on the reef where its preferred food comprised the dominant species, but that it has the opposite effect where nonpreferred corals predominated.

This finding is similar to that of Glynn's studies on species-poor Pacific reefs of Panama.

Dr. G. Gene Montgomery worked with Brazilian collaborators in a project designed to conserve populations of the manatee in man-made lakes. Manatee-hunters were hired to locate the aquatic mammals, which were then transported to protected lakes where their presence is deemed beneficial in the control of aquatic vegetation. A second major research project, to census Brown Pelicans in the Pearl Island Archipelago and on Taboga and Uruva Islands in Panama, was carried out by Dr. Montgomery with the assistance of three EXXON fellows from Panama and Colombia. The study gave strong indication that pelican-breeding colonies in the Bay of Panama are of international significance, and that these sites deserve protection as national sea bird refuges.

Senior scientist Dr. A. Stanley Rand attended the Ethology Congress at Oxford, England, and also pursued comparative studies of iguana nesting behavior on San José Island, in the Bay of Panama, and at several nesting sites within the Barro Colorado Nature Monument. Dr. Rand and collaborator Gordon Burghardt initiated studies on natural populations of the iguana in Venezuela, and Katherine Troyer, STRI fellow, worked out the relation between the diet of young iguanas and their gut flora. The flora necessary to assimilate nutrients from a strictly vegetarian diet appear to be derived in part by coprophagy by young iguanas. Michael Ryan completed a Smithsonian Fellowship, with Dr. Rand as advisor, and continued to elucidate the risk due to predation by bats that accompanies the mating calls of male frogs. Collaborating with Dr. Merlin Tuttle of the Milwaukee Public Museum, Ryan showed that the calls of males are subtly adjusted to avoid attracting the bats.

Research by Dr. D. Ross Robertson continued to focus on the birth and death schedules of larval sturgeonfishes and damselfishes, and the lunar periodicity of spawning in the latter. Dr. Robertson also studied the population fluctuations of several species of reef fishes in the Caribbean.

The successional process of tropical vegetation was assessed by STRI fellow Thomas Barringer, based on aerial photos, LANDSAT satellite imagery, and field studies in the Barro Colorado Nature Monument. These data are being used with comparable informa-

tion from lowland tropical forests in the Philippines, to test a mathematical model of tropical forest succession. Diane DeStephen, STRI fellow, also addressed a facet of tropical succession by studying predispersal seed predation on bci. Dr. Raymond C. Highsmith, STRI postdoctoral fellow, completed research of the bioerosion of corals and mollusc shells in the coastal reefs of Panama.

Dr. Hindrik Wolda continued his multi-year program to monitor the stability and seasonality of insect species on bci. Dr. Wolda pursued taxonomic studies of cicadellids, in collaboration with Dr. Dwight DeLong of Ohio State University.

Research Associate and former fellow, Dr. Katharine Milton, published a book on her long-term studies of the Barro Colorado howler monkey population: *The Foraging Strategy of Howler Monkeys* (Columbia University Press).

As a note of historical and zoological interest, the longest-lived howler monkey in captivity "Bully" escaped from his residence of twenty-three years on bci. Dr. Martin Moynihan hand-reared Bully in 1958; the diet devised for howlers by Dr. Moynihan has been adopted at many zoological parks.



This major sculpture, Paul Gauguin's *Cylinder Decorated with Figure of Hina*, was an important acquisition this year by the Hirshhorn Museum and Sculpture Garden.

HISTORY AND ART

CHARLES BLITZER,
ASSISTANT SECRETARY FOR HISTORY AND ART

Archives of American Art

The annual harvest of Archives of American Art (AAA) acquisitions brought in a bumper crop this year. Each new collection of papers offers sustenance to some eager researcher, and certain particularly rich ones could feed a whole detachment of scholars for years to come. Of the 262 collections received in 1981, several are especially worthy of note and will serve to represent the entire body of acquisitions.

Following the usual pattern of AAA collecting, the papers of artists were more prevalent than those of art dealers, curators, collectors, and critics. There was relatively little from the nineteenth century—chiefly, a small but choice group of George Catlin correspondence, several Frederick MacMonnies letters, and a few contemporary items relating to John Goffe Rand, whose contribution to art (and to dental hygiene) was less his paintings than his invention of the squeezable paint tube. A larger collection, which begins in the nineteenth century and ends in the twentieth, is the papers of Walter Gay, an American painter who went to France to study in 1876 and remained there for the rest of his long and successful life. His correspondence and that of his wife is full of enlightening references to his work, to other American expatriates, and to fashionable French and English society. "I dined with Edith Wharton on Sunday," his wife writes on July 5,

1910, "where I met the usual literary crowd, with Berenson thrown in." There are letters from Rodin and John Lafarge, from Henry James, Gari Melchers, Elsie de Wolfe, and Sarah Cooper Hewitt, one of the three sisters who founded the Cooper-Hewitt Museum. The collection also includes photographs and a series of early sketchbooks.

The voluminous papers of Andrew Dasburg, an early twentieth-century modernist painter who lived and worked into his ninety-second year, are a source of much useful information on a variety of subjects. The artist communities of New York City and of Woodstock in the years before and during World War I, and of Taos, New Mexico, after 1918, come vividly to life in hundreds of letters exchanged between Dasburg and his first wife, the sculptor Grace Mott Johnson. The Armory Show, the Mabel Dodge menage, early psychoanalysis, Paris in the summer of 1914, and several prominent painters and sculptors are described and discussed in this absorbing correspondence. Letters from other artists, some fine photographs, and rare publications are also of interest.

An unusually contemporary note for the AAA was struck this year with the gift and loan of two groups of Red Grooms's papers, some of them dating from his early painting career in Nashville. Chiefly family correspondence, the letters throw light on Grooms's developing reputation and later international success. Much of this material, including letters from his wife Mimi Gross, is illustrated with wildly colorful drawings.

The records of art collectors are often of interest, not least for the documentation they carry on individual works of art. This year the AAA filled a major gap in its holdings on the decorative arts by acquiring the Francis Patrick Garvan papers, which thoroughly cover the activities of one of our nation's leading collectors in that field. The papers include a substantial quantity of correspondence with dealers, curators, art historians, and conservators, as well as detailed inventories and other business records relating to the purchase of furniture, silver, paintings, ceramics, and rare books. The settlement of the Garvan estate after his death in 1937 is recorded in great detail.

Art dealers' papers are also a major source of information for

researchers. The top example of 1981 is business records of the Henri Gallery, Washington, D.C.'s most active dealership handling the work of contemporary artists over the past twenty-five years. Correspondence, notebooks, ledgers, photographs, and scrapbooks all in great profusion, provide a thorough record of the gallery's work and important information on local artists and on the Washington art market during a period of rapid growth.

The papers of two distinguished art historians make an impressive addition to the AAA's holdings of prominent scholars' records. Erwin Panofsky, the great iconographer and one of the most influential figures in the development of American academic art historiography, conducted an extensive and wide-ranging correspondence with hundreds of scholars, curators, critics, collectors, universities, organizations, and fellow members of the Institute for Advanced Study at Princeton during his forty-year residence in this country. As befits a meticulous record keeper, he made and preserved carbon copies of his own letters. The collection also contains the manuscripts of his books, articles, and lectures, including his famous "Ideological Antecedents of the Rolls-Royce Radiator."

Joshua C. Taylor's papers chiefly reflect his teaching career at the University of Chicago and his published work on the Italian Futurists, on the nineteenth-century American painter William Page, and on the visual arts in America. A large quantity of notes, photographs, and other background material on those subjects constitute much of the collection, which also includes correspondence with former students, other art historians, curators, and friends and associates, most of it dating from prior to his appointment as Director of the National Collection of Fine Arts (now the National Museum of American Art). A series of letters written during World War II and several later travel diaries reveal a disciplined intellect; and a small group of sketches shows his early interest in ballet and theater design. Taylor played an active role in the formation of the Museum of Contemporary Art in Chicago, and his influential work in that connection is clearly recorded in his papers.

The most complete set of institutional records received by the Archives of American Art in 1981 are the papers of the Print

Council of America (PCA). This organization was founded in 1956 by a group of curators, collectors, and makers of fine-art prints, in an effort to set standards for print production and distribution and to increase the knowledge of the American public concerning prints. Included in the collection are the correspondence and distribution material concerning the PCA's two most important publications, *The Care and Collecting of Original Prints*, by Carl Zigrosser and Christa Gaehde, and *What is an Original Print*, by Joshua Binion Cahn. The collection also includes correspondence from noted print curators and collectors such as Lessing Rosenwald, Karl Kup, and Zigrosser. There are several hundred photographs of prints sent out by the PCA in traveling exhibitions across the country, as well as copies of the calendars they published once a year on print exhibitions in America. Financial information and criteria for certification as a dealer round out the collection.

A new surge of productive activity took place in the AAA's Oral History Program in 1981. A grant from The Cleveland Foundation subsidized videotaped interviews conducted by the Archives Midwest Regional Director with five leading Ohio artists. Two additional video interviews, both made in Detroit, with Brian O'Doherty and Gene Davis, reflect an effort to build this visual, as well as verbal, form of documentation. Several grants from California agencies enabled the AAA to continue its systematic oral history project in that state. Among the thirty-one interviews completed this year, those with Ray Kaiser Eames, Armand Hammer, and the artists Larry Bell, Robert Irwin, Helen Lundeberg, and Bruce Nauman are of particular interest. The Wyeth Foundation supported interviews in New York with Chaim Gross, Raphael Soyer, and Dorothy Varian; and the Mark Rothko Foundation provided funds to undertake a two-year project to record reminiscences of Rothko by several dozen friends and associates. Other notable figures, whose recollections were taped this year, include Lois Bingham, Mrs. Walter Gropius, Reuben Nakian, and Annemarie Pope.

Since the Archives of American Art exists to promote scholarship by making research in its field possible, the extent to which it is used is a measure of its success. In 1981, 2,950 research visits were made to the five regional centers, a modest increase over the previous year, and 1,050 microfilm rolls were lent to researchers throughout the country.

The AAA lent several items to exhibitions held in 1981. Among those were two exhibitions in Germany; one on American Realism at the Neue Gesellschaft für bildende Künste, to which copies of a rare periodical, *Art Front*, were lent. Several Lyonel Feininger drawings were lent to another German museum, the Museum für Kunst und Gewerbe. In America, the DeYoung Museum borrowed several works on paper by Henry Alexander, and a selection of David Smith photographs were lent to the Detroit Institute of Arts.

Two symposiums sponsored by the AAA reflected the continual growth of interest in American art. In Boston, a one-day symposium was held on the subject of Arthur B. Davies and modernism in conjunction with a show at the Institute of Contemporary Art, where several of the AAA's Davies documents were also displayed. Garnett McCoy, senior curator, gave a paper on Davies at this symposium. A Washington symposium "Other People's Mail" featured writers who have published books in the past year utilizing the resources of the Archives, and included lectures by John Wilmerding, on John Frederick Peto, and Meryle Secrest, on Romaine Brooks and Bernard Berenson.

In the area of publications this past year, the card catalogue of the AAA was published by Scholarly Resources, Inc., in ten volumes, for distribution to college and university libraries as a finding guide. *The Archives of American Art Journal* continued its quarterly publications with articles on Abraham Rattner, John Ferguson Weir, Henry Alexander, Charles Green Shaw, and excerpts from an oral history with Lloyd Goodrich.

The results of earlier work conducted at the Archives appeared in an impressive number of books, exhibition catalogues, and articles published in 1981. Books on Dorothea Lange and Ad Reinhardt, and major catalogues of the work of Berenice Abbott, Arthur B. Davies, Guy Pene duBois, Lyonel Feininger, Walter Gay, Childe Hassam, Hugo Robus, David Smith, and Benjamin West leaned heavily on AAA material. Substantial catalogues on Futurism, the Library of Congress building, sculptors' drawings, and American art of the 1920s and 30s, among others, all contain acknowledgements to the Archives of American Art.

Cooper-Hewitt Museum

In fiscal year 1981, the Cooper-Hewitt Museum continued its wholehearted commitment to excellence in exhibitions, educational programs, and special events, garnering considerable public, press, and professional interest.

Among exhibitions was a major presentation in the fall entitled, *Now I Lay Me Down to Eat: A Salute to the Unknown Art of Living*, conceived and organized by the museum's scholar-in-residence, Bernard Rudofsky, the exhibition received wide critical and public attention. It was an exercise in observation, exploring attitudes toward everyday domestic manners and filling the museum with familiar objects relating to such subjects as bathing, sitting, sleeping, eating, and cleansing.

Another exhibition, *Central Park*, offered the unique opportunity to view a large selection of original drawings and designs by Frederick Law Olmsted and Calvert Vaux, recording the rich record of mid-nineteenth century taste, vision, and the planning of a great urban park.

Contemporary graphic design—the American poster of the past decade—was the subject of the exhibition *Ephemeral Images*, which surveyed the work of America's foremost graphic designers.

Special collection exhibitions continued to emphasize the museum's rich holdings in the field of the decorative arts. *Silver*, *Matchsafes*, and *Pottery* displayed the Cooper-Hewitt's finest examples within each category.

Two loan exhibitions concentrated on furniture design and technology. Shown concurrently, *John Henry Belter and the Rococo Revival* and *Innovative Furniture* afforded museum visitors the opportunity to study furniture designs of the past two centuries. The landmark Belter exhibition assembled many rare works from the nineteenth-century cabinetmaker's New York workshop. *Innovative Furniture*, circulated by the Smithsonian Institution Traveling Exhibition Service (SITES), examined the development of the American furniture industry and its ever-changing notions of function, design, and construction.

German Stage Design in the 19th Century, selected from the holdings of the Deutsches Theatermuseum, Munich, served as an important document of theater production from the German court

theaters at Weimar, Berlin, Vienna, Munich, and Bayreuth. The exhibition emphasized the familiar operatic repertory of von Webern, Mozart, Rossini, and Wagner as well as designs for dramatic productions by Shakespeare, Goethe, and Schiller.

The Moving Image: The Art of Animation displayed a diverse selection of original animation cels and drawings. Special emphasis was given to landmark productions by Disney—*Snow White* and *Fantasia*—as well as to other major animation studios: Warner Brothers, Hanna Barbera, Fleischer, Ub Iwerks Studio, and others.

In celebration of summer, two floors of the museum were given over to *Gardens of Delight*, a major exhibition on horticulture and its many reflections in art. Apart from a number of important loans, the show was drawn primarily from the museum's own resources. Hundreds of decorative objects, paintings, prints, drawings, books, and textiles with floral themes were included. The museum's conservatory and garden were specially planted for the occasion. *New York Times* critic, Ada Louise Huxtable, described the shown as ". . . a splendid potpourri of treasures . . . the delights are endless."

In 1981, sites continued to circulate nationwide both *Urban Open Spaces* and *The Shopping Bag: Portable Graphic Art*.

The ongoing series of collection handbooks was enlarged by four volumes: *Silver*, *Matchsafes*, *Pottery*, and *Wallpaper*. Also, four more volumes in the series *The Smithsonian Illustrated Library of Antiques Prepared by the Cooper Hewitt Museum* were completed. They were: *Jewelry*, *Silver*, *Toys & Games*, and *Pottery*. These brought the series to a total of twelve volumes; an additional three have been commissioned. In association with Doubleday, *Now I Lay Me Down to Eat: Notes and Footnotes on the Lost Art of Living* was published in conjunction with the exhibition. *More Than Meets the Eye: The History and Collection of Cooper-Hewitt Museum* was published both in hard and soft cover. Rizzoli published *Urban Open Spaces* in book form. In connection with the exhibition, a series of *Central Park Postcards* was printed as well as two colorful paper constructions, *Horticultural Hall* and *Kiosque*, reprinted from lithographs in the museum's collection.

Both brochures on the history of the *Carnegie Mansion* and the *Cooper-Hewitt Collections* were reprinted and revised. To aid



The conservatory of Cooper-Hewitt's Carnegie Mansion brought to life the very title of the museum's summer exhibition, *Gardens of Delight*. Shown in light and shadow (*below*) is the Hirshhorn's Sculpture Garden, renovated, redesigned, recently reopened.



the handicapped, a *Guide to the Cooper-Hewitt Museum* was published in Braille and in large type-face, the latter funded by The President's Committee on Employment for the Handicapped.

The museum accessioned 1,174 works of art from sixty-five donors. The collections were enhanced by three purchases from restricted acquisitions funds. Of particular importance was the gift of rare books on the work of Robert and James Adam by the James Smithson Society. The museum borrowed 1,317 works from 210 public and private collections and lent 198 works to forty-one museums, galleries, and institutions. The inventory of the Cooper-Hewitt collections, begun in 1979 with an appropriation from Congress, continued. Over 134,000 articles have been inventoried and recorded on computer.

The museum undertook several construction projects in order to facilitate and enlarge storage capacity in the various departments. To house the decorative arts collections more efficiently, storage shelves in eight rooms of the townhouse were built; particular emphasis was given to the storage of the ceramics collection. The Office of the Registrar was relocated, and reconstruction was done to accommodate the registrar's receiving and storage areas. An extensive air-vacuum system was installed in the workshop to promote ventilation and remove sawdust. The guard desk and security room were relocated and renovated to accommodate the expanded security systems.

During four semesters beginning in the fall of 1980, nearly six thousand students participated in the educational programs offered by the Cooper-Hewitt. Over four thousand took part in tours and special events. Total programs attendance was sixteen percent higher than the previous year's total.

Coinciding with several of the exhibitions, the Programs Department organized special events and courses relating to design, architecture, and the decorative arts. Several popular programs included: *Directions in Graphic Design and Architecture*, *Russian Constructivism*, James Ackerman's film on *Palladio*, *McKim Mead & White*, and *Landscape Architecture*. Extremely popular was an animated film series, and, in conjunction with *Gardens of Delight*, a variety of lectures, workshops, and tours.

Four credit classes on the subjects of European and American Decorative Arts were successfully instituted for undergraduates of

the Parsons School of Design. Classes tailored for children and the adult workshops continued to be well attended.

The museum benefited from the generous service of sixty-five volunteers and forty interns, who devoted their energies in all departments. The Sidney and Celia Siegel Fellowship Program provided stipends for three exceptionally qualified summer interns.

Membership support remained constant in the form of member renewals; new applicants increased substantially.

As one of ten member institutions of Museum Mile—initiated by the Cooper-Hewitt three years ago—the museum was honored by the Mayor of New York's proclamation to affix the title "Museum Mile" to street signs within the designated mile area.

The Cooper-Hewitt was selected as one of ten New York Museums to participate in the Cultural Vouchers Program, instituted by Museum's Collaborative. This allowed the Education Department to undertake additional programming involving both outreach and extensive school programs.

Several special fundraising events were held at the museum during the spring and summer. "Crafts in the Carnegie Mansion" was the first major crafts fair to be held in a New York City museum. More than one-hundred-twenty artisans from across the United States impressed thousands of museum-goers and crafts aficionados with a vast range of contemporary objects in all media. Coinciding with the summer exhibition, *Gardens of Delight*, a special sales shop, "The Trellis," was initiated. All manner of donated merchandise with floral and botanical themes was available for sale. The museum was host for a spring gala benefit ball for over eight hundred guests. For this occasion, a Junior Committee, composed of friends of the museum under the age of thirty-five, was formed. This committee will continue to work with the museum and to plan other events throughout the year.

The museum received several important grants, both from foundations and private individuals. The extraordinary support of the Carnegie Corporation for the museum's expansion, the Andrew W. Mellon Foundation for the establishment of a "revolving" fund for special projects, and the Ford Foundation for a two-year minority scholarship within the Cooper-Hewitt/Parsons graduate program in the decorative arts were among the most noteworthy.

Several museum publications received awards. The Art Libraries

Society of New York awarded a citation of merit to the Museum for four catalogues: *Hair*, *Tsuba*, *Tiles*, *The Oceanliner*. *Tsuba* received an additional award of merit from The Art Directors Club for excellence in design.

The Freer Gallery of Art

The Freer Gallery of Art continued to expand its public-service program despite being partially closed for renovations for much of the year. A major step was initiated with the Freer's first full-scale volunteer docent program to inform visitors through tours of the museum. This was supported with an expanded distribution program of free leaflets describing aspects of the Freer and its collections.

From over 125 inquiries and applications, twenty-four people were selected to participate in an extensive docent training program. The program included the history of the museum and of Charles Lang Freer as well as detailed surveys of the major parts of the collections and training in tour methods. Twenty-three volunteers were accepted provisionally into the newly established docent program.

The Freer now offers eight free leaflets to visitors and to those inquiring by mail to explain aspects of oriental art exhibited at the museum. As part of a general effort to assist smaller museums that do not have curators specializing in oriental art, the Freer made available one hundred thousand leaflets to a Texas museum this year.

Other elements in the Freer public-service program continued at the usual active pace: the Freer oriental art lecture series, special tours for various groups, identification of objects owned by the public, and staff lectures and publications.

The Freer's twenty-eighth annual lecture series included "Four Popular Beauties of the 'Floating World'" by Money L. Hickman, Museum of Fine Arts, Boston, which was jointly sponsored with the Embassy of Japan, and the Rutherford J. Gettens Memorial Lecture, "Ancient Glass: Its Marvels and Mysteries," delivered by Robert H. Brill of the Corning Museum of Glass.

The exhibition year began with a special show of twelve Japanese screens from the Rimpa School, a major tradition that arose in



Smithsonian Under Secretary Hughes, Mrs. Chun and President Chun Doo Hwan of the Republic of Korea, NMNH translator Houchins, and Assistant Secretary for History and Art Charles Blitzer point to the Freer Gallery in this Quadrangle model. Below. Shen Fu, curator of Chinese art at the Freer, demonstrates calligraphy techniques in a training session for the Freer's first large-scale docent program.



Kyoto during the final decades of the sixteenth century and continued through the nineteenth century. The museum's curator of Japanese art, Yoshiaki Shimizu, organized the exhibition. A leaflet explaining the history and development of Japanese screens was first provided to the public when the exhibition opened.

The climax of the exhibition year was a showing of seventy-four Indian miniatures in *The Imperial Image: Paintings for the Mughal Court*. This collection of works is from the period 1560–1640, which represents the most important span of Islamic art in India. The definitive catalogue was prepared by Professor Milo Cleveland Beach of Williams College, the fourth Smithsonian Regents Fellow.

Other major exhibitions at the Freer included: *Ancient Egyptian Art* for the "Egypt Today" program; *Turkish Art*; *Japanese Fans*; *Art of the Mamluks*; *Eastern Kufic Calligraphy*; *Korean Art*; *Japanese Ceramics*; and *Ceramics from the World of Islam*. Since the building renovations displaced the Chinese and American art exhibitions, a representative selection was shown in the galleries on the west side of the building.

Research for the 1984 James McNeill Whistler exhibition began after the term appointment of David Park Curry as the Freer's American art curator for a year and a half. The Freer also appointed Ellen A. Nollman as librarian. She replaced Priscilla P. Smith, who retired after fifteen years of service. Gayle Southworth was also named as docent chairman on a volunteer basis.

Among the well-known visitors to the museum this year were President and Mrs. Chun Doo Hwan of the Republic of Korea. They presented a gift of \$1 million from the people of Korea for a new center for Eastern art. Mrs. Anwar El-Sadat, wife of the Egyptian president, again visited the Freer, this time in connection with the "Egypt Today" program. Prime Minister Suzuki of Japan was at the Freer to plant a rare white weeping Fuji cherry tree, acknowledging the Institution's gratitude for Japan's earlier gift toward the construction of the proposed center. A number of museum officials from the People's Republic of China visited at various times during the year. They included Xia Nai, Director of the Institute of Archeology, Chinese Academy of Social Sciences; Sun Yi-qing, Vice Director of the State Administration Bureau of Museums and Archeological Data; Lü Ji-ming, Chief of the Museum Department of the State Administration Bureau for Museums and Archeological Data;

Yang Po-ta, Deputy Director of the Peking Palace Museum; Shen Chih-yü, Director of the Shanghai Museum; and Ma Cheng-yuan of the Shanghai Museum.

Notable donations to the Freer collection this year included a work of Chinese calligraphy from John M. Crawford, a Japanese lacquer drum body from the James Smithson Society, a Chinese metalwork and jar from the Honorable and Mrs. Hugh Scott, as well as a Chinese bronze from General and Mrs. Albert A. C. Wedemeyer. Mr. Joseph Upton donated one hundred items to the Freer Study Collection. The Hagop Kevorkian Fund contributed to the publication of the catalogue, *The Imperial Image: Paintings for the Mughal Court*. The National Committee to Honor the Fourteenth Centennial of Islam awarded a grant for the organization of the Myron Bement Smith archives.

Hirshhorn Museum and Sculpture Garden

The Smithsonian Institution, and especially the Hirshhorn Museum and Sculpture Garden, were saddened by the death of the museum's principal donor, Joseph H. Hirshhorn, on August 31. His death is a tragic loss to the museum that bears his name, to its board of trustees, and to everyone at the Smithsonian as well as to the world of art.

A dynamic man with an extraordinary passion for art, Mr. Hirshhorn gave his splendid collection to the nation in 1966 and continued thereafter to add to his gift until the day he died. The spirit that motivated his collecting was his conviction that art serves an ennobling and civilizing purpose, and, toward that ideal, he generously gave to his fellow-countrymen.

At the memorial service held in Washington on September 13, eulogies were delivered by, among others, S. Dillon Ripley, Senator and Board Chairman Daniel Patrick Moynihan, Abe Fortas, former Supreme Court Justice, and the artist Larry Rivers.

At the Smithsonian's Board of Regents meeting on September 14, 1981, the following resolution was adopted, after which the Secretary and the Regents stood for a moment of silence in tribute:

Resolved that the members of the Board of Regents express their deep regret at the irreparable loss of Joseph H.

Hirshhorn, a friend, a colleague, and an incomparable patron who shared with us all his passion for art. The Regents recall with profound appreciation his generous and lasting contributions to the Hirshhorn Museum and Sculpture Garden, which will stand forever as testimony to this extraordinary man.

As one of the major museums of contemporary art in the country, the Hirshhorn Museum and Sculpture Garden (HMSG) maintains an active exhibition schedule and acquisitions program. In support of these are related programs of lectures, films, concerts, and educational activities involving audiences of all ages. Technical and support units include offices of conservation, registration, photography, and a reference library.

Acquisitions are vital to any museum but especially to a contemporary art museum. During 1981 the museum acquired 323 works of art, including sixteen as gifts from Joseph H. Hirshhorn, and thirteen as joint gifts from the Joseph H. Hirshhorn Foundation and Lily Harmon. Other important gifts were received from Raphael and Rebecca Soyer, who gave the museum 192 works on paper, spanning the artist's career from 1917 to 1981, and from Mr. and Mrs. David K. Anderson, who gave the museum forty-two paintings and sculptures in memory of Mr. Anderson's mother, Martha Jackson. A major piece of sculpture by Paul Gauguin, *Cylinder Decorated with Figure of Hina*, was acquired with funds from the Regents Collections Acquisition Program and partially matched by funds raised by the Hirshhorn Museum and Sculpture Garden Board of Trustees. Other important purchases included works by Robert Birmilin, Gregory Gillespie, and Rodrigo Moynihan.

A major exhibition during the year was *The Avant-Garde in Russia, 1910–1930: New Perspectives* (November 6, 1980–February 16, 1981), organized by Stephanie Barron and Maurice Tuchman of the Los Angeles County Museum and first shown there. Consisting of approximately 450 objects, it documented a period when revolutionary art and society achieved an effective, if brief, fusion. The exhibition was surrounded by a number of related events, including films, lectures, concerts, an all-day symposium, and a fashion show—sponsored by the Smithsonian Resident Associate Program—that featured costumes designed by several of the artists of the period. A highlight was a revival of the avant-garde

opera, *Victory Over the Sun*, produced by the Smithsonian Resident Associate Program and the HMSC, and presented by the students and faculty of the California Institute of the Arts. The Washington, D.C., performances were made possible by a grant from the Shubert Foundation and an auxiliary grant from the Regents Educational Outreach Program.

Directions 1981 (February 11–May 3, 1981), the second exhibition in a series meant to show divergent tendencies in contemporary art, included the works of sixteen artists working in three “directions”: Artistry, Myth and Metaphor, and Social Observation. Twelve of the artists in the exhibition participated in a forum held at the museum on February 11, 1981.

Kenneth Snelson (June 4–August 9, 1981), was a retrospective exhibition, shown both outdoors and in the HMSC’s lower-level gallery, that brought together works done by this artist over twenty years. It was organized by the Albright-Knox Art Gallery in Buffalo but was first seen in Washington.

Another retrospective exhibition, *R. B. Kitaj*, was held (September 17–November 15, 1981). It was the first comprehensive retrospective of his work to be seen in the United States and included 104 works dating from the late 1950s. Subsequent showings are scheduled at the Cleveland Museum of Art (December 15, 1980–January 24, 1982) and at the Stadtische Kunsthalle, Dusseldorf, West Germany (February 5–March 21, 1982). The artist gave a public lecture in the museum on September 17, 1981.

Smaller exhibitions, based on the museum’s holdings, were of works by Jacques Lipchitz, André Masson, Robert Natkin, Barbara Hepworth, and Larry Rivers. The last had an accompanying catalogue.

A small loan exhibition of sculpture, *Mahmoud Moukhtar*, drawn from the Moukhtar Collection of the National Center of Arts and Letters in Cairo was presented in conjunction with “Egypt Today” from March 16 to April 30, 1981.

The Sculpture Garden was reopened to the public on September 14, 1981. Lester Collins, the Washington-based landscape architect who redesigned the garden to facilitate the entrance of the handicapped via a set of ramps, also incorporated additional planting areas and grass. Approximately seventy pieces of sculpture, all drawn from the museum’s collection, were installed.

The HMSG continued its three-part film series: *Lunchtime Films about Artists*, *Evening Films by Artist Filmmakers*, and *Saturday Films for Young People*. Other events held in the auditorium were concerts by the 20th Century Consort and the Cantilena Chamber Players.

Hirshhorn Holiday, a special Saturday program presented each year early in December, again met with enthusiasm from area children and their parents. This special day, sponsored in part by the Women's Committee of the Smithsonian Associates, included performances and music.

The HMSG provided visitors with a variety of educational materials, including wall labels and brochures that ranged from a single page to more ambitious illustrated "mini-catalogues," all distributed free to the public. It is the museum's practice to accompany all major exhibitions and selected small exhibitions with well-documented and illustrated catalogues that serve the general public as well as students and scholars.

The museum makes extensive loans from its collection to other institutions around the world; in 1981, 181 objects were lent to seventy-one institutions. Among the works lent were ten paintings to the Solomon R. Guggenheim Museum for its *Gorky Retrospective*; and four sculptures to the National Gallery of Art for *Rodin Rediscovered*. The HMSG made significant loans to a number of foreign exhibitions, including *Paris-Paris* at the Centre Georges Pompidou, Paris; *American Realism* at the Akademie der Kunst, Berlin; and *Matisse* at the Museum of Modern Art, Tokyo. Through the International Communication Agency and the National Museum of American Art, the museum lent thirty-two paintings to the Museo de Bellas Artes, Mexico City, for an exhibition entitled, *Painting in the United States from Public Collections in Washington, D.C.* Besides individual loans, exhibitions from the permanent collection are regularly circulated by the Smithsonian Institution Traveling Exhibition Service.

The HMSG continued the annual inventory of its collection. Sculpture was fully inventoried in the second three-year cycle.

Augmenting the museum's exhibition program was a series of lectures on various aspects of contemporary art and art history, by R. B. Kitaj, Dr. Peter Lizon, Robert Natkin, and Kenneth Snelson.

The *Directions* speakers were Conrad Atkinson, Bill Beckman,

James Byrne, Rosemarie Castoro, Debora Hunter, Alain Kirili, Grover Mouton, Tom Rose, Ulrich Ruckriem, Earl Staley, Michelle Stuart, and Jerry Zenium.

Joseph Henry Papers

During the past year, the Smithsonian Institution Press has published two major products of the Joseph Henry Papers. The first was *A Scientist in American Life: Essays and Lectures of Joseph Henry*, a collection of writings that express Henry's viewpoint regarding a variety of scientific and public policy issues. Also, appearing this year was the fourth volume of *The Papers of Joseph Henry*. This volume covers the Princeton years 1938-40, years of intensive activity in the laboratory and rising concern for the organization of the American scientific community.

The fifth volume of *The Papers of Joseph Henry* is well on its way towards completion. Covering the years 1841-43, this volume represents a continuation of the two major themes of the preceding volume.

The staff of the Joseph Henry Papers has engaged in a wide range of other professional activities. Nathan Reingold served as a member of the Oversight Committee for the History and Philosophy of Science Program of the National Science Foundation and as Director of Publications of the Association for Documentary Editing. He was co-sponsor of the conference on "Scientific Colonialism, 1800-1930: A Cross-Cultural Comparison," held at the University of Melbourne in May under the auspices of the United States-Australian Cooperative Science Program and was co-chair of "Muses Flee Hitler II: Cultural Adaptation in World-Wide Perspective," held at the Smithsonian in December. At the sixteenth International Congress of the History of Science, Dr. Reingold delivered an invited address on Henry's reaction to Charles Darwin. He was also elected chairman of the Commission on Documentation of the International Union for the History and Philosophy of Science. Dr. Reingold continued his sponsorship of the monthly Nineteenth-Century Seminar, which explored a broad gambit of historical issues. Kathleen Waldenfels served as editor of the *Newsletter* of the Association for Documentary Editing. Marc Rothenberg chaired the Seminar on

Science and its Social Context, held monthly at the Smithsonian, and addressed the Society for the Social Study of Science during its annual meeting in Toronto.

National Museum of African Art

The creation of educational, intellectually stimulating, and attractive exhibitions is a goal of all museums. But as public institutions, museums also bear the burden of making their exhibitions physically accessible to as large an audience as possible.

For the National Museum of African Art (NMAFA), 1981 has been a year concerned with the planning and implementation of access to the museum for handicapped persons, and the upgrading of all museum areas with attention to aspects of health and safety for the staff and museum visitors. New, enlarged restrooms and a ramp permitting wheelchair access to workshops and classrooms have already been completed. Future plans include the construction of an elevator, to serve all three floors of the museum, and special exhibitions incorporating "hands on" concepts. The museum buildings have been brought up to code specifications with regard to lighting, safety, and fire protection procedures and equipment. Other areas of the museum's endeavors—acquisition, exhibition, research and programs—were also advanced during this period.

The NMAFA continued to build its collection, primarily through donations. In fiscal year 1981, 278 objects were donated to the museum's collection, including large numbers of items from the collections of Harold Rome, Robert and Nancy Nooter, and Benjamin Weiss. Through a generous bequest from the James Smithson Society, the museum was able to purchase a major work of Cameroon sculpture. In addition to works of African art the NMAFA received donations of twelve paintings by Afro-American artists, including six by E. M. Bannister, two by J. Johnston, and others by H. O. Tanner, C. E. Porter and R. S. Duncanson. The comprehensive inventory of the museum's collection, begun in 1980, continues; it is presently sixty percent complete.

The Eliot Elisofon Photographic Archives received donations of fifty black-and-white photographs of African art by Walker Evans and approximately two hundred slides of African life and culture.

Archives projects during 1981 included the expansion of the museum's teaching slide collection by more than one thousand slides and the documentation of an important collection of black-and-white photographs of Liberia taken by Tom Weir during the 1960s.

The NMAFA collaborated with several museums and cultural institutions during 1981 to cosponsor and produce major exhibitions. With the Corcoran Gallery of Art, the museum sponsored the major international exhibition, *Treasures of Ancient Nigeria*. Museum staff members coordinated the production of a gallery brochure and conceived, coordinated, and presented the film and lecture series that accompanied the exhibition. In another cooperative program, the NMAFA presented the exhibition *Traditional Costumes and Jewelry of Egypt*. This exhibition was part of a nationwide *Egypt Today* program coordinated by the Smithsonian Resident Associates Program. And in conjunction with the Egyptian exhibition, the NMAFA presented *Traditional Costumery and Jewelry of Africa*, displaying jewelry of the Maasai people of Kenya and Tanzania, mask costumes of the Edo people of Nigeria and similar arts from other sub-Saharan peoples. Other exhibitions presented during fiscal year 1981 included the *Art of Gabon, Angola and Cameroon; Selections from the Permanent Collection*; and *Out of the Ordinary: Ritual and Domestic Furnishings of Africa*.

Numerous extension exhibitions were prepared and mounted by the NMAFA during 1981. They included exhibitions at the U.S. Department of State, the Bethune Memorial Museum, the Museum of African-American Life and Culture, Illinois State University, the Kennedy Center, the College Museum of Hampton Institute, and the American Numismatic Association.

Public education with regard to Africa, its art and its peoples, is one of the primary goals of the NMAFA. This is accomplished not only through didactic and aesthetically appealing exhibitions, but through the museum's wide range of courses, workshops, seminars, public lectures, and performances, in addition to outreach programs and tours conducted by a highly trained, effective docent corps.

In fiscal year 1981, the museum's Department of Academic Studies offered seven courses at universities and educational institutions in the Washington area: Georgetown University ("Art of Black Africa"); the United States Department of Agriculture Graduate School ("Masks in African Art," "Collecting African Art," and

"Understanding Africa through Its Art"); and a workshop, "African Art Conservation." In addition, special intensive lectures and tours were presented to other university groups, including, for the fourth successive year, a class in "Aesthetics and Education" for the University of Virginia.

The NMAFA was host for three visiting scholars during 1981. Professor Sylvia Boone (Yale University) consulted with staff members on various exhibitions and projects. Professor Berlings Kaunda from the University of Malawi spent four months in residence at the museum with the aid of a Fulbright program grant, and Ms. Wendy Wilson of Howard University spent ten weeks in residence while researching cultural and historical aspects of Fulani facial tattooing. Professor Kaunda, a practicing sculptor as well as a scholar, demonstrated his craft in NMAFA programs and presented public lectures on East African masking traditions.

In cooperation with the Johns Hopkins School of Advanced International Studies, the museum continues to cosponsor a monthly series of lectures entitled, "The Africa Roundtable." Presentations by international and local scholars focus on all aspects of African political, economic, and social life. Noted scholars who have presented papers during 1981 included: Akinjide Osuntokum (Nigerian Universities Commission), Joseph Smaldone (U.S. Department of State), Professor Sulieman Nyang (Howard University), Professor William Zartman (Johns Hopkins S.A.I.S.), and Mr. Curtis Huff (International Communication Agency).

Twelve students served in the NMAFA's internship program during fiscal year 1981. A special effort was made during the year to recruit minority students and students from historically black colleges, recognizing the special role the NMAFA should play in using its collection to train these students as museum professionals. Four such students served as interns during the year; two of them received financial support through the Smithsonian Institution's Collaborative Education Program.

The Department of Elementary and Secondary Education and Public Programs had an active year, presenting school and group tours, workshops, and public lectures, performances, and demonstrations. The activities of this department also include the training and coordination of the docent corps and coordination of certain collaborative activities with local institutions.



The African Experience is part of the general tour program conducted by the Museum of African Art. Children from a local school (*upper right*) dance to music of African instruments, while (*upper left*) Alex Akoto, museum staff, assists a young man in wrapping his traditional East African clothing. The wood figure (*lower left*) from the Bangwa people of Cameroon represents a royal ancestor. Such figures were displayed at funerals to symbolize family power.

Of particular importance during 1981 was the inauguration of a pilot program, the Collaborative Education Outreach Program (CEOP), conducted in conjunction with the National Museum of Natural History and the National Zoological Park with funds made available through the Smithsonian Office of Public Service. Ninety-eight outreach presentations were offered during the year to targeted audiences of the elderly, handicapped, and institutionalized persons.

In January and February, the Education Department focused Black History Month efforts on outreach activities to schools and community groups because renovations in the NMAFA limited access to the galleries. The department offered twenty such presentations, reaching an audience of approximately fifteen hundred persons.

Thirteen candidates completed the museum's docent training program during fiscal year 1981, bringing the docent corps to a total of forty-eight. Docent training lectures were presented by museum staff members and by guest scholars from local universities.

More than fourteen public performance programs enlivened the NMAFA's presentations during the past year. African and Afro-American performances included such groups as Olatunji and the Drums of Passion, the African Heritage Dancers and Drummers, the Carifolksingers, Suad Raga (from Egypt), and the Guyana Chronicle Atlantic Symphony Steel Orchestra. Special programs and events coordinated by the Education Department during 1981 included Kwanzaa holiday events (in December) and a broad range of programs presented in cooperation with the Corcoran Gallery of Art for the exhibition *Treasures of Ancient Nigeria*. The NMAFA looks forward to future collaborative programs with other public institutions to enable it to reach a wider audience and to present programs that offer humanistic views of African art and culture. In light of these goals, the Board of Regents voted, in September 1981, to change the name of the museum by adding the word "National" to its title.

National Museum of American Art

The change of the museum's name, from the National Collection of Fine Arts to the National Museum of American Art (NMAA), offi-

cially enacted on October 14, 1980, confirmed its role as a center for the collection, study, and exhibiting of American art. Although its collections include works from the Orient, Asia, and Europe, its important holdings in American art very early became the basis for its present thrust. The course of this direction was ably reinforced by the untiring and dedicated efforts of Dr. Joshua C. Taylor, director of this museum from 1970. He died on April 26, 1981, and a nationwide assembly attended a splendid memorial service on May 15 in the Renwick Gallery's Grand Salon. The assistant director, Harry Lowe, was appointed to succeed Taylor as acting director.

The autumn of 1980 was launched with an exhibition that epitomized Joshua Taylor's approach to American art—placing a misunderstood and overlooked artist into a new and penetrating light. *The World of David Gilmour Blythe (1815–1865)*, accompanied by a first-rate scholarly publication, revealed this little-known, pessimistic, and bitter genre painter's world of grimy, crafty, street urchins of mid-nineteenth century America. The popular exhibition of photographs by Alfred Eisenstaedt presented quite a different vision. Germany as seen by Eisenstaedt, between the two world wars and during a later visit there in 1980, provided the focal point for a stimulating symposium organized by the Department of Education: "Germany in the 20th Century: Florescence, Destruction, Revival." A distinguished panel of international scholars and critics assessed Germany's contribution to modern theater, music, film, and the visual arts.

At the Renwick Gallery were two major exhibitions of far-reaching impact on today's artists in the craft media. *American Porcelain: New Expressions in an Ancient Art*, a national survey of contemporary porcelain, presented traditional and awesomely daring new explorations of the medium, while *The Animal Image: Contemporary Objects and the Beast* gave prominence to folk art. Two other folk-art exhibitions emanated from western states. *Webfoots and Bunchgrassers: Folk Art of the Oregon Country* was a spritely exhibition organized by the Oregon Arts Commission; and *The Grand Beehive Exhibition*—focusing on Utah's ubiquitous symbol in folk art, contemporary art, and design—was organized by the Utah Arts Council. In connection with the Renwick's varied exhibition program and lecture series by master craftsmen, members of the gallery's staff and the museum shops held well-attended craft



Ryder's House by Edward Hopper is a major NMAA acquisition. Below (from left): Amb. Hermes, the late Joshua Taylor, Alfred Eisenstaedt, and Secy. of State Haig.



demonstrations, which included lacemaking, porcelain painting, Ukrainian egg decorating, traditional beehive-making, porcelain clay techniques, Norwegian rosemaling (rose painting), and folk carving.

NMAA's holdings in American art were significantly enriched by 680 accessions. Among the most noteworthy acquisitions is the double portrait of *Mrs. James Smith and Grandson*, painted in 1776 by Charles Willson Peale. This was a partial museum purchase and a partial gift from descendants of the sitters, Mr. and Mrs. Wilson Levering Smith, and it enhances NMAA's growing collection of eighteenth-century portraits. In addition to acquiring important miniatures by Edward Greene Malbone and Raphaelle Peale, NMAA received—as a gift from Mr. Chanler A. Chapman—an exceptional portrait of his mother, *Elizabeth Winthrop Chapman*, 1893, by John Singer Sargent. A major gift from La Salle Spier includes two oil paintings by Walt Kuhns and a rare bronze by Arthur B. Davies. As a result of an extensive gift of Mr. and Mrs. David K. Anderson, 119 works in various media with major works by such artists as Louise Nevelson, Jim Dine, Sam Francis, Grace Hartigan, and Ed McGowin were brought into the collection. Through the bequest of the Henry Ward Ranger Fund, NMAA acquired *Ryder's House*, an extraordinary, haunting landscape by Edward Hopper. The Department of Prints and Drawings added to its collection a significant gift of over 150 prints from Howard Cook. With the exhibition of sixty-six prints and drawings, *An American Perspective: Selections from the Bequest of Frank McClure*, the department focused on the personality of a collection that was acquired in a previous year. In addition to the increase of loans of individual works to other museums, nine exhibitions—either originated by NMAA or its Reniwick Gallery—were exhibited at twenty-one other institutions throughout the United States.

Among the activities initiated this year was a series called *Evenings at Barney Studio House*. Programs of music, poetry, and dance in the spirit of those given by Alice Pike Barney at the turn of the century were presented in the intimate setting of the recently refurbished house at Sheridan Circle. These were organized in cooperation with the Department of Performing Arts and partially funded by the Laura Barney Trust. A concerned effort to involve members of the neighboring Chinese community with museum ac-



Enriching NMAA's collection of 18th-century portraits is this double portrait, *Mrs. James Smith and Grandson*, painted in 1776 by Charles Willson Peale.

tivities resulted in a highly successful series of lectures: "China and I," in which participants explored, from different perspectives, their own personal relationships with China. Nearly four hundred people visited the museum on February 8 to participate in Family Day, organized by the docents and staff of the Education Department in conjunction with the Chinese New Year. The annual and ever popular Children's Day, held this year on June 6, focused on the theme *Rhythm in Red, White and Blues* and was attended by three thousand adults and children who constructed puppets and musical instruments, wove fiber hangings, and created wearable art.

The highlight of the summer exhibition schedule was the handsomely installed *George Catlin: The Artist and the American Indian*. With William H. Truettner the curator, the exhibition presented a selection of 111 paintings—from among the 445 in the NMAA collection—by Catlin, an artist who was compelled to record, in the 1830s and 1840s, Indian portraits, hunting scenes, landscapes, and other scenes from the life of this vanishing race. The West of a slightly later time was reflected in the important exhibition that ended the year: *Cast and Recast: The Sculptures of Frederic Remington*, including twenty casts of Remington's best known works.

In addition to exhibitions, acquisitions, and education programs, NMAA placed a high emphasis on developing research resources to fulfill the museum's role as a center for the study of American art. This past year, preliminary indexing was completed of the 127,000 photographic negatives comprising the Peter A. Juley and Son Collection. A grant of \$100 thousand from the Samuel H. Kress Foundation has enabled NMAA to begin printing this invaluable collection which documents eighty years of art activity in America. All records comprising the Smithsonian Art Index project have now been converted to computer format. This project, which began in 1976, records information on art objects located in the non-art museums of the Smithsonian Institution. Keeping pace with a busy and productive year throughout the museum, the Office of Publications edited nearly thirty separate manuscripts for exhibitions, special events, and educational programs. Over forty major treatments of paintings were processed by the Conservation Laboratory. The Librarian of the American Art/Portrait Gallery Library, Katharine Martinez, resigned in July to join the staff of Avery Library of Columbia University.

National Museum of American History

On October 14, 1980, the museum doffed a traditional identity and began life afresh as the National Museum of American History (NMAH). With blue and yellow banners spread across both north and south facades announcing the new name, the one-time National Museum of History and Technology proclaimed a redefinition of its long-standing purpose—the analysis and interpretation of American history through the artifacts of American culture.

While the banners announced the museum's redefined mission, extensive alterations to the interior spaces began to modify the public exhibition space. Escalators formerly blocking sightlines from the Mall and Constitution Avenue entrances were removed, opening the first- and second-floor rotundas to view from the main entrances. Large exhibit halls on the second floor were closed for remodeling—especially for installation of major exhibits on George Washington and Franklin D. Roosevelt, which are due to open in 1982—while on the first floor, an area once hidden behind an escalator became a turn-of-the-century ice-cream parlor, replete with an authentic soda fountain and a commercial ice-cream freezer, powered by a steam engine through a system of belts and overhead lineshafting. Of note here was the novel combination of a retail sales venture with a period-piece exhibition.

As to exhibitions, the year's first major effort opened on November 7, 1980, *The Clockwork Universe*, organized by Otto Mayr and Carlene Stephens of the museum's Division of Mechanisms, presented an elegant display of German Renaissance clocks and automata—the most comprehensive ever assembled. These came from almost sixty museums and private collections in Europe and the United States; the overall presentation (including a publication that marked a signal achievement in itself) having been made possible through a generous grant from the NCR Corporation of Dayton, Ohio. The exhibition was produced in collaboration with the Bayerisches Nationalmuseum in Munich, where it initially opened earlier in 1980.

To the people of early modern Europe, mechanical clocks and automata embodied an ideal world, rational and harmonious, and the sense of order they represented was an important component of the idealism of those who founded communities in the New

World. Such idealism, transformed by the enlightenment and modified in accord with the American experience, was central to the theme of another exhibition, "Jefferson and Science". Documenting the curiosity, the imagination, and the world-view of Thomas Jefferson—a man who once called science "my passion"—this display of Jefferson's scientific instruments, his inventions, and the anthropological and paleontological artifacts he collected, was organized by Silvio Bedini, the Smithsonian's keeper of rare books.

The museum's exhibitions were not all concerned with artifacts of great intrinsic value or with individuals of exceptional historical repute; indeed, there were several pathbreaking forays into the realm of social history. In *Buckaroos in Paradise*, Richard Ahlborn of the museum's Division of Community Life collaborated with the American Folklife Center of the Library of Congress to present an engaging glimpse at the lifestyle of cowboys in the isolated Paradise Valley of northern Nevada. Objects made and used by the buckaroos surrounded an actual bunkhouse that had been transported—board, nail, and shingle—from a Paradise Valley ranch.

In *Perfect in Her Place*, Deborah Warner of the museum's Division of Physical Sciences probed the topic of women in the American workforce, dissecting the rationale for restricting them to certain types of tasks while marshaling evidence that they were employed in significant numbers in a far broader range of industries than generally recognized heretofore. Addressing the same basic theme was *Images of Labor*, a display of artwork organized by District 1199, National Union of Hospital and Health Care Employees in cooperation with SITES and NMAH. Accompanying the exhibition were a major film series, cosponsored by the Service Employees International Union, AFL-CIO, and a highly successful concert series, cosponsored by the Smithsonian's Division of Performing Arts, featuring singers Joe Glaser, Steven Peter Jones, and Hazel Dickens.

Other noteworthy exhibitions that opened during the year included: *The Changing American Farm*, which documented the spectacular upsurge in productivity that accompanied mechanization—this display made possible through a grant from International Harvester; *The American Red Cross*, celebrating the centennial of this, the premier organization of its kind in the world;

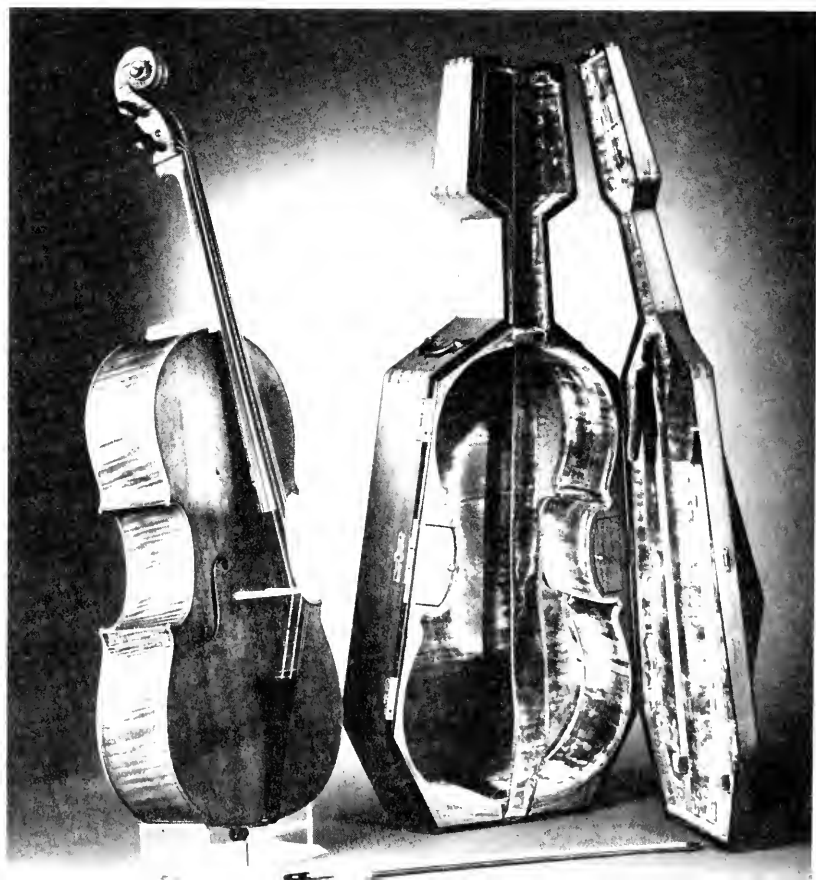
American Bowed Strings and *Violin Treasures*, complimentary exhibits of stringed instruments by American folk craftsmen and violins by the great Cremona masters; *Roy Wilkins*, an exhibit of memorabilia documenting the career of this most famous of civil-rights activists; and *Platinum Women*, a photography exhibition featuring the work of three turn-of-the-century New York photographers, Rudolf Eickemeyr, Jr., Gertrude Stanton Kasebier, and Clarence H. White.

While that by no means exhausts the tally of the NMAH's fiscal year 1981 exhibits, there was one other that deserves more than passing mention. More than an exhibit, actually, it was in fact a "Great Event"—as was proclaimed in posters, handbills, and announcements that were widely distributed. On September 15, 1981, the NMAH took its most venerable artifact, a 150-year-old locomotive named *John Bull*, outdoors for some live-steam action along the tracks of the Chessie System beside the C&O Canal. Already ranked as the world's oldest complete locomotive, the *John Bull*, over the past two years, had been subjected to exhaustive tests to determine if it might also be the oldest operable locomotive. The tests indicated it was. This was confirmed to the satisfaction of thousands of spectators (and millions of tv viewers) as a wood-fire was set and *John Bull* steamed easily away from Fletcher's landing, drawing a coach—vintage 1836—full of museum personnel garbed in the authentic dress of Andrew Jackson's day. Later, *John Bull* brought parties of Smithsonian Regents and other dignitaries out from Key Bridge in Georgetown, to engage in celebrations on a site—railroad track beside canal—that simply could not have been more reminiscent of the first days of the Iron Horse in both England and the United States. Speeches, concerts, and cheering crowds enriched the ambience as John White, John Stine, Larry Jones, and Bill Withuhn of the museum's Division of Transportation put *John Bull* through its paces.

If this was a banner year for making a living history exhibit out of one of the NMAH's earliest acquisitions (*John Bull* was the first engineering artifact acquired by the Smithsonian, nearly a century ago), it was also remarkable for its new acquisitions. Outstanding among these were the Morgan Collection of historic type and typefaces, purchased out of the Regents Fund; a traveling thermometer and pocket-knife owned by Thomas Jefferson, pur-



This armillary sphere with clockwork dated to 1572 is from NMAH's *Clockwork Universe*, a comprehensive show of German clocks and automata. Below. This rare 1701 violoncello made by Antonio Stradivari has been donated to the Smithsonian.



chased for the museum by the Smithsonian Society; the Dudgeon steam wagon of 1866, the earliest extant self-propelled road vehicle; the Faber engine of circa 1850, one of the half-dozen earliest surviving stationary steam engines of American manufacture; and the famous "Servais" violoncello made by Antonio Stradivari in 1701, a gift of Miss Charlotte Bergen.

As for the collections in general, by the beginning of July, the inventory teams at work in the museum's storage areas, under the direction of Frank Roche, were able to report the survey of 8,366,667 objects—more than half of the total held. The completion of the Division of Conservation's new Paper Lab greatly increased the NMAH's capacity to treat works of art, photographs, and documents on paper; and, in September 1981—renovation of 48,000 cubic feet of environmentally controlled storage space in Building 18, Silver Hill, completed—the first major phase of a series of planned storage-facility upgradings was realized.

Yet, while the collections may be the heart of a museum, they are not, invariably, its soul. The NMAH is far more than its collections alone: in 1981, the NMAH was its public performances, notably the Doubleday Series and, most memorably, a once-in-a-lifetime vocal performance by Sarah Vaughan. It was also its public lectures, especially a consistently stimulating, weekly colloquium featuring leading scholars and experts in material culture from David Landes to David Noble. It was also its educational programs, which took new life following a reorganization under the direction of Josiah Hatch. And it was also its unswerving dedication to the highest levels of scholarship, as reflected most directly in its offer to the Society for the History of Technology to provide a home base for the society's journal, *Technology and Culture*, and its commitment of Robert C. Post's services to the editorship of that highly regarded publication.

The strength and resiliency of the NMAH lies in its sheer diversity, a state of affairs especially well confirmed in the events of 1981. There were exhibits of clocks and instruments of incredible intrinsic value, and exhibits of objects of scarcely any value, per se, but of inestimable importance in helping unravel the strands of American culture. The word "technology" came off the facade, but returned through the door in the embodiment of *Technology and Culture*, a preeminent historical quarterly. The most famous event concerned an artifact from England, the *John Bull*, whose name

was slang for the typical Englishman. Perhaps the most significant single acquisition was of a violoncello made in Cremona. Everything in the most lavish exhibition, *The Clockwork Universe*, was made in Germany. And yet none of this is at all incompatible with the fundamental purpose of the National Museum of American History. As Henry James once remarked, "It's a complex fate, being an American".

National Portrait Gallery

After almost twelve years of service, Marvin Sadik resigned as Director of the National Portrait Gallery (NPG) on June 26, 1981. Mr. Sadik came to the Gallery in July 1969 from the directorship of the University of Connecticut Museum of Art at Storrs. During his tenure in Washington, he established a distinguished tradition of special exhibitions, excellent publications, and innovative programs of public education, as well as energetic efforts to build a permanent collection worthy of the gallery's Congressional mandate and the American people, whose history it reflects. Secretary Ripley, accepting Mr. Sadik's resignation with deep regret, awarded him the Secretary's Medal for Distinguished Service.

Harold Francis Pfister, Assistant Director, assumed the duties of Acting Director on February 2, 1981, when Mr. Sadik began a sabbatical, and resumed those responsibilities for an indefinite period as of June 26. A committee has been formed by the Secretary with the Assistant Secretary for History and Art, Charles Blitzer, as chairman, to seek candidates for the director's position. Committee members include NPG Commissioners Andrew Oliver and Barbara Novak, former Commissioner Edgar P. Richardson, historian Carl Schorske, and Mr. Pfister, representing the gallery's professional staff.

Librarian for the NPG and National Museum of American Art, Katharine Martinez, resigned on July 31, 1981, to accept a position at Columbia University. A national recruitment for her successor is also under way. Historian Marc Pachter began a one-year detail as visiting scholar with the International Communication Agency (formerly the United States Information Agency) on July 5, 1981. Editor of the Charles Willson Peale Papers and Historian of American Culture Lillian B. Miller was named Caroline Werner

Gannett Visiting Professor of the Humanities at the Rochester Institute of Technology for the academic year 1981–82.

On September 11, 1981, the trustees of the Dorothy Meserve Kunhardt Trust transferred to the Smithsonian Institution all title and interest in a unique and invaluable collection of life-portrait glass-plate negatives from the studio of nineteenth-century America's preeminent portrait photographer, Mathew Brady. The historic acquisition of this portion of the peerless Frederick Hill Meserve Collection was negotiated over a period of several months and was made possible, in part, by an amendment to tax legislation approved by Congress and signed by the president in August 1981. The amendment was introduced by Senator Barry Goldwater and enjoyed the active support of other Smithsonian regents in both the Senate and the House of Representatives. No other single acquisition could possibly have had greater impact upon the gallery's growing collection of portrait photographs, and the work of organizing, studying, and displaying these extraordinarily important materials, which will begin immediately, is expected to take several years.

The NPG has maintained active programs of exhibitions and publications during fiscal year 1981, beginning with an unprecedented study of *Benjamin West and His American Students*. The exhibition, which opened on October 16, 1980, was organized by Dr. Dorinda Evans of Emory University. Dr. Evans also wrote the scholarly catalogue, of the same title, published by the Smithsonian Institution Press. Following its appearance in Washington, this exhibition was sent to the Pennsylvania Academy of the Fine Arts in Philadelphia.

The gallery was also represented outside of Washington in 1980 by the Smithsonian Institution Traveling Exhibition Service (SITES) project, *Photographs from the Collection of the National Portrait Gallery, Smithsonian Institution*. Selected by Curator of Photographs William F. Stapp, the show is accompanied by a SITES-produced catalogue, on which Mr. Stapp collaborated, and was seen at museums in Arkansas, Indiana, Tennessee, and Michigan. Future bookings will take it to Alaska, South Carolina, and Florida.

On June 22, *Champions of American Sport*, the largest special exhibition (and among the most colorful) ever organized by the NPG, was opened following a White House reception where Presi-

dent Reagan greeted many athletes and their families who had come to Washington to participate in the ceremonies. Historian Marc Pachter, Curator of Exhibitions Beverly Cox, and Curator of Education Kenneth Yellis supervised the selection of one hundred of America's greatest athletes and the subsequent search for more than five hundred items of portraiture, memorabilia, audiovisual programs, and relevant sport art. Mr. Pachter led staff historians Margaret Christman, Amy Henderson, and Jeannette Hussey in the writing of a catalogue to accompany the exhibition. Also titled *Champions of American Sport*, the book was published by Harry N. Abrams, Inc. The exhibition, on subsequent tours, moves to the Chicago Historical Society and, after Chicago, is scheduled to travel to The American Museum of Natural History in New York City, where it will close in the summer of 1982. The project was made possible, in part, by the generous sponsorship of Philip Morris Incorporated and the Miller Brewing Company.

Smaller exhibitions during 1981 have included feature installations on *Bret Harte*, by the Office of Small Exhibitions, and *Charles Willson Peale and the Challenge of Mezzotint Portraiture* and *How Fleeting Is Fame* (mass-produced portraits of long-forgotten nineteenth-century celebrities), both by Curator of Prints Wendy Wick. *The Code Duello*, Jeannette Hussey's review of the American duelling ethic, was accompanied by a short catalogue of the same title from the Smithsonian Institution Press, as was *We Never Sleep: The First Fifty Years of the Pinkertons*, produced by staff historians Frederick Voss and James Barber.

In addition to these special, temporary exhibitions, the NPG rearranged and reinstalled every room in which its growing permanent collection is exhibited. The need for such long-term exhibition space led to the conversion of a third-floor mezzanine (formerly used for special shows) into a permanent area for display of portraits from the modern era.

The third of seven years scheduled for a nationwide survey of significant American portraits was completed in 1981. Funded by grants from the Andrew W. Mellon Foundation, the Thomas Mellon Evans Foundation, and the Ambrose Monnell Foundation, among others, and directed by the staff of the gallery's Catalog of American Portraits, this program sent three field researchers to New York State, Massachusetts, Connecticut, and Rhode Island,



John Singleton Copley's 1758 oil-on-copper miniature of the Massachusetts merchant Thomas Hancock is a major acquisition of the National Portrait Gallery. Below. The polychromed bronze of Casey Stengel was featured in NPG's exhibition *Champions of American Sport*. The sculpture, by Rhoda Sherbell, is a recent acquisition.



and produced an estimated eighty-two hundred new records for the gallery's master file during the year. Processing of previous year's records continues at the NPG, and computer records of the survey's results to date have been placed with eighty-five institutions in the states of Virginia, West Virginia, Delaware, New Jersey, Maryland, and Pennsylvania.

The Education Department continued to expand its offerings to school groups, the general public, and special audiences that included senior citizen groups, legally blind amateur photographers, youth recreation groups, and institutionalized persons. Programs from the department were requested by groups in Pennsylvania, New Jersey, North Carolina, New York, and Iowa. The popular "Portrait in Motion" series of performances in the galleries included events based upon the music of Stephen Foster, the legacy of the civil-rights movement, and the lives of labor-reform leader "Mother" Jones, journalist H. L. Mencken, and author Mark Twain. The success of this series was attested to by a generous grant from the Women's Committee of the Smithsonian Associates in support of future programing.

An invitational symposium on "Presidential Biography," on October 30, brought to the gallery three distinguished authors, Edmund Morris (on Theodore Roosevelt), George Reedy (on Lyndon B. Johnson), and Theodore Sorensen (on John F. Kennedy), and a paper was read for the incapacitated Fawn Brodie (on Richard M. Nixon).

Apart from the Meserve Collection of Brady negatives and the sole original print of the last life photograph of Abraham Lincoln (the famous "cracked plate" image, made by Alexander Gardner just four days before the assassination) which was also acquired from the Dorothy Meserve Kunhardt Trust, 173 portraits were added to the permanent collection in 1981. Thirty-four of these were gifts or transfers. Major acquisitions by purchase included: a 1758 oil-on-copper miniature portrait of the Colonial Massachusetts merchant, Thomas Hancock, by John Singleton Copley; a rare daguerreotype of artist Thomas Eakins and his sister as children; Asher Brown Durand's 1835 oil portrait of the influential art patron, Luman Reed; an 1899 oil of the reformer, Carl Schurz, by Daniel Huntington; and a polychromed bronze sculpture of the famed baseball manager, Casey Stengel.

Among the most important gifts of the year were a daguerreotype of Brigham Young, presented by The J. Willard Marriott, Jr., Charitable Annuity Trust; a drawing of Lincoln Kirstein, by Pavel Tchelitchev, from Mrs. R. Kirk Askew; and Ansel Adams's color photographs of President and Mrs. Jimmy Carter and Vice-President Walter F. Mondale, donated by Mr. and Mrs. Carter and Mr. Mondale, respectively.

Office of American Studies

The Office of American Studies (OAS) continued its program in graduate education throughout the year. The autumn 1980 seminar in "Material Aspects of American Civilization" had as its theme the concept of change and material culture. Taught by the director of the program and Professor Bernard Mergen of the George Washington University, the course involved participation by members of the staffs of the National Museum of American History and the Office of Folklife Programs. Twenty-six students were enrolled.

Other seminars held during the academic year 1980-81 included "The Decorative Arts in America," taught by Barbara G. Carson; "Folklore in America," taught by Michael Maloney; and a summer session course on "Introduction to Folklife" taught by Robert Sayers. Individual graduate students continued to pursue specialized research under the supervision of the director of the Office of American Studies.

During the academic year 1980-81, the director of the Office of American Studies presented a paper on "The Formulation and Implementation of Indian Policy in the Nineteenth Century" at the 1980 Chancellor's Symposium at the University of Mississippi, October 6-7, 1980; gave an address on "Personality? Party? Issue? Determinants of Success in Past American Presidential Campaigns" at the 124th annual meeting of the Chicago Historical Society, October 22, 1980; gave the conference summary at the Ethnohistory-Ethnology Conference held at Wilfrid Laurier University, Waterloo, Ontario, October 30-November 1, 1980; chaired a session on "American Indian Historiography: A New History?"

during the annual meeting of the American Historical Association in Washington, D.C., December 28–30, 1980; chaired a session on "Representative Institutions, 1776–1876: Ideology, Estates, and Interests" at a conference on the History of Parliamentary and Representative Institutions at Emory University, Atlanta, Georgia, March 26–28, 1980; spoke on the subject of the *Handbook of North American Indians* to members of the Center for the History of the American Indian at the Newberry Library, Chicago, March 31, 1981; presented a paper on "The Historical Context of the Recognition Issue" at the Second Annual Cornell Native American Law Conference, April 16–17, 1981; participated in a Smithsonian archeological expedition to Kodlunarn Island, Frobisher Bay, Canada, July 30–August 10, 1981; and read a paper on "The Age of Conflict and Revolution" at a conference on "Alabama and the Borderlands: From Prehistory to Statehood" at the University of Alabama, Tuscaloosa, Alabama, September 24–26, 1981.

Office of Folklife Programs

Most Americans would agree that the richness of the nation's culture lies in the impressive diversity of its people and in their creative responses to historical conditions. Research, presentation, and preservation of this cultural wealth is the goal of the Office of Folklife Programs (OFF). This effort entails the presentation of living folk traditions in the context of the Smithsonian. Since its inception, the OFF has directed its attention to the identification and study of these folk traditions and to the development of methods for presenting them in a national setting to general audiences. As an academically oriented program, the OFF also pursues university teaching, research into foreign folklife traditions to shed light on cultures that have taken root in American soil, and the publishing of documentary and analytic studies.

FESTIVAL OF AMERICAN FOLKLIFE

The OFF planned and supervised the research and presentation of both the fourteenth and fifteenth annual festivals of American Folklife in Fiscal Year 1981. This congruence of festivals within the same fiscal year resulted from the decision to return the fifteenth

festival to the summer and to hold it and all future festivals over the Fourth of July holiday weekend.

The fourteenth festival, however, was held on the National Mall October 8–13, 1980. Two of the main programs at this festival were larger versions of presentations originally designed in a smaller format for the thirteenth festival. The first of these programs presented the Caribbean folk traditions of North America and featured the largest Caribbean Carnival parade in the United States. The second featured the traditional music, dance, and crafts of Cambodian, Laotian, and Vietnamese Americans. Other presentations included the recreation of "Laskiainen," a mid-winter festival held annually by Finnish-Americans from the Iron Range of Minnesota; the building of a southern dog-trot house to demonstrate the ways in which southern vernacular architecture has developed over the past two centuries, to adapt to local climates without resorting to commercial heating or cooling systems; and the exploration of the different genres of American folk speech in an area called "American Talkers" where carnival and medicine show pitchmen, street criers, and auctioneers shared their verbal artistry.

The fifteenth annual festival returned to a two-week format and took place on the National Mall, June 24–28 and July 1–5, 1981. Evening concerts and the auction, sale, and exhibition of specially commissioned traditional southeastern crafts were highlights of the festival. The area where the crafts were exhibited and sold also included demonstrations by craftworkers and performances by musicians from the Southeast. In an adjacent area, an old-time tent show was recreated with performers who had been part of the itinerant life of the tent-show circuit. Marking the International Year of Disabled Persons, a program was presented that featured some aspects of the folklore and folklife of the fourteen million hearing-impaired and two million deaf persons in the United States. Other festival presentations included the traditional music, dance, and crafts of Ojibwa Indians and South Slavic Americans from the Great Lakes region; Anglo-American and French-derived fiddling with the associated New England dance styles; and Hispanic and Native American participants from New Mexico, who built an adobe house and oven at the festival to illustrate the energy-efficient properties of this traditional building material.



Square dancing at NASM was produced by the Office of Folklife Programs as part of the Smithsonian's Inaugural Week festivities. Below. Participants from New Mexico built an adobe house on the Mall in the 15th Annual Festival of American Folklife.



Finally, a special performance program offered a sampler of folk artists who have participated in projects sponsored by the Folk Arts Program of the National Endowment for the Arts.

Both the autumn and summer festivals were cosponsored by the National Park Service and the Smithsonian, and received funding support from the Department of Energy and the Music Performance Trust Fund.

SPECIAL PROJECTS

In conjunction with several Smithsonian museums, the OFP has been involved in five special projects during fiscal year 1981. Prior to the fourteenth annual festival, this office organized and presented traditional crafts demonstrations during the opening week of the exhibition, *Webfoots and Bunchgrassers: Folk Art of the Oregon Country*, which was held at the Renwick Gallery from October 3, 1980, to February 1, 1981.

On January 17 and 18, 1981, the OFP presented day and evening dance concerts with Appalachian and Cajun string-band music at the National Air and Space Museum. These concerts were organized as part of the Smithsonian's presentation of free public programming during the week of the presidential inauguration. Two months later, the OFP presented a traditional western saddle-maker from Paradise Valley, Nevada, during the closing week of the exhibition, *Buckaroos in Paradise: Cowboy Life in Northern Nevada*, which was held at the National Museum of American History from October 1, 1980, to March 15, 1981. This exhibition grew out of a four-year collaborative effort involving the Smithsonian, Library of Congress Folklife Center, and Arts Endowment Folk Arts Program in joint endeavors in the State of Nevada.

Throughout fiscal year 1981, the staff of the OFP worked in collaboration with the staff of the National Museum of American Art to plan the exhibition, *Celebration: A World of Art and Ritual*, and continued the supervision of all research in preparation for that exhibition. *Celebration*, which will open in March 1982, will contain six hundred objects drawn from Smithsonian collections to fill all seven of the Renwick galleries. The objects have been chosen to demonstrate the ways in which different societies celebrate the important cycles and milestones in the lives of their people.

Finally, on September 19, 1981, the Office of Folklife Programs and the Greater Washington Folklore Society cosponsored a concert of traditional music from the Faroe Islands in the auditorium of the Hirshhorn Museum.

RESEARCH

Collaborative work began in the summer of 1979 on a project to preserve more than 3,500 wax-cylinder recordings held by the Library of Congress. These principally contain Native American songs and stories recorded prior to 1930. Dr. Thomas Vennum, ethnomusicologist in the OFF, has served as director for this project, which involves the transfer of fragile cylinder recordings to magnetic tape, the preparation of accompanying written material, and the development of suitable means for the dissemination of these historic cultural documents.

As a result of five years of research stemming from the Festival of American Folklife, Pantheon Press has accepted for publication a book by Dr. Steven Zeitlin of this office. Entitled, *In the Family Tradition*, this work, which Dr. Zeitlin has written in conjunction with other scholars involved in past festivals, is a collection and analysis of American family narratives and customs. Another work, a paper on the cultural implications of a solar eclipse on the Swahili-speaking peoples of the Kenyan coast, has been written by Dr. Peter Seitel, the OFF's senior folklorist. This paper was based on research undertaken by Dr. Seitel in Africa last year, was delivered at an international conference on the sun, held in India in February 1981, and will appear in the *Proceedings of the Indian National Science Academy*.

In August 1981, Ralph Rinzler, director of the Office of Folklife Programs, spent three weeks in Korea completing research on the Korean folk pottery known as "onggi." This research, begun in 1971, was conducted in preparation for a monograph on Korean pottery, on which Mr. Rinzler and Dr. Robert Sayers—former Smithsonian post-doctoral fellow in anthropology—are collaborating.

With the support of the Smithsonian Foreign Currency Program, research has been completed and film footage has been shot for a monograph and film on the traditions of the Kathputli puppeteers of Rajasthan, India. The project grew out of three years' research

in preparation for Smithsonian folk puppetry presentations in conjunction with the Thirteenth World Congress of UNIMA (L'Union Internationale de la Marionnette), which took place in Washington in June 1980. The monograph and film, to be included in the *Smithsonian Folklife Studies Series*, are scheduled for completion in fiscal year 1983. A second monograph/film project—which grew out of research for the Finnish-American program at the fourteenth annual Festival of American Folklife—is a study of the Finnish-American mid-winter festival called "Laskiainen," and has been brought to the final stages of completion.

The Office of Folklife Programs has also been involved in two other film projects that are near completion. The first film documents the occupational folklife of the pullman porters who formed the Brotherhood of Sleeping Car Porters, the first black union in the United States. This film, which is still being shot, is being produced by the Columbia Historical Society in cooperation with the OFF. The second film, which documents a traveling medicine show of the 1920s and '30s, was shot in Bailey, North Carolina, using surviving medicine-show performers, and, currently in the editing stage, is being produced by the North Carolina Department of Cultural Resources in cooperation with the Office of Folklife Programs.

VISITING SCHOLARS

Two visiting scholars used the Office of Folklife Programs' archives as well as the scholarly resources of the staff in 1980 and 1981. David Whisnant (Ph.D., Duke University), associate professor of American Studies at the University of Maryland, has been working on a historical analysis of institutional intervention in Appalachia and the southeastern United States. Robert Winans (Ph.D., New York University), associate professor of English at Wayne State University, is conducting a study of the historical development and geographical distribution of traditional styles of banjo playing.



Internship and Visiting Professionals training programs of the Office of Museum Programs have grown dramatically. Theophilus Orindu, OMP intern from Nigeria, prepares a screen for printing. Graphic design and production techniques learned here will serve Mr. Orindu as Exhibitions Officer at the National Museum in Lagos.

MUSEUM PROGRAMS

PAUL N. PERROT,
ASSISTANT SECRETARY FOR MUSEUM PROGRAMS

Conservation Analytical Laboratory

The Conservation Analytical Laboratory (CAL) was established to serve the various needs of the different bureaus of the Smithsonian Institution providing advice, treatment, analysis, and the provision of objective data for scholarly studies.

In this fiscal year, CAL has collected and added to its system 1,105 reprints, bringing the total up to 6,555. This includes publications from Scandinavia, Japan, Australia, and Germany, on technical matters of concern to conservators. The file on commercial materials has been updated by two hundred additions. Eighty video tapes of the Conservation Orientation Lecture series have been shown to twenty-four persons, of whom fifteen received certificates of completion. Eight others viewed selected lectures. A total of 137 CAL reports, have been completed and sent out to various bureaus of the Smithsonian.

In earlier years, CAL reports have been indexed by the SELGEM computer program, which has proven increasingly inadequate as the size of the file and complexity of searches grow. In association with Office of Computer Sciences, much effort is being put into a review of CAL's needs and an arrangement of the database for conversion into a private file in the Lockheed Dialog System, which will have improved search facilities. As part of this effort, over four thousand key words that appear in CAL reports and another three thousand that appear in reprints have been defined for use in an authority list.

Tape slide lectures have been provided for nineteen requestors, and literature searches in CAL reports and reprints, by computer or otherwise, in books and biographies, have numbered about 137. Professional visitors numbered 482.

Two visitors from the Center for Building Conservation in New York—Director, Raymond Pepi, and Sarah Stayler—visited the CAL library. The center is a nonprofit institution that hopes to establish a research library on building conservation. Discussions included cataloguing options, maintenance of collections, on-line services, and manual tools for obtaining literature.

Faculty has been provided to the following workshops: Office of Museum Programs (OMP) Museum Registration Methods; OMP Developing, Managing, and Maintaining Collections; OMP Storage and Handling; OMP Principles of Conservation and Preventive Care; and OMP Conservation Photography. Timothy Padfield, Supervisory Conservation Scientist, attended a conference at the Newbury Library in Chicago to advise on the rebuilding of its new exhibition area. Walter Angst edits *Finwoof*, journal of the AIC Specialty Group on Furniture and Wooden Artifacts.

CONSERVATION STAFF

During fiscal year 1981, two new conservators, Theresa Fairbanks (paper), and Kory Berrett (objects), and a conservation technician, Thomas Raysor, joined the conservation staff of Walter Angst (furniture), Mary Garbin (objects), and Nikki Horton (objects). Tom Raysor worked in the critical area of environmental monitoring, checking the locations of approximately eighty CAL hygrothermographs located in Mall buildings as well as the National Museum of African Art (NMAFA), the Cooper-Hewitt Museum, and the National Bureau of Standards.

In line with CAL's role of service to the entire Institution, the conservators are currently working on or have completed work for the Smithsonian Institution Traveling Exhibition Service (SITES), the National Air and Space Museum (NASM), Archives of American Art, Smithsonian Archives, Smithsonian Libraries, the Renwick Gallery, the Castle, the National Museum of Natural History (NMNH) and the National Museum of American History (NMAH). CAL has been requested to engage in a major survey of the decorative arts collec-

tion of the Cooper-Hewitt Museum and to examine a small collection of paper and photographic memorabilia for the NMAFA.

Efforts to assist the Middle Eastern Archaeology section of the Department of Anthropology in the NMNH have been increased. Mary Garbin continues the extremely delicate business of excavating localized chloride corrosion found on a tiny, exquisite, bronze bull's head while working around tiny flax strands found wound about its horns. Kory Berrett has given advice concerning storage of the curator's study collection and now has completed conservation treatment of two bronze Etruscan mirrors (three more remain to be done), and numerous arrowheads and other small bronze finds from Tel Jemeh.

CAL has further cooperated with the NMNH by providing funds for contract-conservation and one staff member, Nikki Horton, one day a week to work with the Anthropology Conservation Lab in preparation for the major exhibition, *Celebrations*, scheduled to open at the Renwick Gallery next year.

Within the confines of delays caused by the ongoing curatorial inventory of NMAH collections, we have been coordinating with NMAH's Division of Conservation, to meet the conservation needs of the curators by providing expertise in the treatment of objects of joined wood, ceramics, glass, archaeological and recent metals, leather, skin, paper and photographic materials, and, in some instances, combinations of many of these.

The historical objects of the NMAH present CAL with distinctive problems. Conservators must make every effort to determine the exact nature and condition of each object presented for treatment. An intensive examination and report by Walter Angst of "The Emperor Maximilian's gun" reveals that this particular attribution may be incorrect, as surmised by the curator. Study has been precluded by poor condition of the piece. A request that the handle of a certain pitcher be replaced led Kory Berrett to discover that the identifying mark on the bottom of the object had been added at a time later than its manufacture. The curator needed no further evidence to decide that it was a forgery.

Kory Berrett has also helped the NMAH by providing advice on the condition of the "Pegasus Vase" and proper packing procedures for its shipment to the Corning Museum of Glass for exhibition; by repair of several tea and coffee pots from the newly acquired

Boyd Collection; and by treatment of a ceramic furniture support showing exudation of salts brought about by the variable conditions of relative humidity in the storage area. In preparation for a commemorative exhibition scheduled to open in February 1982, Mr. Berrett is presently working on the repair of a brilliant blue enameled watch case that belonged to George Washington.

A large portion of Nikki Horton's work is currently with objects for the same February exhibition. At present in the lab are George Washington's camp stool—split down the center—and his leather-and-fabric tent carrying case, which, in its present state, a visitor described as looking "like a dead camel." Some of Ms. Horton's skills this year have been engaged in the preservation of an early, valuable Civil War saddle, in wretched condition; completion of a collection of twenty-three excavated flintlocks on loan from the Peabody Museum, Cambridge, Massachusetts; a cannon from the ship *Defence*, raised from undersea by the Navy; and two leather-covered surgical kits, complete with rusted steel instruments.

Walter Angst is working on a Renaissance Revival table depicting George Washington, also for display in February 1982. He alternates work on this piece with other jobs, such as setting in the missing pieces of veneer on a fancy tool chest and French-polishing its mahogany surfaces.

Some of the conservation efforts of CAL FOR SITES, NASM, Renwick, the Castle, the Arts and Industries Building, NMNH and NMAH, are spent in remedial efforts such as work on objects that have been damaged as a result of neglect, mistreatment, or unsound exhibition techniques. Walter Angst inspected and advised on the enormous stone statues from the west front of the Capitol now recumbent at Silver Hill; Nikki Horton removed aeronautical medals from their encasement in a solid plastics material.

CAL attempts continually to preserve the intent of the maker of an object as well as the historic patina of time. Mary Garbin, for instance, has left in place the accretions found on the bottom of a bloodletting kit, while carefully removing those from the lid—to restore the appearance of leather—and retaining for future analysis possible bone fragments found on the instruments.

Sometimes, however, the intentions of the maker are not as the curator would like them to be: Walter Angst recently discovered that an "antique" pier cabinet is really a composite of six different,

unrelated parts. Or, the curator wishes the object to appear "new": in a compromise solution reached with the curator, Walter Angst, in treating a large wooden tooth used as an apothecary advertisement, left untouched a strip revealing the original construction and decoration of this object, treating the rest in accordance with the curator's wishes, but using materials that will be, as far as we know, forever removable.

Often at the examination stage—and sometimes during the treatment process—we have sought the expertise of the CAL conservation scientists. Occasionally they are stumped. A strange, darkened green accretion on the bloodletting kit mentioned above, undergoing treatment by Mrs. Garbin, could not be positively identified. After simple tests, Mrs. Garbin determined that the darkening had been caused by application (by an earlier CAL conservator) of a leather dressing thought at that time to be the best preservative. Mrs. Garbin's work also involved the lengthy sorting out of the previous conservator's report, which falls short of the reporting standards of present-day CAL conservators in exactitude and comprehensiveness.

Another of Mrs. Garbin's projects involves the preservation of an excavated eighteenth-century silver spoon, showing disfiguring fissures and spalling caused by sulfide and chloride corrosion. Mrs. Garbin's investigation in the CAL computerized information system revealed the dearth of conservation literature available on such a subject. She will work with the conservation scientists to determine the viability of a chemical treatment described in the only publication on the subject.

This year the conservators were joined by a Smithsonian fellow, Ira Block, a visiting scientist. His research into the effect of an alkaline rinse on the aging of cellulosic textiles resulted in indications that deionized water is not harmful to cellulose, and that an alkaline rinse is not needed to help preserve very old cloth, but can be useful in the preservation of relatively new cloth and should be given to new fabrics used to back old cloth.

During fiscal year 1981, the conservation staff worked with the Office of Museum Programs in several areas. Nikki Horton worked with Pete Erikson to demonstrate, on video tape, the technique of making reproductions of Braille for the traveling exhibition for the blind, *In Touch*. Ms. Horton was also involved in planning

and implementation, and Mr. Berrett attended "Photography for Conservators," a workshop envisioned as a "dry run" effort for potential mid-career training to be held in the planned conservation school at the Museum Support Center.

Together with normal work projects, the conservators themselves continue pioneering efforts in conservation treatment. As no literature appears to have been published on such a subject, special thinking was involved in the treatment of a small brown jug decorated with a folk painting. We are not yet certain how to treat a unique pair of eighteenth-century chamois breeches in very tattered condition. And still in the closet, awaiting the proper conservation technology and expert attention, is one of the first nylon toothbrushes, its handle made of disintegrating celluloid—an excellent example of inherent vice with no immediate remedy.

Mr. Raysor processed a six-months' backlog of requests for preservation information, sending 6,491 single sheets, comprising conservation guidelines as of the end of June 1981. His time is now available to attend to the third major duty of the CAL conservation technician—fumigation of museum objects in the ethylene-oxide-Freon chamber prior to their entry into the collections. He has overseen two safety inspections in compliance with the increased concern of CAL for employee safety.

ARCHEOMETRY

The use of neutron activation analysis for the study of provenance of artifacts of ceramic, obsidian, nephrite, and other materials continues to be developed by M. James Blackman in collaboration with archeologists from the Smithsonian's Department of Anthropology as well as with the director of the University of Pennsylvania's excavations at the site of Tel el Malyan in Iran. The work on the material from Malyan began as a project of the Fellowship in Materials Analysis and has continued. Reports of the work on ceramics and clays from Malyan have been presented at the International Archeometry Symposia in London in 1979 and in Paris in 1980. These analyses are being carried out using reactor facilities at the National Bureau of Standards (NBS), together with equipment purchased by CAL for use at NBS.

The reactor at the NBS will also be used in the future for the study of paintings by neutron induced autoradiography. The CAL

has arranged a contract with the Reactor Division, NBS, to design a modification of the NBS reactor for this purpose. The design will be completed by September 1981. The autoradiography of paintings from the Smithsonian Institution is scheduled to begin in April 1982.

A program of ceramic technology study is continuing with a visiting scientist, Dr. Marino Maggetti, from the Institute of Mineralogy and Petrography of the University of Freiburg, Switzerland. Problems in the diffusion of tin-glazed ceramic technology are being investigated, using the techniques of X-ray diffraction analysis, optical petrography, direct current plasma-optical emission spectrography, electron microprobe analysis, and scanning electron microscopy.

At the International Archeometry Symposium at Brookhaven National Laboratory in May 1981, the CAL sponsored a round table on "Future Directions in Archeometry." The panel was chaired by Paul N. Perrot and was composed of twenty archeologists and archeometrists who discussed teaching archeometry, interdisciplinary research, organizing research problems, and the role of university, museum, government, and industrial laboratories. A publication is in preparation by Jacqueline Olin.

An archeological/archeometric expedition with members from CAL, the Smithsonian's Department of Anthropology, Brookhaven National Laboratory, and Parks Canada—traveling to Countess of Warwick Sound, Baffin Island, Canada—was conducted during fiscal year 1981, together with a proton magnetometer survey in conjunction with the search for evidence of smelting by early European explorers in that region.

Two publications resulting from seminars organized by CAL in conjunction with NBS, *Early Pyrotechnology* and *Archeological Ceramics*, are in press.

CONSERVATION SCIENTIFIC ENTERPRISES

The CAL scientists have concentrated on studying the museum environment. A major preoccupation has been the investigation of the condensation within the roof of the Arts and Industries Building. For this job, we set up an environmental monitoring system, which automatically measures temperature and relative humidity at hourly intervals in remote parts of the roof structure.

We have convincingly explained the mechanism of the process and have also learned much about the technology of environmental monitoring. This will enable us to work on future problems of this sort much more rapidly. The work was written up for presentation to the Ottawa meeting of the International Council of Museums, Conservation Committee in September. A similar phenomenon on a much smaller scale—the inside of a picture frame—was explained in a lecture given in May to the annual conference of the International Institute for Conservation, Canadian Group, in Victoria, British Columbia.

We have just completed a survey of the fabric and the environment of the Star Spangled Banner. We tested the strength of the fiber, identified the dyes, studied the origin of the dust on the fabric, and made recommendations for its safety.

Our work on internal pollution—that is, the generation of pollutants within the museum environment—has been accepted for presentation to the biennial meeting of the International Institute for Conservation in Washington, D.C., 1982. This work comprises a review of examples of corrosion of objects caused by display conditions. We have investigated in this laboratory numerous examples, some of which are corrosion products unrecorded in the literature. This investigation is now evolving into a study of the microclimate in museums—that is, the way pollutants and air and moisture circulate in confined spaces.

In addition to this continuing long-term research, we still serve the needs, or wants, of the Smithsonian Institution by responding to an amazing variety of requests. Here are some examples taken from this year's crop: "Does sticky plastic dough, sold to stick paper to walls, damage the paper?" Not quickly. "What was the decayed fiber clinging in traces to a bronze bull's head dug up in Israel?" Linen. "What is the green corrosion product on the tip of the nose of a nickel-plated bronze head by Gaston Lachaise?" We couldn't identify it! "What is the best paper and ink to immerse with biological specimens stored in alcohol?" We tested several and made a recommendation. "Are the lead glazes on Mexican pots sold by the Smithsonian shops a health hazard?" The glaze is sometimes soluble in these pots, which do not have the consistency of factory products. We have answered with varying degrees of success and thoroughness many such requests.

National Museum Act Grant Programs

Through its programs of grants, and in keeping with the original authorizing legislation of 1966, the National Museum Act (NMA) continued to provide support for professional training for careers within the museum profession, for special studies investigating critical museum problems, and for technical assistance to the museum field. As in the past, the 1981 guidelines describing the grant programs stressed the importance of the conservation of museum collections and encouraged the submission of applications for conservation training and research projects.

In 1981, 181 applications, requesting a total of \$3,426,316 in support, were received. After review by the Advisory Council, fifty-six grants were awarded with available program funds, which totaled \$704,053. Thirty-two of the grants, representing \$386,662 of the total award, dealt directly with conservation training, research, and studies.

A primary mandate of the NMA is to support original research projects and studies on critical museum problems, which contribute to the advancement of museum philosophy, techniques, and practices. Emphasis is placed on investigations into the properties of the artifact and conservation materials. In 1981, the NMA provided partial support for the Symposium for Archaeometry, which has become the leading international seminar in the field of the application of the physical sciences to archaeology. This twenty-first meeting was held at Brookhaven National Laboratory in Long Island, New York, and attracted over four hundred participants from Europe, Asia, North, South and Central America. Information, provided by sessions on the chemical analysis of ancient glasses, ceramics, and other artifacts and thermoluminescence, and Carbon-14 dating, will be useful to conservators and curators as they seek to verify the authenticity of paintings and determine the age and origin of various museum and art objects. These scientific methods, when applied to museum objects, will open new doors as we seek to better understand various periods in history.

The NMA also encourages programs that address significant needs of museums, nationally and abroad. These projects assist museums by making available technical information in administration,

collections management, education, exhibition design, and other areas. This year, the Society of American Archivists received support to begin the preliminary work necessary to produce a Museum Archives Manual. The manual will provide invaluable guidance to a majority of museums in the United States unable to afford establishing an archives, yet responsible for the maintenance and care of their permanently valuable inactive records.

Of the 1981 grants supporting training, museum internships accounted for almost twenty-five percent of those awarded. One of the exemplary internship programs in 1981 initiated a positive step toward the involvement of minorities in the museum profession. The South Carolina Museum Commission has established an internship program limiting eligibility to representatives from minority groups. Their recruitment generated an impressive number of applicants, and an intern was chosen to go through the program designed to provide a maximum amount of exposure to every aspect of the museum profession. The ultimate goal of this program is to interest and train greater numbers of minority groups for satisfying careers in the museum field.

The diversity and range of research and study grants made by the Advisory Council are illustrated by all of the examples described. Throughout the year, the National Museum Act Office maintained close liaison and exchanged information with agencies and other organizations that make grants to museums. The NMA has been reauthorized through fiscal year 1982.

Office of Exhibits Central

The Office of Exhibits Central (OEC) closed out fiscal year 1981 preparing a Bicentennial exhibition of great significance. *By Sea and By Land: Independence With the Help of France* celebrated the American victory at the Battle of Yorktown, the decisive battle in the War of Independence. The exhibition was opened with appropriate fanfare in the Lounge of the Smithsonian Castle on October 10. This was the second special exhibition to be presented in the Lounge of the Castle this year. *Arts of Ancient Egypt: Treasures on Another Scale* was formally opened by Madam Jihan Sadat on March 16, 1981. Both of these complex and extremely high-value exhibitions were designed, edited, produced, installed in the

Castle, and subsequently removed by OEC with the cooperation of many other Smithsonian staff.

Renaissance of Islam: Art of the Mamluks was the most comprehensive exhibition prepared by OEC during the year for the Smithsonian Institution Traveling Exhibition Service (SITES). SITES continues to be a major client unit of OEC, and, as in years past, more than twenty exhibitions were cooperatively produced this year. *Renaissance of Islam* opened in the National Museum of Natural History (NMNH) prior to its national tour with bookings in major U.S. museums. *The Space Shuttle: America's Space Truck*, prepared with the cooperation of the National Air and Space Museum (NASM), was produced for SITES in two copies, the first of which opened to the public in Baltimore, Maryland, at the time of the first flight of the space shuttle Columbia. The range of SITES exhibitions designed and produced by OEC continued to cover a wide range of topics in art, history, science, and technology. The most consistent aspect of OEC operations are the SITES exhibitions, which account for fully one-third of OEC's production resources.

Exhibition label editing, a highly specialized media skill, was provided by OEC's Exhibits Editors' Office for a variety of presentations within the Institution and for the traveling exhibitions of SITES. OEC editors worked with subject-matter authorities both within and outside the Institution, including curators from the Egyptian Museum, Cairo, on the *Arts of Ancient Egypt* exhibition. In addition, the office also edited the program book for the Festival of American Folklife, the brochure for the Office of Horticulture's exhibition, *Trees of Christmas*, and the editing, design, and supervision of printing of over fifty brochures for the Smithsonian Associates Travel Program's foreign and domestic tours.

OEC designers participated in an extremely wide variety of tasks this year. Kenneth Young twice traveled to Cairo, Egypt; James Speight gave assistance to the National Archives; and Brian Jones designed an exhibition for the National Museum of American History (NMAH), *The American Red Cross: A Century of Humanitarian Progress, 1881-1981*, and traveled to Miami, Florida, to supervise the initial installation of the SITES exhibition, *Good as Gold*. William Jacobs designed the exhibitions *Violin Treasures* and *Tuning Up! Fiddles and Bass Viols in America* for the NMAH and designed the SITES exhibition, *Innovative Furniture in America*,

in collaboration with the Cooper-Hewitt Museum, and Jim Mahoney, chief of OEC, designed and coordinated the exhibitions, *Arts of Ancient Egypt* and *Independence With the Help of France*.

The Models, Plastics and Restoration Unit completed the life-sized model of *Quetzalcoatlus northropi* after two years of collaboration with scientists from NMNH. Reconstructed from fossil remains, this largest known flying animal has a wing span of forty feet. The model, full-sized, weighs a mere one hundred fifty pounds and is now suspended from the ceiling in the NMNH's new Dinosaur Hall. Other projects included the manikin for the NMAH's First Ladies Hall presentation of Nancy Reagan's inaugural gown and—under the direction of the Architect of the Capitol—a comprehensive modification to the Pennsylvania Avenue Development Commission's model of central Washington, D.C.

The Freeze-Dry Laboratory, aside from its normal activities, completed training interns from West Germany, Libya, and Bangladesh this year. In September, Rolland O. Hower, supervisor of the Freeze-Dry Lab, went to New Delhi, India, to establish a freeze-dry laboratory in the National Museum under the auspices of The Asia Society. An additional point of pride for Mr. Hower and the OEC is that his recent book, *Freeze-Drying Biological Specimens: A Lab Manual*, has gone into its second printing (S.I. Press).

The Exhibits Motion Picture Unit's film, *Coral Reefs*, was selected by the International Communications Agency (ICA) to represent the United States at film festivals in France, Brazil, Italy, Poland, Spain, and Australia. This continues a long tradition of recognition of the unit, the only full-time, in-house, exhibits motion-picture operation in American museums. The Motion Picture Unit is now completing a film conceived and produced for the International Year of Disabled Persons entitled, *Come Walk With Me*, a training film to familiarize museum staffs with the problems of hearing-impaired visitors. This year, Director Karen Loveland and Assistant Director John Hiller served as judges for the Council on International Nontheatrical Events (CINE) Golden Eagle awards (of which the Exhibits Motion Picture Unit has won many), and John Hiller also judged Washington entries for the "Emmy" awards of the National Academy of Television Arts and Sciences. Over twelve film projects have been in pre-production and evaluation for future work by the Motion Picture Unit.

Considerable staff changes occurred during the past year. Ms. Linda S. DuBro, chief of the Exhibit Editors' Office, left OEC to join NASM after over seven years of highly professional performance in positions of increasing responsibility at OEC. Similarly, several exhibits specialists transferred to other Smithsonian units, and at the end of the fiscal year, OEC lost several staff members in temporary positions due to government-wide staffing limitations. We wish all of these OEC people well and appreciate their efforts and contributions. Significant staff adjustments will be necessary during the current fiscal year to maintain the strength and flexibility of OEC.

With all of the staff changes and uncertainties in scheduling, the senior staff of OEC continued to serve as faculty in museum training programs for the Office of Museum Programs and others sponsoring professional workshops in museum exhibition practices. Assistance was also provided to other government organizations and to private museums as time was available. At least one postgraduate student was serving an internship in OEC throughout the year, and several foreign museum professionals visited OEC shops and consulted with our staff specialists. Training and cooperative programs are becoming more important for successful and economical museum presentations, and OEC is preparing to meet these needs. There is every indication that one of the major challenges to museums in the 1980s will be in refining the methods and procedures of exhibition design and production to maintain the highest standards within more limited staff and budgetary resources.

Office of Horticulture

During 1981, the Office of Horticulture concentrated on stabilizing its educational, research, and exhibition programs, which had been rapidly expanded in 1980 with the opening of the exhibition *A Victorian Horticultural Extravaganza*. Without a substantial core of hard-working volunteers, the office could not have accomplished its mission since two full-time positions were lost due to personnel reductions.

During 1980, the office contributed to more than three hundred special events for the various Smithsonian Institution Bureaus, in-

cluding the annual Women's Committee Christmas ball; a dinner honoring Mrs. Anwar Sadat at the Renwick Gallery; a reception honoring the delegation of Japanese Prime Minister Suzuki at the Freer Gallery in May; and dinners honoring Prime Minister Menachim Begin at the National Portrait Gallery in August and Prince and Princess Hitachi of Japan at the Freer in September; as well as openings in most of the Institution's museums. For these events, the office provided potted palms, floral arrangements, and, in most cases, orchids and bromeliads from the permanent collections of these genera.

The Education Division, under the direction of Ms. Lauranne C. Nash, staged the fourth annual *Trees of Christmas* exhibition at the National Museum of American History from December 19, 1980, to January 4, 1981. Of the twelve trees decorated and displayed, only four were repeated from years past. Most of the ornaments were handmade—reflecting the ethnic and cultural backgrounds of the volunteer groups. Tree decorations and themes included: "Bread Dough" ornaments by Ms. Robin Seckler Asjes; a "Lady Christmas" manikin, created by Ms. Sunny O'Neil, based on an illustration from the book *Things to Make that are Worth Making* of 1906; the "Twelve Days of Christmas" pewter ornaments by the National Art Honor Society of Northwestern Senior High School and Ms. Nancy de Platchett; a decoupage tree by the National Guild of Decoupeurs; "Origami Around the World" by Michael Shall, Alice Gray, and The Friends of the Origami Center of America; a "Calico Christmas" tree by Nikki McKee, Mrs. Kitty Swindell, and the United States Soldiers' and Airmen's Home; "Hand-Painted Porcelain" ornaments by the Potomac China Painting Teacher's Association; a "Grandma's Christmas" tree by Mrs. Jeannette Whitmer; a "Ukraine" tree by the Ukrainian National Women's League of America, Inc., and Slava Gerulak; an "Old Russia" tree by Mrs. Harry Harris in memory of her mother, Dorothy Conant Quinby; a "Lithuania" tree by the National Lithuanian Trust; and "The Chrismon Tree" by The Evangelical Lutheran Church of the Ascension. All ornaments were contributed to the office and are stored for future exhibitions. This exhibition generated tremendous support for the Office of Horticulture from outside volunteers and organizations and required thousands of hours in production and installation.

The Education Division also continued to monitor the plant accessioning and records system and is scheduled to begin computerization October 1, 1981. The accessioning system and its computerization will be based on the records system of the Plant Science Data Center of the American Horticultural Society. The horticultural book collection continued to expand in 1981 and the North Balcony of the Arts and Industries Building was selected to house the expanding collection—primarily of Victorian horticultural works.

Thanks to the generosity of the floral industry of America, the office maintained and continued to develop the exhibition *A Victorian Horticultural Extravaganza*, which opened in July of 1980. Unique floral arrangements and rare and unusual potted plants, reflecting the era of the mid-to-late nineteenth century were displayed throughout this exhibition in 1981. Of particular note, Ms. Kathryn Meehan, coordinator of this exhibition, along with a dedicated core of volunteers, recreated Victorian Christmas ornaments and period settings in the exhibition's parlor. Several new additions to the collection were received in 1981, including a silver medal donated by L. O. Ziebarth and embossed "Awarded to S. Bradley, Diploma, for Hedge Trimming, 1857" by the Illinois State Agricultural Society; a collection of metal sculptures of the state flowers of the United States done in tolé by Mrs. Helen Hornberger of Wichita, Kansas; and a collection of floral accessories and books donated by Mrs. Frances Jones Poetker of Cincinnati, Ohio. Additions to the collection of garden furnishings by purchases included two antique Wardian cases (circa 1885) and a cast-iron fern stand. The collection of nineteenth-century garden furnishings and horticultural and floral accessories has evolved into one of the finest in any museum in the United States.

The Orchid and Bromeliad Collection continued to grow. The construction of a new greenhouse, underwritten by private donors, has added approximately 3,000 square feet of production space to the Greenhouse-Nursery Division. In fiscal year 1981, Mr. Paul E. Desautels and Dr. Robert Read, newly appointed curators of the Orchidaceae and Bromeliaceae Collections collected additional plants in the Yucatan Peninsula and in Chiapas, Mexico, as well as in Panama. The collection now contains approximately 350 genera and over 2,700 species and hybrids of orchids and 15 genera and

700 species of bromeliads. These collections are housed and maintained at the Office of Horticulture Greenhouse-Nursery Division at the United States Soldiers' and Airmen's Home. The collections, along with our miscellaneous tropical plants collection, are used for exhibition and as a source of future hybridization and plant exchange programs with other botanical collections. Negotiations are well underway for a major collecting trip to Colombia in November of 1981. During the year, the office exhibited at Florafest II, which took place in March of 1981, at the United States Botanic Gardens, and at the first spring flower and garden show sponsored by the Charles County Community College, also in March. The design of these exhibitions was under the direction of Mr. John W. Monday, Assistant Director of the office, and Ms. Kathryn Meehan, Exhibits Design Specialist.

The Greenhouse-Nursery Division, under the direction of Mr. August A. Dietz IV, was responsible for the production of over sixty-five thousand annual bedding plants; thirteen thousand cut flowers; and approximately sixteen thousand seasonal plants such as poinsettias, chrysanthemums, begonias, coleus, primroses, and forced spring tulips, hyacinths, and daffodils. The division also maintained several thousand tropical plants used in special events and exhibitions, and produced and maintained approximately twenty thousand orchids and one thousand bromeliads. The collection items are rotated in the museum exhibition areas and, in particular, were a major feature throughout the year in the exhibition *A Victorian Horticultural Extravaganza* in the Arts and Industries Building. Tours of the Greenhouse-Nursery Division facilities were arranged for the Resident and National Associates Programs, in addition to 45 tours of the growing Orchidaceae and Bromeliaceae Collections. Once again, volunteers contributed more than 2,000 hours in this division and without their help, a severe reduction in services and plant care would have occurred.

The Grounds Management Division, under the direction of Mr. Kenneth Hawkins, installed over sixty-five thousand annuals, one hundred thousand spring bulbs, twenty thousand pansies, and more than three hundred large specimen tropical standards and topiaries on Smithsonian Institution grounds. Special projects included installation of two flower shows; resodding major areas near

the National Air and Space Museum and the National Museum of American History; installation of eighteen specimen Bradford pear trees along Twelfth Street between the National Museum of American History and the National Museum of Natural History; installation of fifteen *Pinus thunbergiana* (Japanese Black Pine), thirty *Prunus serrulata* 'Shirotae' (Oriental Cherry), six *Crataegus phaenopyrus* (Washington Hawthorn), one *Metasequoia glyptostroboides* (Dawn Redwood), and two *Salix babylonica* (Babylonian Weeping Willow) in the newly renovated garden of the Hirshhorn Museum and Sculpture garden; and relandscaping of the courtyard of the Freer Gallery of Art.

On May 8, 1981, Secretary Ripley and Prime Minister Suzuki of Japan, planted a specimen *Prunus incisa* var. *pendula alba*, the white weeping Fuji cherry, on the north circular drive of the Freer Gallery of Art to commemorate the prime minister's visit.

In June of 1981, the Office of Horticulture, in conjunction with the Cooper-Hewitt Museum, opened *Gardens of Delight* (formerly referred to as *Horticulture and the Decorative Art*). This exhibition highlighted museum artifacts related to horticulture and included prints and drawings, porcelain, jewelry, and furniture, as well as living plants from the Office of Horticulture collection. The office lent a major portion of its Victorian garden furnishings collection for the duration of this exhibition, including a magnificent three-tiered fountain (circa 1875) for the conservatory, six garden benches and settees, two plant stands, ten urns, three posey holders, a parlor aquarium-terrarium, and three wreaths decorated with dried herbs and flowers typical of the nineteenth century. In addition to the exhibition, *Gardens of Delight*, the office was successful in developing a cooperative display program with the Horticultural Society of New York for the Cooper-Hewitt Conservatory. In this program, the office will provide seasonal plants for the Conservatory, and the Horticultural Society will provide for their maintenance. In addition, from time to time, the Society will feature collections of plants from their members.

In June 1981, Mr. James Buckler was appointed to the Advisory Board of the Accokeek Foundation, operator of the National Colonial Farm in the Piscataway National Park in Accokeek, Maryland; and for summer of 1981, he was awarded a three-month

sabbatical to work on a book, *The Horticultural Extravaganza of the Victorian Era*, to be published by the Smithsonian Institution Press. Scheduled for completion in the spring of 1982, the book will be the culmination of ten years' research on Victorian horticulture. Ms. Kathryn Meehan, a volunteer on historic horticulture, will collaborate with Mr. Buckler on the publication. During Mr. Buckler's sabbatical, Mr. John W. Monday assumed the Acting Directorship of the Office of Horticulture.

Throughout the year, the office worked on plans for the new "East Garden." Located between the Arts and Industries Building and the Hirshhorn Museum and Sculpture Garden, it is due to open in the spring of 1982. Many of the plants for the garden are being propagated at the Greenhouse-Nursery Division. The garden will feature plants of herbal and medicinal value, textured and fragrant foliages, and brilliant-colored foliage or flowers. All plants are being selected to enhance the enjoyment from the five senses. A magnificent Victorian cast-iron fountain (circa 1875) will be placed in the center of this garden which will also be furnished with nineteenth century urns and garden settees. Initial funds for this project were provided by the Women's Committee of the Smithsonian Associates.

The year was particularly active for Mr. James R. Buckler, director of the office, who presented lectures throughout the country, many for the Smithsonian National Associates Program and the Smithsonian Resident Associates Program, and others for private and scholarly organizations having an interest in the history and evolution of horticulture, floriculture, and garden and floral design. In addition, Mr. Buckler continued to publish his monthly column "Flora Smithiantha" in the *Smithsonian Torch*. An article entitled, "Victorian Gardening: The Smithsonian Approach," appeared in the spring issue of *Nineteenth Century* magazine of the Victorian Society in America.

The office assisted all of the bureaus in planning interior plants as part of their exhibitions. In particular, two exhibitions at the National Museum of Natural History, *5,000 Year of Korean Art* and *Renaissance of Islam: Art of the Mamluks*, required many plants to provide a sympathetic ambience. The office designed, installed, and maintained the plantings for the exhibition, *Egyptian Antiquities*, in the Smithsonian Institution Building; and a new

exhibition area was developed in the north foyer of the National Museum of Natural History for displaying orchids, bromeliads, and exotic tropicals from the office's greenhouses. Over all, the Office of Horticulture maintained more than thirty-five hundred plants in the interiors of the Smithsonian Institution buildings.

Once again, the Office of Horticulture benefited immeasurably during 1981 from the help given to its programs by informed, hardworking, and dedicated volunteers; many of these programs could not have taken place without this generous help.

Office of International Activities

The objects of cultural history and the specimens of natural history preserved in Smithsonian museums, as well as the professional people who study and exhibit them, are employed in a global research and education process. The Office of International Activities (OIA) contributes to this process by fostering international dimensions of Smithsonian programs. It does so by advising program managers and by maintaining liaison with the United States and foreign governments, with private institutions around the world, and with international organizations.

OIA support for Smithsonian programs during fiscal year 1981 resulted in the signing in December 1980 of a Smithsonian agreement to foster joint research with the Chinese Academy of Sciences, People's Republic of China. Subsequently, the Chinese Academy approved four projects from a Smithsonian joint research program submitted to Vice Premier Fang Yi in April 1980. Joint research began in July 1981 when three Chinese scholars joined the Pleistocene archeological excavation in Colorado, under Dr. Dennis Stanford of the Department of Anthropology.

In the fall, Dr. Richard Grant of the Department of Paleobiology was scheduled to visit China to collect and study Permian brachiopods of South China, and a Chinese ornithologist was scheduled to begin a two-year term of research at the Smithsonian Tropical Research Institute in Panama under an exchange proposed by Dr. Martin Moynihan. For the fall also, the Chinese Academy's Institute of Oceanology at Qingdao invited Dr. Robert Higgins of the Department of Invertebrate Zoology to collect specimens and to

lecture and advise on meiofaunal research. In addition, the Chesapeake Bay Center for Environmental Studies expects a Chinese environmental chemist, sponsored by the Office for Environmental Protection Leading Group of the State Council, to arrive in the fall of 1981 to join in studies over the next two years. And finally, in the cultural realm, Julian Euell, Assistant Secretary for Public Service of the Smithsonian, traveled to China as a member of an International Communications Agency delegation planning cultural exchanges.

The Office of International Activities supported 119 similar Smithsonian collaborative projects with other nations during fiscal year 1981. Of special interest were two Smithsonian-sponsored exhibitions from the Middle East. *Renaissance of Islam; Art of the Mamluks* will circulate in the United States under the auspices of the Smithsonian Institution Traveling Exhibition Service. The second exhibition, *The Arts of Ancient Egypt; Treasures on Another Scale*, was part of the "Egypt Today" symposium sponsored in the Washington area by the Resident Associates Program. Supporting the Resident Associates Program also, the OIA organized an adult course entitled "Vicarious Visits" to foreign embassies in Washington.

In support of foreign participation in Smithsonian programs, persistent work by the OIA on visa procedures for foreign scholars and students culminated during the year in more simplified and flexible procedures. Sixty-one cases were processed in addition to the administration of the exchange visitor program, under which seventy-one foreign professionals joined Smithsonian programs during the year.

Eighty-two programs were also arranged for visiting foreign dignitaries, numbering 276 persons, including sixteen groups totaling 117 persons from the People's Republic of China alone. Thirty-eight programs of other institutions at home and abroad were assisted in developing contacts with the Institution.

Office of Museum Programs

The purposes and goals of the Office of Museum Programs (OMP) are being fulfilled by coordinated activities that are woven into a

total museum training, information, and services program of the Smithsonian Institution.

OMP organizes and conducts a group of distinct but inter-related activities and services for the professional enhancement of museum personnel and institutions, throughout the United States and abroad, and research into methods that will improve the effectiveness of museum operations.

The office offers museum training workshops, arranges for internships, short-term professional visits, foreign professional training; produces and distributes audiovisual presentations on conservation theory and practice and educational programming; undertakes studies to evaluate museum exhibitions and educational programs; provides training, technical assistance and consultation services for Native American museums; maintains a museum reference center consisting of books, periodicals, research papers, and documents on museums and their operations; and offers counseling services on museum careers, training, and museum practices.

The grouping of these functions into one program facilitates the Institution in responding effectively and directly to the multitude of requests received from museums throughout the United States and abroad for assistance and guidance in improving their own operational methods, practices, and techniques. It utilizes the diverse and extensive Smithsonian resources, which can contribute to the betterment of museum operations generally, and has the added benefit of keeping the staff of the Institution informed and aware of museological developments elsewhere.

WORKSHOPS AND INTERNSHIPS

The OMP sponsors an annual schedule of three- to five-day workshops, which provide training opportunities for museum professionals from the United States and abroad. The workshops, which are held at the Smithsonian Institution and on-site, focus on current theories and practices in the field, and make both human and material resources available to the larger museum community. National surveys are undertaken to determine the needs in the field.

The Smithsonian Workshop Series draws faculty members from the Institution's staff; occasionally, an outside expert will join the program to offer specialized information or to speak from a particular perspective. Subject matter covers a broad range of topics

including exhibition design and production, registration methods, membership development, collections management and maintenance, grant solicitation and administration, educational programming, evaluation, museum-shop management, docent training, security, archives administration, and museum management.

During 1981 enrollment for the workshops averaged eighteen per program; over five hundred professionals participated in the sessions. Enrollment represented all types and disciplines of museums, and a broad geographic distribution, including most states in the continental United States and Alaska and Hawaii. In addition, professionals came to the Smithsonian from Canada, Great Britain, Nigeria, and Venezuela to participate in workshops.

The OMP also offered a series of workshops for Smithsonian staff. Programs in this series included museum lighting, packing, and shipping; automation in museums; and photography for conservators. Close to one hundred fifty Smithsonian staff members took part in these programs.

In addition to administering these programs, Training Program Coordinator Nancy L. Welch developed on-site workshops in cooperation with the National Park Service and the Southern Arts Federation. With this cosponsorship, and at no cost to the Institution, a total of five programs were presented by Smithsonian faculties to professionals in the field. The on-site workshops provided professional training experiences to over one hundred individuals representing member museums of the Southern Arts Federation and exhibits staff of the National Park Service. The on-site workshop programs with both organizations continue to be a strong and beneficial element of their training offerings; it is anticipated that these programs will continue and grow during 1982.

INTERNSHIP PROGRAM

The Smithsonian OMP Internship Program offers specialized training in museum practices to undergraduate and graduate students and professionals employed in the field. Individuals from the United States and foreign countries are eligible to participate in the program. During 1981 the program, coordinated by Mary Lynn Perry, placed seventy-two individuals in internship positions throughout the Institution; of these, twenty were from foreign countries: Australia, Bangladesh, Colombia, Great Britain, India, Israel, Kenya,

Kuwait, Libya, Nigeria, Pakistan, the Philippines, Singapore, and West Germany. The internships sometimes carry credit; they provide no stipends for participants. The average length of an internship is four to six months, with shorter or longer programs available.

As with the workshops, the focus of the internships is on museum practices; intern assignments may involve assisting in administration, education, collections management, conservation, registration, exhibit design and production, and curatorial departments. Long-term interns, especially those from foreign countries, often elect to travel as part of their program; in such cases, the OMP prepared itineraries to include appropriate museum visits throughout the United States. In rare cases, arrangements with foreign museums also may be made. Interns participate in a wide variety of programs in addition to their assignments; the OMP coordinates monthly meetings, lectures, and special presentations by foreign interns to supplement the interns' museum experiences.

VISITING PROFESSIONALS PROGRAM

In addition to the workshop and internship programs, the OMP offers a specialized service for museum professionals who are interested in training but are available only for short periods. Through the Visiting Professionals Program, museum professionals gain access to collections and Smithsonian staff for specialized work and consultations. The Visiting Professionals Program is designed to serve individuals who are available for training periods of up to one month, and who are interested in a combination of meetings, workshop activities, demonstrations, and research opportunities. The office also schedules museum visits throughout the United States and abroad for individuals enrolled in this program, provided that such meetings would be beneficial to the participants' training needs. During 1981 a total of one hundred ninety-seven individuals were served through the program. The participants represented museums throughout the United States, as well as the following foreign countries: Argentina, Australia, Austria, Brazil, Bulgaria, Burma, Canada, Colombia, Costa Rica, East Germany, Egypt, France, Iceland, India, Israel, Italy, Lebanon, Mexico, Morocco, Mozambique, Nigeria, New Zealand, Switzerland, Syria, Turkey, Venezuela, West Germany, Yugoslavia, and Zimbabwe.



OMP interns come from the world over and work throughout the Smithsonian. Represented in this group are the U.S., West Germany, the Philippines, Kuwait, Libya, Cuba, Austria, Argentina, Nigeria. *Below.* Interns from Bangladesh and West Germany prepare a specimen for freeze-dry taxidermy.



Programs in the training category of the OMP have experienced dramatic growth this year, particularly the Internship and Visiting Professionals programs. Cooperative programming with colleges and universities has increased, as has cosponsorship with other federal agencies, foreign governments, and funding organizations. This growth is projected into 1982, as well, and is being supported by allocation of a permanent, full-time staff position responsible for administering these programs.

Expansion is also anticipated in the workshop activities of the OMP, with an emphasis on on-site and regional offerings.

*AUDIOVISUAL LOAN PROGRAM
(CONSERVATION INFORMATION PROGRAM)*

The Audiovisual Loan Program with its distribution system for the Conservation Information Program, offers museums and related institutions a selection of ninety-three videotape programs and fourteen slide presentations on short-term loan. Most of the offerings are productions of the Conservation Information Program and deal with the museum environment, the preventive care of paper, textiles, metals, basketry, books, and other materials.

Audiovisual presentations continue to be among the most effective ways of conveying information on basic principles of conservation, and of creating an awareness of the need for caution and care in the application of these principles to museum collections. Two slide presentations on historic preservation were produced by the Advisory Council on Historic Preservation, and are being distributed by the OMP. In addition, there is a short museum education series and a new folklife series of six videotapes (produced by the Office of Folklife Programs).

The Audiovisual Loan Program began in 1974 as a result of the slides and videotapes produced by the Conservation Information Program two years earlier. Since then, 4,493 presentations have been sent on loan. During 1981, 486 slide shows and 431 videotapes were requested by, and lent to, 63 institutions. In the Audiovisual Loan Program, 1981 marks a milestone. All statistical data from inception in 1974 to date, have been entered on a computer and can be sorted by state, program title, or date.

Since the loan program is limited to the United States and Can-

ada, a sales program was initiated in 1976 in response to requests from foreign countries. In 1981, seventy-eight slide shows and twenty-one videotapes were sold in the United States, Canada, and foreign countries, including Switzerland, Puerto Rico, Denmark, France, Australia, England, Scotland, Kuwait, Korea, and China.

This year demonstrated a remarkable need among museums for easily accessible printed materials on museum conservation and education. In 1981 the OMP staff revised and up-dated over 500 pages of printed support material (such as script, bibliography, glossary, and supply lists) that accompany the slide shows and videotapes. This material was organized into 17 technical booklets by presentation title. They were made available through the annual brochure. As a result, 538 requests were filled for 6,552 technical booklets.

The Conservation Information Program, which is coordinated by Elena Borowski, strives to increase its information services to museums by producing more programs and booklets for distribution and by collaborating with other Smithsonian divisions in their production efforts.

In 1981 two major videotapes, funded by Smithsonian Educational Outreach Funds, were completed for distribution through the loan program. *Museum Careers*—a series of videotaped interviews with museum professionals—attempting to offer a practical view of museum work behind the scenes, is aimed at students and guidance counselors interested in careers in museums. *Museum Accessibility for the Visually Impaired* is the Audiovisual Loan program's tribute to the International Year of the Disabled. This videotape, as the title suggests, offers some practical techniques in making exhibits more accessible to visitors who are legally blind, but partially sighted. A slide show, *The CAL Tour*, was produced for use by the Conservation Analytical Laboratory to help orient visitors.

In the course of 1981, Pete Erikson and Eleanor Crow assisted other Smithsonian units in the production of videotapes and films. The video production unit alone performed over 264 services to various Smithsonian units. Notable productions assisted were: *Printmaking Methods of Mary Cassatt*, a videotape jointly produced by the Amon Carter Museum and the National Museum of American Art; *Walk with Me*, a film for the hearing impaired, produced by The Film Unit of the Office of Exhibits Central; and

Baseball Clown, Country Music Concert, and The Kurt Weil Concert, videotapes produced by the Division of Performing Arts.

NATIVE AMERICAN MUSEUM TRAINING PROGRAM

The Native American Museum Training Program has continued to provide workshops, internships, and technical assistance opportunities to Native American museum personnel under the direction of Dr. James A. Hanson and Nancy Fuller. Through a Department of Labor contract negotiated in April 1980 and extended through fiscal year 1981, the Office of Museum Programs conducted the following activities.

Two on-site workshops of three days each were conducted by Smithsonian faculty during fiscal year 1981, bringing the total number of participants served since April 1980 to one hundred nine in six workshops. One workshop held at the Newberry Library in Chicago, examined ways of improving communication and management skills; the other, held at the Palace of the Governors in Santa Fe, New Mexico, investigated the principles of exhibit design and production.

Twelve individually designed internships, varying in duration from one week to a month, were placed at the Smithsonian Institution and other appropriate museums throughout the country. The focus of the internships is on learning specific museum practices, collections research, or exhibition techniques. Participants were from the following tribes or organizations: Gila River Arts and Crafts Museum, Arizona; Maidu, California; Makah Cultural and Research Center, Washington; Museum of the Cherokee Indian, North Carolina; Navajo, New Mexico; Oneida Nation Museum, Wisconsin; Port Gamble Klallam, Washington; Sac and Fox, Oklahoma; Suquamish, Washington; and Tlingit, Alaska. Since the inception of the training program, forty-five Native American internship opportunities have been offered through this program.

On-site evaluations and technical assistance were provided by the program along with major studies undertaken at the Standing Rock Sioux Museum, North Dakota; Yakima Cultural Center, Washington; Museum of the Cherokee Indian, North Carolina; Native American Center for the Living Arts, New York, and the Oglala Sioux Parks and Recreation Board, South Dakota.

An additional service of the program was the availability of an ethnographic conservator who provided needed technical informa-

tion, served as training faculty, and, in some cases, provided necessary conservation work on certain irreplaceable items currently held by Native American museums.

MUSEUM REFERENCE CENTER

This year has been productive in the Museum Reference Center (MRC) with the continuing primary functions of reference assistance and organization of the collections. While researchers are sometimes able to come to the center, most can only take advantage of the services and facilities at long distance. Specific questions are answered with materials found in the subject collection, while responses to general questions often take the forms of bibliographies. There are now forty bibliographies on basic topics of museology available for free distribution, and the set was updated this year with a new title added on museum membership groups.

Researchers include museum professionals and students, and in the past year there have been visits by the introductory classes in museology from nearby universities for an orientation to the collections in the Museum Reference Center and an introduction to bibliographic access to the literature in this field. Classes came from the Museum Studies Programs at George Washington University, University of Maryland, and the University of Delaware, and from the Museum Education program at George Washington University.

Many foreign visitors continue to use Museum Reference Center services and visit the center. Following the ICOM meeting in Mexico, there were visits by museum professionals from Finland, India, Australia, and Africa, and at other times from Egypt, Bulgaria, Jordan, Iceland, Yugoslavia, and Canada. One of the Australian visitors represented a museum studies program in Prahran and, while here, selected from the MRC duplicates collection a group of materials that would be helpful in his program. A similar selection is also to be sent to a newly organized museum documentation center in Yugoslavia.

In addition to advising foreign visitors, Librarian Rhoda Ratner continues to hold orientations for OMP participants and interns, individually and in groups.

The collections, with some coming from noteworthy sources, show rapid growth. As a result of research done by Inez Wolins,

assistant coordinator of education at the Herbert F. Johnson Museum of Art at Cornell, a body of literature on programming for family groups was donated to the center.

Communication with Maxine Gaiber of the Education Committee of the American Association of Museums (AAM) resulted in that committee encouraging their membership to send their own materials to the Museum Reference Center, and a partial result of this contact was research material from the Museum Education Roundtable. The Institute for Museum Services forwarded materials from their reference collection as well as support materials from grantee of Institute for Museum Services.

During 1981, the National Museum Act (NMA) final-report collection was reviewed to assure completion. A thesaurus of indexing terms for this collection has been developed and is being reviewed by NMA staff. When implemented, this will constitute a machine-readable record of the NMA final reports with printouts available in a variety of formats.

At the AAM meeting in Boston in 1980, Mrs. Ratner co-chaired a session on museum libraries presented from the librarian's point of view. As a continuation of that topic, at the 1981 AAM meeting in Indianapolis, Mrs. Ratner co-chaired a session on the role of the museum library from the museum professional's point of view. Also at the 1981 meeting, she chaired a meeting of the ad hoc committee on museum libraries to discuss future activities of museum librarians in the AAM. The session proceedings of the 1980 meeting have now been published and are available as a free publication from the Office of Museum Programs.

Another publication of the OMP, *Museum Studies Programs in the United States and Abroad*, is now out of print and being updated and revised. Over four hundred letters and data sheets were mailed to those institutions currently represented in the booklet as well as other organizations identified as possibly having programs to be included. The arrangement and verification of the data received is being accomplished through the use of volunteers, and it is anticipated that the new edition will be ready early in fiscal year 1982. Over seven thousand copies have been distributed free of charge since 1976.

Upon request Mrs. Ratner visited the ICOM Documentation Centre in Paris, surveyed their collections, and met with the staff

on topics of mutual interest. There has been discussion with the National Museums of Canada and the ICOM Documentation Centre about the possible cooperative development of a machine-readable data base of museological literature, and the ICOM Documentation Centre has already begun the project with the formulation of a thesaurus for indexing these materials. The first draft is now completed, and a copy was sent to the MRC for suggestions and comments.

Based on statistics for the first eleven months of this fiscal year, 1,862 researchers have used or been served by the Museum Reference Center. Extrapolation for the twelfth month predicts approximately two thousand patrons for this collection.

MUSEUM EVALUATION STUDIES PROGRAM

During the past year, the Museum Evaluation Studies program, Roberta Wolf, Ph.D. evaluator, has accomplished important developmental and inquiry related projects. Additionally, in-service help has been provided to the OMP through the Office of Museum Programs Workshop Series, and to various other agencies such as the National Park Service in Harper's Ferry, the Rock Creek Park Visitor Center, and the National Education Association.

The following projects were undertaken:

1. The Hirshhorn Visitor Analysis, analyzing visitor perceptions of the "Hirshhorn Experience" and making specific recommendations for extended informational presentations and educational orientation, was completed in November 1980.

2. The second cycle of the Hirshhorn Outreach Project for Gifted and Talented Youth was conducted during the fall and winter of 1980/81, and a final report was prepared in the spring of 1981. This study assessed the specific cognitive gains of students involved in the outreach effort and measured the attitudes of students, teachers, and parents towards the program's accomplishment. Recommendations were made for developing materials from this project and disseminating them on a national level.

3. The study of the *Hall of Evolution* exhibition at the National Museum of Natural History—aimed at assessing the pedagogical effectiveness of an exhibition designed to "teach" evolutionary concepts and content to the visiting public—was completed in March 1981. In addition to measuring what visitors learned, infor-

mation on personal response was also collected so that comprehensive recommendations could be developed. These recommendations focused on designing exhibitions that impart conceptual knowledge.

4. At the Hirshhorn, the study of a special exhibit was undertaken during the summer of 1981. A direct outgrowth of the first visitor analysis, the study was concerned with how visitors respond to a didactic presentation about a Gauguin woodcarving. It was completed in September 1981, and represents significant research, focusing on learning in an art museum.

5. The study of the *Coral Reef Exhibit* at the National Museum of Natural History was completed in September 1981. It involved both a formative and summative component and helped design the exhibit as well as assess its impact. Recommendations focused not only on the Coral Reef, but on other exhibits that will eventually be part of the Sea Life Gallery.

6. A project measuring the label-reading behavior and comprehension levels of deaf children in response to an exhibit about Anna Cooper, the famous black educator, was begun in the Spring of 1981 at the Anacostia Neighborhood Museum. The study will not be completed until the fall of 1981.

7. Informal, formative-evaluation counseling was provided to the Exhibit Planning Committee of the upcoming *Celebrations* exhibition at the Renwick Gallery. The effort focused on goal articulation, conceptual presentation, and thematic label development. A brief report that provided criticism of draft labels was submitted to the planning committee.

The past year was extremely productive, and the study reports have yielded important ideas on how museum-learning can be enriched and enhanced. Work towards future appraisals must now focus on evaluation utilization to insure that emerging insights can become operational and be implemented through new exhibits and programs.

OTHER ACTIVITIES

Career counseling for over one-hundred people per year, who are interested in the museum field or career changes, is a subsidiary activity of the OMP, along with organization of national and international conferences. Resource materials are compiled, and staff

members serve as consultants for other museum-studies programs. The staff of the OMP also serve as advisors and consultants to other offices and departments of the Smithsonian Institution, such as International Activities, Symposia and Seminars, SI-ALI-ABA Law Conference and Programs for the Disabled. Over one hundred consultations were provided on museum practices and organization during 1981, including persons from other countries—such as Brazil, Canada, The Peoples Republic of China, Taiwan, India, France, Philippines, Great Britain, Kuwait, Jamaica, The Netherlands, Australia, Zimbabwe, Morocco, Mexico, Egypt, West Germany, Switzerland, Zambia, Nigeria, Japan, Costa Rica, Bulgaria, Korea, and Austria—as well as the United States.

Staff members of the OMP annually serve as speakers at regional and national museum conferences, provide consulting services, and are actively engaged in international museum activities. Program Manager Jane Glaser serves on the board and as secretary of the ICOM Committee on Training, and on the AAM Council; serves as chairperson of the Smithsonian Institution's committee for planning of the Conservation Training Program and the Audio-Visual Advisory Committee, as well as the Coordinator of metric conversion at the Smithsonian. A metric awareness campaign was launched at the Institution with distribution of materials and a "pilot" metric training workshop.

A national survey on conservation needs and job analysis, and a Smithsonian Institution survey on audio-visuals were conducted and completed in 1981. Among the activities in 1981 for the OMP's program manager were presentations to the District of Columbia Street Academy, District of Columbia Arts, Vincennes University class in Museum Studies, university presidents from India, international visitors, Fort Wayne Historical Society, Sandy Spring Historical Society, Museum of Natural History Docent Council, ICOM delegation from Finland, University of Indiana Symposium, AAM session on professional development and mid-career training, ICOM Committee on Training, and the Association of Interpretive Naturalists.

In 1981, the Office of Museum Programs, and the United States International Communication Agency cooperated to create a multi-regional group project entitled "Education in Museums." This project brought together museum educators from the countries of Brazil,

Canada, Colombia, Mexico, Nigeria, Syria, and Venezuela for an in-depth look at museum education programs in Washington, D.C., New York City, San Francisco, Denver, Santa Fe, Fort Worth, and New Orleans. The project began with a three-day seminar on Museum Education Programs at the Smithsonian Institution, which provided the necessary background and a basis for discussion and comparison with programs the participants were to see in other cities. This joint program will be an annual event.

Office of the Registrar

Though seldom called upon to conduct operations in connection with exhibits, the Office of the Registrar becomes involved with exhibit logistics occasionally when some special event is held by the Institution itself, rather than by one of its museums. One such occasion arose in the spring of 1981, when the Smithsonian, participating in the activities related to the "Egypt Today" program, mounted an exhibition of artifacts from ancient Egypt in the Smithsonian Institution Building. Bringing the artifacts to the United States and returning them to Egypt safely, providing hospitality for the Egyptian museum officials who accompanied them, and arranging for the security of the material while they were in Smithsonian custody occupied much of the staff's time for a number of weeks.

Except for this unusual event, activities during the year followed the pattern already established for ongoing programs. To fulfill its responsibility in monitoring and reporting on progress in collection inventories, the office developed a status-report format, showing progress at a glance, and began issuing such reports on a regular basis. Drafts of bureau collections-management policies are still being processed for approval. In order to insure consistency in the process, the office has developed a standard checklist of over fifty requirements that a management policy must meet before it can be recommended for approval. Review reports showing where drafts fall short of requirements are being used by the bureaus to revise their policies.

With coordination provided by the office, the Registrarial Council continues to function as a medium for cooperation among the

registrars of the individual bureaus and for the exchange of information on professional matters of interest to them. The workshop on computerization for museum collections, initiated a few years ago—as an annual event for external audiences—has increased in popularity both inside and outside the Institution. Already being offered several times a year for Smithsonian staff members, it now is being offered twice, rather than once, a year for museum professionals outside the Institution.

Smithsonian Institution Archives

During 1981 selection and preservation of archives continued in the National Museum of Natural History, the National Museum of American History, and the National Museum of American Art. Work began on an archival program for the Chesapeake Bay Center for Environmental Studies, the Woodrow Wilson International Center for Scholars, the National Portrait Gallery, and the Hirshhorn Museum and Sculpture Garden. Records disposition schedules were established for the Smithsonian Astrophysical Observatory, the Office of Personnel Administration, and the Management Analysis Office. Disposition of records under established schedules continued in the Office of Plant Services, Accounting Services, and the Smithsonian Institution Employees Federal Credit Union.

The Smithsonian Institution Archives (SIA) cooperated closely with the Society of American Archivists on a project to plan national information systems for archives and manuscripts.

Two students spent time in the SIA in 1981: Anthony Cass, a student intern, partially processed the Charles P. Alexander papers as a project for a class in archives administration at the University of Maryland; and Gary Sue Goodman, a graduate student at Stanford University, received a fellowship to work in the SIA on her projected biography of Caroline Healy Dall.

Scholars continued to visit the SIA during the past year. Several recent publications have appeared, based at least in part on materials in the Archives. Among them are Nathan Reingold, ed., *The Papers of Joseph Henry: January 1838–December 1840, the Princeton Years* (Washington: Smithsonian Institution Press, 1981); Paul

Russell Cutright and Michael J. Brodhead, *Elliott Coues, Naturalist and Frontier Historian* (Urbana, Ill.: University of Illinois Press, 1981); Frank N. Schubert, *Vanguard of Expansion: Army Engineers in the Trans-Mississippi West, 1819–1879* (Washington: United States Government Printing Office, 1980); Frank Spencer, "Ales Hrdlicka, M.D., 1869–1943: A Chronicle of the Life and Work of an American Physical Anthropologist," Doctoral dissertation, University of Michigan, 1979; and Sally Gregory Kohlstedt, "Henry A. Ward: The Merchant Naturalist and American Museum Development," *Journal of the Society for the Bibliography of Natural History* 9 (1980): 643–61.

Work in progress includes a study of the Yellowstone expedition of 1873, a history of the Theodore Roosevelt/Smithsonian African expedition of 1909–1910, a history of ornithology in North America, a history of the California Academy of Sciences, and a history of the American Documentation Institute. Other projects under way are an investigation of Gerritt S. Miller's role in the Piltdown man controversy, a history of natural history museums in the United States, a history of the American Ornithologists' Union, and a study of the invertebrate collections of the North Pacific Exploring Expedition, 1854–1858, as well as biographical studies of Alexander Wetmore, Amos Kendall, Joseph LeConte, and Annie Trumbull Slosson.

Major accessions were received from the Office of the Secretary, the Under Secretary, the Assistant Secretary for Science, the Assistant Secretary for Museum Programs, the Assistant Secretary for History and Art, the Assistant Secretary for Administration, the Chesapeake Bay Center for Environmental Studies, the National Museum of American History, the Woodrow Wilson International Center for Scholars, the National Museum of Natural History, and the Office of Design and Construction.

Other accessions of note included the records of the Audubon Naturalist Society of the Central Atlantic States, Inc., the papers of Ashley B. Gurney, Charles P. Alexander, Philip Wolle, and W. A. Archer, as well as additions to the papers of Douglas Emlong, Fred L. Whipple, Watson M. Perrygo, James A. Peters, Harry H. Knight, Hartley H. T. Jackson, Waldo L. Schmitt, Alexander Wetmore, William Foshag, Paul S. Conger, and the American Ornithologists' Union.

The Archives Oral History Program continued, with interviews of two Smithsonian administrators. Materials accessioned and prepared for research use during the year included interviews of Jennie V. Emlong, by Clayton E. Ray of the Department of Paleobiology, concerning the fossil marine-mammal collector, Douglas Ralph Emlong; and of Richard Eliot Blackwelder, formerly of the Department of Entomology curatorial staff. A narration by Lucile Quarry Mann of the National Zoological Park for a film of the 1940 Smithsonian-Firestone Expedition to Liberia was also taped.

In 1980 the SIA, the National Anthropological Archives, and the Archives of American Art conducted the second annual workshop for museum archivists. The workshop, which was sponsored by the Office of Museum Programs, attracted twelve participants—eleven from locations throughout the United States and one from Argentina—who were provided with the information necessary to establish an archival program in their respective museums. The workshop will become an annual event.

Smithsonian Institution Libraries

The Smithsonian Institution Libraries (SIL) embodies and continues a tradition of library service provided for in the Foundation Charter of 1846. In the mid-1960's Secretary Ripley, realizing that the Smithsonian needs orderly and speedy access to information, reorganized from various quasi-independent library units and collections an institution-wide system called "the Smithsonian Institution Libraries" and placed it under the leadership of one director.

In fiscal year 1981 no new libraries were added to this system, and the projected branch library for Horticulture was cancelled due to personnel and space restraints. The libraries at Fort Pierce, Florida, the Freer Gallery of Art, the Joseph Henry Papers, the Hirshhorn Museum and Sculpture Garden, and the National Museum of American Art/National Portrait Gallery—representing about twenty percent of the Institution's library expenditures—are outside the SIL system and are discussed elsewhere. The Woodrow Wilson International Center for Scholars, the National Gallery of Art, and the John F. Kennedy Center for the Performing Arts libraries are totally separate from the SIL.

Comprising some thirty-five geographically dispersed branch and satellite libraries, the sIL is organized on the model common in major North American universities, effecting centralized economies of administration, collections and systems planning. In 1981 branches of the sIL operated in Cambridge, Massachusetts; New York City; the Washington, D.C., area; and the Republic of Panama.

The sIL is organized in three operational divisions: *Bibliographic Systems*, concerned with automated control of all sIL inventories and providing standard descriptions of all holdings; *Collections Management*, responsible for policies, acquisition, preservation, and housing of library collections essential to Smithsonian work; and *Research Services*, charged with direct, personal assistance to, and interpretation for, the scholarly clientele of the libraries. The sIL, led by the director and associate director, is assisted by staff for finances, personnel, systems and planning, special events, and public programs.

FUNDING

The sIL is financed chiefly from the federal budgets granted by Congress; in fiscal year 1981 these federal monies were \$3,003,900, or 93 percent of sIL operations. The remaining 7 percent, or \$208,000, came from Smithsonian Institution trust funds. The sIL budgets represent about 2 percent of all Smithsonian expenditures, federal and trust.

In addition, during fiscal year 1981, the sIL obtained two grants. One for \$19,500 is from the Atherton Seidell Fund to automate old serial-catalogue records. The second, \$5,000, is from the Smithsonian Institution Women's Committee as a demonstration grant to explore the costs of indexing, restoring, and preserving a portion of the sIL's trade literature collections.

PERSONNEL

The sIL was authorized some one hundred four federally funded, full-time and temporary positions at the beginning of fiscal year 1981. However, due to mandated cutbacks and a seven-month hiring freeze, an average of eighty-six full-time persons were actually on board throughout the fiscal year. In addition to federally funded positions, the sIL has nine employees supported by the Smithsonian

trust funds. The reduction of personnel resulted in curtailment of some services in *sil* branches, slowed the rate of cataloguing in older collections not yet under bibliographic control, and necessitated a deep reliance on volunteers.

INFORMATION POLICY

In October of 1980, a report on the state of the Libraries was presented to the Secretary and his executive committee, and a summary, entitled *Smithsonian Institution Libraries: A Perspective*, was published. That report raised two basic issues: the need for a comprehensive, information management strategy in the Institution; and the fact that about twenty percent of library activities of the Institution were outside the professional *sil* administration.

The director of the *sil*, in that presentation and elsewhere, urged a clarification of these issues because of the radically new and promising world information order that had evolved in the 1960–80 period. This was but a weak adumbration of what would be normal by the end of the 1980s.

These observations have been pursued by the Smithsonian Institution. A white paper on the topics was assigned to, and issued by, accomplished editors. Furthermore, a team of knowledgeable persons was assembled for a lengthy inquisition into the nature and state of libraries in the Smithsonian. Microfilming in the Institution is being examined, and the computer services have undergone scrutiny. A routine internal Smithsonian audit of the *sil* was made, underlining the need for greater funding to solve problems of security, loan records, and cataloguing backlogs. Armed with this information, the Smithsonian Institution is in a stronger position at the end of 1981 to articulate anew its policies for the diffusion of knowledge via its libraries and other information agencies.

BIBLIOGRAPHIC SYSTEMS

This division of the *sil* provides the bibliographic linkage for the entire *sil* system; it was reorganized in 1981 to move more rapidly toward total automation. A dramatic step forward was taken in closing all *sil* card catalogues—both central and in branches—and in beginning a single, *sil*-wide catalogue, distributed in the form of computer-output microfiche. This *Smithsonian Institution Libraries Catalogue* is cumulated quarterly and up-dated by weekly supple-

ments; it holds all *SIL* records generated in machine-readable form since 1974.

A second major development in Bibliographic Systems was the beginning, in mid-1981, of a large study involving many *SIL* staff and directed toward the planning for a single, integrated, electronic system that will control the data for all acquisitions, cataloguing, inventory, binding, and loans and provide management data as well as other services. This "total system" is scheduled to be operational in late 1983.

The Atherton Seidell Fund grant permitted *SIL* to begin conversion of its serial records into machine-readable form so that they can be integrated into the total automated system and be accessible everywhere. The specifications for this complex task were finished in 1981.

SIL continues to contribute and receive cataloguing data cooperatively through the Online Computer Library Center (*OCLC*), a bibliographic utility based in Columbus, Ohio. Use is also made of the Research Library Group's utility, Research Libraries Information Network (*RLIN*), in Stanford, California, and the automated name-authority files of the New York Public Library's system (*LIONS*).

The *SIL* devoted considerable effort in 1981 to continue monitoring the major North American bibliographic utilities to determine the best route for *SIL* developments.

COLLECTION MANAGEMENT

The *SIL* has grown in the number of its branch libraries and in its collections since the mid-1960s. In fiscal year 1981, recognition of the acute space problems confronting the entire *SIL* system, the need to better coordinate acquisitions, the demand for updated and comprehensive collection policies, and the crisis of conservation for unique and valuable materials led to the foundation of the Collection Management Division and the appointment of the first chief, Mr. Jack Goodwin, the nationally known bibliographer for the history of technology.

The major accomplishment of this division, in addition to the closer attention to actual purchases, was the editing of the *SIL*'s first comprehensive collection policy. Also, a profile study of the actual

SIL collections, indicating strengths and levels of sophistication, was published in 1981.

The SIL *Book Conservation Laboratory*, a model of its type and part of the Collection Management Division, continued the restoration of physically endangered and scholarly valuable SIL materials. The structure and chemistry of the books in SIL collections are the focus of a professional staff of four, assisted by volunteers and interns. In addition to restoration of paper and bindings, the laboratory, elaborated on its code of ethics in handling scientific and cultural rarities, continued to monitor atmospheric conditions in library and book exhibition areas, reviewed standards for bookbinding let on contract, and maintained the SIL Disaster Preparedness program.

The SIL space needs were studied, and recommendations were incorporated into 1983 budgets. The SIL Research Annex at 1111 North Capitol Street, Washington, D.C., received increasing numbers of books in 1981 and will have reached saturation point by the end of 1982.

RESEARCH SERVICES

The Research Services Division provides assistance to scholarly clientele and the Smithsonian administration. These services are located in the various, geographically dispersed, SIL branch libraries, as well as in the SIL Central Reference and Loan Unit, located on the Mall in Washington.

Research Services Division has been without a permanent division chief during most of 1981. Sylvia J. Churgin has led the staff since January, 1981, when Jean Chandler Smith retired.

The patterns of near-autonomy existent in branch libraries before Secretary Ripley's organization of the Smithsonian's book collections into one academic research unit—the SIL—have continued more or less, here and there. Starting in calendar year 1981, the efforts of the SIL director to define standards and assign accountability and resources—while accenting an integrated circuit of information services, comprising one library system—seem novel to some SIL branch personnel. However, the dialogue of performance plans and evaluations is lending clarity to the process. It is particularly stressed that the Research Services Division personnel are to be relieved of many administrative and cataloguing tasks and left to concentrate on direct services to clientele and on the creation of

scholarly bibliographic aids. A statement on the meaning of research librarianship in the Smithsonian was begun in 1981 by the director and the Research Services librarians.

A significant and growing characteristic of research librarianship is the gradual shift from book-based to machine-assisted reference service. By the end of fiscal year 1981, six SIL reference librarians had been trained or up-dated in the use of some one hundred fifty, commercially available, on-line data bases. While most of this searching is done in Central Reference, about twenty percent is performed in the branches.

The interlibrary loan transactions of SIL have grown due to the greater knowledge of resources which on-line reference services have provided to SIL clientele. Another factor in increasing loans is the demand placed on the SIL by scholars elsewhere who can now see via their terminal screens materials held by the SIL. To facilitate these loans, the SIL employs traditional interlibrary loan request forms, electronic mail requests (via the OCLC network), and telefacsimile transmissions. In 1981, telefacsimile machines were added to more SIL branch locations.

For the first time, SIL Research Services staff prepared a comprehensive set of guides to all collections and branches of the system and developed many specialized bibliographic tools. These will be published in 1982.

PUBLIC PROGRAMS

Public programs sponsored by the SIL have included exhibitions, lectures and publications.

SIL Lecture Series

To illuminate significant items of the SIL collections, the history of libraries and books, or important developments in information technologies, SIL began in 1981 a series of occasional lectures. The first, by Charles M. Goldstein, Lister Hill National Center for Biomedical Communications, National Library of Medicine, concerned optical disc technologies. The second lecture honored the collector and donor, Dr. Bern Dibner, on the anniversary of the third edition of his *Heralds of Science*, which SIL copublished with the Burndy Library, Norwalk, Connecticut; Professor L. Pearse Williams, Cornell University, historian of science, entitled this address, "Heralds

and Historians of Science: A Tribute to Bern Dibner." Dr. John Brooks, Environmental Biology Section, National Science Foundation, delivered the third lecture, in honor of Jean Chandler Smith, former SIL administrator. Dr. Brooks's presentation, "Alfred Russel Wallace: Darwin's Secret Source," discussed the bibliographic and textual detective work he engaged in to clarify Wallace's role in developing the theory of evolution claimed by Charles Darwin. Also in 1981, SIL held an invitational bibliographic seminar to deal with manuscript and edition problems of the French naturalist Baron Georges Cuvier.

Exhibitions

In addition to special displays, which the various branches mount from time to time, SIL sponsored the following official exhibitions: *Early Museums*, May–November, 1980; *Heralds of Science*, May–July 1980 and March 1981; *John Wesley Powell*, December 1980–April 1981; *Children's Books*, August 1980–April 1981; *Alfred Russel Wallace*, May–July 1981; and *Selections from the John H. Phipps Gift*, September 1981. An exhibition catalogue, *The John H. Phipps Donation*, appeared in September 1981. The SIL exhibits were held either in the Dibner Room, Museum of American History, or in the lobby of the National Museum of Natural History.

Publications

In addition to the *Smithsonian Institution Libraries Catalogue* and the exhibition catalogues, SIL continued its management of a translation and publication program based on excess foreign currency (P.L. 480); thus, *Birds of the Chukchi Peninsula and Wrangel Islands*, by L. A. Porteko, and *Electrochemistry: History and Theory*, by Wilhelm Ostwald, appeared.

The SIL publishes a monthly newsletter with broad distribution to SIL staff, to the Institution, and to the national library community.

RESEARCH ASSOCIATES AND INTERNS

Unique collections and special opportunities related to the SIL's position as largest library system serving a national museum and research complex, urged the SIL administration to appoint its first Research Associate (for eighteenth- and nineteenth-century, natural history bibliography) and accent anew its intern program.

Smithsonian Institution Traveling Exhibition Service

Three complex exhibitions, many years in negotiation—with considerable funding from various sources and with elaborate publications, educational, and public relations programs—kept the total number of new exhibitions low and the amount of staff effort at a peak. The exhibitions were *Renaissance of Islam: Art of the Mamluks*, *Innovative Furniture in America*, and *Of Time and Place: American Figurative Art from the Corcoran Gallery*.

Renaissance of Islam was the most complex exhibition the Smithsonian Institution Traveling Exhibition Service (SITES) has ever organized. Esin Atil, of the Freer Gallery of Art, was curator of this exhibition that had over one hundred artifacts, including glass, ceramics, stone, textiles, manuscripts, and metalwork from the thirteenth to sixteenth centuries, and was drawn from collections in Egypt, Syria, England, France, Canada, and the United States. United Technologies Corporation was the national corporate sponsor, with additional funding from Trans World Airlines and other private sources. SITES produced interpretive booklets, docent guides, and a thirty-second television public-service announcement to assist participating museums. SITES worked with the Smithsonian Institution Press, which published the catalogue by Dr. Atil. The Museum Shops arranged for sale merchandise, and the Office of Grants and Risk Management, in conjunction with SITES, had the arduous task of applying for and receiving federal indemnification for the tour.

Innovative Furniture in America, a major retrospective of nineteenth- and twentieth-century furniture-making—where noteworthy mechanical gadgetry made furniture that folds, retracts, reclines, and changes form—opened at the Cooper-Hewitt Museum in January 1981. The exhibition was designed by the Office of Exhibits Central. SITES's guest curator was David W. Hanks. With funding support from two sources, SITES published an interpretive brochure and a full-color poster.

Of Time and Place: American Figurative Art from the Corcoran Gallery, organized jointly by the Corcoran and SITES, with funding support to the Corcoran from the National Endowment for the Arts, opened at the Corcoran in the fall of 1981. SITES published a 208-page catalogue, an interpretive booklet, and a curriculum guide, produced a 30-second public-service television announcement, and will

hold a series of educational outreach seminars in late 1981 and early 1982 in conjunction with the exhibition.

Other major exhibitions beginning tours in 1981 were *Mary Cassatt: Graphic Art*, *The Contemporary American Potter: New Vessels*, and *What If You Couldn't . . . ? An Exhibition About Special Needs*.

Exhibitions negotiated through the SITES International Program, in addition to *Renaissance of Islam*, included *Venini Glass, A Feast of Color: Corpus Christi Dance Costumes from Ecuador*, and *Treasure of the Quicksilver Galleons*. The most exciting development of the International Program was the support of the U.S. International Communication Agency for a SITES proposal for an exhibition of paintings by American Impressionists. The exhibition, also supported by the Armand Hammer Foundation and other private sources, will open at the Petit Palais, Paris, in March 1982, in conjunction with a number of events, and will tour four East European countries. SITES is working with the Smithsonian Institution Press to publish the catalogue, brochure, and poster in five foreign languages, and with the Office of Telecommunications to produce a twenty-eight-minute film on the subject. Increased SITES international travel was necessary in 1981 to realize this expanded program. Places visited included Australia, Bulgaria, Romania, Poland, East and West Germany, Egypt, Syria, The Netherlands, Denmark, and England.

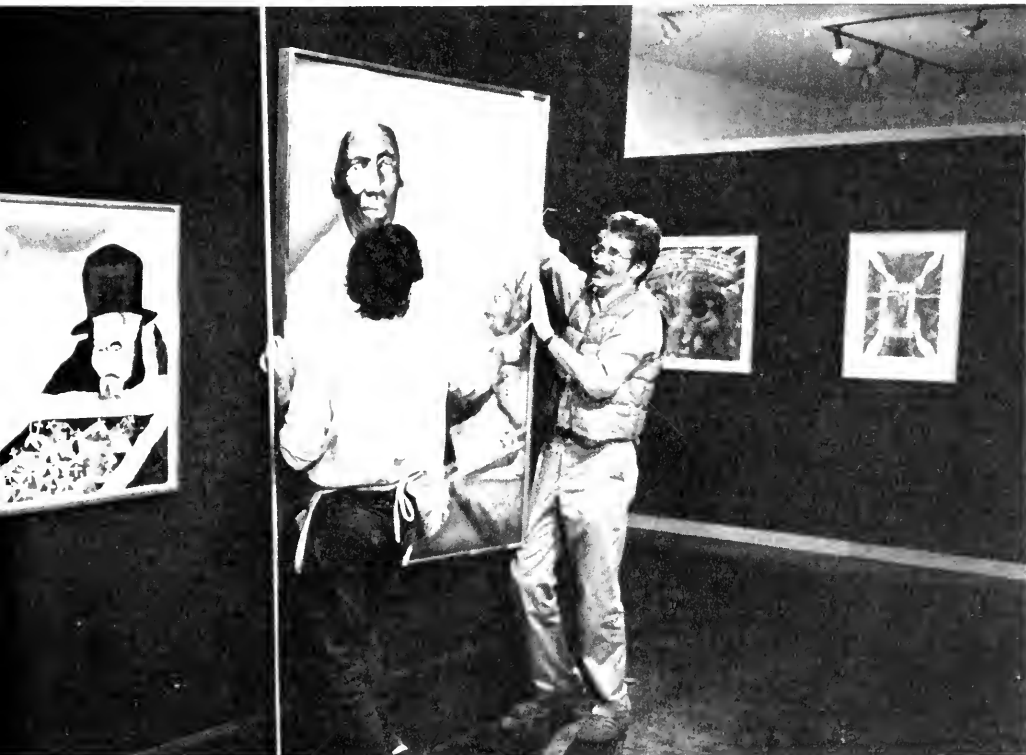
SITES's education department has continued to produce innovative programs and publications, including *Picture It!*, a book on photography for young adults, and a book on digging and processing clay and making simple pots, *Pottery: A Notebook for New Potters*.

The SITES publication program produced a total of fifteen catalogues, eleven brochures, and eight posters, including those already mentioned. A departure from exhibition catalogues and brochures was the publication of *Good Show! A Practical Guide for Temporary Exhibitions*. Sales of the book on exhibition installation are brisk, and the text is being adopted for many university courses in exhibition design.

SITES produced public-service television announcements to accompany four exhibitions: *Renaissance of Islam: Art of the Mamluks*, *Innovative Furniture in America*, *Of Time and Place: American Figurative Art from the Corcoran Gallery*, and *Mary Cassatt: Graphic Art*. There were 129 articles on SITES exhibitions in national maga-

zines and major newspapers representing a total circulation of 29 million people, in addition to hundreds of articles in regional newspapers nationwide. The most innovative project was the production of a SITES shopping bag to accompany an exhibition entitled, *The Shopping Bag: Portable Graphic Art*. The bags were donated to SITES by the Equitable Bag Company and were produced from a design commissioned by SITES. The bags are provided to exhibitors and were a success at the annual meeting of the American Association of Museums, where SITES had a booth in the traveling exhibitions exchange room.

SITES continues to provide a full range of exhibitions and educational programs to museums and their publics. SITES remains committed to providing high quality programs at the lowest cost possible, and to working with colleagues in the field to meet special interests and needs.



SITES continues to provide a full range of exhibitions and educational programs to museums and the public. Here pieces of the SITES show *Images of Labor* are installed by staff of the Museum of History and Industry in Seattle, Washington.

TOURS FOR PERIOD OCTOBER 1, 1980, THROUGH
SEPTEMBER 30, 1981

Number of bookings	587
Number of states served (including Washington, D.C.)	49
Estimated audience	3.5 million
Exhibitions listed in last <i>Update</i> (catalogue of SITES exhibitions)	105
Exhibitions produced for tour during the year	20

EXHIBITIONS BEGINNING TOURS OCTOBER 1, 1980, THROUGH
SEPTEMBER 30, 1981

- American Drawings III*
- Artists and Space Flight*
- Beauties of the Coral Reef*
- Black American Landmarks*
- Collages: Selections from the Hirshhorn Museum and Sculpture Garden*
- A Collector's Eye: The Olga Hirshhorn Collection*
- The Contemporary American Potter: New Vessels*
- A Feast of Color: Corpus Christi Dance Costumes from Ecuador*
- Images of Labor*
- Innovative Furniture in America*
- Loose the Mighty Power*
- Mary Cassatt: Graphic Art*
- Of Time and Place: American Figurative Art from the Corcoran Gallery*
- Pressed on Paper: Fish Rubbings and Nature Prints*
- Renaissance of Islam: Art of the Mamluks*
- The Shopping Bag: Portable Graphic Art (2 versions)*
- Treasure of the Quicksilver Galleons*
- Venini Glass*
- We'll Never Turn Back*
- What If You Couldn't . . . ? An Exhibition About Special Needs*

PUBLIC SERVICE

JULIAN T. EUELL,
ASSISTANT SECRETARY FOR PUBLIC SERVICE

Anacostia Neighborhood Museum

The Anacostia Neighborhood Museum (ANM) continues to pursue the development of its research initiative in the area of multi-ethnic and Afro-American history and culture. The exhibition *Anna J. Cooper: A Voice From The South* is but one example of the level of scholarship and the quality of work attainable by ANM staff, now discernible in this museum's presentations.

Well received as ANM's major exhibition for 1981, the Cooper show included original artifacts as well as documents and memorabilia associated with the long and productive life of the subject. Yet with limited viewing space, it will be necessary to close the show on September 30, 1982.

The first major publication concerning Dr. Anna J. Cooper, ANM's book, entitled *Anna J. Cooper: A Voice From The South*, has been acclaimed for its design and the sensitive treatment of the subject. A significant contribution to the history of minority women, the Cooper book takes into account more than a century of American race relations.

Ancillary educational programs that supported and highlighted the Cooper exhibition included an original play and a series of guest lectures by the subject's former colleagues and students.

During fiscal year 1981, ANM made plans to exhibit, in 1982, the work of three Afro-American artists. In addition, research staff developed and scripted a lobby exhibition, *Mary McLeod Bethune and Roosevelt's 'Black Cabinet'*, in conjunction with the Institution's



The Anacostia Neighborhood Museum continues to pursue development of its research initiative in multi-ethnic and Afro-American history/culture. This portrait of Anna J. Cooper (ca. 1923) by Addison Scurlock (courtesy Mrs. Regia Bronson and Ms. Regina Smith) is from ANM's exhibition *Anna J. Cooper: A Voice From The South*.

centennial observance of the birth of Franklin Delano Roosevelt. Also, research staff has continued its investigation in support of the scripting, design, and fabrication of a major exhibition for ANM in 1983 entitled, *The Renaissance: When the Negro Was In Vogue*.

By far the most significant single development of the year was the suggestion made by Secretary Ripley, during the June Executive Committee meeting held at the ANM, itself, that a committee be formed and planning begin on a proposal for a better future home for the Anacostia Neighborhood Museum.

Clearly, ANM has outgrown its present facilities and is in genuine need of enhanced accommodations in which to continue providing exhibitions, educational programs, and scholarly research for the public.

A second major event during this past fiscal year was the completion and signing of a renewed mission statement for the ANM. This mission statement reinforces the role and function of the Anacostia Neighborhood Museum, which from its inception "was conceived as a community-based center which would be a cultural resource for the people, young and old, of the Anacostia Neighborhood, as well as an example and a source of materials for similar institutions elsewhere." While there are several specific applications of this general concept, the first one says that, "The Anacostia Neighborhood Museum should continue to be a neighborhood institution which, while it may focus especially upon the history and culture of Anacostia as a local community and collect objects related to that focus, should above all be a center for experimentation in the ways museums can reach and involve segments of the population they are not now reaching."

Together these two highlights of the year lifted our spirits, captured our imaginations, set our sights higher, and enabled us to see the start of an exciting new chapter in the continuing existence of this unique museum.

Division of Performing Arts

Performances bring life and context to the collections and exhibits of numerous Smithsonian museums. The Division of Performing Arts (DPA) maintains a high level of program and production ex-

expertise that sustains series of public concerts and special events. In 1981, these performances included Baroque and Classical period music using instruments from the collections of the National Museum of American History; Romantic period music performed in the Grand Salon of the Renwick Gallery; contemporary music in the Hirshhorn Museum and Sculpture Garden; exhibit-related music and theater at the National Museum of American Art; salon music at Barney Studio House; and programs of Asian dance, music, and theater at the National Museum of Natural History.

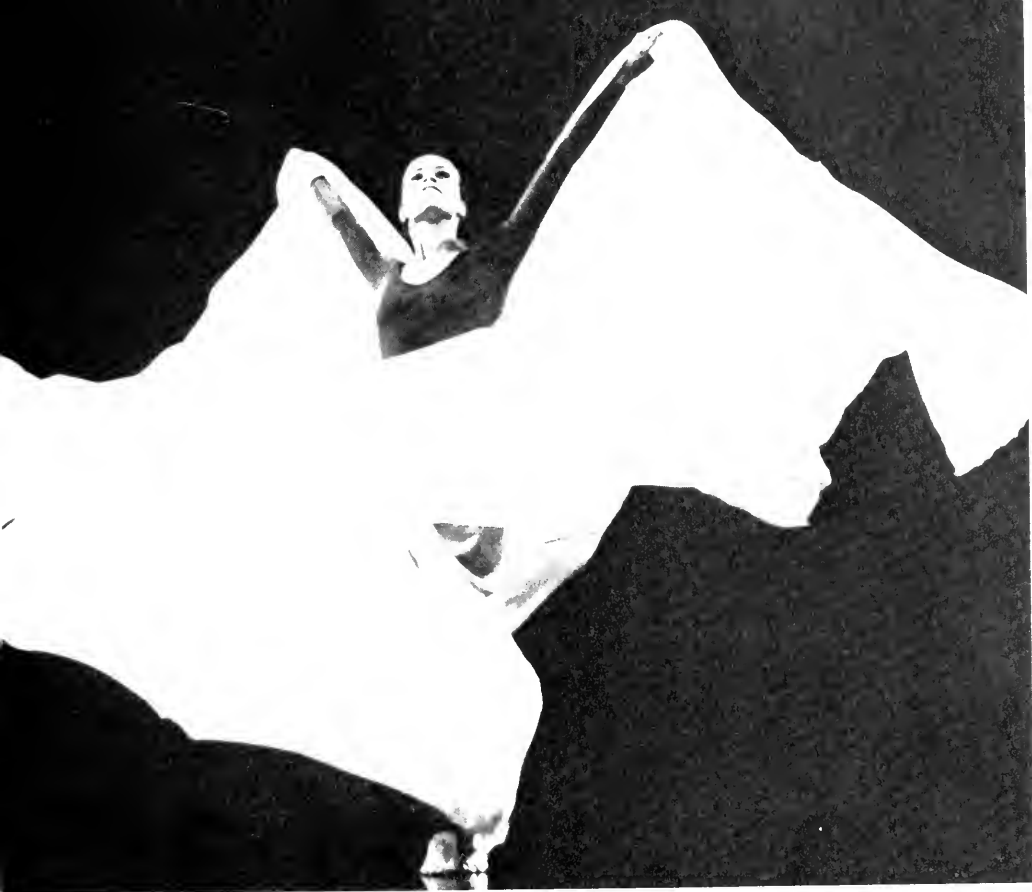
American culture was represented by programs of jazz, musical theater, country music, gospel music, dance, and chamber music performed on the stage of the Baird Auditorium. Resident ensembles, established by the DPA played frequently in Washington museum settings and, on tour, performed in fourteen other cities.

Large-scale celebrations were produced during the Christmas/Hanukkah holidays, in the spring, and on July Fourth. These celebrations combined music, dance, theater, and demonstrations that documented American traditions and illuminated the exhibits of the National Museum of American History.

Performances were supplemented with conferences on the legacy of pioneer gospel composer, performer, publisher, and arranger Roberta Martin and her historic vocal ensemble, The Roberta Martin Singers; lecture demonstrations of Asian dance and theater; films on jazz and American dance; and participation in symposia.

Presentations are combined with education in the Discovery Theater where more than sixty-five thousand children each year attend performances that are supplemented by learning guides for coordination with classroom projects. Eight month-long performances were produced in 1981 on the theme "Plays, Players and Playmaking."

A sample of participating artists in 1981 included: Steve Lacy, Jackie McLean, Gerry Mulligan, Lee Konitz, Bobby Hutcherson, and Walt Dickerson and the Smithsonian Jazz Repertory Ensemble, directed by Bob Wilber (Jazz Series); Kabuki and Kathakali Dance (World Explorer Series); Marion Williams, Harmonizing Four, and the Scott B. White Family (Gospel); Bobby Bare, Mac Wiseman, Buck White, Patsy Montana, Pee Wee King, and Redd Stewart (Country Music); Howard ("Sandman") Sims, Chuck Green, Bunny Briggs, The Repertory Dance Theater of Utah, Douglas Dunn, and



DPA-sponsored performances at the Smithsonian included the Repertory Dance Theatre of Utah, whose Rachel Nelson reconstructed the *Scarf Dance* of Ruth St. Denis. Below. The American Boychoir performed with the Smithsonian Chamber Players in the *Messiah*.



Sage Cowles and Molly Davies (Dance Series); Smithsonian Chamber Players, Romantic Chamber Ensemble, Emerson String Quartet, and the Twentieth Century Consort (Chamber Music Series).

The scholarly work of the DPA includes research projects in the history of jazz, the history of American musical theater, black American culture, and performance practices in the eighteenth and nineteenth centuries. Publications are in the form of documented recordings. Issued in 1981 were *Handel: Seven Concerti Grossi, Opus Three*; *Twentieth Century Consort I*; *Symphony in Black*; *The Smithsonian Collection of Classic Country Music*; *At Home Abroad*; *Louis Armstrong and Sidney Bechet in New York: 1923-1925*; and *Duke Ellington: 1941*.

International Exchange Service

Since 1851, the International Exchange Service has provided a system whereby learned societies in the United States can exchange their publications for those of foreign organizations. This program has continued through the years, and, by this method, many colleges, universities, scientific societies, and medical and dental libraries exchange their current and duplicate publications with similar organizations in other countries.

During fiscal year 1981, publications were received from more than three hundred organizations in the United States for distribution overseas and from more than five hundred foreign organizations intended for U.S. addresses.

The service was designated, in 1886, as the bureau through which U.S. government publications are exchanged with foreign governments for their official publications. The exchange includes the daily issues of the *Congressional Record*, *Federal Register*, and the weekly issues of the *Compilations of Presidential Documents*, plus all other publications designated by the Library of Congress for depository libraries.

Office of Elementary and Secondary Education

A firm belief in the power of museum objects as educational resources is the guiding principle behind the activities and pro-

grams of the Office of Elementary and Secondary Education (OESE). With the conviction that it is equally as important for students to learn to use works of art, natural history specimens, historical artifacts, and other museum objects as research tools as it is for them to use words and numbers, OESE continues to serve the Smithsonian's education offices while working to meet a solid commitment to foster the educational uses of museums in the Washington, D.C., area and throughout the nation.

The celebration of the International Year of Disabled Persons in 1981 enabled OESE to expand its commitment to make Smithsonian education programs accessible to disabled visitors and to help Smithsonian staff become aware of the special needs of disabled people. Working with a committee of interested staff members, OESE sponsored a series of lectures on the lives of famous disabled persons who have contributed significantly to the Smithsonian. The series included lectures by Stanley Mohler on Wiley Post, David McCullough on Washington Roebling, Rosalyn Terborg Penn on Harriet Tubman, and Edmund Morris on Theodore Roosevelt. "The Kids on the Block," an internationally known puppet group, gave a series of performances to increase the awareness of all Smithsonian staff members of the needs of disabled persons. OESE, with advice from a special education committee of disabled and able-bodied professionals, continued to work with bureau education offices to adapt educational programs to the needs of disabled visitors. The Special Education Advisory Committee members for fiscal year 1981 were: Latham Breunig, Edward Carney, George Covington, Sharon Gibson, Deborah McGrail, Harold Mayers, Robert Meyers, Deborah Sonnenstrahl, William Varrieur, and Sandra Hopfengardner Warren. Some of the programs developed were: sign interpretation classes for volunteers and staff, conducted at both beginning and intermediate levels; sign and oral interpreters, provided for performances and special events such as puppet shows and the Festival of American Folklife; a training film on deaf awareness; a summer course for hearing-impaired children; and brochures for mentally retarded visitors to the Festival of American Folklife.

On the local level, OESE continues to offer a number of programs that have proven successful in the past. *Let's Go* (a monthly newsletter) and *Learning Opportunities for Schools* (an annual



A firm commitment to foster educational uses of museums in Washington and throughout the nation guides activities/programs of the Office of Elementary and Secondary Education. To celebrate the International Year of Disabled Persons, OESE sponsored lectures on famous disabled persons who contributed significantly to the Smithsonian. Here author David McCullough lectures on Washington Roebling.

brochure) inform teachers of the ever-growing variety of Smithsonian services available to students. Multiple copies are sent free of charge to approximately twelve hundred schools in the Washington, D.C., area.

In December 1980, the fourth annual "Teacher's Christmas Program" was held at the National Museum of American History. A special Christmas tree decorated by the teachers with ornaments made by area school children was a highlight of this year's program. In May 1981, the eighth annual "Teacher's Day" brought more than one hundred Washington-area teachers and Smithsonian staff together for activities at the Museum of African Art. More than three hundred teachers participated in a summer program that included courses on such subjects as "Using the museum to teach writing skills," "Victorian architecture," and "Teaching about the nineteenth century through museum objects".

In addition to these programs for local teachers, two one-week summer workshop sessions were offered to teachers nationally. These courses, held at the Smithsonian, involved classroom teachers, school librarians, and curriculum specialists from twelve different states and two foreign countries in graduate-level work accredited by the University of Virginia. Using Smithsonian collections and exhibits, course participants learned how to employ objects, portraits, and related community resources, such as historic houses, as teaching tools. As a final project, the teachers were required to develop curriculum units in art, history, and science that would draw on the resources of their own communities. OESE's workshops are well received by all participants as attested by the comments from teachers. One teacher writes, ". . . a fine overview of the concept of museum teaching—very thorough and an excellent 'nuts and bolts,' how-to approach; a great value to teachers." While another found it to be "without any doubt, the best workshop of any sort I have attended since I started teaching."

In cooperation with the Department of Anthropology, OESE has completed a media kit for high school students, drawing on the extensive papers and collections of the nineteenth-century naturalist, Edward W. Nelson. It is anticipated that the "Nelson Kit" will be the first in a series of curriculum units on various aspects of the Smithsonian collections in art, history, and service. A special

media project with the Children's Hospital National Medical Center was started in 1981. Supported by Educational Outreach Funds, a number of museum-related educational packets have been developed to meet the needs of hospitalized children. When completed, these kits will be distributed to children's hospitals and wards throughout the country.

Also for teachers nationally, *Art to Zoo*—a four-page publication to promote the use of museums, parks, libraries, zoos, and other community resources—reached approximately fifty-five thousand classrooms. As one teacher wrote us, "My staff and I have been very pleased with the *Art to Zoo* publication we have been receiving. It has given us new insights and background on many interesting topics." In response to an *Art to Zoo* article on family history, one reader wrote, "As a teacher who uses family history to spark student interest in the past, I was delighted with the feature 'playing Historical Detective' in the January–February issue of your splendid publication. Your presentation of the subject matter and the data was particularly well handled, and the questions related to each piece of evidence concerning Annie Steel were very well designed. I was pleased to note how you encouraged readers to reject obvious conclusions in favor of more accurate conclusions based on informed analysis of the data."

In 1981, OESE sponsored its seventh annual program for summer interns. "Intern '81" brought twenty-five high-school seniors from rural and inner-city communities to the Smithsonian to participate in learning and service projects. The students worked under the guidance of curatorial and technical staff members in various parts of the Institution. The program often provides students with new perspectives. As one intern explained, "Upon telling my friends about being an intern in the Smithsonian I always received this same line—Great, you are going to be a tour guide. Most people, including myself, are not aware of the various things that this Institution does. This program helped me overcome my ignorance of the real activities that take place. Everybody I met this summer was willing to help and teach."

Other important OESE activities include developing a series of teacher workshops and student tours for the District of Columbia Public Schools—with support from the Cafritz, Lucas, and Meyer Foundations—and expanding the scope and understanding of the

professional museum educator, through participation in national and regional conferences and workshops. OESE staff members also helped to plan and teach seminars on docent training, museum/school relations, and museum interpretation. These were offered at the Smithsonian by the Office of Museum Programs.

Office of Smithsonian Symposia and Seminars

In 1981, the Office of Smithsonian Symposia and Seminars (osss) continued its wide-ranging program of seminars and resource services designed to help broaden Smithsonian outreach. So that its contributions may be developed as effectively as possible, renovation was begun of the unfinished attic over the office's south tower headquarters. This space will form a meeting room for seminars, consultations, and research, as well as an area for secure storage of archives and published materials. Costs of this work and purchase of modest furnishings will be met by gifts from private donors; William Broadhurst and Ernestine B. Howard of Tulsa, Oklahoma, made the first contribution to this fund.

Final preparations for two major Institution projects highlighted the year. The Bicentennial era continued with preparations for the observance of the two hundredth anniversary of the Battle of Yorktown in October 1981. The office coordinated this commemoration for the Secretary with other Smithsonian units and with the White House, the Yorktown Bicentennial Committee, the Society of the Cincinnati, the Daughters of the American Revolution, and other participating organizations. A temporary exhibition in the Castle and a one-day symposium were planned for October on the complementary themes "By Sea and By Land: Independence with the Help of France" and "European Contributions to the American Revolution."

The Institution's seventh international symposium, "How Humans Adapt: A Biocultural Odyssey," took final shape for its November 1981 activities, examining the present situation of our species, how we got where we now find ourselves, and what our directions should be for the future. Planning proceeded, also, for a subsequent conference on human adaptation in May 1982,



For the Yorktown Bicentennial observance, a gathering (from left): Army Secretary Marsh, French Ambassador Laboulaye, Secretary Ripley, and Wilton Dillon (osss).
Below. A seminar: *Education for the Office of Citizen: Whose Responsibility?*



jointly sponsored by The International Organization for the Study of Human Development.

The fourth and fifth seminars in the series "High School Scholars at the Smithsonian" took place in April and May on "The Quest for Beauty" and "Inventiveness: The Social Context," respectively. Organized since its inception in 1979 by Carla M. Borden and financed by the Z. Smith Reynolds Foundation and the North Carolina Association of Electric Cooperatives, Inc., as well as by Smithsonian outreach funds, these interdisciplinary seminars are considered a noteworthy adjunct to the young students' regular classroom work and have become a model for serving youth from other parts of the United States.

An especially stimulating sequence of seminars was made possible in 1981 through the enthusiasm of a number of participants seeking the kind of informal forum offered by the Institution's symposia and seminars program. "Voluntarism and the Public Interest in American Society" continued with two seminars: one on the theme "Education for the Office of Citizen: Whose responsibility?" organized in cooperation with the National Consortium for Public Policy Education, featuring its then president, Dr. F. David Mathews, and The Honorable Shirley Hufstедler, then Secretary of the Department of Education; and another on "Nutrition: Opportunities for Government Cooperation with the Independent Sector" organized in association with The National Institute of Child Health and Human Development, featuring the Institute's director, Dr. Norman Kretchmer, and a panel of specialists from government, industry, and philanthropy. A second colloquium in the Einstein Centennial series, "The Muses Flee Hitler II: Cultural Adaptation in Worldwide Perspective," examined the experience of artists, scientists, and intellectuals who sought refuge from Nazism in diverse environments.

Individual seminars throughout the year included: an introduction to the Smithsonian for Congressional Fellows and their families; a discussion of human and animal language by Sir John Eccles, F.R.S., Nobel laureate (medicine and physiology); an examination by Robert W. Porter III, Ph.D. candidate in anthropology at Princeton University, of cultural networks of the Garifuna in the New World, focusing on their sense of place through community organization in Honduras and New York;

and a look at Smithsonian participation in the Cornell University Peregrine Release Project operating through the office's south tower quarters.

Osss also was instrumental in coordinating the Smithsonian involvement in the American Town Meeting on the Arts, a four-day, national conference, using a town meeting format, which was held in Washington in September 1981. This "town meeting" opened channels of communication to a new alliance in support of the arts, composed of those who make art, those who enjoy art, and those who know how vital art is to our lives. Conducted as a one-time event at the national level, it was intended to be a spur and inspiration to imitation on a local (city and town) scale, in order to involve as many people as possible as directly as possible in the arts and their support. One sign of its success is that just such an imitation town meeting has entered the planning stage in New York City.

The Bicentennial conference, "The United States in the World," sponsored jointly by the Smithsonian, the American Council of Learned Societies, and the American Studies Association in 1976, gave birth in 1981 to a book based on its proceedings edited by Allen F. Davis, *For Better or Worse: The American Influence in the World*, Greenwood Press, Westport, Connecticut. Books now in preparation, based on other activities of the office, include *The Joys of Research* and *The Muses Flee Hitler*, both related to the Einstein Centennial.

Office of Telecommunications

Outreach efforts in film and radio during 1981 continued to receive wide exposure and to draw admiration from our colleagues in both the broadcast industry and the scholarly community.

A Sense of Discovery, the film profile on the National Museum of American Art, was honored with a CINE Golden Eagle for excellence and with an EMMY for cinematography by the National Academy of Television Arts and Sciences, Washington Chapter. The film will represent the United States in the International Art Film Festival in Paris and the Tourfilm '81 festival in Prague this

fall. It is slated for fall telecast over PBS member stations and will also go into general distribution at that time. The film premiered on Washington television, Monday, December 15, 1980, over WETA (Channel 26) and it was rebroadcast in tribute to the late Dr. Joshua C. Taylor on Friday, May 1, 1981.

Mirrors on the Universe: The MMT Story, documenting the creation of the multiple mirror telescope, and *Reunions: Memories of an American Experience*, focusing on people who have intimate knowledge of objects on display in our museums, each won Silver awards from the Thirteenth Annual Festival of the Americas in November 1980.

Dragon of the Trees: The Green Iguana, an animal behavior film based on ten years' research at the Smithsonian's Tropical Research Institute in Panama, received an enthusiastic reception from scientists at the annual national meeting of the Animal Behavior Society at the University of Tennessee. It has also been requested for a screening at the International Ethnological Conference at Oxford, England, in October 1981.

The national organization, Women in Communications, Inc., bestowed its coveted Clarion award on "Voices of the Civil Rights Movement," a program in the *Radio Smithsonian* series. And the American Association of University Women's Metropolitan Area Mass Media Committee honored another program in the series, dealing with the coral reef exhibit at the National Museum of Natural History. The distribution of this weekly, half-hour radio series, with a potential audience of six million, was transferred to the National Public Radio satellite system in January, allowing the programs to be more timely in presenting the Institution's activities. The programs are heard on sixty stations around the country that now pay the Smithsonian a direct subscription fee.

The Office of Telecommunications produced 104 of the 2½-minute features, *Smithsonian Galaxy*—our newer series that highlights the work of curators, scientists, and researchers throughout the Institution. A total of 202 stations carried these features in 45 states, Australia, Canada, the Mariana Islands, The Virgin Islands, and the Canadian Forces Network in Germany, reaching a potential weekly audience of 16 million.

Via the Appalachian Cable System Network, previously produced Smithsonian films were cablecast to a million households

in twenty-six states. The films receiving this exposure were *Festival of American Folklife, Celebrating a Century*, and *The Smithsonian Institution with S. Dillon Ripley, Secretary*.

Through the generosity of the Joe L. and Barbara B. Allbritton Foundation, the office began production of a new film on American Impressionist artists, possibly the first film ever done on this group of painters. The film, proposed by the Smithsonian's Traveling Exhibition Service, will accompany their exhibition in the spring of 1982 on its tour to Paris, Sofia, Bucharest, Warsaw, and East Berlin. Through the auspices of the International Communications Agency, cosponsor of the exhibition, foreign-language versions will serve these cities. Research and development was carried out with Office of Telecommunications funds, and major location filming in New England was done in September and October. Telecast over the PBS network is anticipated in 1982, with general distribution of the film to follow.

Production began on pilot video-taped features, patterned on the highly successful *Galaxy* radio series, for distribution to broadcast and cable television. Subjects selected to date have included the creation of the new Dinosaur Hall in the Museum of Natural History and the new Great Ape House at the National Zoo.

A special edition of *Radio Smithsonian* was produced for the celebration of the two hundredth anniversary of the victory at Yorktown. With segments recorded on location, "Yorktown: Echoes of a Victory," will also include interviews with historians specializing in this era.

The Office of Telecommunications, at the request of the American Embassy in Bonn, coordinated filming for the production of two programs by Saarländischer Radio and Television, focusing on the museums on the Mall. Slated for telecast over the First German Television Network as part of their series on great museums of the world, the programs air throughout the Federal Republic and will reach the German Democratic Republic, Austria, Switzerland, France, The Netherlands, and Denmark.

The office's efforts during the past year have been directed toward extensive studies of the rapidly growing cable television industry and how the Smithsonian might best enter this new national broadcast field. In cooperation with the Under Secretary, as well as others in the Institution concerned with the media, the

Office of Telecommunications staff researched and developed a variety of programming, production, and marketing options for consideration by the Secretary. Consultant Tom Wolf, former vice president of the ABC News, joined the Institution to conduct a six-month investigation of television and to make recommendations in early 1982.

Smithsonian Exposition Books

To carry out the Institution's mandate for "increase and diffusion of knowledge" to the general reading public, Smithsonian Exposition Books (SEB) continued its program of popular, yet informative, publications on subjects of Smithsonian interest. These books are offered primarily to Smithsonian Associates and others through the medium of direct-mail promotion, and are available in bookstores through major trade publishers.

SEB's first publication in fiscal year 1981 was *Fire of Life: The Smithsonian Book of the Sun*, published in January. Beginning with early man's understanding and worship of the sun, the book explains the development of astrology and astronomy, leading to the modern sciences of astrophysics, solar technology, and to other technical applications of solar energy. Among the many scholars and scientists contributing to this book were the Smithsonian's own George Field and Owen Gingerich, Smithsonian Astrophysical Observatory; Tom Crouch, National Air and Space Museum; Silvio Bedini, Smithsonian Institution Libraries; Valerie Fletcher, Hirshhorn Museum and Sculpture Garden; and Edward Ayensu, National Museum of Natural History; as well as Secretary Ripley, who wrote the introduction.

For the first time in SEB's experience, arrangements were made for foreign editions of *Fire of Life*. An Australian/New Zealand edition was published by ANZ Pty. Ltd. In addition, translation rights were licensed to Fondo Educativo Interamericano, S.A., for a Spanish-language edition and with Editora Brasileira, Ltda., for a Portuguese-language edition. Translation rights arrangements for other foreign copublications continue to be pursued.

Under license from Crown Publishers Inc., SEB offered to Smith-

sonian Associates a work entitled, *Jungles*, edited by Dr. Edward Ayensu, Director of the Smithsonian Office of Biological Conservation. An extensively illustrated book on the gifts that tropical rain forests provide to mankind and our need to preserve them for future generations, the book is seen as an important statement on Smithsonian's concern for world-wide conservation.

In the summer of 1981, SEB's first title—and perennial best-seller—*The Smithsonian Experience*, was produced in a paperbound edition, intended for sale through Smithsonian Museum Shops only.

In September, SEB published *The Best of Smithsonian*, an anthology of articles from the first decade of *Smithsonian* magazine. The collection includes some of the best-received and most-influential articles, samples from columns that characterize the magazine, highlights of Smithsonian activities during the first decade, and a double gate-fold that illustrates the covers of the first one hundred twenty editions of the magazine.

Smithsonian Institution Press

The Smithsonian Institution Press (SIP), in its official capacity, serves as the publishing arm of the Smithsonian, meeting the Institution's requirements for quality book publication for both federally funded and trust-funded activities. In its federally funded role, the SIP furnishes editorial, design, and production services for research and exhibition-catalogue manuscripts prepared with federal funds by Smithsonian bureaus and offices, and—in addition—acts as the agent of the Institution with the Government Printing Office for procurement of printing services, required federal forms, and other publications. A second and growing function of the SIP is to serve as a university press, publishing with trust funds both scholarly and general trade books relating to the collections or study interests of the Smithsonian. Included in this mandate is the responsibility for securing quality manuscripts, as well as editing, designing, marketing, and distributing these books domestically and internationally.

Fiscal year 1981 showed increases in virtually every area of the

SIR's broad-based publishing program. At the same time, the press maintained the high-quality standards required for Smithsonian publications and met the often extremely tight deadlines for exhibition openings.

During the year, the press logged in a total of 339 books, catalogues, and miscellaneous publications compared to 258 in fiscal year 1980. This includes thirty-nine monographs in the *Smithsonian Contributions* series, up from twenty-seven the previous year. A sampling of series publications includes: Douglas H. Ubelaker, *The Ayalán Cemetery: A Late Integration Period Burial Site on the South Coast of Ecuador*; Patricia G. Palmer and Alice E. Tucker, *A Scanning Electron Microscope Survey of the Epidermis of East African Grasses, I*; Paul D. Hurd, Jr., Wallace E. LaBerge, and E. Gorton Linsley, *Principal Sunflower Bees of North America with Emphasis on the Southwestern United States (Hymenoptera: Apoidea)*; Thomas R. Waller, *Functional Morphology and Development of Veliger Larvae of the European Oyster, *Ostrea edulis* Linné*; Storrs L. Olson and David W. Steadman, *The Relationships of the Pedionomidae (Aves: Charadriiformes)*; and Howard S. Wolko, *In the Cause of Flight: Technologists of Aeronautics and Astronautics*.

The SIR's scholarly and trade book program continued its exciting pace by publishing seventeen new titles and importing or copublishing six significant new titles in fiscal year 1981. Among them were Esin Atil's *Renaissance of Islam: Art of the Mamluks and Kalila wa Dimna: Fables from a Fourteenth Century Arabic Manuscript*; *Scholars' Guide to Washington, D.C. for Middle Eastern Studies*, by Steven R. Dorr; *Diplomats in Buckskins: A History of Indian Delegations in Washington City*, by Herman J. Viola; *The Papers of Joseph Henry. Volume Four: The Princeton Years, January 1838-1840*, edited by Nathan Reingold; and *Space Science Comes of Age: Perspectives in the History of the Space Sciences*, edited by Paul A. Hanle and Von Del Chamberlain. Books that were imported include *Catalogue of the Prehistoric Metalwork in Merseyside County Museums*, by Susan M. Nicholson, and *A Naturalist's Adventure in Nepal*, by S. Dillon Ripley.

The press expanded its international sale capability when it concluded an agreement with Queensland University Press, Queensland, Australia, for them to stock and sell SIR books

throughout Australia, New Zealand, Papua New Guinea, Fiji, New Caledonia, Tonga, New Hebrides, and the Solomon Islands.

Of special note are the sales of two books the press has successfully sold by direct mail: *The Smithsonian Collection of Newspaper Comics* and *The National Air and Space Museum*, having sales of 57,915 copies and 74,528 copies, respectively, by end of fiscal year 1981.

The Smithsonian Institution Press staff continued to receive recognition for quality production, superb design, and excellent editing. Books recognized for excelling in one or more of these areas include: *The Comparative Pathology of Zoo Animals*, *The Great Gray Owl*, *American Portrait Drawings*, *Benjamin West and His American Students*, and *Directions*. The four-volume reference work *Arts in America* was selected by the American Library Association as an outstanding reference book of 1980.

Smithsonian Magazine

Into its second decade the magazine still grows: 1,907,000 subscribers compared with 1,890,000 in 1980. The other measure of growth is the number of pages printed. In 1981 the magazine printed 2,172 pages, compared with 2,094 in 1980. Of this quantity, editorial pages numbered 1,124 (1980: 1,087) and advertising pages 1,047 (1980: 1,006). The reader paid the same subscription price in 1981 as in 1980 but received more; in these days of higher prices and reduced product, a noteworthy achievement.

Since the number of editorial pages bears a direct relationship to the number of advertising pages, it can be seen from these over-simplified statistics that advertising benefits the reader. In the case of *Smithsonian* magazine, the reader and the advertiser pay fair shares of the cost of producing the magazine.

Beyond the costs, this happy combination of reader and advertiser has produced the most prosperous year in the history of the magazine, and was also a successful year editorially. The magazine has fit into the Institution's "diffusion of knowledge" strategy and has fulfilled the intention of the Secretary to bring the *Smithsonian* to a national and even international public.

The actual readership is, of course, substantial, but it must be noted that the readership of 1,900,000 can be multiplied three-fold to include all those who read the magazine in addition to the basic subscriber. In addition to those 6,000,000 readers, there are thousands more who read the Smithsonian through reprints and references in all the media across the country. The magazine receives hundreds of requests for permissions to use text and pictures from magazine articles from classrooms, newspapers, other magazines, book publishers, the International Communications Agency, museums, and cultural organizations.

A look backward at a sampling of stories from the last twelve months suggests the range and diversity of the magazine. October: The two hundredth anniversary of Yorktown, and a Darwinian fantasy about life on earth fifty million years from now. September: Artist Edward Lear, and how computer games will become educational tools. August: Galileo reappraised by the Catholic church, and Alaska's new corporate natives. July: Rodin's sculpture, and how animals, as pets, help the handicapped and infirm. June: An intimate portrait of the elusive bobcat, and one hundred seven years of alfresco culture at Chautauqua. May: Scholarship and beauty at Dumbarton Oaks, and Clara Barton, founder of the Red Cross. April: Teaching captive-reared chimps how to live in the wild, and the preservation of commercial landmarks. March: North Carolina's extraordinary school of the arts, and the remarkable cassowary. February: The solar-powered plane, and the porcelain at the Renwick. January: The Smithsonian's coral reef project, and Tibet today. December: Avalanche research, and the beauties of Renaissance clockwork. November: The Search for Alexander the Great, and the art of Grant Wood. October: Startlingly similar lives of identical twins reared apart, and the Aldo Leopold Preserve. All this and much more. The diversity of the Smithsonian museums is reflected in the magazine and it is this variety that has made the magazine unique and appealing to millions of Americans.

During the year, there were major personnel changes. Don Moser became editor; Joseph Bonsignore, publisher. Heading up the circulation and advertising departments are Anne Keating, associate publisher, circulation, and Thomas H. Black, associate publisher, advertising.

Visitor Information and Associates' Reception Center

Beginning its second decade, the Visitor Information and Associates' Reception Center (VIARC) continues to pursue the goals and objectives for which it was established in 1970. As the Institution's central point of contact for a wide range of information and assistance programs, VIARC responds to the needs of the general public, Associate members, and Smithsonian staff through the involvement and coordination of large numbers of volunteers.

Reorganization of staff responsibilities in the Seven-Day Information Services Unit accommodated the refinement and expansion of the volunteer Information Specialist Program and the Group Orientation Program, respectively. Maximum seven-day coverage of thirteen information desks was maintained in the ninetieth percentile by three hundred sixty volunteers who contributed over fifty-four thousand hours to facilitate the knowledge and enjoyment of millions of visitors to the National Collections.

Continuing education sessions for Information Specialists included two special orientations: an exhibit preview of the National Museum of Natural History's *The Living Coral Reef*, with a lecture by its creator, Dr. Walter Adey, and a reception at Barney Studio House, where curator Jean Lewton related the fascinating story of Alice Pike Barney.

The Telephone Information Program responded to hundreds of thousands of calls for information and direction. Rotary lines were increased to provide more efficient service, and a much-needed weekend staff position was added to maintain supervisory continuity throughout the seven-day period.

Acting upon recommendations made in the center's 1980 Visitor Study, VIARC launched a mobile information unit to provide visitor assistance on the Mall during the summer peak visitation period. The new service, operating from various locations outside Mall museums, was not only useful and popular with the public but attracted the attention of a local TV station, which captured the activity on film for an evening news show.

The Group Orientation Program, another component of the Seven-Day Information Services Unit, completed its second year of operation. Specially trained volunteers, recruited from the Information Specialist Program, provided some thirteen thousand

visitors with a thirty-minute slide/lecture overview of Smithsonian museums and collections, thereby enabling them to make the best use of their limited time at the Institution. In addition to public orientations, the presentation was adapted to focus on the Smithsonian's research and educational activities for the purpose of providing regular orientations for new Smithsonian employees and interns.

The Castle Docent Program provided some two hundred tours of the historic Smithsonian Institution Building for over twenty-four hundred participants in the National Associates "Washington Anytime Weekends," "Smithsonian Sampler Weekends," Selected Studies Seminars, fellow docent programs, and Information Specialist trainees.

The Public Inquiry Mail Service (PIMS), VIARC's second major program unit, is the central research, response, and referral point for the Institution's unsolicited public mail. To respond efficiently to the volume and scope of such correspondence, this office initiates or collaborates with museum divisions to create, update, expand, and improve the appearance of fact sheets, bibliographies, and leaflets on popular topics. Production of these preprinted materials is significantly more efficient with VIARC's new word processor. Volunteers placed by PIMS in curatorial offices provide the necessary support for required research and editing. To assist prospective museum visitors and other program offices, PIMS revised its booklet, *Planning Your Smithsonian Visit*, first published in 1980. This year PIMS experienced an unexpected, unprecedented, and nearly one hundred percent increase in demand for pre-visit information largely from the National Associates. In conjunction with the Office of Computer Services, an on-line program was recently instituted to record and report a variety of mail statistics; volume currently exceeds thirty-five thousand inquiries per annum.

As an integral part of the Institution's Council of Business Representatives, PIMS also compiles and circulates a list of merchandise marketed by various Smithsonian offices, participates in Council meetings and activities, and provides mail-referral cooperation and counsel.

Staff/Volunteer Services, the third major program unit of VIARC, enjoyed increased activity in both its areas of responsibility. A record number of over six hundred volunteers was recorded on

the Independent Volunteer Placement Service (IVPS) register. At the end of the fiscal year, some five hundred of these volunteers were still actively engaged in projects behind the scenes.

A comprehensive handbook for these volunteers and their staff supervisors was published and distributed in an effort to provide general assistance and direction to a group which is, by its very nature, exceedingly diffuse. For the second year, behind-the-scenes volunteer activities were climaxed by a September reception to acknowledge the individual and collective contributions of these volunteers to the Institution.

Over seventy new requests for volunteers were added to the file of staff projects and were fulfilled through referral of some one hundred eighty volunteers processed by the IVPS. In addition to filling a wide range of challenging individual positions, groups of volunteers were recruited for special projects. Several talented ladies prepared Ecuadorian costumes for hanging in an exhibit at the Renwick; another group participated as extras in a special film produced to assist the handicapped, and another large contingent answered the call for volunteer Track Marshalls during the anniversary running of the *John Bull* locomotive. Two new programs initiated in fiscal year 1980, in the Office of Personnel Management and at the Mt. Hopkins Observatory, were augmented and strengthened through the addition of new recruits.

The annual Smithsonian-wide survey of volunteers—conducted by this unit and reported in the January issue of *Torch*—accounted for the activity of 2,780 volunteers in fiscal year 1980.

A special membership file, administered by the Staff/Volunteer Services Unit accounted for the fulfillment of over four thousand National Associate memberships and gifts for employees and eligible volunteers. An on-line computer system, especially designed for processing these orders provided new capabilities and more efficient service.

ADMINISTRATION

THE MAJOR EFFORT THROUGHOUT fiscal year 1981 was to meet the needs of the program units for a wide range of management and technical services. These include budget, accounting, personnel, equal opportunity, procurement and contracting, grants and risk management, printing and photography, management analysis, computer, travel, and facilities services. Exclusive of costs associated with the maintenance, operation, and protection of the Institution's many buildings and other facilities, the costs of these central services amounted to only about seven percent of the operating expenditures of the Institution. Particular areas of emphasis included an update of the Five-Year Prospectus, implementation of performance appraisal for all employees, attention to equal opportunity and affirmative action, initial development of a new computer system for payroll and personnel data, hazardous nitrate film conversion, financial controls, energy conservation, safety and security of personnel, buildings, and collections, and upgrading and developing of the physical plant.

Administrative and Support Activities

JOHN F. JAMESON, ASSISTANT SECRETARY FOR ADMINISTRATION

The third edition of the Institution's Five-Year Prospectus, for the period 1982-86, was approved by the Board of Regents at its January 26, 1981, meeting and submitted to the Appropriations Committees of Congress as a companion document to the budget submission to show long-range directions and the application of

resources. Almost immediately work started on the next cycle of preparation with the intention of further strengthening the communications usefulness of the prospectus by including, at the suggestion of the Secretary, a further look ahead past the close of the five-year period. Also to be included were additional narrative and charts to show projected financial requirements in constant dollars, thus isolating the effects of inflation from possible real growth in resources. As a result of work over the year involving excellent participation by all organizations, the draft Prospectus, covering 1983–1987 with a forecast to about 1995, was submitted for Regents review at the September 14, 1981, meeting.

All provisions of the Civil Service Reform Act applicable to the Institution were met on schedule under the leadership of the Office of Personnel Administration. Of particular significance were the installation of a performance appraisal system for all employees and merit pay systems. Revision of the incentive awards program also was completed during the year as a companion program to performance appraisal and merit pay. These related systems are designed to recognize and reward high levels of achievement and contribution, particularly among supervisors and managers. Revised and consolidated guidelines for trust-fund personnel management—including performance appraisal, merit pay, and incentive awards—have been issued. After about two years of study, a contract was signed for the development and implementation of a new personnel/payroll computer software system that, when operational in early 1983, will provide a consolidated data base for a wide variety of personnel-related information as well as budget and financial data.

While the Institution's equal opportunity and affirmative action programs were affected by continuing hiring controls imposed by the administration, progress was made in these areas. The Office of Equal Opportunity, with assistance from the personnel office, continued to push its internal programs, including assistance to bureaus and offices in setting goals to improve under-representation, and special efforts to make the Smithsonian more accessible to disabled persons. During fiscal year 1981, fourteen cooperative education students participated in work-study periods in Smithsonian activities. A new and expanded Upward Mobility Program for employees was placed into effect. An extensive array of public

and staff events was conducted in recognition of the International Year of Disabled Persons. In order to increase external awareness of the Institution, the exhibit *Blacks in Science* was shown at the sixth annual conference of presidents of the historically black colleges. We also exhibited and provided information about employment opportunities and programs at four other national conferences of minorities and women.

During the year, special emphasis was given by the Office of Facilities Services to the overseeing and management of protection, health, safety, architectural, and plant services. This office also played a key role in the construction progress of the Museum Support Center and in the development of the Quadrangle project behind the Smithsonian Castle.

Significant progress continues to be made in the area of energy conservation, one of a number of important activities for which the Office of Plant Services is responsible. Energy committees, established in each museum as part of the Institution's formalized energy program, have helped significantly in keeping consumption down this past year. This and other aggressive energy measures undertaken by Plant Services since 1978 have resulted in lessening utility costs by some \$2 million dollars. To maintain employee interest and participation in the energy program, an energy-awareness day was held in June 1981 and included demonstrations of electric vehicles, displays of energy-efficient exhibit lighting systems, films, and a ceremony that recognized employees who made significant contributions in the Institution's energy conservation program.

The Office of Protection Services has steadily improved safety and security programs at the Smithsonian. Significant achievements this year included publication of additional chapters to the *Safety Handbook* and development of a new *Security Handbook*. Specific achievements in the security field included completion of work on the design and specifications for a proprietary alarm system and the awarding of a contract for the first phase of the Museum Support Center security system. The office also completed a study of personnel security needs at the Smithsonian. Occupational safety and health accomplishments included continued progress in removing or containing asbestos and initiation of an Institution-wide program to destroy dangerous cellulose nitrate film or remove

it to safe storage. Two audits of the health services program have been completed and, in addition to providing first aid for visitors and employees, the office is now ready to place new emphasis on providing occupational health care for Smithsonian staff.

Work in the Office of Design and Construction during the past year centered on major efforts associated with Museum Support Center construction and Quadrangle developments, as well as on a number of other important repair, renovation, and improvement projects. Construction of the Museum Support Center, by the George Hyman Construction Company, began in February 1981 and is progressing ahead of schedule, with completion expected by January 1983. Other work included efforts to improve access for handicapped visitors; significant among these was the completion of access ramps and other improvements to the Hirshhorn Sculpture Garden. Several other important accomplishments included the completion of the Thomas M. Evans Gallery in the Museum of Natural History, designed to accommodate important traveling loan exhibitions and major Smithsonian-organized exhibitions; the Ice Cream Parlor in the National Museum of American History (NMAH); and support facilities improvements at both the Smithsonian Astrophysical Observatory's Mt. Hopkins facility in Arizona and the Chesapeake Bay Center for Environmental Studies in Edgewater, Maryland.

Elsewhere in administrative support, the Office of Printing and Photographic Services placed increased emphasis on the archival processing and preservation of film, and support to the museum inventory program. As part of a museum-wide effort to locate deteriorating nitrate-based film and convert it to safety film, the office converted approximately twenty thousand negatives during the year. In addition, construction was begun on a cold-storage room for the long-term storage of film. This facility will extend the archival life of color film by ten times and will also insure the almost indefinite life of black-and-white materials. Support to the inventory program concentrated on the NMAH silver inventory. In addition to extensive original photography, special equipment was installed to produce file prints to provide a visual record of each piece inventoried. Also, during the year, the office increased its support to the Smithsonian News Service through the production of prescreened photographs complete with captions. These photo-

graphs have enjoyed wide use in newspapers throughout the nation.

Wide-ranging assistance was given by the Office of Computer Services including: support for museum inventories; the development of a communications link for laboratory automation in the National Museum of Natural History/National Museum of Man; progress on a new membership system for the Resident Associate Program; establishment of a registration system for the National Associate Travel Program, and participation in the new security system. The Office of Supply Services completed the installation of word-processing equipment to handle all purchasing and contract transactions and successfully established and monitored a plan required of all agencies by the President's Office of Management and Budget to limit the procurement of certain types of equipment. The Management Analysis Office inaugurated a major effort to update the Institution's official directives issuances and the system by which they are codified and indexed for ready reference. Travel assistance was provided by the Travel Services Office with a particular effort to save funds by the use of contract and discount fares.

Financial Management Activities

CHRISTIAN HOHENLOHE, TREASURER

During the past year emphasis on guidance and service to the bureaus has resulted in more efficient and more accurate financial accounting and reporting. Three additional chapters of a financial management handbook for auxiliary activities have been published, and new handbooks on banking and investment procedures are nearing completion. Improved communication with the bureaus has been accomplished through seminars and training sessions as well as by the establishment of additional accounting service units. These units, located in various museum buildings and equipped with computer terminals, have been increased to five, significantly expanding the range and timeliness of services available to operating officials.

Risk management activities, focused upon traveling exhibition risks, including a significant increase in lending and borrowing

with foreign countries; establishing adequate Smithsonian facilities for the Smithsonian Institution Traveling Exhibition Service exhibitions; and risk of loss in the revenue-producing activities, particularly in the products liability area. Development of a computerized management information system for losses was initiated to measure accurately the cost of loss for each fiscal year.

Again this year, sales through the museum shops and the mail order catalogues have reflected resilience to generally unfavorable economic conditions and recorded a growth rate of ten percent. A portion of this growth is attributable to placement of the National Museum of African Art museum shop, formerly bureau operated, under central Smithsonian Museum Shops management.

Museum shops displays continued to win awards for innovation and effectiveness in international competition. Both the displays and the catalogues emphasized how the products selected for sale relate to the Institution's collections and activities. This relatedness was emphasized further by the use of small sales desks featuring uniquely appropriate items in conjunction with temporary exhibits, as well as a craft sales tent at the Festival of American Folklife.

A Food Service Department has been established under the Business Management Office to manage restaurant facilities in the National Air and Space Museum formerly operated under a concession arrangement. Other Smithsonian food facilities, including the newest addition, an ice cream parlor at the National Museum of American History, continue to operate on a concession basis.

The State of Maryland has offered to purchase a large parcel of the land now attached to the Belmont Conference Center. A suitable buyer is being sought for the buildings and remaining acreage.

Smithsonian Institution Women's Council Activities

AUDREY B. DAVIS, CHAIRPERSON

The Women's Council is a group of twenty women chosen by Smithsonian employees in an election held every two years. The five-member board meets monthly with council members and interested staff persons to discuss programs and issues that concern women working at the Institution.

Recent council projects include the publication of a bimonthly newsletter, *The 4-Star*; sponsorship of several training sessions for the secretarial staff at the Institution; revision of the Women's Council constitution; and the preparation of an in-depth study on the feasibility of locating a child care center for employees' children.

The first training session held in November 1980 was a career day workshop for Smithsonian women. The next training program, designed especially for secretarial and clerical staff at the Institution, was a one-day workshop held in Spring 1981. It resulted in an extended program for interested secretaries who continue to meet to promote and professionalize the clerical-secretarial positions within the Smithsonian.

The newsletter has become a vehicle for news and issues of special interest to women at the Smithsonian. Subjects have included safety in the workplace, the sick leave policy, what it means to be classified as a member of a specific race or ethnic group, sexual harassment, affirmative action and numerous announcements concerning women's support groups, special training sessions, and Women's Council activities.

Informal meetings among women, organized by Council members, resulted in some enlightening exchanges concerning racial and ethnic biases, stereotypes, and how these affect workers. These meetings are developing into an active network in which employees from all bureaus participate.



The process of gem identification is demonstrated by gemologist Peter Dunn to Smithsonian National Associate Contributing Members in NMNH's Hall of Minerals.

MEMBERSHIP AND DEVELOPMENT

JAMES MCK. SYMINGTON,
DIRECTOR

Office of Development

The office has continued to focus much of its attention on the Quadrangle development as plans for this construction project have evolved during the year. The complex, when completed in 1986, will include the National Museum of African Art, a Center for Eastern Art, an education center, offices for the Associate programs and the Smithsonian Institution Traveling Exhibition Service, and an International Gallery and Conference Center. With costs now projected as \$75 million, the amount of nonappropriated funding required has increased greatly. The Institution is particularly grateful for the gift of \$1 million presented by President Chun Doo Hwan, during his state visit in February 1981, on behalf of the Korean Traders Association and the people of Korea. A group of leading Japanese citizens has formed a committee, the Friends of the Smithsonian Institution in Japan, to raise money for the Quadrangle among corporations in that country.

The continuing need of the various Smithsonian bureaux for private funding to support exhibitions, research, education, and other programs has also occupied the attention of the office. To respond to these increasing requirements, the staff was enlarged by two persons. Of significant note was the gift of the T. M. Evans Foundation, which made possible the new special exhibitions gallery in the National Museum of Natural History/National Museum of Man.

National Board of the Smithsonian Associates

J. M. Kemper, Jr., of Kansas City was elected chairman, to serve a two-year term. During his previous service on the board, Mr. Kemper has demonstrated considerable interest in the activities of the Smithsonian and its attempts to make its resources more accessible to the people of the nation.

New members elected in 1981 include William W. Bodine—elected to complete the term of G. Morris Dorrance, who resigned—Perry R. Bass, Lucius D. Battle, Mrs. Justin Dart, W. L. Hadley Griffin, Judge Sandra D. O'Connor, and Mrs. Edson W. Spencer.

Board meetings were held in Washington in the autumn of 1980 and in Kansas City in the spring of 1981.

Women's Committee of the Smithsonian Associates

The considerable efforts of the Women's Committee, to provide an improved experience at the Smithsonian for the handicapped, neared completion as construction proceeded on the East Garden, between the Hirshhorn Museum and the Arts and Industries Building. The committee also awarded grants which made possible the following activities: a Free Film Theater for the Resident Associate Program; the Hirshhorn Museum's Annual Holiday; a kiosk near the Constitution Avenue entrance to the National Museum of Natural History; the conversion of a slide-tape package, *Museum Idea*, into a filmstrip kit for the Office of Elementary and Secondary Education; a variety of docent activities at the National Museum of American History and docent education and training for the Museum's Docent Council; a poster exhibition based on *Black Women: Achievement Against the Odds* for the Smithsonian Institution Traveling Exhibition Service; a Spanish version of a Smithsonian Public Service announcement for television for the Office of Public Affairs; the National Museum of American History's program "The Time Machine"; the restoration and conservation of a trade literature collection pertaining to the clothing and allied industries for the Smithsonian Institution Libraries; a brochure describing events taking place during the International Year of Disabled Persons for the

Office of Elementary and Secondary Education; a film to accompany and amplify the National Museum of American Art's exhibition *Sheila Isham, Painting Poem*; and the National Portrait Gallery's weekend special events series *Portraits in motion*.

Smithsonian National Associate Program

In Secretary Ripley's words, an Associate is one who has "joined a special community . . . [and] become part of a rigorous educational and cultural force everywhere in the land." (*Smithsonian* [September 1976]: 6) This national dynamism was observed again and again in 1981 as Associate members participated in activities planned for them and as the Institution continued to expand its commitment to public education and scholarship through membership programs.

Since 1970 and the appearance of *Smithsonian* magazine, programs that allow active participation in the life of the Smithsonian without regard to geographical location have been developed. These National Associate programs are dedicated to the proposition that learning should be an enjoyable lifelong pursuit for everyone, and that the national museums and research organizations of the Smithsonian Institution can make a valuable contribution to this learning process. The programs include: Contributing Membership, Regional Events, Selected Studies, and Travel.

CONTRIBUTING MEMBERSHIP

The Contributing Membership of the Smithsonian National Associate Program (SNAP) provided more than \$1.2 million in unrestricted funds for the Smithsonian's work in research and education this year. The membership, which expanded from 10,600 in 1980 to the current 15,800, offers five levels of support: the \$50 supporting level for members living outside of a seventy-five mile radius of Washington, D.C., the \$100 donor level, the \$250 sponsoring level, the \$500 sustaining level, and the James Smithson Society.

During fiscal year 1981, members were asked to increase their level of support as they renewed their memberships. Approximately twenty percent of the \$50 Supporting members responded by increasing their memberships to the \$100 Donor level, raising the

number of Donor members from twelve hundred to more than thirty-five hundred.

An annual giving program was introduced in which members were asked to make a donation in addition to their Contributing Membership dues. One thousand sixty members responded with contributions that totaled \$49,200. In addition, seventy-six members arranged to increase their support by having their contributions matched by the companies where they work. The total matching amount from forty-five companies was \$12,354.

The Contributing Membership Program sponsored thirteen special events during the year including: a private viewing of the *Search for Alexander* exhibition, followed by a reception given by Ambassador and Mrs. Tzounis at the Greek Embassy; a concert by the Smithsonian Chamber Players of selections from their inaugural album, "Handel Concerti Grossi, Opus 3," in the Hall of Musical Instruments; and a formal reception for the opening of *5,000 Years of Korean Art* in the National Museum of Natural History. The annual membership ball, the white tie "Renwick Waltz"; was held in the Grand Salon of the Renwick Gallery, with the Ambassador of Great Britain and Lady Henderson acting as honorary sponsors. Contributing Members living outside the Washington area received advance information to offerings of the Regional Events Program in eleven major cities throughout the United States.

The James Smithsonian Society of the Contributing Membership Program was fundamentally restructured during the year. In the future, only the Founder Medal will be awarded in the life membership category. Annual membership, which remains unaffected by this change, reached a total of one hundred sixty-eight persons in 1981. The unrestricted contributions of the annual members, some \$170 thousand, made possible the acquisition of a collection of Thomas Jefferson memorabilia for the National Museum of American History and the three-volume *Works in Architecture*, by Robert and James Adam, for the Cooper-Hewitt Museum. Financial assistance was given to a number of Smithsonian activities, including the following: an exhibition commemorating the bicentennial of the Battle of Yorktown; the publication of the catalogue to accompany the planned exhibition *Celebration: A World of Art and Ritual*; the completion of a video documentary, by the Archives of American Art, of five contemporary Michigan artists; and the fund-

ing of an illustrated children's version of the *Ramayana* for the Freer Gallery of Art. The sum of \$40 thousand was pledged toward the Quadrangle project.

Six new life members were accepted into the Smithsonian Society this year and were awarded the Founder Medal in recognition of extraordinary contributions of objects and monetary gifts to the Institution. It is a pleasure to acknowledge these individuals: David K. Anderson, Ms. Charlotte V. Bergen, Thomas M. Evans, John H. Phipps, Raphael Soyer, and Mr. and Mrs. Milton Turner. The Smithsonian Institution also acknowledges with gratitude the generous support of the annual members of the James Smithsonian Society and the Contributing Membership Program. Contributing members at the sponsoring level and above are listed in Appendix 9.

REGIONAL EVENTS

For the first season in its six-year history, the Regional Events Program of the SNAP has invited more than a quarter of a million Associates and members of cosponsoring organizations to attend a wide range of science, history, and art programs in home communities. One hundred eighty Smithsonian originated events, covering sixty-five topic areas, were offered this year in cosponsorship with eighty-five cultural and scientific organizations in Tampa, St. Petersburg, Little Rock, Kansas City, Denver, Providence, New London, Rochester, Austin, and Louisville.

Associates, local members, and their families learned scientific illustration at the Denver Zoo, listened to American folk music in Tampa, explored central Arkansas' ancient Indian mounds, and discovered the mysteries of the giant squid in New London in special parent-child events this year. In addition to family programs, twenty-five new lectures, seminars, and workshops were offered. Representing the Museum of American Art, special consultant Adelyn Breeskin lectured on "Shared Visions: The Art of Cassatt and Degas." Lloyd Herman of the Renwick Gallery traced the origins of the American crafts movement in an illustrated lecture, and Warren Robbins of the Museum of African Art presented "The Influence of African Art on Picasso." In the sciences, Porter Kier, from the National Museum of Natural History (NMNH), spoke on "The Secret Life of Sea Urchins"; Frederic Chaffee, Mt. Hopkins Observatory, explored recent breakthroughs in quasar research; and

William Fitzhugh, NMNH, described his fieldwork in "Archeology in Labrador: The Arctic Gateway." Seminars introduced this year included "Volcanology Today," by Richard Fiske, NMNH, and "Scientific Illustration," by George Venable, NMNH. More than one thousand members participated in these and other in-depth sessions on American folk instruments, nature photography, gem appreciation, gardening, and fossil identification.

Beginning in 1981, Smithsonian fellows joined staff representatives in traveling to host cities. Jerald Milanich (Florida State Museum) presented lectures on southeastern Indian archeology in Tampa and Little Rock, and Don Fowler (University of Nevada at Reno) spoke on "The Artist as Ethnographer" in Denver. Paula Rabkin (Yale University) described contemporary Indian powwow rituals during the New London event series, and John Hanley (USGS) led fossil identification workshops for parents and children in Denver.

Cosponsors enhanced the Smithsonian events with activities that highlighted local areas of interest. Dr. Milanich's lecture in Little Rock was followed by tours of Toltec Mounds State Park. In Providence, local experts led tours of private gardens in the historic College Hill area following seminars on contemporary garden design. Field trips to the Falls of the Ohio, an area of rich fossil beds and distinctive geological formations, were planned in Louisville to complement Smithsonian lectures on fossil sea animals and plate tectonics.

In collaboration with other Smithsonian bureaux, the Regional Events Program expanded services to members and the public. The Office of Elementary and Secondary Education assisted the program in offering oral and sign language interpretation for all events. The Associates Travel Program offered tours to membership groups from cosponsoring organizations. Forty members from the Denver Museum of Natural History visited the Smithsonian in May for a specially designed tour emphasizing the sciences, and the Grand Rapids Arts Museum organized a members' tour to the Smithsonian for a program focusing on the arts. *Smithsonian* magazine, in cooperation with the Contributing Membership Program and the Rochester Museum and Science Center sponsored a reception celebrating the opening of *Selections from the National Gem Collection* in Rochester.

In recognition of their vital contribution to lifelong educational pursuits, colleges and universities in host cities were invited to play a major role in the series. The University of Missouri at Kansas City and the University of Texas at Austin served as primary locations for events in those cities. Lectures and seminars were also held at St. Petersburg Junior College, Penn Valley Junior College (Kansas City), and the University of Arkansas for Medical Sciences in Little Rock. State, municipal, and private non-profit arts organizations were also involved in this year's events. The Department of Arkansas' Natural and Cultural Heritage and the Pinellas Arts Council (St. Petersburg), coordinated cosponsor participation and publicity for events held in those cities.

The media in each locale highlighted Smithsonian events with an unprecedented number of major news features, including Sunday magazine color articles on *Selections from the National Gem Collection*, and Kjell Sandved's (NMNH) exhibition of nature photography, *Beyond the Ocean, Beneath a Leaf*. Full-page articles on the series appeared in Little Rock, Tampa, St. Petersburg, New London, and Louisville. While on tour, Smithsonian lecturers were featured on twenty television interviews and fifteen radio broadcasts.

SELECTED STUDIES

Selected Studies, an intensive educational program of the SNAP, offered sixteen week-long seminars in fiscal year 1981. Continuing to draw upon the best collections and expert staff of the Smithsonian, as well as visiting scholars and other scientific and cultural authorities in the Washington area, the programs combined illustrated lectures, films, special behind-the-scenes tours, and field trips to offer National Associates comprehensive courses in a wide variety of topics in the arts, humanities, and sciences.

Due to strong demand generated by previous offerings and the necessity of limiting enrollment to assure a personal seminar atmosphere, many of the popular subjects such as "Genealogical Research: How To Do It," "Connoisseurship of American Antique Furniture, 1650-1840," "World War II Aviation: A Closer Look," and "Aircraft Restoration: How To" were repeated.

At the same time, the number of repeat participants grew. To meet the demand from people who wished to attend their third, fourth, and even fifth seminar, sequels such as "Princes and Patri-

ots: Dutch and Flemish Painting in the 17th Century" were planned to build on the interest resulting from the initial program "French Impressionist Painting."

New subjects involved the interest and support of major institutions in the Washington area, including "The Splendor of Byzantium" seminar taught by the curators of Dumbarton Oaks and "The Navy: From the Age of Sail to Nuclear Power" seminar with renowned experts from Annapolis.

From its inception in 1978, the Selected Studies audience has been extremely enthusiastic. The program continues to attract knowledgeable and personable experts to lead the seminars so that the high level of learning and enjoyment is maintained.

Undaunted by uncertain air fares, members enrolled from as far away as Hawaii and Canada. Participants' backgrounds ranged from interested novices to life-long buffs to travelers preparing for business trips abroad. In addition, a large number of professionals participated in seminars on antique furniture, aeronautics and preservation. Several members received college credit for attending a seminar.

Another highlight of 1981 was the increasing national attention given to Selected Studies in the growing number of national and specialized publications, which printed regular notices of programs. These included journals such as *Antiques*, *Flying*, *Asia*, and *Preservation News* in addition to *Smithsonian* magazine.

ASSOCIATES TRAVEL

The Travel Program of the SNAP presents educational study tours that mirror the interests and concerns of the Institution. The study tours are designed for members who are particularly interested in the work of the national museum and subjects in *Smithsonian*. Since 1975, more than thirty-five thousand members have participated in the Study Tour Program.

Enrollment in Domestic Study Tours was strong this year. Most tours had substantial waiting lists. Associates took part in cultural programs in San Francisco, Boston, Chicago, and Philadelphia. Fine arts and aviation history were topics featured in special weekends on the Mall, and a "Sampler Weekend" for families gave youngsters and their parents active interaction with the collection, guided by curators and other museum staff. Natural history is



Smithsonian Associates learn about Adelie penguins on Torgeson Island, Antarctica.

consistently a subject of great interest to Associates. Generous assistance from the National Museum of Natural History resulted in excellent programs in Hawaii, Alaska, and the Southwest.

There were many new destinations for participants in the Foreign Study Tours. The residential seminar program has expanded to include study in Salzburg in addition to Oxford University, Kyoto, and Scotland. Study voyages allowed Associates to visit the Antarctic continent, Sicily and southern Italy, and the lands bordering the Adriatic Sea. Hardy members walked New Zealand's Milford Track or trails in the Austrian Alps. A special tour of French and English air museums was planned and accompanied by curators of the National Air and Space Museum. The South Pacific series continued with a study tour of Micronesia, while the United Kingdom series was enlarged to include Ireland and Wales.

The educational content of both the foreign and domestic study tours is intensified by the study leader. Each trip is led by one or more Smithsonian or guest scholars as well as Smithsonian staff representatives.

The Washington "Anytime" Program—designed to give National Associates an opportunity to visit Washington and the Smithsonian any weekend during the year—is executed in cooperation with the Visitors Information and Associates Reception Center. The program was able to respond to a substantial increase in members who came to learn about their nation's capital and national museum.

Smithsonian Resident Associate Program

The Smithsonian Resident Associate Program—the private, self-supporting membership and continuing-education arm of the Smithsonian Institution for metropolitan Washington, D.C.—is considered a model for museum membership and education programs both nationally and internationally. Established in 1965 by Secretary Ripley, to provide opportunities for those who live in the Washington area to participate actively in the life of the Smithsonian, the program offers a broad range of educational activities that complement and enhance the exhibitions, collections, and research of the Institution.

Resident Associates are drawn from a broad cross-section of the greater Washington community. Membership has grown from 8 thousand with a retention rate of 50 percent in 1972, to more than 70 thousand and a retention rate in excess of 80 percent in 1981, representing more than 135 thousand persons in the Washington metropolitan area. During fiscal year 1981, the program offered 917 activities, attended by over 165 thousand individuals.

Self-supporting since 1972, the program reimburses the Institution for office space, computer and audio-visual support, and administrative overhead (over \$548 thousand in fiscal year 1981). In addition, the program generates an annual surplus that is transferred to the unrestricted funds of the Institution.

The Resident Associate Program seems to fulfill the continuing-education interests and needs of a large segment of the educated greater Washington community. Never taking its success for granted, the program continually seeks to provide its constituency with innovative, timely, and high quality educational offerings, and

to retain the affiliation of its members, while increasing its constituency modestly each year.

SMITHSONIAN COOPERATION

The program's primary focus continues to be on programming, which enhances popular appreciation of Smithsonian exhibitions, curatorial research, and special activities. The Hirshhorn Museum and Sculpture Garden's exhibition, *The Avant-Garde in Russia, 1910-30: New Perspectives*, served as the centerpiece for some of the most exciting and innovative programming of the year. A Russian avant-garde fashion show, featuring women's fashions designed by artists of the period; the production of the 1913 Cubo-Futurist opera, *Victory Over the Sun*; a series of Soviet silent films from the 1920s; a concert/lecture demonstrating the close relationship between the works of Russian composer Scriabin, artist Kandinsky, and writer Belyi; an all-day symposium on Russian avant-garde art; and a study tour were offered to complement the show. The exhibition, *5,000 Years of Korean Art*, at the National Museum of Natural History was the source of another comprehensive programming initiative. The Resident Associate Program organized a special evening that included a film tracing the evolution of Korean art and history, a lecture by renowned Asian art scholar Jan Fontein, director of the Museum of Fine Arts, Boston, and a gala reception. Two other lectures by noted art historians, workshops dealing with Korean arts, studio arts, study tours, and young people's activities were also offered to augment the show.

During the year, two free member openings were held—one to celebrate the installation of *The Coral Reef* exhibition at the National Museum of Natural History—and the other, billed as a "Gala Evening of Americana," organized around the *Champions of American Sport* show at the National Portrait Gallery and the *George Catlin: The Artist and the American Indian* exhibition at the National Museum of American Art. James H. Billington, Director of the Woodrow Wilson International Center for Scholars, gave a lecture for the Resident Associate Program based on his recently published book, *Fire in the Minds of Men: Origins of the Revolutionary Faith*. A symposium exploring "The United States and Europe in the 1980s" was presented in cooperation with The

Wilson Center. A lecture on "The Genius of Rodin" was offered to complement the major exhibition, *Rodin Rediscovered* at the National Gallery of Art, and a program—in conjunction with the National Museum of American History's exhibition—saluting "Baseball's Black Leagues," and featuring members of Baseball's Hall of Fame, was planned.

To commemorate the Larry Rivers show at the Hirshhorn Museum and Sculpture Garden, the program commissioned the artist to create a poster in his witty tongue-in-cheek style, alluding to the works in the show. The poster, an artistic and financial success, generated income for the program's Scholarship Fund. Posters signed by Rivers were given to the National Museum of American Art and the Hirshhorn Museum and Sculpture Garden.

The Gene Davis poster, commissioned at the end of fiscal year 1980, won a DESI Award from *Graphic Design: USA* "for excellence in the creation of a graphic design and its execution for the following medium," and received a Certificate of Merit from The Art Directors Club of Metropolitan Washington. The original work was donated to the Hirshhorn Museum and Sculpture Garden. Serigraphs of the work were donated to the National Museum of American Art, the National Air and Space Museum, and the National Gallery of Art. The latter museum included the serigraph in its exhibition, *Contemporary American Prints and Drawings*.

COMMUNITY INVOLVEMENT AND CONSORTIA

The Resident Associate Program plays an active role in the cultural life of the Washington metropolitan area. The program regularly initiates or cosponsors with local organizations activities that address important current issues and are open to the public as well as members. The program also supports local cultural festivals and civic projects and is recognized by the community for its contributions.

For the eighth straight year, the Resident Associate Program presented the Audubon Lecture Series with the Audubon Naturalist Society and the Friends of the National Zoo. The appearance of internationally renowned ornithologist Roger Tory Peterson was a series highlight. In cooperation with the National Trust for Historic Preservation and Partners for Livable Places, and in conjunction



Resident Associate events: In performance, Cubo-Futurist opera *Victory Over the Sun* and (below) In dialogue, Steve Weil, Hirshhorn deputy director, and artist Larry Rivers.



with Historic Preservation Week, 1981, the program organized an all-day symposium, "Conservation: Keeping America's Neighborhoods Together," an examination of recent developments in community regeneration.

In observance of Black History Month, the program arranged a special performance by the gifted actor/actress team, Ossie Davis and Ruby Dee. Saluting the Caribbean/American Intercultural Organization's annual Caribbean Independence Week, the program offered its fifth consecutive Caribbean Gala, featuring calypso and reggae music and dramatizations of works by Caribbean poets. An Evening of Shakespeare, performed by two stars of the Turkish Theatre, was staged in cooperation with the Folger Shakespeare Library and the Office of the Ambassador for Turkish Affairs. Collaborating with the Design Arts Program of the National Endowment for the Arts, the Resident Associate Program organized a series of lectures and panel discussions that explored fundamental issues in the Washington, D.C., urban design with a distinguished group of the city's architects, developers, city planners, and preservationists.

As has been the practice of the program for the past nine years, tuition-free scholarships were awarded to innercity young people and adults to attend courses of their choice. Through the D.C. Public School System, 114 youngsters received tuition-free scholarships to attend Young Associate classes in fiscal year 1981, and 123 scholarships were awarded to adults and high school students to attend the program's adult courses. In addition, the program awarded 104 scholarships for adult courses to Smithsonian docents.

The program has been working with the Cultural Alliance of Greater Washington, especially in support of TICKETplace, Washington's own facility for the sale of half-price, day-of-performance tickets, opened in November 1981 in the F Street Plaza.

In honor of the "Egypt Today" symposium, Mayor Marion Barry declared the week of March 16-23 "Egypt Today Week" in Washington, and the director of the Resident Associate Program organized an exhibition from Washington collections of modern Egyptian art at the District Building. The program's director received a certificate of appreciation from Mayor Barry, presented "in recognition of significant and valuable service to the District of Columbia in connection with the *Egypt Today* symposium."

NATIONAL CONCERNS

The program is a forum for important national concerns. Eminent experts are invited to discuss current issues in such fields as historic preservation, city planning, often controversial scientific matters, and architecture. For its "excellent lecture program which draws the nation's finest architects, critics, and architectural thinkers to address a variety of topics before an informed nonprofessional audience," the program won one of eight 1981 AIA medals from the American Institute of Architects. The program occupies a well-recognized position in the continuing-education field, among universities as well as in the museum world. Resident Associate staff members, who present annual workshops for professional museum personnel from across the country, are active in the National University Continuing Education Association, as well as the American Association of Museums. The director consults regularly in education, programming, and membership for museums, art centers, and institutions of higher learning throughout the country and abroad.

INTERNATIONAL ACTIVITIES

In fiscal year 1981, for the fourth consecutive year, the Resident Associate Program was named one of the three national sponsors of an international symposium sponsored by the National Endowment for the Humanities and the National Endowment for the Arts. "Egypt Today," celebrating the contemporary culture of Egypt, was made possible by grants from the two endowments, as well as funding from the U.S. International Communication Agency and private sources. With the cooperation of the Government of Egypt and its embassy in Washington, Mrs. Anwar Sadat opened the symposium in Washington in March 1981. The program organized courses, lectures, a film series, and a poetry reading in Washington, and the director of the program selected the modern art shown in Washington, D.C., Los Angeles, and Houston, and wrote the introduction to the art catalogue. The Resident Associate Program's director has been named national vice-chairperson for culture and publications for the Netherlands-American bicentennial commemoration, scheduled for spring 1982 and funded by the Netherlands-America Amity Trust. Work has begun on this project, which will mark—through an extensive program of cultural exchange involving Smithsonian museums and other key sites in Washington, D.C., and across the country—two

hundred years of unbroken friendship and commerce between the United States and The Netherlands.

PROBLEMS, INNOVATIONS, AND TRENDS

The impact of inflation on the day-to-day operating expenses of the program necessitated an increase in membership fees, as of August 1, 1981, from \$21 to \$24 for a single membership, and from \$26 to \$30 for a double membership. The family membership fee of \$36 remained unchanged. During the past fiscal year, progress was made in streamlining accounting procedures through innovations such as the direct transfer of *Smithsonian* magazine subscription fees to the magazine.

Automation has played an increasingly significant role in the organizational functioning of the Resident Associate Program during the past year. The monthly production of the newsletter *Smithsonian Associate*, was automated through the use of word-processing equipment interfaced with a photo typesetting system. While time has not yet been reduced by the new system, typesetting costs have been cut by a third. The registration computer has been upgraded to provide more sophisticated information about member usage of the benefits offered by the program.

*SPECIAL EVENTS: FILMS, SEMINARS, SYMPOSIA,
LECTURES, AND PERFORMING ARTS*

The Special Events arm of the program enables members to enjoy a wide variety of one-time cultural experiences through diverse formats, including lectures, films, performing arts, seminars, and symposia. During fiscal year 1981, one hundred seventy special events, exploring current topics in the arts, humanities, and sciences, were attended by sixty-five thousand people, a six percent increase over the previous year.

Films

IMAX films of the volcanic eruptions at Mt. St. Helens, *Discovering the Art of Korea*, tracing the evolution of Korean art and history, and a special screening of *Picasso: A Painter's Diary* were among the year's highlights. Series exploring the art of animation, cities of contemporary China, current Egyptian cinema, presented in conjunction with the "Egypt Today" symposium, and the best of

Clark Gable were also shown. A scholar in the field introduced each film or series; 14,283 persons attended Resident Associate films this year. The Free Film Theater, a weekly series of documentaries open to the public, screened 40 films.

Seminars and Symposia

Intensive day-long seminars and symposia, exploring such topics as the art of the Medici in Florence and Rome, the history of London (two days), the natural history of the Galápagos, and early Irish art constituted a major component of the program. On-site weekend seminars at the Smithsonian's Conservation and Research Center in Front Royal, Virginia, involved participants in subjects such as the sociobiology of birds and animal research. A total of 3,971 members participated in the increasingly popular all-day seminars.

Lectures

Among the year's notable speakers were: author James Michener; artist and author Françoise Gilot, an intimate companion of both Picasso and Matisse; scientist Richard Berendzen, president of The American University; photographers Alfred Eisenstaedt and Bruce Davidson; and modern master painter Larry Rivers. The revolution in men's fashions was considered by four leading women designers of menswear, and lectures on subjects as diverse as genetic engineering, the renaissance of Islam, Chinese gardens, and interior design for the 1980s were given by distinguished experts. As many as 38,049 persons attended the individual lectures.

Performing Arts

Winter brunch concerts are planned annually; this past year, for the second consecutive year, pianist John Eaton's American popular song series was scheduled twice to meet demand. Summer outdoor concerts in the courtyard of the National Museum of American Art/National Portrait Gallery, featuring outstanding local jazz, brass, and bluegrass groups, continued to attract capacity audiences. Multi-media laserium programs at the National Air and Space Museum Spacearium, a workshop on "Dance for Non-Dancers," with renowned dancer Sage Cowles, and a poetry

reading by Egyptian poet Salah Abdel Sabbour were among the year's outstanding performances. A total of 10,158 persons registered for the program's limited number of performing-arts events.

ADULT COURSES

Offering a broad-based curriculum in the arts, sciences, and humanities, the Adult Courses segment of the program provides opportunities for serious study with distinguished Smithsonian and visiting experts. Enrollment—which totaled 74 hundred for the year in 141 courses—was down slightly from the previous year, possibly reflecting the impact of inflation on members' attendance at a series of programs. Registration for fall courses, however, was the highest ever for a single term. The program of noontime courses, established the previous year, continued to grow, with a total of 39 courses. Plans have been made to expand classroom locales beyond the Mall next year to accommodate the growing demand for daytime classes. The best-attended courses, attracting 13 hundred persons, covered topics that included the architecture of the American house, photojournalism, Stonehenge and the cosmos, and the New Wave of graphic design. Photographer David Hume Kennerly, historian William E. Leuchtenburg, and architects Moshe Safdie and Bruce Goff were among the year's outstanding speakers.

STUDIO ARTS

The Studio Arts sector of the Resident Associate Program seeks to engender an appreciation of age-old crafts by keeping alive hands-on techniques that are rapidly disappearing from our modern world. Studio arts classes were offered four terms per year; in addition, a special September mini-term and intensive master workshops provided opportunities to experiment with various studio arts techniques. Subjects explored in these 160 programs, attended by 2,391 individuals in fiscal year 1981, included drawing, calligraphy, furniture restoration, layout design, and book-binding. Among the most popular workshops, conducted by masters in their fields, were those by enamel-on-glass artist, Maurice Heaton, porcelain artist, Rudolph Staffel, and Jeffrey Stephanic, a specialist in the hand-colored photographic print.

TOURS

On-site learning experiences are offered in art, architecture, archeology, history, and science at the Smithsonian and complementary cultural facilities. Ranging in length from one hour to several days, tours are geared to appeal to all age groups and interests. From free tours of Smithsonian museum exhibitions and walking tours of historic Washington neighborhoods, to an evening with the Baltimore Orioles and their famous, former third-baseman, Brooks Robinson, and a weekend at the Corning Museum of Glass in Corning, N.Y., 293 tours, with 689 different sections, took place during fiscal year 1981; 33,722 persons participated in these tours, an increase of 15 hundred individuals over the previous year. The "water" tours—visiting the Chesapeake Bay and Baltimore Harbor—were among the year's most popular, as were tours to New York City—the Brooklyn Museum, the Metropolitan Museum of Art, and the city's famous auction houses.

YOUNG ASSOCIATE AND FAMILY ACTIVITIES

Through Young Associate and Family Activities, young people, ages three to fifteen, alone, or with their families, can enhance their enjoyment of the Smithsonian's resources. Classes, workshops, monthly free films for families, tours, and performances exploring topics in history, art sciences, and studio arts are specially tailored to their ages and interests. During fiscal year 1981, 153 such programs were attended by 12,292 individuals.

VOLUNTEERS

More than four hundred fifty volunteers provided invaluable assistance to the Resident Associate Program, monitoring special events, lectures, courses, and tours, and performing vital office duties. The eighty volunteer office-workers represent the equivalent of five full-time staff members. In appreciation of their contribution to the program, the volunteers were feted at a special reception at the Renwick Gallery on September 14.

PUBLIC INFORMATION

LAWRENCE E. TAYLOR,
COORDINATOR

Office of Public Affairs

The Office of Public Affairs (OPA), as part of its assigned task to encourage visits to the Smithsonian, continued in fiscal year 1981 to develop effective use of television public-service announcements (PSAs) to reinforce news about the Institution's activities published in newspapers and magazines. One thirty-second videotaped PSA, stressing the appeal of performances and celebrations as well as exhibitions and permanent halls, was distributed in the spring of 1981 and used by twenty-three television stations within a five-hundred-mile radius of Washington with a potential viewership totaling in the millions.

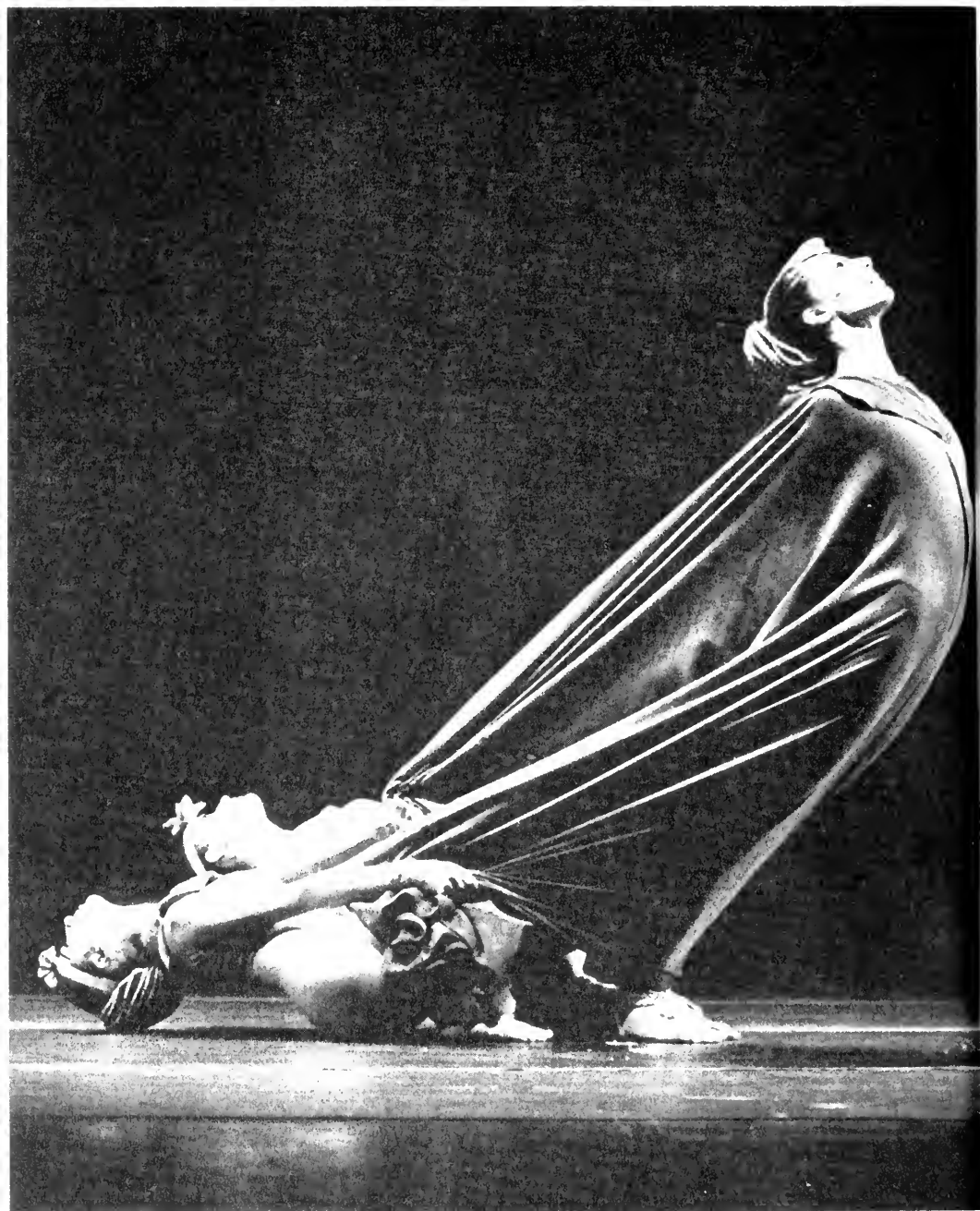
For the first time, with the aid of a grant from the Women's Committee of the Smithsonian Associates, the OPA was able to produce a Spanish-language version of an existing public service announcement to stimulate visits by Spanish-speaking Americans. The Spanish-language PSA was notably successful, being used by 75 percent of the outlets to which it was sent. Among these was a network with 116 affiliated stations.

In addition, the OPA provided assistance to individual bureaus and offices in the production of television PSAs. Working with the Motion Picture Unit of the Office of Exhibits Central, OPA produced a thirty-second television PSA on the new *Coral Reef* exhibition at the National Museum of Natural History. OPA also worked with the Corcoran Gallery of Art and the Museum of African Art to produce a television PSA on the jointly sponsored exhibition, *Treasures of Nigerian Art*.

The Smithsonian News Service, a free monthly feature-story service produced by the OPA for daily and weekly newspapers, completed its second year and continued to receive an enthusiastic reception from hundreds of publications throughout the United States and a number of foreign countries. During the year, the News Service distributed fifty articles, virtually all of them accompanied by photographs and illustrations, on such subjects as space exploration, the image of blacks in Western art, endangered species, the art of calligraphy, auctions, kites, Mt. St. Helens, American Indian diplomats, the mystery of the pyramids, and innovative furniture. The scope of the News Service reflected not only the variety of Smithsonian activities but also the diversity and intensity of Smithsonian research in art, history, and the sciences.

Office of Special Events

As the principal coordinating and organizing unit for Smithsonian events that emphasize institutional programs and activities, the Office of Special Events manages several hundred events each year. In addition, the office receives several thousand requests yearly from outside organizations wishing to use Smithsonian space. The office determines which requests meet the regulations requiring that such events be closely related to the Institution's own museum and education programs.



A dance highlight of the Kennedy Center's 1980-81 season was the Washington premiere of *Frescoes* performed by the Martha Graham Dance Company.

JOHN F. KENNEDY CENTER
FOR THE PERFORMING ARTS

ROGER L. STEVENS, CHAIRMAN

THE JOHN F. KENNEDY CENTER for the Performing Arts, on September 8, 1981, celebrated its tenth anniversary as the nation's cultural center. An intensive two-week commemoration inaugurated a year-long observance designed to mark the beginning of a second decade of excellence in performing-arts programming and educational and public-service activity.

Anniversaries, of necessity, invite recollection but also rededication. The Kennedy Center formally acknowledged the latter spirit with a new production of Leonard Bernstein's *Mass, A Theatre Piece for Singers, Players, and Dancers*, the work that had marked the opening of the center ten years earlier. *Mass* was enjoyed not only by audiences at the center but across the country, when the production was broadcast live from the center in September on public television's *Kennedy Center Tonight* series.

Other programming during the anniversary week reflected the center's commitment to diverse, quality performing-arts programming; a salute to jazz artist Lionel Hampton; the first concert in the "American Portrait Series" dedicated to the music of composer Aaron Copland; and an anniversary concert by the National Symphony Orchestra to benefit the center's Specially Priced Ticket Program for those on fixed, low incomes.

An appropriate focus on history was naturally a part of the anniversary celebration. The center announced the forthcoming publication by Harry N. Abrams, Inc., of a commemorative volume entitled, *John F. Kennedy Center for the Performing Arts*, by noted *New Yorker* writer, Brendan Gill. In both narrative and extensive

color photographic plates, the book will highlight the history of the center through its opening in 1971 and its programming and public-service achievements during its first decade of operation. The first ten years were also marked by a commemorative poster by noted artist, Richard Diebenkorn.

Since the first performance of Leonard Bernstein's *Mass*, the center has operated seven days a week, 365 days a year, attracted more than forty million visitors and patrons, and presented more than ten thousand performances of theater, musical comedy, dance, opera, symphonic, chamber, and popular music. The broad national participation and enjoyment, envisioned by Congress and every American president since Dwight D. Eisenhower for our nation's cultural center, has been realized.

The Kennedy Center is administered as a separate, independent, and self-sustaining bureau of the Smithsonian Institution. Other independent performing-arts institutions that present their programming at the center include the National Symphony Orchestra, The Washington Opera, American Film Institute, and Washington Performing Arts Society. The activities of each of these organizations at the center during the past year are reflected in this report.

The center's success as a performing-arts operation has enabled it to attract substantial private funding to supplement box-office revenue. Private gifts from corporations, foundations, and individuals this past year totaled more than \$3.3 million and were directed chiefly toward the fulfillment of the center's performing arts and public-service mandate. The success of the center's private fund-raising, chiefly the Corporate Fund for the Performing Arts, has for the past few years allowed the center to expand its commitment to a national role in the performing arts in America. This commitment has been pursued over the past several years in many ways, but focused particularly on the presentation of such younger artists and companies as The Acting Company, the Young Concert Artists Series, the Aspen Chamber Symphony, and the development of a nationally focused Education Program.

In the course of the past year, the center utilized the medium of television in a major way to carry its performing-arts programming across America. The year's first regular public television broadcasts included classical music, jazz, and theater, concluding with the live broadcast of Leonard Bernstein's *Mass* during the tenth anniversary

week celebration. The highly acclaimed production of Carlisle Floyd's *Willie Stark*, coproduced by the center and the Houston Grand Opera, was the 1981 season's opening program on Exxon's "Great Performances" series, also broadcast on public television.

The second of three public television seasons to be produced by WQED, in association with the center, will feature a Jazz Salute to Lionel Hampton; a Portrait of Dance Theatre of Harlem; an operatic tribute to the great baritone, George London; and a special gala evening highlighting Washington's musical theatre history, a benefit for PBS.

During this past year, many other special events were noteworthy; chief among them, various celebrations held at the center for the inauguration of President Ronald Reagan. The center was the site of concerts by outstanding performers in music, dance, and inaugural balls.

In the tradition of many foreign countries that have chosen to honor the memory of the late President Kennedy with gifts to the center, the Honorable Andrew J. Jacovides, Ambassador to the United States from Cyprus, presented an ancient amphora, dating 800–725 B.C., and now on permanent display on the Box Tier of the Eisenhower Theater.

Performing Arts Programming

The 1980–81 season at the Kennedy Center encompassed performances in the Opera House, Concert Hall, and the Eisenhower and Terrace theaters to audiences exceeding 1.4 million. Programming highlights are outlined in the sections that follow.

DRAMA AND MUSICAL THEATRE

During the 1980–81 theater season, the Eisenhower Theater housed nine dramatic productions, including major revivals of Lillian Hellman's *The Little Foxes* and Terence Rattigan's *The Winslow Boy*. There were also productions of new works—Ruth Wolff's *Sarah in America*, based on the life of legendary actress Sarah Bernhardt, and the National Theatre of Great Britain's staging of David Storey's *Early Days*.

Musical theater in the Opera House included the award-winning

Sweeney Todd and *Barnum*, pre-Broadway engagements of *Sophisticated Ladies*, as well as an "Anniversary" return engagement of *Annie*, which had premiered at the center in 1977. Highlights of the musical theater season were Carlisle Floyd's *Willie Stark*, commissioned by the Kennedy Center and jointly produced with the Houston Grand Opera, and a new production of Leonard Bernstein's *Mass*.

Terrace Theater dramatic offerings included Folger Theater Group productions of two new plays: Tina Howe's *Museum* and Amlin Gray's *How I Got that Story*. The Acting Company returned for its third residency under center sponsorship; the company's repertory included Alan Schneider's twenty-fifth-anniversary production of Beckett's *Waiting for Godot* and Goldoni's *Il Campiello*. The Theater Lab was the site for presentation of innovative new works and reader's theater productions including: Robert Wilson's *Medea*; a new musical, *Good Sports*, by Carol Hall and Susan Rice; and James Bronson's *The Invasion of Addis Ababa*, presented under the sponsorship of the center's National Black Theater and Playwright Project.

Both the Eisenhower and Terrace theaters were equipped during the 1980–81 season with infra-red listening equipment to aid the hearing-impaired. The installation and free use of the equipment by the center's patrons was made possible by a grant from the Public Welfare Foundation.

Since 1971, some 178 theatrical productions have been presented at the Kennedy Center. Of these, 103 have been produced, coproduced, or made possible by the center itself.

DANCE

The Kennedy Center, over the past year, presented the most extensive season of American dance in its ten-year history, comprised of 147 performances by 15 companies. Two works were premiered by the American Ballet Theatre and the Martha Graham Dance Company: the *Raymonda* (Divertissements), and *Acts of Light*. In addition, there were Washington or American premieres of works by the Dance Theatre of Harlem, New York City Ballet, and the Eliot Feld Ballet, as well as many of the contemporary works performed by companies in the premiere "Dance America" series, cosponsored by the center and the Washington Performing Arts

Society. Companies featured in the series included the Laura Dean Dancers, the Bella Lewitsky Dance Company, Pilobolus, and the Lar Lubovitch Dance Company.

Britain's Royal Ballet celebrated its fiftieth anniversary season with a summer American tour, including a two-week engagement in the center's Opera House. In addition to such favorites as *Sleeping Beauty* and *Swan Lake*, the company presented its new ballets, Kenneth MacMillan's *Isadora* and *Gloria*.

Finally, the center joined with the American College Dance Festival Association to sponsor the first National College Dance Festival, which offered master classes in all areas of dance and related theatrical specialties, concerts by student performers, and career seminars. Distinguished teacher-artists for the festival included Honi Coles, Chuck Davis, Melissa Hayden, Murray Louis, and Sarah Stackhouse. The festival culminated in a concert of college dance performances featuring thirty-seven dancers selected from five regional festivals; choreography and performance scholarships were presented by *Dance* magazine.

MUSIC

The 1980–81 musical season may well be remembered best for its birthday observances: the National Symphony Orchestra celebrated its fiftieth anniversary; The Washington Opera observed its twenty-fifth season. Gala evening concerts marked composer Ernest Bloch's centennial and Isaac Stern's sixtieth and Aaron Copland's eightieth birthdays. The full musical calendar totaled 378 performances: 150 symphony concerts, 59 opera performances, 39 recitals, 21 choral concerts, 55 chamber-music concerts, and 54 concerts by folk, jazz, and popular artists.

Isaac Stern's birthday concerts featured Mr. Stern as solo violinist with the National Symphony Orchestra, under the direction of five distinguished conductors: the symphony's music director, Mstislav Rostropovich, as well as Zubin Mehta, Eugene Ormandy, Julius Rudel, and Leonard Slatkin. Aaron Copland's eightieth birthday celebration in the Concert Hall was shared by a nationwide public television audience on *Kennedy Center Tonight!* and featured conductors Leonard Bernstein and Mstislav Rostropovich, as well as Mr. Copland—both as conductor and narrator—with the National Symphony Orchestra. The Baltimore Symphony Or-



Composer Aaron Copland and National Symphony Music Director Mstislav Rostropovich shared center stage at nso's salute to Mr. Copland on his 80th birthday. The gala evening was the premiere broadcast of the *Kennedy Center Tonight!* public TV series.

chestra and Chorus honored Ernest Bloch's centennial with a performance devoted to his works.

The Metropolitan Opera returned for a two-week engagement for its second appearance at Kennedy Center—its most extensive performance schedule outside New York City. Seven operas, including new productions of Verdi's *La Traviata*, plus the Verdi Requiem, were presented. The Washington Opera silver anniversary season opened with Verdi's *Un Ballo in Maschera* and included six other productions that utilized both the Opera House and Terrace Theater. The fifth annual Handel Festival concerts featured his most beloved music, the oratorio *Belshazzar*, and a concert version of the opera *Ariodante*.

Chamber music has been given increasing attention at the center, focusing on the Terrace Theater as the most suitable recital hall. The Theater Chamber Players were resident in the Terrace Theater again this past year, and Artistic Director Marta Istomin announced a new series of Terrace Concerts for the tenth anniversary season, which will include a broad sampling of the chamber-music repertoire. Highlights are the "American Portrait Series," devoted to the works of a single composer, and an "Art Song Series." The "American Portrait Series" was inaugurated in September, with evenings devoted to composers Aaron Copland and Ned Rorem. The fourth annual Kennedy Center Friedheim Awards competition for 1981 were devoted to chamber-music composition. The first prize winner of the \$5 thousand cash award was Joseph Schwantner; two other prizes and an honorable mention were also awarded. In alternating years, the Kennedy Center Friedheim Awards recognize American composition in symphonic and chamber music. The awards honor the late Arthur Friedheim and are supported, in part, by a grant from the Eric Friedheim Foundation.

This past summer, the center also presented "Festival of Festivals," a planned annual event, offering a selection of the country's best-known chamber music ensembles, orchestra, and recital artists. Included were the Carnegie Hall Festival Concerts, featuring the St. Paul Chamber Orchestra under the direction of Pinchas Zukerman; Lincoln Center's Mostly Mozart Festival Orchestra, conducted by Alexander Schneider and Leonard Slatkin; and the Aspen Music Festival. The Aspen Festival, on tour for the first time, brought the Aspen Chamber Symphony, the Cleveland

Quartet, and the American Brass Quintet, as well as outstanding soloists.

Popular music also had particular highlights: singer Barbara Cook was presented for a two-week engagement in the Terrace Theater, while famed vibraphonist, Lionel Hampton, was the focus of a special jazz salute at the White House and the Kennedy Center Concert Hall. The program featured nearly a score of the nation's outstanding jazz performers and was videotaped for public television broadcast scheduled for January 27, 1982.

FILM

The American Film Institute (AFI) has presented film programming in its 224-seat theater at Kennedy Center since 1973. Since that time, nearly six thousand motion pictures have been shown to audiences approaching one million people. Many of the films are drawn from AFI's own motion picture archives. The institute has, in addition, cooperated with the Library of Congress to carry out the most extensive film preservation program in the nation.

This past year, the AFI Theater at the center became one of the first facilities in the country to be equipped for high-quality, large-screen video projection, thus enabling the institute to offer, for the first time, video as well as film programming. Sony Corporation of America donated the equipment for the video installation and also helped to support the first annual National Video Festival at the Center.

AFI also acquired a permanent West Coast campus in Los Angeles to house the AFI Center for Advanced Film Studies and such national programs as the Directing Workshop for Women. The institute's Public Service Programs conducted film and television courses in Boston, Chicago, and Dallas, for the first time, as well as continuing its programs in Washington, New York, and Los Angeles. Dr. Bruno Bettelheim delivered the inaugural Patricia Wise Lecture on film, television, and video at Kennedy Center.

Finally, the AFI Theater at Kennedy Center continues to present new and classic films and theme programming. A new Exhibition Services Program was initiated, however, in addition to AFI's subscription and membership programming, in order to enable AFI to exhibit film and video works in conjunction with regional film centers, universities, museums, and performing-arts centers around

the country. During the first year of the new exhibition service, a "New American Cinema" series and "Jewish Film Festival" were offered.

Public Service Programming

The John F. Kennedy Center for the Performing Arts reaches far beyond Washington, D.C., to enrich the lives of millions of Americans. Through its congressionally mandated artistic, educational, and public-service programs, the center has become a national catalyst in creating an active partnership with the state to spur volunteer effort and significant private fund-raising around the country on behalf of the arts. For the past ten years, the center's Board of Trustees has raised private funds, in steadily increasing amounts, to sponsor and share, nation-wide, the quality programming that has become the center's hallmark. During the past year, the Kennedy Center allocated more than \$2.5 million raised from private sources—principally the Kennedy Center Corporate Fund and private foundations—to carry out Section 4 responsibilities mandated by Congress, to wit:

1. present classical and contemporary music, opera, drama, dance and poetry from this and other countries;
2. present lectures and other programs;
3. develop programs for children, youth and the elderly (and other age groups as well);
4. provide facilities for other civic activities.

During the past year, 358 public-service events were presented at the Kennedy Center, of which 293 were sponsored by the center itself and 65 by associated institutions and public-service organizations. Audience attendance for these events totaled 245 thousand. Highlights for the year included free open rehearsals of Robert Wilson's *Medea* in the Theater Lab, the Twelfth Annual Inter-American Music Festival—highlighted by the Washington premiere appearance of the Mexico City Philharmonic and a public exhibition in the Grand Foyer entitled, *Creativity, the Human Resource*, sponsored by the Chevron Family of Companies.

The 1980 Holiday Festival presented eighteen free and low-admission events for the entire family. Festival highlights included:

an original production for young audiences entitled, *Season To Be*; the annual *Messiah Sing-Along*; and *A Night in Old Vienna* on New Year's Eve—dancing enjoyed by more than seven thousand people in the Grand Foyer, following a concert by the New York String Orchestra under the direction of Alexander Schneider.

SPECIALLY PRICED TICKET PROGRAM

The Specially Priced Ticket Program has been a key element in the center's public-service efforts since its opening. As evidence of its stated commitment to broad national participation in the performing arts, the center maintains, through the Specially Priced Ticket Program, the most extensive reduced-price ticket program in the country. The program is administered every day of the year by Friends of the Kennedy Center volunteers and offers up to fifteen percent of available tickets at half-price to students; handicapped, senior, and low-income citizens; and military personnel in grades E-1 through E-4.

The cost of the Specially Priced Ticket Program, represented by the potential additional gross income lost to the center, is borne by the center. During the twelve-month period ending September 30, 1981, 102,612 tickets, for attractions produced or presented by the center, were sold through the Specially Priced Ticket Program at half-price at a total cost of \$587,686.

The center also requires all presenters and independent producers to participate in the Specially Priced Ticket Program, by offering a percentage of their tickets for sale at half-price. During fiscal year 1981, combined half-price ticket sales for center-produced/presented attractions, and those of other presenters, totaled 119,624. The sale of these tickets at full price would have resulted in additional gross income of \$1,083,889 to the center, its associated organizations, and independent producers.

Education Programming

The Kennedy Center's authorizing legislation specifically directed the Board of Trustees to develop programs for children and youth in the performing arts. The Kennedy Center's Education Program was designed toward this end to provide national leadership in the

field of arts education and to cooperate with regional performing-arts centers and education networks across the country in developing and presenting model performances for young audiences.

To serve these ends, the program has four coordinated components: the Alliance for Arts Education, the Programs for Children and Youth, the American College Theatre Festival, and Arts Coalition Northwest. Programs for Children and Youth and the American College Theatre Festival present performances for and by young people. The Alliance for Arts Education and Arts Coalition Northwest serve as national and regional networks for the exchange of information and the identification and support of model arts-education programs. At both the state and national levels, the Kennedy Center Education Program seeks, by identifying and supporting exemplary arts-education projects, to promote incorporation of the arts into the education of every child. As part of this commitment, the center works closely with its educational affiliate—the National Committee, Arts for the Handicapped.

ALLIANCE FOR ARTS EDUCATION

The Alliance for Arts Education (AAE) is a network composed of fifty-six committees: one in each of fifty states plus representation for American Samoa, the Bureau of Indian Affairs, the Department of Defense Dependents Schools-Pacific Area, the District of Columbia, Puerto Rico, and the Virgin Islands. The national office, housed at the Kennedy Center, is responsible for promoting information exchange among AAE committees, providing technical assistance, in the field of arts education upon request, to the committees and the public and distributing to the committees operational and programmatic funds provided by the U.S. Department of Education. Each committee (usually composed of representatives from private and public agencies involved in arts education) sets its own goals, objectives, and activities. Most often, these activities focus on the committee's role as a forum: for state and local awareness and advocacy work for arts education; for the development and implementation of statewide plans for comprehensive arts education; and for providing consultant services to individuals and organizations conducting arts education programs and projects.

The national AAE director and staff, including a special consultant and five regional chairmen provided direct technical assistance and

consultation services to more than half of the AAE committees during fiscal year 1981. Each committee received a copy of a new slide-tape presentation, "The Arts in Education: A Promise," prepared by the national AAE office, and samples of print-medium public awareness materials created through a partnership with the School of Art of the Cooper Union in New York City. The national AAE office published *Interchange*, a bimonthly arts-education newspaper for the field, and such occasional publications as *The Upside-down Curriculum*, by Junius Eddy, during fiscal year 1981. Funds to support the operational and programmatic activities were provided to more than forty AAE committees around the country. Regional conferences were held in Concord, New Hampshire; Hartford, Connecticut; and Charleston, South Carolina.

PROGRAMS FOR CHILDREN AND YOUTH

The commitment of the center's Education Program, to quality performing arts programming for young people, is clearly expressed in the goals of its Programs for Children and Youth (PCY): "to support arts education programs in the schools through the medium of performance and to provide a variety of quality performances to student and general audiences." Along with the development and presentation of performances for young people, materials are provided for audiences and teachers to help integrate the performance experience into the student's over-all education.

During the 1980-81 season, the PCY presented nearly three hundred free performances and related events to audiences of more than 150 thousand in Washington, D.C., and cities around the country. The PCY produced a model Children's Arts Series at the Kennedy Center in the fall, featuring professional artists performing for young people and a Black History Month Festival during February. Performing companies were selected from across the United States to represent the culturally diverse population of our country. Featured groups from the 1980-81 season included the Paul Winter Consort, the Connecticut Ballet Company, the Hartford Stage Company, and the Dance Theatre of Harlem.

Programs for Children and Youth annually presents "Imagination Celebration," a national children's arts festival at the Kennedy Center, with major elements replicated in similar outreach festivals in selected cities throughout the United States. This program not only

provides a model for performing-arts festivals for young audiences, but enables the Kennedy Center to contribute to the development of new works, to involve noted artists in performing for young people, and to serve as a catalyst for the development of programs for young people at performing arts centers throughout the country; Denver, Chicago, Seattle, Atlanta, Milwaukee, Phoenix, and Birmingham have mounted "Imagination Celebrations." The PCY provides technical assistance and core professional productions for each outreach festival, featuring such well-known artists as Sarah Caldwell, Jacques d'Amboise, and Leon Bibb. Each year during the "Imagination Celebration," an Award for Excellence is presented to an outstanding artist or individual for their contribution to young people through the arts. The recipient of this year's award was noted artist and writer, Maurice Sendak.

Another component of the PCY is the series of Arts Education Workshops offered to elementary and secondary school teachers, created to provide greater awareness and appreciation for all the art forms, thus enhancing teacher commitment to the arts in education. The workshops are offered annually in the fall and spring.

During 1980-81, PCY was supported by the Kennedy Center Corporate Fund, the Department of Education, and a grant from Mobil Oil Company Foundation, Inc., and received generous assistance from the Friends of the Kennedy Center.

THE AMERICAN COLLEGE THEATRE FESTIVAL

The American College Theatre Festival (ACTF) is presented annually by the Kennedy Center, providing national recognition of the efforts of college and university theaters throughout the United States. More than thirteen thousand students and twenty-five hundred faculty members from more than four hundred sixty schools participated in ACTF XIII. Their productions across the country drew audiences of more than two million. The festival seeks to encourage new styles of theatrical presentation and methods of staging, innovative approaches to the classics, original plays by young writers, and revivals of significant plays of the past. It emphasizes excellence of total production, including acting, directing, design, and writing.

Nearly eighty productions were presented in twelve regional festivals. Of these, eight were chosen for showcase presentation at the Kennedy Center's Terrace Theater: *Jerrigg*, Oakland University,

Rochester, Michigan; *Private Life of the Master Race*, University of Nevada, Reno, Nevada; *Going On!*, William Paterson College, Wayne, New Jersey; *All the Way Home*, University of Evansville, Evansville, Indiana; *Swansong for a Unicorn*, Northwestern University, Evanston, Illinois; *The House Across the Street*, University of Iowa, Iowa City, Iowa; *Story Theatre*, St. Michael's College, Winooski, Vermont; and *Red Peppers Plus*, University of Illinois at Urbana-Champaign, Illinois. Fifty percent of the schools that performed at the national festival in Washington produced original plays written by student authors.

This year, three new projects were added to the ACTF program. The American Society of Composers, Authors and Publishers (ASCAP) sponsored an award for outstanding achievement in musical composition by college and university students. A training internship in theater administration will allow the student recipient to study in London for a year with the British-American Repertory Company. ACTF also announced the formation of a technical assistance project, which—in cooperation with the Kennedy Center's National Committee on Cultural Diversity in the Performing Arts—will seek to broaden the scope of participation by traditionally black colleges and universities in the ACTF.

ACTF, supported by the Amoco Companies and the Kennedy Center Corporate Fund, is produced by the University and College Theatre Association for the American Theatre Association and is supported in part by a grant from the U.S. Department of Education.

ARTS COALITION NORTHWEST

Arts Coalition Northwest (ACN) is a cooperative arts-in-education pilot project of the Kennedy Center and Seattle Center, serving the states of Alaska, Idaho, Montana, Oregon, and Washington. ACN promotes the sharing of information, strategies, programs, and resources among school districts, arts funding agencies, the Kennedy Center, and regional cultural centers. It represents a federal-state-local partnership for arts education while linking the programs of a national cultural center with the community and school efforts of a regional arts center. During fiscal year 1981, ACN provided financial support and technical assistance for program planning, training, and curriculum development in arts education. In addition to pro-

viding funding and technical support for "Imagination Celebration" in Seattle and publishing four issues of its newsletter, *Coalition-Update*, ACN developed and published a test-version of a new arts education magazine, *Artsploration*, designed to serve students in communities removed from major urban cultural resources. ACN provides the model for a network of regional arts-education activities that enables the Kennedy Center to extend its national outreach by strengthening and supporting arts education and the performing arts around the country.

Cultural Diversity Programming

In June 1980, a standing National Committee on Cultural Diversity in the Performing Arts was named to continue the work of the Chairman's National Commission to Expand the Scope and Constituency of Black Participation in the Performing Arts, which had submitted its final report in March 1979. The members of the committee, which acts as an advisory group to the chairman of the board of trustees on minority affairs, are: composer Roque Cordero; singer Ella Fitzgerald; actress Cicely Tyson; pianist André Watts; playwright Richard Wesley; and trustees Marjorie M. Lawson and Henry Strong. Dr. Archie L. Buffkins, who had served as president of the commission, continues as consultant to the Kennedy Center and president of the committee; Thomas R. Kendrick, the center's director of operations, serves as executive liaison.

During the past year, the committee sponsored a number of concert appearances by young artists and implemented the two final recommendations of the National Black Theatre and Playwright Project: revision and updating of a National Black Theater Directory and the establishment of the Black College Technical Assistance Project to increase the participation of historically black colleges and universities in the annual American College Theatre Festival.

As the center's consultant, Dr. Buffkins was a key resource to television station WQED on planning its "Salute to Duke Ellington," for broadcast on *Kennedy Center Tonight!* Dr. Buffkins served as producer, later in the year, for a gala benefit salute to vibraharpist

Lionel Hampton, as part of the center's tenth anniversary celebration. Throughout the year, Dr. Buffkins served as an advisor within the center and acted as an important liaison on behalf of the center to wide variety of community performing-arts groups.

Friends of the Kennedy Center

The Friends of the Kennedy Center (FKC) was authorized in 1966 by the center's board of trustees as a nationwide self-supporting auxiliary of volunteers and donor members. In the Washington metropolitan area, the FKC volunteers contributed more than 65 thousand hours of service over the past year to provide visitor and information services 365 days a year. The volunteers staffed the center's souvenir shops, provided special visitor assistance to the handicapped, and administered the Specially Priced Ticket Program—the most extensive half-price ticket program in the country.

The FKC organization also helps provide public-service programs on behalf of the center and promotes a national membership network to aid and sustain the center's national outreach and programming activities. During the past year, a major national-membership program was developed to coincide with the center's tenth anniversary. Members will now receive *Kennedy Center News*, a new bimonthly periodical published by the FKC, and be able to involve themselves in such outreach activities as The Acting Company's national tour, the annual American College Theatre Festival, "Imagination Celebration," Children's Arts Festivals, and the National Performing Arts Library at Kennedy Center. To assist the recruitment of new members, a national membership committee has been formed on which many of the former FKC state chairmen have agreed to serve.

Throughout the past year, the FKC sponsored such weekly free public-service events as "Conversations from Kennedy Center," weekly live and radio-broadcast symposia with leading guest performing artists appearing at the center and around Washington; free demonstrations of the Filene Organ in the Concert Hall; and special tours of the center as part of the annual summer 4-H program in Washington, D.C.

Friends tour guides offer free tours of the Kennedy Center every day of the year to the more than six thousand people who visit the center on an average day. Tours are conducted in French, German, and Spanish, as well as English, to accommodate the unusually large numbers of visitors from abroad; tour script translations are also available in Dutch, Italian, Hebrew, and Japanese. Group tours, including those arranged through the offices of each United States senator and member of Congress, are also offered on a daily basis.

The revenue from FKC membership and the FKC souvenir shops is designed to assist the over-all public-service and performing-arts mandate established for the Kennedy Center by its authorizing legislation. In addition, this past year the FKC was feted by the department store, Woodward & Lothrop, on the occasion of the store's one hundredth anniversary; Mary Martin served as honorary chairman of the benefit.

Mrs. Polk Guest has served as chairman of the Friends of the Kennedy Center since its founding in 1966.

Performing Arts Library

The Performing Arts Library (PAL), a joint project of the center and the Library of Congress, opened to the public in March 1979 as the final element in the new Terrace Theater's artistic and educational complex. During the past year, nearly twenty thousand visitors utilized the library's information, reference, audio-visual, and exhibit facilities. In addition to the services provided artists, directors, visitors, patrons, and staff at the Kennedy Center, the library staff responded to requests from all parts of the country on the performing arts and received many visitors from around the world as well. The library's video display computer link to the collections of the Library of Congress enhanced and assisted all of its service.

The staff of the PAL includes specialist reference personnel in theater, music, and dance. Throughout the year, special bibliographies were prepared, and exhibitions and displays were mounted to complement programming highlights at Kennedy Center: the premiere of *Sarah in America*, based on the travels of Sarah Bernhardt; Aaron Copland's eightieth birthday celebration; and a major exhibi-

tion entitled *Highlights of a Decade*, to celebrate the tenth anniversary of the center.

The PAL was supported by the Library of Congress and a major gift from R. J. Reynolds Industries, Inc., through the Kennedy Center Corporate Fund.

Kennedy Center Honors

The board of trustees of the Kennedy Center inaugurated the Kennedy Center Honors Program in 1978 to recognize, on behalf of the nation, the outstanding individuals who have enlivened American life and culture through their distinguished personal achievements in the performing arts. Each year the honorees have been received at the White House and celebrated at the center with a gala performance—which has been subsequently broadcast by CBS on nationwide television—in their honor.

The 1980 recipients of the Kennedy Center Honors were Leonard Bernstein, James Cagney, Agnes de Mille, Lynn Fontanne, and Leontyne Price. The board of trustees recently announced the 1981 honorees, whose life achievements will be the focus of this year's gala in the Opera House on December 6: Count Basie, Cary Grant, Helen Hayes, Jerome Robbins, and Rudolf Serkin.

The Kennedy Center also initiated this past year, with the generous assistance of the Warner Communications Fund for the Arts, an Honors Oral History Program, designed to produce extensive videotaped oral history interviews with each of the center's honorees. Interviews with Leonard Bernstein, Aaron Copland, Agnes de Mille, and Leontyne Price were completed during the first year of the project. The videotapes and transcripts are available for research consultation in the center's Performing Arts Library.

Nationally Televised Programming

National audiences have shared outstanding evenings of entertainment celebrating The Kennedy Center Honors recipients since the Honors were established in 1978. During 1980–81, the center inaugurated its first regular season of broadcasts nation-wide on

public television, with a *Kennedy Center Tonight!* series produced in association with station WQED in Pittsburgh and supported by the Shell Companies Foundation and the Corporation for Public Broadcasting.

The Kennedy Center has sought a variety of means to make its quality performing-arts programming available to the entire nation. Its theater productions and sponsored companies have traveled to cities across America; its children's arts festival has spawned "Imagination Celebrations" in Atlanta, Phoenix, Chicago, Milwaukee, Birmingham and Seattle. *Kennedy Center Tonight!* enables the center to offer an unusually varied array of programming to national audiences but also to make a genuine contribution to the development of television as a medium for broadcasting performing-arts events. The performances selected for broadcast on *Kennedy Center Tonight!* offer artists and works of unusual merit and a unique opportunity for audiences to glimpse behind-the-scenes of the event itself to a better appreciation of the work, its source, and the artists.

The first year's broadcasts were inaugurated with an incomparable eightieth birthday salute to composer Aaron Copland, featuring the National Symphony Orchestra (NSO) under the direction of the composer, Leonard Bernstein, and NSO musical director, Mstislav Rostropovich. The television season continued with Ruth Wolff's new play, *Sarah in America*, featuring Lilli Palmer as Sarah Bernhardt; a jazz portrait of Duke Ellington, featuring Sarah Vaughn, Billy Taylor, and Joe Williams; and concluded with a live broadcast of a new production of Leonard Bernstein's *Mass* in celebration of the center's tenth anniversary in September. The Kennedy Center was also represented for the first time on the award-winning *Great Performances* series, which launched its 1981 broadcast season with Carlisle Floyd's *Willie Stark*, jointly produced for the stage by Houston Grand Opera and Kennedy Center, and subsequently restaged specifically for public-television viewing.

In the ten years that the center has been open, more than forty million visitors have come from around the country and the world to experience the *living memorial* created by Congress to honor the late President Kennedy. In the space of little more than a year, the center's outstanding performing arts programming has been enjoyed by even larger television audiences and will be shared by millions more in the seasons to come.

Funding

The National Cultural Center was authorized by an act of Congress that was signed into law by President Dwight D. Eisenhower on September 2, 1958. Following the assassination of President John F. Kennedy, Congress, by joint resolution, dedicated the center as the sole memorial in the capital to the late president and renamed the center a *living memorial* to him in 1964. That same act of Congress authorized federal matching funds and borrowing authority to assist the construction of the building, which was begun the same year it was renamed the John F. Kennedy Center for the Performing Arts.

The center's board of trustees raised more than \$34 million to construct the building—far exceeding the matching requirement, and have continued to raise substantial private funding each year to support the programming and public-service activities mandated by Congress in Section 4 of the center's authorizing legislation.

The Kennedy Center's operating budget for 1981, from its theater operations, concession income, and contributions, exceeded \$21 million. More than \$3.3 million was raised from private sources in order for the center to fulfill its mission as a national performing-arts center and to sustain a year-round calendar of educational and public-service programming. As the national cultural center, the Kennedy Center receives no direct federal, state, or municipal support for its performing arts programming. The United States Department of Education has, however, jointly sponsored the Alliance for Arts Education and partially supported the three remaining elements of the center's education programs—the American College Theatre Festival, the Programs for Children and Youth, and Arts Coalition Northwest.

The National Park Service maintains the Kennedy Center as a presidential memorial and is responsible for its security. The center, however, must reimburse the National Park Service a 23.8 percent *pro rata* share of maintenance, utility, and housekeeping expenses allocated to its operation as a performing arts center. Beyond its 1981 reimbursement to the National Park Service of nearly \$900 thousand for its apportioned share of maintenance, utility, and housekeeping costs, the Kennedy Center, in addition, bears the complete cost of maintaining its five theaters and extensive backstage and office facilities.

Since its opening in 1971, foundations, corporations, and individuals have contributed more than \$17 million to enable the center to carry out the broad mandate of performing arts, public service, and educational programming set forth in its authorizing legislation but not supported by federal appropriations. A major portion of the private support contributed on behalf of the center has been provided by the Corporate Fund for the Performing Arts at Kennedy Center.

The Corporate Fund was organized in 1977 by the principal officers of thirty-six major American corporations and currently represents nearly two hundred corporations committed to the support of the center as a national cultural center. Funds contributed to the Corporate Fund enable the center to extend its national outreach through programming and public-service activities, to foster new works, and to offer performing arts programming at reduced prices or, in many instances, at no admission charge whatsoever.

Participation in the Corporate Fund is open to any corporation that contributes to the center. John J. Horan, chairman and chief executive officer of Merck & Company, Inc., served as chairman of the 1981 Corporate Fund. The members of the board of governors and a listing of fund contributions received during the past year are named in Appendices 1 and 8, respectively.

Board of Trustees

The Kennedy Center is independently administered as a bureau of the Smithsonian Institution by a board of trustees, thirty of whose members are citizens appointed by the president of the United States for ten-year overlapping terms. The remaining fifteen members are legislatively designated *ex officio* representatives of the legislative branch and executive departments of the federal government. Members of the Kennedy Center Board of Trustees are listed in Appendix 1.

WOODROW WILSON
INTERNATIONAL CENTER
FOR SCHOLARS

JAMES H. BILLINGTON, DIRECTOR

THE WILSON CENTER—with the Kennedy Center for the Performing Arts and the National Gallery of Art—is one of three institutions with mixed trust/public funding created by the Congress within the Smithsonian Institution in Washington, D.C., fulfilling a national mission under a board appointed by the president of the United States. The Wilson Center is an active workshop and switchboard for scholarship at the highest levels. Since its opening eleven years ago this fall, it has gained widespread recognition for the work of its fellows in mining the scholarly riches of Washington, for its many meetings that bring together the world of affairs and the world of ideas, and for its democratic openness to all comers through its annual fellowship competition.

Each year, some forty-five fellows are brought in through open international competition involving ever-increasing numbers of applicants from a wide range of backgrounds, disciplines, cultures, and nations. A broad spectrum of ideas is, in turn, shared with a nonspecialized national audience through *The Wilson Quarterly*, which already has more subscribers than any other scholarly quarterly journal in the English-speaking world.

The Wilson Center seeks to render a service to the world and to the Washington, D.C., community by throwing open its core fellowship program to all interested individuals. Fellows are selected for the promise, importance, and appropriateness of their projects on the recommendation of broadly based academic panels outside the center. The fellows come for limited periods, not only in the

broadly inclusive program of history, culture, and society studies, but also in special programs in Russian and Soviet studies (the Kennan Institute), Latin American studies, international security studies, East Asia studies, and a program in American society and politics. Each program is directed by a scholar on the staff.

Following its mandate to symbolize and strengthen the fruitful relation between the worlds of learning and of public affairs, the center sponsors conferences and seminars on topics of special current interest to both worlds. In 1981, for example, the center brought together scholars, members of Congress, representatives of the Executive Branch concerned with foreign policy, businessmen and foreign experts on seven occasions to discuss the national interests of the United States in foreign policy. In November 1980 the center and the Smithsonian jointly hosted a remarkable evening with Harold Macmillan reflecting on politics, with commentary by John Brademas and William F. Buckley. Throughout the spring, the International Security Studies Program sponsored a series of seminars on "security in the Middle East and Persian Gulf Region," which brought a truly international group of experts together with policy makers to explore the region's less tractable problems.

The center's fellows continue to come from many countries, many disciplines, and many areas of the United States. Among its 1981 fellows and guest scholars, the center again counted two novelists, Vassily P. Aksyonov from the Soviet Union, and Nayantara Sahgal from India; a former member of Parliament who is also a noted scholar of China, Roderick MacFarquhar; the chief science editor for the *Asahi Shimbun*, Shigeru Kimura; one of Poland's leading economists, Tadeusz Kowalik; a former finance minister of Peru at a crucial juncture in their country's history, Javier E. Silva Ruete; a British economic historian of Central Europe, Alice Teichova; Jack Walker, professor of political science and public policy at the University of Michigan; John Coleman, a Jesuit student of the relations between the church, secularity, and society; and Anthony H. Cordesman, working on a net assessment of U.S. and Soviet strategic and regional military capabilities. The result of this broad and heterogeneous mix of fellows is an intellectual life greater than the sum of its parts: the collegial atmosphere provides an opportunity for learning and communication that transcends national and academic boundaries for the benefit of all.

READING IS FUNDAMENTAL, INC.

MRS. ELLIOT RICHARDSON, CHAIRMAN
RUTH GRAVES, PRESIDENT

THE GROWTH OF READING IS FUNDAMENTAL (RIF), from a single experimental project to a nation-wide, grass-roots movement, can be traced to a singular simple idea: give young people an opportunity to choose and to keep books that interest them, and they will quickly begin to read and learn. In 1981, the fifteenth year since RIF was founded in Washington, D.C., that idea continued to engage millions of children and many thousands of adult volunteers.

Fiscal year 1981 was a year marred by the death on February 3 of Mrs. Robert S. McNamara, founder of the RIF program and chairman of the board for fifteen years, during which RIF brought thirty-seven million books to American children. Mrs. McNamara received many honors during her lifetime, and shortly before her death she was awarded the Medal of Freedom, the nation's highest civilian award, for her contributions to American education through Reading Is Fundamental. Yet 1981 was also a year of tremendous vigor and opportunity, for RIF held to Mrs. McNamara's vision of putting "a book in every hand" by her successor as chairman, Mrs. Elliot Richardson. Mrs. Richardson and Ruth Graves, president of RIF, welcomed several new members to the board of directors this year, including Mrs. George Bush, Mr. Andrew Heiskell, Mrs. Strom Thurmond, Mr. John McKinley, and Mr. Eugene Rowan.

In 1981 nearly four thousand RIF projects in communities in all fifty states and the U.S. offshore possessions gave some 2.6 million young people, age three through high school, the opportunity to

choose and to keep about 8 million books. Close to ninety thousand of those young people were children of migrant and seasonal farm workers, while at least ten thousand were native Americans, many of them living in the most remote villages in Alaska, in the Grand Canyon, and on reservations throughout the southwestern United States. RIF projects also served young people this year in correctional facilities, in libraries such as the Brooklyn Public Library in New York City, and in scores of schools both urban and rural. Approximately six thousand local businesses, service organizations, and state and local governments supported the RIF projects with funds and volunteers.

Reading Is Fundamental continued expanding its traditional services to the local projects and the public. For the fifth consecutive year, RIF contracted with the U.S. Department of Education to operate the Inexpensive Book Distribution Program, a federal program modeled on RIF that permits RIF to match, with federal funds, the local funds projects raise for books. The RIF staff provided direct assistance to project volunteers and to communities interested in establishing RIF projects, holding more than one hundred workshops this year in locations across the country, and giving many thousands of hours of assistance by telephone. RIF also held a special training seminar for twelve outstanding local project directors, who then returned to their communities to serve as consultants to other volunteers.

To stretch the volunteers' book dollars to serve as many youngsters as possible, RIF negotiates high discounts with book publishers and distributors. Some three hundred forty companies were cooperating with RIF this past year, many providing the projects with special services as well as generous discounts.

The Reading Is Fundamental public education campaign, approved by the Advertising Council since 1971, continued to receive generous exposure this year. The RIF public service announcement currently being shown features Ed Asner and promotes reading. Since 1971 these announcements have received nearly \$20 million in free broadcast time and magazine space from the ABC, CBS, and NBC radio and television networks, from local stations, and from magazines such as *Reader's Digest*, *Newsweek*, *U.S. News and World Report*, *Fortune*, *Business Week*, *Ladies Home Journal*, *New York Magazine*, and many others.

Corporations, foundations and private citizens continued to contribute generously to Reading Is Fundamental in 1981. More than fifty of the country's major corporations, foundations, labor unions and organizations supported the program this year.

Reading Is Fundamental has been supported and endorsed by nearly every major educational organization and by many service programs, among them the National Association of Elementary School Principals, the National Association of Secondary School Principals, the National Association for the Education of Young Children, the National Catholic Educational Association, the American Library Association, Association for Library Services to Children, the International Reading Association, the National Urban League, the National Education Association, the Girl Scouts of America, and Campfire Girls, Inc.

U.S. Commissioners of Education, since 1970, have endorsed RIF, including Secretary of Education Terrel Bell during his 1974-76 tenure as Commissioner. The RIF idea is extremely simple, so simple that skeptics have occasionally questioned whether it can possibly be effective against a problem as complicated and as stubborn as functional illiteracy. For fifteen years, RIF has received a steady stream of personal testimony from educators, parents, librarians, and even children themselves, insisting that the RIF program creates willing, fluent readers out of even the most reluctant learners.

In fiscal year 1981, RIF commissioned an independent researcher to review the largely unsolicited comments that RIF has received in the past five years. It was discovered that nearly eighty percent of the projects (all of which have operated for at least two years) reported that the youngsters they served were spending more time reading because of the RIF activities. Nearly seventy percent volunteered that the young people were developing more positive attitudes about reading and learning, and nearly ninety percent reported that parents were actively involved in the RIF reading activities. Added to previous research—which has shown, for example, that children who have books in their homes score higher grades on reading tests than those from homes without books—this information demonstrated the continued importance of the Reading Is Fundamental program to the movement for full literacy among U.S. citizens.

SMITHSONIAN SCIENCE
INFORMATION EXCHANGE, INC.

DAVID F. HERSEY, PRESIDENT

AT THE CLOSE OF FISCAL YEAR 1981, it seems that the Smithsonian Science Information Exchange, Inc. (SSIE), will cease operations early in fiscal year 1982 and that this important service as it presently exists—a most useful system that allows for better coordination, planning, and management of research and development, at a critical time in our nation's growth—after thirty years of operation, will not be continued by the federal government.

Although the decision was made by the Office of Management and Budget (OMB) in October 1979 to transfer the functions of the SSIE to the Department of Commerce in October of 1980, the Congressional Appropriation Committees withheld approval of federal positions and funds for the integration. This was to allow time for the appropriate congressional committees to consider special legislation that might be necessary to protect the rights and benefits of SSIE employees under a federal takeover of the exchange by the Department of Commerce (DOC). The first hearing, relating to the need for special legislation, was held by the House Subcommittee on Compensation and Employee Benefits, Committee on Post Office and Civil Service, on October 20, 1980, with the Honorable Gladys Spellman presiding. Although reelected to the House in November, Mrs. Spellman, for reasons of health, was unable to return to Congress, and further hearings have not been held.

When the Department of Commerce's fiscal year 1982 budget was resubmitted to the Congress by the new Reagan administration, the decision had been made not to transfer the SSIE functions to the Department of Commerce, but rather to continue the present con-

tract arrangements for the operation of the exchange through SSIE, Inc. In addition, the new administration proposed a \$300 thousand cut in the fiscal year 1982 appropriation request, and indicated still greater reductions in 1983 and subsequent years until no appropriation would be required in fiscal year 1985.

The SSIE Advisory Council, following a detailed study of the many problems confronting the exchange in its current environment, made a series of recommendations to the SSIE Board of Directors to improve operation of the exchange. At its June 22 meeting, the SSIE Board of Directors—after listening to a discussion by Smithsonian Institution officials on their concerns about continuing the corporation under the aegis of the Institution, and having heard the remarks by the president of the exchange as they related to the outlook for the SSIE in fiscal year 1982 and subsequently, and following a review of the recommendation of the SSIE Advisory Council—resolved that the corporation should cease operations early in fiscal year 1982. This would leave sufficient time to use appropriated funds to meet necessary closeout costs in the event a solution on the future operation of the exchange could not be reached between the Institution, SSIE, OMB, and DOC.

Administrators from the Smithsonian and SSIE met with representatives of OMB and DOC in July to discuss the concerns of the Board and its resolution and to make known the intent of the Institution to close out the operation of the exchange in fiscal year 1982 should a resolution of the issues not be possible. In the interim, the House Appropriations Subcommittee recommended restoration of the \$300 thousand cut, which had been proposed by OMB in the DOC's FY82 appropriation request for operating funds for SSIE. Although no response had been received from OMB or DOC by September 1, 1981, the Institution and SSIE officials met with clerks of the House and Senate Commerce Appropriations committees in early September to apprise them of SSIE's concerns and intentions relative to closing the exchange. Prior to that meeting, the House Appropriations Subcommittee report, which recommended an FY82 increased appropriation request at the FY81 level (\$2,042 thousand), indicated that funds could be used for either continuing the Exchange or necessary closing costs in FY82. The Senate Appropriations Subcommittee had not acted on the appropriation report by the House Subcommittee at the time of our meeting on September 4.

EXPANDED SERVICES TO USERS

In spite of the difficulties and problems relating to the future of SSIE, the exchange managed to continue providing its many services to both the public and private sector, and—although only limited funds were available to develop new products and carry out a major marketing program—the corporation did manage to create and introduce one new product and expand its program on the use of microcomputers. In addition, use of the exchange, which began slowly in fiscal year 1981—probably as a result of a change in the administration following the November election—gradually increased during the year and by year's end had exceeded management's projection for user income in FY81.

Part of the problem in delayed use of the exchange may have stemmed from the confusion among users as to whether the merger of SSIE with NTIS in the DOC had or had not taken place, since numerous references to the federalization of SSIE with NTIS—to be effective October 1, 1981—had appeared in the literature, and it was only subsequently that many users became aware that the exchange was still operating as a nonprofit corporation. Whatever the explanation, many users have expressed the desire to see the exchange continue independent of NTIS, since they felt the change might affect the quality of the service they now receive from the exchange.

With regard to the new product that was introduced this year, a series of administrative indexes were offered with each individual custom-search or research information package prepared by SSIE. These indexes consisted of alphabetical entries of all documents included in a search by performing and supporting organization, investigators' names, and geographical location (state and city) of performing organizations. Although the indexes necessitate adding an extra \$15 charge to each search, they provide a most useful way to maximize use of the information provided and their convenience to the user should more than offset the slight additional cost. The volume of requests for this service has increased steadily since its inception in early 1981. The exchange is also exploring the possibilities for adding a subject index as well but this becomes a much more difficult problem. During FY81, SSIE has also begun to explore the development of research information packages geared to specific types of research and/or clientele such as instrument and pharmaceutical companies. The creation of information packages geared

more to referral use—rather than a general awareness of research on a given topic—is also being investigated, and potential interest and commitments from certain industrial sector users are currently being explored.

The SSIE Advisory Council, following an extensive review of the exchange's activities, reemphasized the importance of continuing the development of new products and an expanding the marketing program if the exchange is to ever move more fully towards total cost recovery; that is, all operating expenses of the exchange to be paid by the user community. The council reaffirmed what SSIE already knew: that the single greatest barrier to increasing user revenues was potential users' lack of awareness about the exchange, and that only through an expanded marketing program could user awareness and, ultimately, use be increased.

Although the exchange has shown consistent increases in user income for most years, increases have been tied directly to direct-mail marketing and personal presentations to potential users, which clearly indicates that it takes money (for such marketing) to make money (user revenues). SSIE's problem in FY81, as in earlier years, was having sufficient money to spend on marketing at the beginning of a year; i.e., any kind of carry-over profit that is available in excess of that needed just for routine operating costs. The exchange has proposed to OMB that reductions in appropriated funds should not be made until sufficient funds have been accumulated in excess of those needed to expand marketing, improve the system internally, and develop new products—all of which will serve to reduce over-all operating cost and at the same time increase user revenues without the need to raise prices to users substantially.

Although there has been an increase in use of the exchange's on-line data through three commercial vendors, the fact is, it seems unlikely that this type of use can ever replace the many other products and services that SSIE now provides. The exchange has continued to add new catalogs to those it has been preparing over the past several years. An essential part of these catalogs, or directories of on-going research, are the subject indexes, which can be created from the indexing now done by the SSIE staff. A shift away from some form of hierarchical indexing to simple key words, as NTIS has proposed, could affect the quality of the catalog subject indexes as they are now prepared, albeit such an approach could save money

and reduce input costs. In an effort to reduce input costs, SSIE has begun to look at alternative ways of modifying its present indexing procedures, which are more detailed than necessary given the present state of computer technology. In doing so, SSIE hopes to preserve the hierarchical structure which it believes is a most valuable asset in retrieval and catalog indexing.

In summary, the exchange has continued to provide a spectrum of old and new products and services to the research and development community, ranging from individual searches on current research, up to special training and service using microcomputers for the processing of information at the federal agency level.



The National Gallery of Art's *Rodin Rediscovered*, largest exhibition ever of Rodin's works—400 of them, in bronze, plaster, marble, terra-cotta, and other media, plus drawings and photographs—was installed on all four levels of the East Building.

NATIONAL GALLERY OF ART

J. CARTER BROWN, DIRECTOR

THE NATIONAL GALLERY OF ART (NGA), although formally established as a bureau of the Smithsonian Institution, is an autonomous and separately administered organization. It is governed by its own board of trustees, the *ex officio* members being the Chief Justice of the United States, the Secretary of State, the Secretary of the Treasury, and the Secretary of the Smithsonian Institution. Of the five general trustees, Paul Mellon continued to serve as chairman of the board, with John R. Stevenson and Carlisle H. Humelsine as president and vice president, respectively. Also continuing on the board were Dr. Franklin D. Murphy and Ruth Carter Johnson.

During fiscal year 1981, the number of visitors entering both of the gallery buildings totaled 6,734,000, a new attendance record and the fourth successive record since the opening of the East Building in 1978.

The year was an especially busy one for the Center for Advanced Study in the Visual Arts, which opened during fiscal year 1980. Nineteen scholars were in residence for varying periods during the year. L. D. Ettlinger, Kress Professor for the academic year 1980–1981, came to the center from the University of California at Berkeley, where he has been professor of art history since 1970. Washington area art historians were invited to the center for twenty-two meetings, including: ten colloquia in which papers were presented by the senior fellows; two evening lectures presented by Konrad Oberhuber, of the Fogg Art Museum at Harvard University, and Professor Ettlinger; two round-table seminars that dealt with meth-

ods of art historical inquiry; and three symposia in which scholars from the United States and abroad participated. The first symposium was on *Art and Architecture in the Late Fourth Century and Hellenistic Period in Macedonia and the Rest of Greece*, in connection with *The Search for Alexander* exhibition; the second was on *The Transfiguration*, by Raphael in the Vatican; and the third was on the exhibition, *Renaissance of Islam: Art of the Mamluks*.

Two paintings were added to the NGA's flourishing collection of twentieth-century art. *Head of a Catalan Peasant*, painted by Joan Miró in 1924, is the most experimental work in a series of subjects inspired by the area of Spain in which the artist was born and has lived the greater part of his life. *Sound*, by Kenneth Noland, a major color field artist, is an early painting from a series in which color is placed in horizontal bands.

Important additions to the gallery's sculpture collection were ten bronze and wax twentieth-century French works, a rare sixteenth-century South Netherlandish plaquette entitled *Allegory of Charity*, and the third in a series of bronze birds by Constantin Brancusi entitled *Maiastra*, subtitled *Bird Before It Flew*.

Among the most important gifts of graphic works were: a major archive of contemporary American prints published by Gemini G.E.L., a major American workshop and publisher, and a promise of future gifts that will eventually total more than a thousand works; and the bequest of 1500 prints, drawings, and illustrated books from Lessing J. Rosenwald, who died last year. Included in this bequest were an Avercamp watercolor of a landscape, two large pastel counterproofs by Cassatt and Renoir, a bound volume of Durer's three great woodcut series, Delacroix's sixteen lithographs illustrating *Hamlet*, and a serene Morandi still-life etching.

Other important gifts to the graphics collection were: three hundred thirty photographs by Alfred Stieglitz of Georgia O'Keeffe, a sensitive two-decade portrait survey which completes the Gallery's "key" set of sixteen hundred works by this photographer; a rare seventeenth-century illustrated Ovid's volume of poetry; Ellsworth Kelly's series of twenty-three *Colored Paper Images*; two Piranesi prints, a first state of *The Round Tower*, from the *Carceri* series, and one of two surviving impressions of *Temple of Neptune at Paestum*; three large Boucher drawings; and two cubist Picasso drawings.

Purchases for the graphics collections included a unique artist's proof of Picasso's *Circus Family*, which was used as a study for a painting discovered by X-ray under the gallery's *Family of Saltimbanques*; a 1545 etching on blue paper of a landscape by Hirschvogel, the only known artistic use of manufactured blue paper north of the Alps before 1595; a unique proof of Piranesi's *The Arch of Titus*; one of the half-dozen finest drawings by Castiglione entitled *Alexander at the Tomb of Cyrus*; an elegant Buytewech figure drawing which, added to previous holdings, makes the finest representation of this artist outside Europe; and a drawing by Jacob van Ruisdael of *Old Trees along a Bank*, which evokes the powerful mood of nature so characteristic of this seventeenth-century Dutch artist's work.

The eleven temporary exhibitions offered during the year drew from Europe, the Middle East, Africa, and the United States and covered the period from the fourth century B.C. to the twentieth century after Christ. The dazzling gold, silver, and gilded objects discovered in 1977 at Vergina—in a fourth-century-B.C. royal tomb thought to be that of Philip of Macedon, the father of Alexander the Great—inspired the exhibition, *The Search for Alexander. Gods, Saints and Heroes*, an exhibition of Dutch history painting (scenes drawn from the Bible, allegory, and mythology) by such seventeenth-century masters as Rembrandt, Vermeer, and Steen, included large-scale works from the council chambers of Dutch town halls. The largest exhibition ever mounted of the work of Rodin—four hundred works in bronze, plaster, marble, terra-cotta, and other media, plus drawings and photographs—was exhibited on every level of the East Building. The twenty-one-foot, eight-ton bronze cast of the *Gates of Hell* was installed so that it could be viewed from above as well as at ground level.

Four exhibitions of works on paper included: two sixteenth-century artists, the Italian architect, Palladio—whose four hundredth birthday was celebrated with an exhibition of one hundred ten original designs for architectural projects and reconstructions and preparatory sketches for four books on architecture—and Hans Baldung Grien, a German artist whose work is seldom seen in this country; seventeenth-, eighteenth-, and nineteenth-century French master drawings borrowed from the Rouen Museum; and a survey drawn from the gallery's collection of the major schools and move-

ments of American graphic art from 1940 to 1980, a crucial period of maturity and world-wide leadership. Four smaller exhibitions presented examples of Kongo funerary art, connections between the natural and spiritual worlds of Central Africa; a study of the relationship of Kandinsky's "Improvisations" series to thematic abstraction in modern art; oil sketches by George Catlin, the American painter of nineteenth-century American Indian life; and a group of thirty-five paintings, drawings, prints, and sculptures by Picasso and earlier artists on the circus theme, an exhibition inspired by the discovery of the lost Picasso *Circus Family*.

The NGA made loans to thirty-eight exhibitions at forty-eight American institutions and to sixteen exhibitions at nineteen museums in foreign countries. Included were a total of eighty paintings, twenty-seven sculptures, and 193 works of graphic art.

The Education Department prepared interpretive material for six of the temporary exhibitions. Attendance at the special tours, lectures, and films—as well as at the regularly scheduled tours and talks relating to the gallery's collections, tours conducted by volunteer docents for area school children and foreign visitors, and auditorium lectures delivered by staff docents and invited scholars—totaled 161,073. A number of distinguished scholars lectured during the year, among them: John Harris, British architectural historian and curator of drawings at the British Architectural Library, who delivered the A. W. Mellon Lectures in the Fine Arts on "Palladian Architecture in England, 1615–1760"; L. D. Ettlinger, the Kress Professor for 1980–1981; Manolis Andronikos, professor of archaeology at the University of Thessalonike, Greece; Rodin scholar Albert Elsen, professor of art history at Stanford University; Simon H. Levie, director general of the Rijksmuseum; Cecil Gould, former keeper and deputy director of the National Gallery in London; and John Rewald. During one week in August, a survey revealed that visitors from forty-nine states and sixty foreign countries requested information of the desk-docents.

During the year, the programs developed and distributed by the gallery's Department of Extension Programs reached an estimated audience of over twenty-six million, more than three times the audience reached during the previous year. This figure reflects a substantial increase in television broadcasts by PBS stations, non-profit cable, educational, and community stations, and networks in thirty-

nine states. Forty new agencies joined the long-term Regional Extended Loan system resulting in a thirty percent increase in showings and a forty percent rise in the audience reached by individual bookings of programs. Extension programs were shown in forty-three foreign countries and nineteen military installations abroad. The film *Picasso—The Saltimbanques*, developed and produced by the department, won a 1981 Cine Golden Eagle award and the Houston International Film Festival Gold Medal.

Renovation continued in the West Building. New paper and sculpture conservation and analytical laboratories were put into operation, and a new sales area opened in the space once occupied by the West Building's auditorium. Construction was begun on new sculpture and graphics galleries and a dining facility on the ground floor.

CHRONOLOGY

The following is a representative selection of Smithsonian events during the fiscal year. No attempt has been made to make this a complete compilation of Smithsonian activities.

October

Outreach: The Collaborative Education Outreach Program, jointly developed by the National Museum of African Art, the Museum of Natural History, and the National Zoo, began training personnel to take programs to elderly, handicapped, and institutionalized persons.

New Facility: The maintenance and shop building at the Chesapeake Bay Center for Environmental Studies was completed and occupied.

Seminars: The Joseph Henry Papers sponsored the Nineteenth-Century Seminar for the fifteenth consecutive year.

October 3-8

Special Event: Traditional crafts of Oregon were demonstrated in conjunction with the opening at Renwick Gallery of the exhibition *Webfoots and Bunchgrassers: Folk Art of the Oregon Country*. The demonstrations were organized by the Office of Folklife Programs.

October 8-13

Special Event: The fourteenth annual "Festival of American Folklife" was held on the National Mall with participants from around the country highlighting the folk traditions of Finnish, Caribbean, and Southeast Asian Americans.

October 8-December 3

Study: The Resident Associate Program presented a course on "The Architecture of The American House," featuring distinguished architects and critics including Charles Moore, Robert A. M. Stern, Bruce Goff, and Hugh Newell Jacobsen.

October 14

Name Changes: President Carter signed the bill changing the name of the National Collection of Fine Arts to the National Museum of American Art and the National Museum of History and Technology to the National Museum of American History.

October 14

Symposium: A panel composed of women and minorities in the fields of aviation and space participated in "Heritage Night," sponsored by the National Air and Space Museum.

October 15

Exhibition: The world's first living coral reef exhibition opened at the Museum of Natural History.

October 16

Exhibition: *Benjamin West and His American Students* opened at the National Portrait Gallery.

October 20

Special Event: The first address in the Smithsonian Institution Libraries Lecture Series was presented by Charles Goldstein of the Lister Hill National Center, National Library of Medicine, on video-disc storage techniques.

October 21

Seminar: The Conservation Analytical Laboratory funded two lectures for a seminar at the Smithsonian on Organic Analysis in the Arts. Featured were Dr. John Mills from the Research Laboratory of the National Gallery in England and Dr. Curt Beck of Vassar College, New York.

October 21

Films: First in a three-part series, "Cities in China," which included the films *Xian*, *Suzhou*, and *Beijing* by filmmakers Sue Yung Li and Shirley Sun. The series was sponsored by the Resident Associate Program.

October 22

Special Event: A symposium entitled "Presidential Biography" was conducted at the National Portrait Gallery.

October 31

Special Event: "An Evening with Alfred Eisenstaedt" featured reminiscences by the noted photographer about his early work and recent experiences in Germany and his career at *Life* magazine.

November

Milestone: The Chesapeake Bay Center for Environmental Studies was nominated by the State of Maryland to the U.S. Department of Commerce for designation as a National Estuarine Sanctuary.

Series: Professor Berlings Kaunda, University of Malawi and a Fulbright Exchange Program Fellow at the National Museum of African Art, presented a series of lectures and workshops on the arts of East and Southern Africa.

Series: The National Museum of Natural History, in cooperation with the Division of Performing Arts, inaugurated "Natural History on Stage," a four-part series of family audience dance, music, theater, and craft programs relating to the museum exhibits.

November 5

Special Event: The 1980-81 "Frank Nelson Doubleday Lecture/Performance Series" at the Museum of American History opened with an evening with Sarah Vaughan, one of the country's leading jazz performers, and Gunther Schuller, contemporary composer, conductor, and author.

November 5

Series: "Prediction and Proof: The Role of Theory and Observation in Astronomy," an eight-part lecture series for the general public, was presented in cooperation with the Boston Museum of Science-Hayden Planetarium. The lectures will be published by the MIT Press.

November 7

Exhibition: *American Porcelain: New Expressions in an Ancient Art* opened at the Renwick Gallery with subsequent public programs, including craft demonstrations, lectures, and films.

November 10

Study: Allan Cook, Fred Franklin, and Guiseppe Colombo, Smithsonian Astrophysical Observatory, participated on the Imaging Team observing Saturn during the first Voyager mission. Atomic clocks developed by SAO's Robert Vessot and his colleagues are used as the precise timing standards in the deep space tracking of the Voyager.

November 12

Special Event: Live video coverage, special lectures, and extended hours were part of "An Evening with the Planets" at the National Air and Space Museum to mark the encounter of the Voyager I spacecraft with the planet Saturn.

November 13

Acquisition: Charles Willson Peale's *Mrs. James Smith and Grandson* was accessioned by the National Museum of American Art, a partial purchase and a partial gift from Mr. and Mrs. Wilson Levering Smith, in whose family the painting had remained for generations.

November 17

Symposium: Panelists from West Germany and the United States compared the German cultural scene of the Weimar Republic and early years of the Nazi regime with those of post-World War II Germany. The program was held in conjunction with the *Eisenstaedt: Germany* exhibition at the National Museum of American Art.

November 20

Exhibition: *The Avant-Garde in Russia, 1910-1930: New Perspectives* opened at the Hirshhorn Museum and Sculpture Garden—an exhibition of more than 450 objects illuminating Russian visual arts in the period of the Soviet Revolution.

November 21

Special Event: A concert version of Victor Herbert's operetta *Naughty Marietta* opened the American Musical Theater Series of the Division of Performing Arts. The operetta was recorded for release in 1982.

November 24

Special Event: Author James Michener and photographers Roland and Sabrina Michaud discussed their experiences in Afghanistan in a special evening sponsored by the Resident Associate Program.

November 25

Awards: The films *Mirrors on the Universe: The MMT Story* and *Reunions: Memories of an American Experience*, both produced by the Office of Telecommunications, won silver awards at the Thirteenth Annual Festival of the Americas.

November 28

Acquisitions: The National Museum of American Art accessioned 103 paintings, sculptures, and works on paper, including those by Jim Dine, Sam Francis, Grace Hartigan, Ed McGowin, and Louise Nevelson, given by Mr. and Mrs. David K. Anderson of Buffalo, N.Y.

December

Publication: *A Scientist in American Life: Essays and Lectures of Joseph Henry* was published by the Smithsonian Institution Press.

Closing: Accelerating shore erosion forced the closing of the field station at Poplar Island in Chesapeake Bay, a facility of the Chesapeake Bay Center for Environmental Studies.

December 1

Seminar: "Education for the Office of Citizen: Whose Responsibility?" was organized by the Office of Smithsonian Symposia and Seminars in cooperation with the National Consortium for Public Policy Education.

December 2

Special Event: The National Portrait Gallery scheduled a reception in honor of the publication *The Collected Papers of Charles Willson Peale and His Family*, in microfiche edition.

December 6

Children's Event: Four hours of continuous performance, live music and cartoons were presented by the Hirshhorn Museum and Sculpture Garden in the fifth annual "Hirshhorn Holiday: A Celebration for Children," under the sponsorship of the Women's Committee of the Smithsonian Associates.

December 7

Special Event: The Contributing Membership of the National Associate Program sponsored a private viewing of the *Search for Alexander* exhibition, followed by a reception at the Greek Embassy given by Ambassador and Mrs. Tzounis.

December 9

Agreement: A long-negotiated agreement was signed between Smithsonian Tropical Research Institute and the University of Panama, whereby STRI provides research facilities to the university researchers and receives publication support in Spanish from the University of Panama Press and use of various university facilities.

December 10

Special Event: The Ali Kahn lectured and presented architectural awards in a program cosponsored by the Hirshhorn Museum and Sculpture Garden and the fourteenth Centennial of Islam.

December 11

Agreement: The Academy of Sciences (*Academia Sinica*) of the People's Republic of China and the Smithsonian Institution signed an agreement to foster joint research and other exchanges in areas of common interest.

December 15

TV Premiere: "A Sense of Discovery," a film profile of the National Museum of American Art, produced by the Office of Telecommunications, premiered in Washington over the PBS station, WETA-TV.

December 17-18

Special Event: The Smithsonian Chamber Players, with the American Boy Choir, performed Handel's *Messiah* at the National Presbyterian Church in Washington, D.C. The concerts were produced by the Division of Performing Arts in the original style, and were recorded for future release.

December 26

Special Event: Kwanzaa, the seven-day celebration based on African festivals of thanksgiving, was observed at the National Museum of African Art.

December 26-31

Holiday Celebration: Christmas, Hanukkah, and New Year traditions were represented in a collection of music, crafts, drama, and cooking at the National Museum of American History, produced by the Division of Performing Arts.

December 27-28

Special Event: A colloquium entitled "The Muses Flee Hitler II. Cultural Adaptation in Worldwide Perspective" was presented by the Office of Smithsonian Symposia and Seminars, continuing the Einstein Centennial observance.

January

Slide Show Release: "Preservation and Urban Revitalization," documenting the social and economic benefits of historic preservation, was released by the Office of Museum Programs.

January 4

Broadcast: "Radio Smithsonian," produced by the Office of Telecommunications, transferred broadcast to the National Public Radio satellite system.

January 10

Broadcast: "Smithsonian Galaxy," 2½ minute radio features produced by the Office of Telecommunications, reached the 200 mark for stations broadcasting the series.

January 15

The annual "Green Valley Lectures on Astronomy" was presented by staff members of the Mt. Hopkins Observatory.

January 16-19

Inaugural Concerts: Four days of concerts were presented in seven of the Smithsonian museums to mark the presidential inauguration. Activities were arranged by the Office of American Folklore and the Division of Performing Arts in cooperation with the Presidential Inaugural Committee 1981 and with the help of a grant from the Jimmy Carter Inaugural Trust.

January 23-25

Victory Over the Sun, a 1913 Cubo-Futurist opera, was presented at the Hirshhorn Museum and Sculpture Garden, cosponsored by the Resident Associate Program in conjunction with *The Avant-Garde in Russia* exhibition.

January 28

Lecture: James A. Van Allen, discoverer of the Van Allen Radiation Belts and a 1981 Regents Fellow, was the National Air and Space Museum's fourth annual Wernher von Braun lecturer.

February

Special Event: Inaugural event of the International Year of Disabled Persons, was cosponsored by the U.S. Council for the International Year and the Office of Elementary and Secondary Education.

Publication: The pilot issue of *Biological Conservation Newsletter* was produced by the Office of Biological Conservation to be circulated monthly to the scientific and conservation community.

Performance: *Kids on the Block*, a presentation marking the International Year of Disabled Persons, was presented for Smithsonian staff by the Office of Elementary and Secondary Education.

Special Program: "Intern '81," the seventh annual program for high school students, was held.

February 1

Special Event: Handel Concerti Grossi, Opus 3, inaugural album of the Smithsonian Chamber Players, was introduced at a concert and reception at the Museum of American History, sponsored by the Contributing Membership of the National Associate Program.

February 4

Exhibition: *Anna J. Cooper: A Voice from the South*, a major exhibit on a former slave who achieved success as an educator and scholar, opened at the Anacostia Neighborhood Museum.

February 6-8

Concerts/Conferences: The legacy of pioneer gospel composer, Roberta Martin, and her historic vocal ensemble, The Roberta Martin Singers, was the subject of a weekend of activities sponsored by the Division of Performing Arts, marking Black History Month.

February 9

Milestone: Work began on the Institution's new Museum Support Center at Silver Hill, Maryland, for collections storage space. The center is scheduled to open in 1983.

February 12

Exhibition: *Directions 1981*, including more than fifty works by sixteen contemporary artists, opened at the Hirshhorn Museum and Sculpture Garden.

February 20

Award: "Radio Smithsonian," produced by the Office of Telecommunications, received the Clarion award for "Voices of the Civil Rights Movement," from Women in Communications, Inc.

February 20

Special Event: The Renwick Waltz, annual ball of the Contributing Membership, National Associate Program, was held in the Renwick Gallery's Grand Salon with the Ambassador of Great Britain and Lady Henderson as honorary sponsors.

February 24

Award: "Radio Smithsonian" was honored with an award for excellence for its program on the *Coral Reef* exhibition, by the American Association of University Women's Metropolitan Area Mass Media Committee.

February 25

Lecture: "Saturn—Jewel of the Heavens," a lecture on Saturn and its system of moons, was presented by National Air and Space Museum geologist Robert Wolfe. The lecture was subsequently repeated twice by popular demand.

March

Publication: First results of the joint Harvard/Smithsonian Astrophysical Observatory Redshift survey were published. The survey was designed to measure the weight of clusters of galaxies.

Lecture Series: Stanley Mohler presented a program on Wiley Post, the first in a series marking the International Year of Disabled Persons. Subsequent lectures were presented in April, May, and June on Washington Roebling, Harriet Tubman, and Theodore Roosevelt, by the Office of Elementary and Secondary Education.

Milestone: The Smithsonian Institution Libraries Total System Plan, detailing history, problems, and opportunities on automation of all aspects of the Libraries, was launched as a major study/planning exercise. The full system will be in place in 1984.

Research: A compilation of names of 8,000 candidate endangered, vulnerable and rare plant species for Middle America (Mexico and Central America) was produced by the Office of Biological Conservation and the Threatened Plants Committee of the IUCN, the first phase of a three-year project.

March 1

Concert: Solo Jazz Piano Concert, featuring Marian McPartland, Hank Jones, and Stanley Cowell, was performed at the Kennedy Center for Performing Arts, cosponsored by the Smithsonian Division of Performing Arts.

March 2

Seminar: Human and animal language was discussed by Sir John Eccles, F.R.S. and Nobel Laureate in medicine and physiology, in a program presented by the Office of Smithsonian Symposia and Seminars.

March 5

Exhibition: *Mary Cassatt: Graphic Art*, organized by the Smithsonian Institution Traveling Exhibition Service, opened at the Amon Carter Museum in Fort Worth, Texas.

March 6

Giant Panda Breeding: Chia-Chia, male giant panda from the London Zoological Society, arrived at the National Zoological Park for a three-month stay.

March 13

Lecture: Chemist Harold Westley presented a paper, "Emission Spectroscopy with the Laser Microprobe," in a Museum Laboratory at the Pittsburgh Conference and Exposition on Analytical Chemistry and Applied Spectroscopy.

March 15

Discovery: Stellar masers and the measurement of the proper motion of these sources using VLBI techniques was reported by a group led by James Moran, Smithsonian Astrophysical Observatory.

March 16

Symposium: The keynote address by Mrs. Anwar Sadat, wife of the Egyptian president, opened the international symposium "Egypt Today," cosponsored by the Resident Associate Program, the National Endowments, and private and corporate funding. The symposium incorporated a related exhibition on the art of *Mahmoud Moukhtar* at the Hirshhorn Museum and Sculpture Garden, and other events, including an exhibition, *Traditional Costumes and Jewelry of Egypt*, at the National Museum of African Art.

March 22-27

Seminar: "The New Eden: American Painting in the 19th Century" was the subject of a week-long seminar sponsored by the Selected Studies Program, National Associate Program.

March 23-24

Symposium: "Space Science Comes of Age," a two-day program at the National Air and Space Museum, brought together eleven leading scientists and historians to discuss the past three decades of space science research. A book was also published of the papers presented.

March 23-27

Lecture Series: A five-day course, "Teaching in Conservation Science," was presented at ICCROM, Rome, by Robert M. Organ, Director of Conservation Analytical Laboratory.

March 29-April 3

Seminar: "World War II Aviation: A Closer Look" was the topic of a five-day program presented by the aeronautical staff of the National Air and Space Museum and guest experts, sponsored by the Selected Studies Program, National Associate Program.

March 31

Series: "Evenings at Barney Studio House," a series of monthly programs reminiscent of those given by Alice Pike Barney at the turn of the century, was inaugurated with a program of poetry and Elizabethan lute music.

April

Research: John F. Eisenberg, John Seidensticker, and Ross Simons spent three weeks in China negotiating and selecting a site for a long-term research project on the ecology of an area in the Sichuan mountains, with emphasis on the giant panda.

April 1

Acquisition: A rare, 1701 Servais violoncello by Antonio Stradivari was donated to the National Museum of American History's Division of Musical Instruments by Charlotte V. Bergen.

April 5-10

Seminar: "The Quest for Beauty," fourth seminar in the series "High School Scholars at the Smithsonian," was sponsored by the Office of Smithsonian Symposia and Seminars.

April 10

Special Event: A celebration marking the twenty-five-year association of the Smithsonian Astrophysical Observatory and the Harvard College Observatory was held in Cambridge.

April 10

Award: A CINE Golden Eagle award was presented for *A Sense of Discovery*, a film on the Museum of American Art produced by the Office of Telecommunications. The award was given by the Council on International Nontheatrical Events and certified the film to represent the United States in international film festivals.

April 14

Exhibition: *Jefferson and Science*, an exhibition highlighting the scientific pursuits of Thomas Jefferson, opened at the National Museum of American History.

April 15

Grant Awards: The Office of Fellowships and Grants designated the 1980-81 fellowship recipients.

April 21

Exhibition: The new Great Ape House at the National Zoo opened to the public.

April 23

Workshop: "Damage to Collection Objects Caused by Photography," a workshop for Smithsonian personnel, was conducted by Robert M. Organ, Director, Conservation Analytical Laboratory.

April 25

The last hydrazine propellant on board the Einstein satellite was expended, and the space observatory's astronomical life ended after twenty-nine months of highly successful operations. Data analysis will continue for approximately two years.

April 26

Screening: Midwest-area director of the Archives of American Art, Dennie Barrie, presented selections from the Archives' new videotaped conservations with American artists at the Kansas City Art Institute, as part of the National Associates Regional Events Series.

April 26

Publication: *The Smithsonian Collection of Classic Country Music* was published by the Division of Performing Arts. The eight-record anthology covers more than fifty years of recorded country music.

April 27

Appointment: Following the death of Dr. Joshua C. Taylor, National Museum of American Art Director for eleven years, Harry Lowe, Assistant Director of the museum, was designated Acting Director.

May

Special Event: A major crafts fair, "Crafts in the Carnegie Mansion," was held during two weekends in May at the Cooper-Hewitt Museum in New York.

Research: Scientists at the Chesapeake Bay Center for Environmental Studies initiated a new long-term study of the succession of plant and animal communities on newly abandoned agricultural land.

Publication: *Smithsonian Institution Libraries Catalogue*, a computer-output microfiche product, was distributed. The traditional card catalogues were closed throughout the Institution Libraries system.

May-Continued

Grants: The Smithsonian Institution Libraries received an Atherton Seidell Endowment Fund grant for computerization of serial records and a grant from the Smithsonian Institution Women's Committee for the restoration and conservation of trade catalogues pertaining to the clothing industry.

Symposium: Roy Bryce-Laporte of the Research Institute on Immigration and Ethnic Studies organized and chaired two sessions on "The Haitian Immigrants, Refugees and Boat People" and "The Presence of the New Caribbean Immigrants" at the Caribbean Studies Association meetings in St. Thomas, U.S. Virgin Islands.

New Program: A new Smithsonian Institution internal training workshop was conducted in "Conservation Photography," by the Office of Museum Programs.

Appointment: The Director, Office of Biological Conservation, was elected Chairman of the African Biosciences Network (affiliated with the International Biosciences of ICSU-UNESCO), which subsequently resulted in the production of a report, in English and French, that is unprecedented in the scope of its coverage of the state of biology in Africa.

May 1

Visit: His Royal Highness Prince Charles, Prince of Wales, visited the National Air and Space Museum, accompanied by Secretary S. Dillon Ripley, Assistant Secretary David Challinor, and NASM Assistant Director Walter J. Boyne.

May 4

Dedication/Presentation: The National Air and Space Museum theater was renamed the Samuel Pierpont Langley Theater, honoring the third secretary of the Smithsonian Institution. In conjunction with the dedication, Charles Stark Draper and Robert T. Jones were each presented with the Langley Medal for meritorious investigation in the field of aerospace science.

May 11

Dedication: A sculpture of the kouprey by Jeanne Gevaert was dedicated to Harold Coolidge, the first scientist to identify this animal as a new subspecies in 1937. The sculpture is located at the entrance to the National Zoo's Education/Administration Building.

May 12

Performance: Suad Raga, Egyptian dancer, performed at the National Museum of African Art in connection with "Egypt Today," a series of activities cosponsored by the Resident Associate Program.

May 14

Symposium: An all-day symposium, "Conservation: Keeping America's Neighborhood Together," was presented by preservationists, government leaders, private businessmen, and neighborhood conservationists, cosponsored by the Resident Associate Program.

May 15

Exhibition: The first international exhibition of Mamluk era art, *Renaissance of Islam: Art of the Mamluks*, opened at the National Museum of Natural History, organized by Smithsonian Institution Traveling Exhibition Service, with guest curator Dr. Esin Atil of the reer Gallery.

May 18

Award: A 1981 AIA Medal from the American Institute of Architects was presented to the Resident Associate Program for its lecture series on architecture.

May 21

The Conservation Analytical Laboratory sponsored a round table discussion on "Future Directions in Archeometry" at the International Archeometry Symposium at Brookhaven National Laboratory. A report of these discussions will be available in conjunction with the development of the Smithsonian archeometry program.

May 29

Outreach: A 30-second public service announcement, "Think Smithsonian," was produced by the Office of Public Affairs to bring the Institution's many varied activities to the attention of television audiences. It was distributed to 100 stations within 500 miles of Washington and was broadcast by approximately 75 percent of those stations.

June

Acquisition: The famous C. P. Alexander Collection of crane flies was acquired by the National Museum of Natural History. This collection, probably in excess of 6,000 specimens, is of enormous historical interest and singly contains the largest accumulation of type specimens ever acquired by the museum's Department of Entomology.

Publication: *Good Show! A Practical Guide for Temporary Exhibitions*, the first such book on installing temporary exhibitions, was published by the Traveling Exhibition Service.

Award: The American Mammalogy Society presented its J. Hart Merriam Award to John F. Eisenberg of the National Zoo for outstanding contributions to mammalogy.

Special Event: The Trellis, a benefit sales shop, was opened in conjunction with the exhibition *Gardens of Delight* at the Cooper-Hewitt Museum.

Grant: The education staff of the Chesapeake Bay Center received a grant to study ways of improving science learning in out-of-door school environments.

New Program: The Office of Fellowships and Grants initiated internships and faculty fellowships directed towards historically black colleges and minorities from other institutions.

June 4

Exhibition: *Kenneth Snelson*, the artist's first American retrospective of sixty-four works, including several monumental pieces constructed on the museum's plaza, opened at the Hirshhorn Museum and Sculpture Garden.

June 4

Exhibition: Condor sculptures by Erwin Hauer were exhibited in the Education/Administration Building of the National Zoo.

June 5

Acquisition: The Morgan Collection, a collection of nineteenth-century American printing type and woodcuts, was acquired by the National Museum of American History through a grant from the Regents Fund.

June 5

New Procedure: A special system of labels for the hearing impaired was installed in the Anacostia Neighborhood Museum, marking the first use of such labels with a major exhibition in a Smithsonian museum.

June 5

Seminar: A lecture on neutron-induced autoradiography of oil paintings was presented at the National Bureau of Standards by Dr. Ed Sayre, Brookhaven National Laboratory. The program was funded by the Conservation Analytical Laboratory.

June 6

Award: An EMMY for excellence in cinematography was presented by the National Academy of Television Arts and Sciences, Washington Chapter, honoring *A Sense of Discovery*, the film on the National Museum of American Art produced by the Office of Telecommunications.

June 6

Special Event: "Children's Day: Rhythm in Red, White and Blues," an annual arts festival, was held at the National Museum of American Art. It included a puppet show, jazz music, dance, and crafts.

June 7

Performance: The Guyana Steel Chronicle Atlantic Symphony Orchestra performed at the National Museum of African Art.

June 11

Special Event: "Night of a Thousand Flowers," a gala benefit ball, was held in the mansion and garden of the Cooper-Hewitt Museum.

June 12

New Facility: A "Mini-Visitor's Center," complete with a historical astronomy exhibit, opened at the Amado base camp of the Mt. Hopkins Observatory, with support from the Office of Public Service.

June 12

Symposium: The first major scientific conference on Therapsids, the mammal-like reptiles that gave rise to mammals 200 million years ago, was sponsored by the National Museum of Natural History and the National Institute of Mental Health.

June 16

Special Event: The Cooper-Hewitt participated in "Museum Mile," the third annual street festival and celebration by ten of New York City's cultural institutions located on Upper Fifth Avenue.

June 16

New Directions: A planning committee was established to begin development of long-range plans for the Anacostia Neighborhood Museum.

June 17

Seminar: "Nutrition: Opportunities for Government Cooperation with the Independent Sector" was organized in cooperation with the National Institute of Child Health and Human Development by the Office of Symposia and Seminars.

June 18

Special Event: An honors ceremony was held for 1980-81 Smithsonian fellows.

June 22

Exhibition: *Champions of American Sport* opened at the National Portrait Gallery, preceded by a White House reception with remarks by President Reagan.

June 22

Outreach: The first Smithsonian Spanish-language version of a public service announcement on the Institution's exhibitions was produced for television by the Office of Public Affairs with a grant from the Women's Committee. Though distributed to selected stations, the PSA was also telecast nationally through the Spanish International Network and the satellite transmission of WTBS in Atlanta.

June 22-26

Workshop: The Smithsonian Archives sponsored a five-day workshop for museum archivists.

June 24

Special Event: Opening day of the fifteenth annual "Festival of American Folklife," featuring more than 200 participants from 30 states. Evening concerts and the exhibition and sale of specially commissioned traditional southeastern crafts were highlights. The festival was produced by the Office of Folklife Programs and returned this year to a two-week summer format.

June 26-28

Theme Weekend: "The Family Sampler," the first weekend program planned especially for Associates and their children, was sponsored by the Associates Travel Program.

July

Publication: Volume four of *The Papers of Joseph Henry* was published by the Smithsonian Institution Press.

Series: "International Day," one of the new special monthly programs for Office of Museum Programs interns, featured interns from several different countries speaking of their museums and their countries.

Location Change: *Technology and Culture*, the international quarterly of the Society for the History of Technology, moved its editorial offices to the National Museum of American History, with Robert C. Post as editor-in-chief and Brooke Hindle as chief of the Editorial Advisory Board.

Research: A paleo-Indian site in Lamb Springs, Colorado, was excavated by Dr. Dennis Stanford, National Museum of Natural History archaeologist, and three scientists from China, in the opening phase of a five-year Chinese/American New World Human Origins Program.

Publication: *Volcanoes of the World*, the most comprehensive reference work on global volcanism, was produced after a ten-year effort by staff members of the National Museum of Natural History, Department of Mineral Sciences.

Discovery: Dr. Meredith Jones, National Museum of Natural History, classified as a new family of the animal kingdom the extraordinary worms found around hot springs on the floor of the Pacific Ocean. Dr. Jones, along with other scientists, reported in *Science* on the worm's unique strategy for obtaining food and energy.

Workshops: The National Teacher Workshops began, sponsored by the Office of Elementary and Secondary Education.

July–Continued

New Installation: The new water system of the Chesapeake Bay Center for Environmental Studies was completed and placed in operation.

July 1

Exhibition: *Jet Aviation*, a major new gallery devoted to the first forty years of the jet age, opened at the National Air and Space Museum.

July 1

Milestone: Fifth anniversary of the National Air and Space Museum was celebrated with a public birthday party, extended evening hours, free concerts, and workshops.

July 1

Seminar: "A Sense of Place: The Organization of the Garifuna Community in Honduras and New York" was sponsored by the Office of Smithsonian Symposia and Seminars.

July 3–5

Celebration: A July Fourth celebration combined music, dance, theater, and demonstrations, documenting American traditions and illuminating the exhibits at the National Museum of American History. The celebration was produced by the Division of Performing Arts in collaboration with the museum staff.

July 15

Milestone: The new Thoms M. Evans Gallery was inaugurated at the National Museum of Natural History, with the opening of the major exhibition *5,000 Years of Korean Art*.

July 16

Exhibition and Film/Concert Series: "Images of Labor," commemorating the one-hundredth anniversary of the founding of the American Federation of Labor, opened at the National Museum of American History, accompanied by a series of films and concerts.

July 16

Special Event: American artist Larry Rivers discussed his life and work in a dialogue with Stephen E. Weil, deputy director of the Hirshhorn Museum. The evening was sponsored by the Resident Associate Program.

July 16

Exhibition: The Hirshhorn Museum and Sculpture Garden's entire collection of Larry Rivers' paintings, drawings, sculpture, and construction, *History of the Russian Revolution from Marx to Mayakovsky*, opened at the museum.

July 18

Special Event: Aboriginal artists of Australia discussed their culture and folklore and demonstrated native crafts and music at the Anacostia Neighborhood Museum. A performance concert followed, cosponsored by the National Capital Parks–East and the Embassy of Australia.

July 21

New Directions: First meeting was held of the planning committee to consider the future of the Anacostia Neighborhood Museum.

July 21

Exhibition: *Perfect in Her Place*, tracing the struggles and successes of women at work in industrial America, opened at the National Museum of American History.

July 24

Visit: President Reagan visited the National Museum of American Art to view the exhibition *George Catlin: The Artist and the American Indian*. He was greeted by John Jameson, assistant secretary for administration, Harry Lowe, acting director, and curator William Truettner.

July 28

Expedition: An archaeological/archeometric expedition to Countess of Warwick Sound, Baffin Island, Canada, was conducted by Jacqueline S. Olin and M. James Blackman, Conservation Analytical Laboratory, together with a proton magnetometer survey in conjunction with the search for evidence of smelting by early European explorers in that region.

July 31

Exhibition: Portraits and memorabilia comprised an exhibition entitled *We Never Sleep*, marking the first fifty years of the Pinkertons.

August

Exhibition: A photographic display of Galapagos undersea life organized by the Office of Biological Conservation was incorporated into the offerings of the Smithsonian Traveling Exhibition Service for a three-year tour. The photographs were exhibited at the National Museum of Natural History from June through August.

Agreement: The Office of Biological Conservation was awarded a contract to provide illustrations, which will be utilized in a U.S. identification manual for customs inspectors at ports of entry, of ten plant species most frequently found in international trade.

Collection Management: The Smithsonian Institution Libraries completed its first major policy statement on management of its collections including issues such as security, conservation, and an extensive collection profile.

August 10

Research: A new telescope coalignment system for the Multiple Mirror Telescope was completed through the collaborative efforts of Smithsonian Astrophysical Observatory and University of Arizona engineers and computer programmers.

August 31

Joseph H. Hirshhorn, financier, philanthropist, and donor of his major contemporary art collection to the Smithsonian Institution, died.

September

Outreach: On the occasion of its second anniversary, the Smithsonian News Service introduced color artwork to illustrate its feature stories which are distributed to more than 1,400 newspapers nationwide and abroad, with a total circulation of more than 40 million.

Publication: *The Mammalian Radiations*, by John F. Eisenberg, National Zoo, was published by the University of Chicago Press and has been selected by the natural science book clubs of England and the United States as a special offering to their members.

September—Continued

Award: The American Association of Zoological Parks and Aquariums presented to the National Zoological Park the Edward H. Bean award for the most notable birth in 1981: the Chinese alligator.

Videotape Release: "Museum Accessibility for the Visually Impaired Visitor," prepared by the Office of Museum Programs, offers practical techniques in making museum exhibitions more accessible.

Special Event: The fortieth Executive Council meeting of the Charles Darwin Foundation for the Galapagos Isles was held at the Smithsonian Institution.

Special Event: New monthly program for Office of Museum Programs interns: "Kuwaiti Museums and Culture," was presented by intern Fatima Ben Touq.

Research: The Office of Biological Conservation received support from the Educational Outreach Research Program funds to produce an educational text on "Threatened and Endangered Plant Species of the U.S."

Publication: New editions of *Smithsonian Opportunities for Research and Study* and *Directory of Fellows*, edited by the Office of Fellowships and Grants, were published.

Special Action: The final Environmental Impact Statement, concerning the Chesapeake Bay Center for Environmental Studies' designation as a National Estuarine Sanctuary, was completed.

Videotape Release: "Museum Careers," series of interviews with museum professionals describing their work in museum operations, was released by the Office of Museum Programs.

September 6

Special Event: The Fifth Annual Smithsonian Frisbee Disc Festival, the largest noncompetitive disc event in the world, was held on the Mall sponsored by the National Air and Space Museum.

September 8

Special Event: George T. Nierenberg's award-winning documentary film, *No Maps on My Taps*, was shown by the Division of Performing Arts and was followed with a live performance by the film's legendary stars—Howard (Sandman) Sims, Chuck Green, and Bunny Briggs.

September 10

Special Event: John R. Kinard, director of the Anacostia Neighborhood Museum, addressed the Anacostia Historical Society, opening a lecture series funded by a grant from the D.C. Council on the Humanities.

September 14

Special Event: The Hirshhorn Museum and Sculpture Garden officially reopened its sculpture garden after renovation to provide access for disabled visitors.

September 15

Exhibition: *Out of the Ordinary: Ritual and Domestic Furnishings of Africa* opened at the National Museum of African Art.

September 15

Special Event: *John Bull*, the world's oldest operable steam locomotive, a part of the National Museum of American History's collections, was taken outdoors and steamed along the Chessie System tracks near Georgetown to celebrate the engine's first run in the United States 150 years ago.

September 17

Exhibition: *R. B. Kitaj*, the first major retrospective of this artist's work, opened at the Hirshhorn Museum and Sculpture Garden.

September 18

Exhibition: *Cast and Recast: The Sculpture of Frederic Remington*, including twenty casts of four of the sculptor's best-known works, opened at the National Museum of American Art.

September 19

Special Event: A concert of traditional music from the Faroe Islands was held in the auditorium of the Hirshhorn Museum and Sculpture Garden, sponsored by the Greater Washington Folklore Society and the Smithsonian Office of Folklife Programs.

September 23

Exhibition: *Of Time and Place: American Figurative Art from the Corcoran Gallery*, organized jointly by the Smithsonian Institution Traveling Exhibition Service and the Corcoran Gallery, opened at the Corcoran.

September 24

Special Event: The Contributing Membership, Smithsonian National Associate Program, celebrated the donation, by John H. Phipps, of a collection of nineteenth-century illustrated natural history books, with a reception and a lecture on their importance by Secretary Ripley.

September 25

Exhibition: *The John H. Phipps Donation*, an exhibition and catalogue of nineteenth-century ornithological works, honored the Smithsonian Institution Libraries donor and James Smithson Society Founder Medal recipient, J. H. Phipps.

September 25–26

Special Event: The James Smithson Society held its annual banquet and presented awards in conjunction with the autumn meeting of the National Board of the Smithsonian Associates.

September 27–October 3

Special Event: The Thirty-sixth Annual Conference of the International Union of Directors of Zoological Gardens was held at the Conservation and Research Center, Front Royal, Virginia, and the National Zoological Park.

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APPENDIX 2. *Smithsonian Special Foreign Currency Program Awards Made October 1, 1980, through September 30, 1981*

ARCHEOLOGY AND RELATED DISCIPLINES
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American Institute of Indian Studies, Chicago, Illinois. Continued support for administration; research fellowships; Center for Art and Archeology; U.S. participation in the Fifth World Sanskrit Conference; U.S. participation in the Fifth International Conference of Tamil Studies; Center for Ethnomusicology; documentary film on the annual bathing festival of Sitala; the Gujarat pre-historic project.

American Research Center in Egypt, Princeton, New Jersey. Operation of Center in Cairo; fellowship program in the study of archeology and related disciplines in Egypt; continuation of the architectural and epigraphic survey of Egypt; an archeological map of the Theban necropolis; excavations at Hierakonpolis; archeological investigations at Qasr Ibrim, Egyptian Nubia.

American University, Washington, D.C. The Vaishnava literary heritage of India.

Buena Vista College, Storm Lake, Iowa. Consultation on comparative electoral procedures (India).

Central Washington University, Ellensburg, Washington. Anglo-Indian relations in Western India, 1662-1690.

Duke University, Durham, North Carolina. Participation in conference, "The Monetary System of Mughal India."

Dumbarton Oaks Center for Byzantine Studies, Washington, D.C. A corpus of the mosaics of Tunisia (Tunisia); and publication (India).

Harvard University, Cambridge, Massachusetts. Preparation of a Baluchi-English dictionary (Pakistan); participation in Twenty-first Archaeometry Symposium (India).

Herbert H. Lehman College, Bronx, New York. Women and rice cultivation (India).

Indo-U.S. Subcommittee on Education and Culture, New York, New York. Indo-American fellowship program.

Massachusetts Institute of Technology, Cambridge, Massachusetts, U.S. participation in the First International Conference on Panini (India).

Roosevelt University, Chicago, Illinois. A survey of Teyyam participation and personal imagery in Kerala (India).

Southern Methodist University, Dallas, Texas. Prehistory of Egypt.

State University of New York at Stonybrook, Long Island, New York. Participation in the Third Annual Roundtable on South Asian Language and Linguistics (India).

University of Illinois, Urbana, Illinois. Mandalay Hill and King Mindon: the role of personal legitimation in Theravada Buddhist policy (Burma).

University of New Mexico, Albuquerque, New Mexico. The urban plan of Vijayanagara (India).

Washington State University, Pullman, Washington. Predynastic subsistence in the Nagada Region, Upper Egypt.

Western Michigan University, Kalamazoo, Michigan. The sending society: the effect of international migration on societies in India.

SYSTEMATIC AND ENVIRONMENTAL BIOLOGY (INCLUDING PALEOBIOLOGY)

Carnegie Museum of Natural History, Pittsburgh, Pennsylvania. Participation in the International Symposium on Rodent Origins and Radiation (India).

Duke University, Durham, North Carolina. Anthropological and paleontological research into the fossil anthropoid sites of the Egyptian Oligocene.

Howard University, Washington, D.C. Cenozoic mammals of Pakistan; participation in the Eleventh Himalayan Geology Seminar (India).

National Association for Equal Opportunity in Higher Education, Washington, D.C. Exchange visit to develop cooperative programs in the biological sciences and other areas of mutual interest (India).

National Museum of Natural History, Washington, D.C. Endangered plant workshop (India); continuation of research on the Araceae of southwestern India.

National Zoological Park, Washington, D.C. Comparative study of tiger programs (India).

New York Botanical Garden, Bronx, New York. Cyperaceae of India.

Pomona College, Pomona, California. Systematic studies of reproduction in bamboo (India).

Smithsonian Tropical Research Institute, Balboa, Panama. U.S. participation in the Silver Jubilee symposium of the International Society for Tropical Ecology (India); fellowship travel support (India); comparative studies of South Indian birds; survey of population status of pelicans in India.

Southern Illinois University, Carbondale, Illinois. The occlusal epidemiological transition in populations of North India.

Southern Illinois University, Edwardsville, Illinois. Anatomy of the monocotyledons (India).

Southern Methodist University, Dallas, Texas. A palynological and botanical survey in selected areas in Pakistan.

University of Georgia, Athens, Georgia. U.S. participation in the Silver Jubilee symposium of the International Society for Tropical Biology (India).

University of Maryland, College Park, Maryland. Taxonomic and zoogeographic studies of blennoid and soleiid fishes of the genera *Helcogramma* and *Pardachirus* (India).

University of Oregon, Eugene, Oregon. Post-Pleistocene dental variation in South Asia (India).

Washington State University, Pullman, Washington. Late Cenozoic climatic changes: the deep sea record (India).

ASTROPHYSICS AND EARTH SCIENCES

National Air and Space Museum, Washington, D.C. Desert erosion and sand movement (Egypt).

Smithsonian Astrophysical Observatory, Cambridge, Massachusetts. Continuation of operation of Uttar Pradesh State Observatory/Smithsonian Astrophysical Observing Station, Naini Tal, India; continuation of operation of a satellite-tracking laser system at the Helwan Observatory in Egypt; high-energy gamma-ray conference development (India); participation in Time and Frequency Conference (India).

University of Arizona, Tucson, Arizona. Pluvial lake studies (Egypt).

University of Maryland, College Park, Maryland. SMM-related research in solar astronomy (India).

University of Rochester, Rochester, New York. Petrologic and geochemical study of 3,800-million-year-old crust in Eastern India.

MUSEUM PROGRAMS

American Institute of Indian Studies, Chicago, Illinois. Development of photographic research archives (India).

Indo-U.S. Subcommittee on Education and Culture, New York, New York. Project support for Indo-U.S. joint programs; conference, "Discourses on Shiva;" Indian film festival.

Puppeteers of America, Washington, D.C. Documentation of traditional Kathputli puppeteers of Rajasthan, India.

APPENDIX 3. *National Museum Act Grants Awarded
in Fiscal Year 1981*

SEMINAR/WORKSHOP PROGRAM

American Association for State and Local History, Nashville, Tennessee
Association of Science-Technology Centers, Washington, D.C.
National Trust for Historic Preservation, Washington, D.C.
The Textile Museum, Washington, D.C.

STIPENDS TO INDIVIDUALS FOR CONSERVATION STUDIES

Michael Connolly, Queen's University, Kingston, Ontario, Canada
Paula DeCristofaro, Courtauld Institute of Art, London, England
Madeleine W. Fang, Queen's University, Kingston, Ontario, Canada
Karen Garlick, Folger Shakespeare Library, Washington, D.C.
Cathy Giangrande, University of London, London, England
Mary M. Giza, The Textile Conservation Centre, Ltd., Surrey, England
Joanna Hill, Museum of Fine Arts, Boston, Massachusetts
Paul R. Jett, Queen's University, Kingston, Ontario, Canada
Sharon R. Lee, US/ICOMOS, Washington, D.C.
Marilyn Lenz, University of London, London, England
Holly Maxson, Historical Society of Pennsylvania, Philadelphia, Pennsylvania
Lisa Minette Morriss, Queen's University, Kingston, Ontario, Canada
Judith A. Munn, The Library, Trinity College, Dublin, Ireland
Amy Rosenberg, Kelsey Museum of Archaeology, Ann Arbor, Michigan
Philip Sykas, The Textile Conservation Centre, Ltd., Surrey, England
Eugene V. York, Mystic Seaport Museum, Inc., Mystic, Connecticut

STIPEND SUPPORT FOR GRADUATE/PROFESSIONAL
EDUCATION AND TRAINING

Bank Street College of Education, New York, New York
Cooperstown Graduate Programs, Oneonta, New York
New York University, New York, New York
The University of Delaware, Newark, Delaware

STIPEND SUPPORT FOR MUSEUM INTERNSHIPS

- Association of Science-Technology Centers**, Washington, D.C.
- Carnegie Institute, Carnegie Museum of Natural History**, Pittsburgh, Pennsylvania
- Fogg Art Museum**, Cambridge, Massachusetts
- The Museums at Stony Brook**, Stony Brook, New York
- New York Botanical Garden**, Bronx, New York
- Rosary College**, River Forest, Illinois
- South Carolina Museum Commission**, Columbia, South Carolina
- The University Museum**, Philadelphia, Pennsylvania
- Yale University Art Gallery**, New Haven, Connecticut
- Zoological Society of Philadelphia**, Philadelphia, Pennsylvania

FELLOWSHIPS IN MUSEUM PRACTICES

- Jo Anne S. Arasim, Panhandle-Plains Historical Museum**, Canyon, Texas
- Carmelo Guadagno, Museum of the American Indian**, New York, New York
- Joshua R. Kaufman, University of Nebraska State Museum**, Lincoln, Nebraska
- Gary S. Roybal, San Ildefonso Pueblo Museum**, Santa Fe, New Mexico
- Katharine J. Watson, Bowdoin College**, Brunswick, Maine
- Marianne Yeutter, Washington Park Zoo**, Portland, Oregon

SPECIAL STUDIES AND RESEARCH

- Brookhaven National Laboratory**, Upton, New York
- Carnegie-Mellon University, Mellon Institute**, Pittsburgh, Pennsylvania
- Center for Archaeometry, Washington University**, St. Louis, Missouri
- Maxwell Museum of Anthropology**, Albuquerque, New Mexico
- Museum of New Mexico**, Santa Fe, New Mexico
- American Museum of Natural History**, New York, New York
- Pennsylvania State University**, University Park, Pennsylvania
- Zoological Society of San Diego**, San Diego, California

PROFESSIONAL ASSISTANCE

- African American Museums Association**, Washington, D.C.
- American Association of Museums**, Washington, D.C.
- American Association for State and Local History**, Nashville, Tennessee
- Association of Systematic Collections**, Lawrence, Kansas
- National Conservation Advisory Council**, Washington, D.C.
- Society of American Archivists**, Chicago, Illinois

APPENDIX 4. *Academic and Research Training Appointments in Fiscal Year 1981*

The Smithsonian offers, through the Office of Fellowships and Grants, research and study appointments to visiting scientists, scholars, and students. These appointees are provided access to the Institution's facilities, staff specialties, and reference resources. The persons listed in this appendix began their residencies between October 1, 1980, and September 30, 1981. Predoctoral Fellows are designated as Ph.D. candidates, and those names marked with an asterisk indicate Visiting Research students. Postdoctoral Fellows, senior scholars, and visiting scientists and interns are listed as such.

PROGRAM IN AMERICAN AND CULTURAL HISTORY

William T. Dargan, Ph.D. candidate, Wesleyan University. *A theoretical and functional analysis of music in select black Pentecostal churches*, with Dr. Bernice J. Reagon, Division of Performing Arts, from January 1, 1981, through December 31, 1981.

Gary Sue Goodman,* Ph.D. candidate, Stanford University. *"All about Me Forgotten"*, a biography of *Caroline Healey Dall, 1822-1912*, with Mr. Alan Bain, Smithsonian Institution Archives, from June 22, 1981, through August 28, 1981.

Elise K. Kirk, Ph.D., Catholic University of America. *Historical study of musical activities associated with the White House*, with Mrs. Margaret Klaphor, Division of Political History, National Museum of American History, from June 1, 1981, through May 31, 1982.

Sally McMurry, Ph.D. candidate, Cornell University. *Architecture and cultural change; rural homes of the North, 1830-1895*, with Ms. Rodris Roth, Division of Domestic Life, National Museum of American History, from September 1, 1981, through August 31, 1982.

William Nye, Ph.D., New School for Social Research. *The tragic genius of Charlie Parker*, with Dr. Thomas Vennun, Office of Folklife Programs, from September 1, 1981, through August 31, 1982.

Susan Tank, Ph.D., London School of Economics. *Iconography of American feminism; the political symbolism of the struggle for suffrage*, with Ms. Edith Mayo, Division of Political History, National Museum of American History, from May 1, 1981, through April 30, 1982.

PROGRAM IN ANTHROPOLOGY

Andrew Apter,* Ph.D. candidate, Yale University. *Yoruba drum language and ritual communication in Nigeria and the New World*, with Dr. Gordon Gibson, Department of Anthropology, National Museum of Natural History, from June 8, 1981, through August 14, 1981.

John A. Hotopp, Ph.D., University of Iowa. *Archeology of lower Cheyenne River sites (395T1)*, with Dr. Waldo Wedel, Department of Anthropology, National Museum of Natural History, from September 1, 1980, through December 31, 1981.

Priscilla Linn, Ph.D., Oxford University. *Social organization and material culture; research on the Canela Collection at the Smithsonian*, with Dr. William Crocker, Department of Anthropology, National Museum of Natural History, from June 15, 1981, through June 14, 1982.

David Meltzer, Ph.D. candidate, University of Washington. *Early man, the Smithsonian, and the development of American archaeology; an historical perspective*, with Dr. Bruce Smith, Department of Anthropology, National Museum of Natural History, from July 1, 1981, through December 31, 1981.

Martin Nweeia,* D.D.S. candidate, Case Western Reserve University. *Antimortem tooth discoloration and dental hypoplasia in indigenous populations of three North American regions*, with Dr. Donald Ortner, Department of Anthropology, National Museum of Natural History, from June 1, 1981, through August 12, 1981.

Nancy Parezo, Ph.D., University of Arizona. *The role of anthropologists and museums in the development of Southwest Indian arts and crafts*, with Dr. William Sturtevant, Department of Anthropology, National Museum of Natural History, from September 1, 1981, through August 31, 1982.

Donald Whitcomb, Ph.D., University of Chicago. *Archaeology of Islamic southern Arabia*, with Dr. Gus Van Beek and Dr. William Trousdale, Department of Anthropology, National Museum of Natural History, from September 1 to November 30, 1981, and from April 1 to December 31, 1982.

Wendy Wilson,* Ph.D. candidate, Howard University. *Analysis of data from Nigerian fieldwork on tattoos of pastoral Fulani*, with Mr. Edward Lifschitz, Museum of African Art, and Dr. Gordon Gibson, Department of Anthropology, National Museum of Natural History, from June 1, 1981, through August 7, 1981.

PROGRAM IN ASTROPHYSICS

Mitchell Berger, Ph.D. candidate, Harvard University. *Studies in theoretical solar physics*, with Dr. George B. Field, Smithsonian Astrophysical Observatory, from September 1, 1981, through May 31, 1982.

Jerome Brainerd, Ph.D. candidate, Harvard University. *Studies in astrophysics*, with Dr. Donald Q. Lamb, Smithsonian Astrophysical Observatory, from June 1, 1981, through August 31, 1981.

Tomasz Chlebowski, Visiting Scientist, Ph.D., Warsaw University. *Studies in high energy astrophysics*, with Dr. Frederick Seward, Smithsonian Astrophysical Observatory, from January 1, 1981, through August 31, 1981.

David Cooper, Ph.D., Oxford University. *Studies in astrophysics*, with Dr. George Rybicki, Smithsonian Astrophysical Observatory, from September 1, 1981, through August 31, 1982.

Thomas Hartquist, Visiting Scientist, Ph.D., Harvard University. *Studies in theoretical astrophysics*, with Dr. Alexander Dalgarno, Smithsonian Astrophysical Observatory, from June 1, 1981, through August 31, 1981.

Richard Munro, Visiting Scientist, Ph.D., Harvard University. *Research involving the physics of the solar corona and its solar wind acceleration region*, with Dr. George Withbroe, Smithsonian Astrophysical Observatory, from February 23, 1981, through March 31, 1981.

Patrick Murphy,* Ph.D., candidate, University College, Dublin. *Study of the properties of cD type galaxies using CCD camera*, with Dr. Trevor Weekes, Smithsonian Astrophysical Observatory, from May 25, 1981, through July 5, 1981.

Keith Olive, Ph.D., University of Chicago. *Studies in astrophysics*, with Dr. George Rybicki, Smithsonian Astrophysical Observatory, from July 1, 1981, through June 30, 1982.

David R. Soderblom, Langley-Abbott Fellow, Ph.D., University of California. *Studies in solar and stellar physics*, with Dr. A. K. Dupree, Smithsonian Astrophysical Observatory, from September 1, 1981, through August 31, 1982.

Saul Teukolsky, Visiting Scientist, Ph.D., California Institute of Technology. *Research on existing and new theoretical prospects in the areas of relativistic astrophysics and astrophysical fluid dynamics*, with Dr. Alan Lightman, Dr. William Press, and Dr. George Rybicki, Smithsonian Astrophysical Observatory, from August 15, 1981, through August 14, 1982.

Nigel O. Weiss, Visiting Scientist, Ph.D., University of Cambridge. *Collaborative studies of the effects of changing convection zone parameters in magnetic dynamo models*, with Dr. Robert Rosner, Smithsonian Astrophysical Observatory, from August 15, 1981, through September 5, 1981.

PROGRAM IN EARTH SCIENCES

George Anastasakis, Ph.D., University of Keele. *A study of the dynamic processes of sedimentation of sapropelic layers from the eastern Mediterranean and of associated early magnetic changes*, with Dr. Daniel Stanley, Department of Paleobiology, National Museum of Natural History, from July 1, 1981, through June 30, 1982.

PROGRAM IN ENVIRONMENTAL SCIENCES

Alan Bond, Visiting Scientist, Ph.D., University of California, Berkeley. *Special ecological studies*, with Dr. John Balling, Chesapeake Bay Center for Environmental Studies, from May 25, 1981, through August 21, 1981.

Judy Diamond, Ph.D., University of California, Berkeley. *Observational studies of families in natural environments*, with Dr. John Balling, Chesapeake Bay Center for Environmental Studies, from March 9, 1981, through March 8, 1982.

Russell Greenberg, Ph.D., University of California, Berkeley. *Experimental analysis of foraging plasticity in some migrant wood warblers (*Dendroica: Parulidae*)*, with Dr. Eugene Morton, National Zoological Park, from September 1, 1981, through August 31, 1982.

Tsukaho Hattori, Ph.D., candidate, Nagoya University. *Biogenesis of chloroplasts; in vitro synthesis of subunits of proton translocating ATPase complex of chloroplast*, with Dr. Maurice Margulies, Radiation Biology Laboratory, from September 1, 1981, through August 31, 1982.

Ikuo Horiguchi, Visiting Scientist, Ph.D., Hokkaido University. *Research on the spectral change of total sun and sky radiation and the effect on plant growth*, with Dr. John C. Sager, Radiation Biology Laboratory, from May 1, 1981, through September 30, 1981.

Blanche Meeson, Ph.D., University of California, Santa Barbara. *Photosynthetic response to adaptation of an estuarine dinoflagellate to light quality and irradiance*, with Dr. Maria Faust, Chesapeake Bay Center for Environmental Studies, from February 1, 1981, through January 31, 1982.

Patricia Mehlhop, Ph.D., University of New Mexico. *Worker caste polymorphism as a predictor of diet specialization in ants*, with Dr. James Lynch, Chesapeake Bay Center for Environmental Studies, from September 15, 1981, through September 14, 1982.

Nicholas M. Shaw, Ph.D., University of Wales. *The effect of cyclic nucleotides on the photoinduction and pathway of carotenoid biosynthesis in *Neurospora crassa**, with Dr. Roy Harding, Radiation Biology Laboratory, from September 1, 1980, through November 30, 1981.

Theresa Thompson,* M.S. candidate, University of Maryland. *Social organization within eastern wild turkey flocks at the Front Royal Research Center*,

with Dr. Eugene Morton and Dr. Guy Greenwell, Front Royal Research Center, National Zoological Park, from June 1, 1981, through August 7, 1981.

PROGRAM IN EVOLUTIONARY AND SYSTEMATIC BIOLOGY

Stephen Cairns, Ph.D., University of Miami. *A phylogenetic analysis of the Stylasterina (Coelenterata: Hydrozoa)*, with Dr. Frederick Bayer, Department of Invertebrate Zoology, National Museum of Natural History, from June 1, 1981, to May 31, 1982.

Charles Crumly, Ph.D. candidate, Rutgers University. *The intra- and inter-generic relationships of tortoises (Family Testudinidae); a survey and re-evaluation of anatomical systems*, with Dr. George Zug, Department of Vertebrate Zoology, National Museum of Natural History, from September 1, 1981, through August 31, 1982.

Mark Hay, Ph.D., University of California, Irvine. *Algal-animal interactions on tropical reefs; the effect of grazers on competitive interactions, reef productivity, and algal diversity*, with Dr. Walter H. Adey, Department of Paleobiology, National Museum of Natural History, from October 1, 1980, through September 30, 1981.

Sara Lewis, Walter Rathbone Bacon Scholar, Ph.D. candidate, Duke University. *The effects of echinoid and fish herbivory on algal species distributions and benthic community structure*, with Dr. James Norris, Department of Botany, National Museum of Natural History, from September 1, 1981, through July 31, 1983.

Miranda MacQuitty, Ph.D. candidate, University of London. *A systematic study of the Halacaroidea (marine mites) from the California coast*, with Dr. Ralph Crabill, Department of Entomology, National Museum of Natural History, from August 15, 1981, through August 14, 1982.

Nancy Morin, Ph.D., University of California, Berkeley. *Biosystematic study of Campanula species endemic to western North America*, with Dr. Stanwyn Shetler, Department of Botany, National Museum of Natural History, from October 1, 1980, through August 31, 1981.

Izumi Nakamura, Ph.D., Kyoto University. *The phylogenetic relationships of the fishes referred to the perciform suborder Scombroidei*, with Dr. Robert Gibbs, Department of Vertebrate Zoology, National Museum of Natural History, from January 1, 1981, through December 31, 1981.

Sunday Petters, Ph.D., Rutgers University. *Foraminiferal biostratigraphy, paleoecology, and paleobathymetry of the Niger delta*, with Dr. Martin Buzas, Department of Paleobiology, National Museum of Natural History, from March 1, 1981, through February 28, 1982.

D. R. Regupathy, Ph.D., Madurai-Kamaraj University. *Studies on comparative and systematic anatomy of palm trees*, with Dr. Robert Read, Department of Botany, National Museum of Natural History, from September 1, 1981, through August 31, 1982.

Robert Robbins, Ph.D., Tufts University. *Higher classification of the species-rich hairstreak butterflies*, with Dr. John Burns, Department of Entomology, National Museum of Natural History, from September 1, 1981, through August 31, 1982.

Maria Solis,* M.A. candidate, University of Texas, Austin. *A biogeographical comparison of the moths of Liquidambar forests*, with Dr. Donald Davis, Department of Entomology, National Museum of Natural History, from June 6, 1981, through July 17, 1981.

David Steadman, Ph.D. candidate, University of Arizona. *Vertebrate paleontology of the Galapagos Islands*, with Dr. Storrs Olson, Department of

Vertebrate Zoology, National Museum of Natural History, from July 1, 1981, through June 30, 1982.

Robert Steneck, Ph.D. candidate, Johns Hopkins University. *Adaptive trends in the ecology and evolution of crustose corallines; a key to interpreting evolution of shallow marine communities*, with Dr. Walter Adey, Department of Paleontology, National Museum of Natural History, from May 1, 1981, through April 30, 1982.

Garland Upchurch, Ph.D., University of Michigan. *The systematics, evolution, and paleoecology of early angiosperm leaves from the Potomac Group of Maryland and Virginia*, with Dr. Leo Hickey, Department of Paleobiology, National Museum of Natural History, from September 1, 1981, through August 31, 1982.

Jeffrey Williams,* Ph.D. candidate, University of Florida. *Cladistic relationships and revision of the genus *Cirripectes* (Pisces: Blenniidae)*, with Dr. Victor Springer, Department of Vertebrate Zoology, National Museum of Natural History, from June 14, 1981, through August 23, 1981.

PROGRAM IN THE HISTORY OF ART

David Bjelajac, Ph.D. candidate, University of North Carolina. *The relevance of Washington Allston's religious paintings to American politics and culture*, with Mr. William Truettner and Dr. Lois Fink, National Museum of American Art, from August 15, 1981, through August 14, 1982.

Bruce Coats,* Ph.D. candidate, University of California, Berkeley. *Japanese painting and calligraphy of 16th and 17th centuries*, with Dr. Yoshiaki Shimizu, Freer Gallery of Art, from June 15, 1981, through August 21, 1981.

Nancy Heller, Ph.D. candidate, Rutgers University. *The Sculpture of Ibram Lassaw*, with Mrs. Cynthia McCabe and Dr. Judith Zilczer, Hirshhorn Museum and Sculpture Garden, from February 1, 1981, through July 31, 1981.

Elizabeth Johns, Ph.D., Emory University. *Thomas Eakins; iconography and cultural context in his paintings*, with Dr. Lois Fink, National Museum of American Art and Ms. Phyllis Rosenzweig, Hirshhorn Museum and Sculpture Garden, from July 1, 1981, through June 30, 1982.

Koji Nakamura, Harold P. Stern Memorial Fund Fellow. M.A., Kyoto University. *Japanese Buddhist art*, with Dr. Thomas Lawton, Freer Gallery of Art, from October 1, 1980, through December 31, 1980.

Michael Panhorst,* M.A. candidate, University of Delaware. *The Samuel A. Murray collection at the Hirshhorn*, with Ms. Phyllis Rosenzweig and Dr. Judith Zilczer, Hirshhorn Museum and Sculpture Garden, from June 1, 1981, through August 7, 1981.

Julie Springer-Delph,* Ph.D. candidate, University of Minnesota. *The art and career of John White Alexander*, with Dr. Lois Fink, National Museum of American Art, from July 1, 1981, through September 9, 1981.

Diane Tepfer, Ph.D. candidate, University of Michigan. *Edith Gregor Halpert and the Downtown Gallery Downtown, 1926 to 1940; a study in American art patronage*, with Dr. Harry Z. Rand, National Museum of American Art, from August 1, 1981, through July 31, 1982.

PROGRAM IN THE HISTORY OF SCIENCE AND TECHNOLOGY

Peter Barboriak,* Ph.D. candidate, Duke University. *Medicine in the American military, 1819-1859*, with Dr. Ramunas Kondratas, Division of Medical Sciences, National Museum of American History, from June 1, 1981, through August 7, 1981.

Giovanni Battimelli, Guggenheim Fellow, Laurea in Fisica, University of Rome. *The historical development of the cross-fertilization between the statistico-mechanical and the hydrodynamical approaches in the theory of turbulence*, with Dr. Paul Hanle, Department of Space Science and Exploration, National Air and Space Museum, from October 1, 1980, through September 30, 1981.

R. E. G. Davies, The Charles A. Lindbergh Chair. *Research, writing, and lecturing in air transport history*, with Dr. Noel Hinners, National Air and Space Museum, from July 1, 1981, through June 30, 1982.

Victoria Harden, Ph.D. candidate, Emory University. *The National Institute of Health; the early years*, with Dr. Ramunas Kondratas, Division of Medical Sciences, National Museum of American History, from September 1, 1981, through August 31, 1982.

Pamela E. Mack, Guggenheim Fellow, Ph.D. candidate, University of Pennsylvania. *A history of LANDSAT, 1964-1977*, with Dr. Paul Hanle, Department of Space Science and Exploration, National Air and Space Museum, from October 1, 1980, through September 30, 1981.

Adrienne Nöe, Guggenheim Fellow, Ph.D. candidate, University of Delaware. *Pilot testing programs and flight simulation technology in the American military, 1910-1945*, with Dr. Tom Crouch, Department of Aeronautics, National Air and Space Museum, from August 1, 1981, through July 31, 1982.

Jeffrey Stine, Ph.D. candidate, University of California, Berkeley. *Technology and Empire; the diffusion of American technology abroad, 1898-1916*, with Dr. Nathan Reingold, Joseph Henry Papers, from September 15, 1981, through September 14, 1982.

PROGRAM IN MATERIALS ANALYSIS

Suzanne P. DeAtley, Ph.D., University of California, Los Angeles. *Production and exchange of Four Mile Polychrome in the Little Colorado region, Arizona*, with Dr. William Melson, Department of Mineral Sciences, National Museum of Natural History; Ms. Jacqueline Olin, Conservation Analytical Laboratory, Office of Museum Programs; and Dr. Bruce Smith, Department of Anthropology, National Museum of Natural History, from October 15, 1980, through October 14, 1981.

PROGRAM IN TROPICAL BIOLOGY

Catherine Craig, Ph.D. candidate, Cornell University. *Dynamics of prey capture by three species of orb-web weaving spiders*, with Dr. Michael Robinson, Smithsonian Tropical Research Institute, from September 1, 1981, through August 31, 1982.

Priya Davidar, Ph.D., University of Bombay. *Coevolution of neotropical mistletoes and birds, with emphasis on frugivory and seed dispersal*, with Dr. Neal Smith, Smithsonian Tropical Research Institute, from June 1, 1981, through May 31, 1982.

Stephen Garrity, Ph.D. candidate, University of Maryland. *The ecology of the rocky intertidal of the Caribbean coast of Panama*, with Dr. John D. Cubitt, Smithsonian Tropical Research Institute, from May 1, 1981, through April 30, 1982.

Stephen Mulkey,* Ph.D. candidate, University of Pennsylvania. *Herbaceous diversity of the tropical forest understory; a topographic analysis*, with Dr. Alan Smith, Smithsonian Tropical Research Institute, from June 1, 1981, through August 7, 1981.

Janie Lea Wulff, Ph.D. candidate, Yale University. *Intimate relationships of sponges; accidents or adaptations*, with Dr. Ross Robertson, Smithsonian Tropical Research Institute, from September 1, 1981, through August 31, 1982.

CHESAPEAKE BAY CENTER FOR ENVIRONMENTAL STUDIES WORK/LEARN STUDENTS

Donna Campbell, University of South Florida. *Work and study on the Chesapeake Bay Information Network Project*, with Dr. J. Kevin Sullivan, from June 26, 1981, through September 5, 1981.

Martha Cousar, Princeton University. *Study of community structure and population biology of benthic invertebrates*, with Dr. Anson Hines, from June 15, 1981, through October 30, 1981.

Susan Dixon, University of Vermont. *Work as Program Leader for Summer Ecology Program*, with Dr. John Falk and Ms. Vivian Harquail, from June 22, 1981, through August 21, 1981.

Sharyn Goldstein, University of Massachusetts. *Work and study emphasizing terrestrial plant ecology*, with Dr. Dennis Whigham, from June 1, 1981, through August 31, 1981.

William Peterjohn, Miami University. *Study of the compositional changes in groundwater and surface runoff occurring in three watersheds under different land management practices*, with Dr. David Correll, from July 20, 1981, through December 24, 1981.

Jonathan Pitkin, Swarthmore College. *A study of the young of the pickerel, *Esox niger*, and adult carp, *Cyprinus carpio*, at Rhode River*, with Mr. Joseph Miklas, from May 18, 1981, through August 21, 1981.

Gilbert Richardson, University of New Hampshire. *Ecological investigations of managed systems—a management preference study*, with Dr. John Falk, from May 24, 1981, through August 30, 1981.

Jim Shackelford, University of Michigan. *Work as program leader for Summer Ecology Program*, with Dr. John Falk and Ms. Vivian Harquail, from June 22, 1981, through August 21, 1981.

Vivian Vankai, Oberlin College. *Study of the role of heterotrophs in salt marsh*, with Dr. Maria Faust, from June 15, 1981, through September 4, 1981.

Matthew Werner, Wagner College. *Study of the feeding ecology of ant species in hardwood forest communities*, with Dr. James Lynch, from May 18, 1981, through November 18, 1981.

COOPER-HEWITT MUSEUM INTERNS

Sidney and Celia Siegel Fellowship Students

Michelle Coleman, Wesleyan University. *Work and study in the Office of the Director*, with Mr. Peter Scherer, from June 15, 1981, through August 21, 1981.

Susan Morrison, Harvard University. *Work and study in the Office of Exhibitions*, with Ms. Lucy Fellowes, from June 15, 1981, through September 18, 1981.

Lee Ann Pralle, Wellesley College. *Work and study in the Department of Decorative Arts*, with Mr. David McFadden, from June 15, 1981, through August 21, 1981.

HIRSHHORN MUSEUM AND SCULPTURE GARDEN INTERNS

Theresa Barnes, Scripps College. *Research and study in the Department of Painting and Sculpture*, with Mr. Howard Fox, from December 17, 1980, to February 8, 1981.

Ellen Borovsky, George Washington University. *Research and study in the Department of Education*, with Mr. Edward Lawson, from January 12 to May 5, 1981.

Robin Cembalest, Yale University. *Research and study in the Department of Painting and Sculpture*, with Ms. Phyllis Rosenzweig, from June 8, 1981, through August 14, 1981.

Susan Dickson, Principia College. *Research and study in the Department of Painting and Sculpture*, with Valerie Fletcher, January 5 to May 14, 1981.

Susan Emmet, University of Maryland. *Research and study in the Department of Painting and Sculpture*, with Mrs. Cynthia Jaffee McCabe, January 27 through May 31, 1981.

Adrienne Griffin, Georgetown University. *Research and study in the Department of Painting and Sculpture*, with Ms. Judith Zilczer, from June 8 to August 7, 1981.

Gretchen Grogen, Georgetown University. *Research and study in the Department of Painting and Sculpture*, with Ms. Judith Zilczer, from January 5 through May 31, 1981.

Susan Hammerland, College of William and Mary. *Research and study in the Department of Exhibition and Design*, with Mr. Joseph Shannon, from June 8, 1981, through August 14, 1981.

Martha-Lucia Sierra, Bogota, Columbia. *Research and study throughout museum for one year internship*, January 5, 1981, through December, 1981.

Erin Stimmell, Cornell University. *Research and study in the Department of Painting and Sculpture*, with Mrs. Cynthia Jaffee McCabe, from June 8, 1981, through August 14, 1981.

Lois Anne Sullivan, Pomona College. *Research and study in the Department of Painting and Sculpture*, with Dr. Miranda McClintic, from June 8, 1981, through August 14, 1981.

Rachel Walpole, Swarthmore College. *Research and study in the Department of Painting and Sculpture*, with Ms. Valerie Fletcher, from June 8, 1981, through August 14, 1981.

CONSERVATION INTERNS

Karen Garlick, Book Conservator, Folger Library. Two month internship in *Examinations and Treatments of Works of Art on Paper*, with Toni Owen, July through August, 1981.

Cindy Lou Molnar, University of Michigan at Ann Arbor. Oneonta State University of New York. *Study of Modern Painting Lining Techniques, Cleaning and Surface Treatments*, with Felrath Hines, Conservator, December 15, 1980 to August 15, 1981.

MUSEUM OF AFRICAN ART INTERNS

Stacy Head, Spelman College. *Work and study in the Curatorial Department*, with Mr. Lee Williams, from June 1, 1981, through August 7, 1981.

Pamela Pope, Mary Baldwin College. *Work and study with the Docent/Intern Coordinator*, Ms. Gretchen Jennings, from June 1, 1981, through August 7, 1981.

NATIONAL AIR AND SPACE MUSEUM INTERNS

Michael Dennis, University of Pennsylvania. *Work and study in the Department of Space Science and Exploration*, with Dr. David DeVorkin, from May 18, 1981, through August 14, 1981.

David Durham, California Institute of Technology. *Work and study in the Department of Aeronautics*, with Dr. Howard Wolko, from June 15, 1981, through August 28, 1981.

Stephen Garner, Lawrenceville School. *Work and study in the Department of Aeronautics, Silver Hill Facility*, with Mr. Robert Wood, from June 15, 1981, through August 7, 1981.

Heather Harrington, University of Kansas. *Work and study in the Center for Earth and Planetary Studies*, with Dr. Farouk El-Baz, from June 18, 1981, through August 14, 1981.

Marc Hodak, University of Maryland. *Work and study in the Department of Aeronautics*, with Mr. Glen Sweeting, from May 18, 1981, through July 24, 1981.

Lucy O'Keefe, University of North Carolina. *Work and study in the Department of Space Science and Exploration*, with Dr. Allan Needell, from May 18, 1981, through August 14, 1981.

Jo Anne Powell, Indiana University. *Work and study in the Art Department*, with Ms. Mary Valdivia, from June 15, 1981, through August 14, 1981.

Edward Pupek, Villanova University. *Work and study in the Bureau Library*, with Ms. Catherine Scott, from June 15, 1981, through August 14, 1981.

Rae Smith, Clark College. *Work and study in the Education Services Division*, with Ms. Janet Wolfe, from May 18, 1981, through August 14, 1981.

NATIONAL MUSEUM OF AMERICAN ART INTERNS

Andre Hawkins, Georgetown University. *Research and study in the Department of Education*, with Ms. Barbara Shissler Nosanow, from June 1, 1981, through August 31, 1981.

Paula Jennings, Arizona State University. *Research and study in the Office of the Registrar*, with Mr. William R. Johnston, from June 1, 1981, through July 31, 1981.

Birgit Larson, University of Arhus, Denmark. *Research and study in the Department of Twentieth Century Painting and Sculpture*, with Dr. Harry Z. Rand, from June 1, 1981, through July 31, 1981.

Ellen Mahoney, Smith College. *Research and study in the Office of Exhibition and Design*, with Ms. Georgine Reed, from June 1, 1981, through July 31, 1981.

Leslie Picot, Yale University. *Research and study in the Department of Education*, with Ms. Barbara Shissler Nosanow, from June 1, 1981, through July 31, 1981.

NATIONAL ZOOLOGICAL PARK PRIMATE CONSERVATION TRAINING PROGRAM

Rogério Castro, M.S. candidate, University of Florida. *Research and studies with the National Zoological Park Primate Conservation Training Program*, with Dr. John G. Robinson, from January 1, 1981, through August 31, 1981.

Carlos Saavedra, M.S. candidate, University of Florida. *Research and studies with the National Zoological Park Primate Conservation Training Program*, with Dr. John G. Robinson, from July 1, 1981, through May 31, 1982.

Sompoad Srikosamatarata, Ph.D. candidate, University of Florida. *Research and studies with the National Zoological Park Primate Conservation Training Program*, with Dr. John G. Robinson, from July 1, 1981, through May 31, 1982.

SECRETARY'S FELLOW RESEARCH ASSISTANT

Mumia wa Shimaka, Ph.D. candidate, Howard University. *Research assistant to Dr. Joseph Harris, Secretary's Fellow*, from September 1, 1981, through May 31, 1982.

SMITH COLLEGE-SMITHSONIAN INSTITUTION PROGRAM IN AMERICAN STUDIES

Linda Alexander. *Early 20th century exhibition catalogues*, with Mr. Garnett McCoy, Archives of American Art, from August 20, 1981, through December 18, 1981.

Jo Deutsch. *American perfumes in the later 19th century*, with Dr. G. Terry Sharrer, Division of Extractive Industries, National Museum of American History, from August 20, 1981, through December 18, 1981.

Lynda Edwards. *A study of instant baby formulas from 1914 to the present*, with Dr. G. Terry Sharrer, Division of Extractive Industries, National Museum of American History, from August 20, 1981, through December 18, 1981.

Anne Shuart. *Index of collection of Thomas Eakins photographs*, with Dr. Judith K. Zilczer, Hirshhorn Museum and Sculpture Garden, from August 20, 1981, through December 18, 1981.

Melinda Smith. *Franklin D. Roosevelt Centennial Exhibition*, with Dr. Arthur Molella, Division of Electricity and Modern Physics, National Museum of American History, from August 20, 1981, through December 18, 1981.

Rebecca Waning. *Exhibition: Celebration: A World of Art and Ritual*, with Ms. Kristie Miller, Renwick Gallery, from August 20, 1981, through December 18, 1981.

Patricia Wischerth. *The papers of Charles Willson Peale*, with Dr. Lillian Miller and Dr. Sidney Hart, Charles Willson Peale Papers, National Portrait Gallery, from August 20, 1981, through December 18, 1981.

Wendy Wright. *Research on North American Indian photographs*, with Ms. Paula Fleming, National Anthropological Archives, National Museum of Natural History, from August 20, 1981, through December 18, 1981.

SMITHSONIAN INSTITUTION ACADEMIC INTERNS

Division of Performing Arts

Sara G. Carr, Skidmore College. *Study of administration, fund raising, production, and daily management of the Twentieth Century Consort, performing arts group*, with Mr. Anthony Ames, from January 12, 1981, through May 31, 1981.

Mary Ellen Hulsey, Hollins College. *Research and production work for the Spring Celebration and the July 4th Celebration*, with Ms. Shirley Cherkasky, from January 1, 1981, through April 30, 1981.

Laura Lubman, George Washington University. *Assistant to the editor of Notes on the Arts and other publications*, with Ms. Margare Wentzel, from January 9, 1981, through April 30, 1981.

Sylvia Mansour, George Washington University. *Assistant in the Office of the Director of the Division*, with Ms. Sharyn H. Reitz, from February 1, 1981, through May 31, 1981.

Diane Oklota, Marywood College. *Work on the July 4th 1981 Celebration*, with Ms. Shirley Cherkasky, from May 20, 1981, through August 7, 1981.

Kathryn Ward, Wesleyan University. *Research and study compiling information for Notes on the Arts and assisting the editor*, with Ms. Margaret S. Wentzel, from July 7, 1981, through November 10, 1981.

Folklife Program

Barbara Smith, George Mason University. *Work and study reviewing taped interviews and preparing log sheets from the 1976 Festival of American Folklife*, with Ms. Susan Jane Kalcik, from May 11, 1981, through July 31, 1981.

Hirshhorn Museum and Sculpture Garden

Amy Heller, Hampshire College. *Training in various aspects of exhibits preparation*, with Mr. Joseph Shannon, Hirshhorn Museum and Sculpture Garden, and Ms. Kristie Miller, Renwick Gallery, from September 15, 1980, through May 31, 1981.

Joseph Henry Papers

Stephen Kladder, Hope College. *Historical research in manuscript and published sources*, with Dr. Arthur Molella, from January 19, 1981, through February 27, 1981.

National Air and Space Museum

Irene Endsley, American University. *Research and study involving library resources and records*, with Ms. Catherine Scott, from August 17, 1981, through November 16, 1981.

National Museum of American History

Lisa Gore, Purdue University. *Cataloguing newly acquired textile materials*, with Ms. Rita Adrosko, Division of Textiles, from January 21, 1981, through April 21, 1981.

Shannon Patsey, American University. *Research and study involving food technology*, with Dr. Terry Sharrer, Division of Extractive Industries, from June 25, 1981, through August 14, 1981.

Victoria Phillips, Smith College. *Research designed to provide graphics to be used for the George Washington exhibit*, with Dr. William Pretzer, Division of Graphic Arts, from June 8, 1981, through July 3, 1981.

Arlyn Purcell, Stanford University. *Study of the role played in New York City's history and urban policy by the construction of a railroad bridge*, with Dr. Brooke Hindle, Senior Historian, from August 15, 1981, through September 15, 1981.

Betty Schwartz, Stanford University. *Research using Smithsonian materials relating to maps and landscapes*, with Dr. William Pretzer, Division of Graphic Arts, from August 17, 1981, through December 20, 1981.

Vivian Stevens, George Washington University. *Cataloguing and identifying various items and studying basic exhibit techniques*, with Mr. Donald Kloster, Division of Military History, from May 14, 1981, through August 19, 1981.

National Museum of Natural History

Michael Blakey, University of Massachusetts, National Science Foundation Graduate Fellow. *Research on the early history of American physical anthropology*, with Ms. Paula Fleming, National Anthropological Archives, from July 1, 1981, through August 28, 1981.

Nadia Greenidge, New York University, National Science Foundation Graduate Fellow. *Research and study involving processing of brain and skeletal material*, with Dr. Lawrence Angel and Dr. Douglas Ubelaker, Department of Anthropology, from July 1, 1981, through August 21, 1981.

Michael Howell, University of Michigan, National Science Foundation Graduate Fellow. *Research and study in biological oceanography*, with Dr. James Norris, Department of Botany, from June 22, 1981, through August 15, 1981.

Willie D. Marks, University of the District of Columbia. *Work and study in the geological materials preparation laboratory*, with Dr. Daniel Appleman, Department of Mineral Sciences, from June 15, 1981, through December 18, 1981.

James L. Matory, Harvard University. *Research and study involving Smithsonian African weapons collections*, with Dr. Gordon Gibson, Department of Anthropology, from June 1, 1981, through August 21, 1981.

Gail Peretsman, Carleton College. *Geochemical and petrographic analysis of new meteorites in Smithsonian collection*, with Dr. Kurt Fredriksson, Department of Mineral Sciences, from June 15, 1981, through August 21, 1981.

Dana Seyfried, Macalester College. *Research and study on the Labrador project*, with Dr. William Fitzhugh, Department of Anthropology, from June 22, 1981, through August 28, 1981.

National Portrait Gallery

Frederick Williams, George Washington University. *Research and study in the Education Department*, with Dr. Kenneth Yellis, from September 28, 1981, through March 12, 1982.

Office of Museum Programs

Pamela Mays, Georgetown University. *Development of filmed education materials*, with Ms. Eleanor Crow, from July 7, 1981, through August 31, 1981.

Smithsonian Institution Libraries

Roxane Ahkao, University of Maryland. *Research and study in the Rare Book Conservation Laboratory*, with Mr. Johannes Hyltoft, from Septembers 14, 1981, through November 20, 1981.

Laura Anne Bédard, University of Maryland. *Work and study involving cataloguing and searching rare books*, with Ms. Dianne M. Chilmonczyk, from September 8, 1981, through December 31, 1981.

Gayle Porter, Brigham Young University. *Research and study with Automated Bibliographic Control System*, with Ms. Vija Karklins, from May 5, 1981, through June 25, 1981.

In addition to the appointments listed above, which are administered by the Office of Fellowships and Grants, the following bureaus hosted interns and fellows:

CHESAPEAKE BAY CENTER FOR ENVIRONMENTAL STUDIES WORK/LEARN STUDENTS

William Bridgeland

Marta Rovira

Joanne Zimmerman

FREER FELLOW

Holly Edwards, University of Michigan. *Islamic art and museology*. October 1980 to June 1, 1981.

NATIONAL AIR AND SPACE MUSEUM INTERNS

John L. Czarnecki, Rochester Institute of Technology. *General graphic arts support and multi-image production work*, with Ms. Patricia Woodside, Exhibits and Presentations Division, from June 8, 1981, through August 14, 1981.

Kathryn Elton, *Inventory of serials in preparation for binding*, with Ms. Catherine D. Scott, Library Branch, from June 22, 1981, to July 31, 1981.

Danielle George, St. Johns College. *Assist with general operation of a public affairs office*, with Ms. Rita Bobowski, Office of Public Affairs and Museum Services, from April 21, 1981, to June 15, 1981.

Holly J. Smeltzer, Indiana University of Pennsylvania. *General graphic arts support and multi-image production work*, with Ms. Patricia Woodside, Exhibits and Presentation Division, from February 3, 1981, to May 15, 1981.

Misho Protic, Harvard University. *Research and study of ballooning in the 1930s*, with Dr. Tom Crouch, Department of Aeronautics, National Air and Space Museum, from September 5, 1980, to December 5, 1980.

Center for Earth and Planetary Studies Interns

Ellen Lettvin, University of Michigan. *Assist in editing reports that relate to remote sensing of arid lands*, with Dr. Farouk El-Baz, from July 2, 1981, to August 13, 1981.

Shereen Sullivan, James Madison University. *Prepare an annotated desert bibliography*, with Dr. Farouk El-Baz, from June 29, 1981, to August 21, 1981.

NATIONAL MUSEUM OF AMERICAN ART SUMMER INTERNS

Christine Conniff, University of New Mexico. *Research and study*, with Allan Kaneshiro, Department of Education, from June 1, 1981, through July 31, 1981.

Jody Socol, Southern Methodist University. *Research and study with Merry Foresta*, Department of Twentieth Century Painting and Sculpture, from June 29, 1981, through August 7, 1981.

Education Interns

Claudia Esko, Pennsylvania State University (January 12–April 17, 1981)

Florence Schwein, George Washington University (January 12–April 17, 1981)

Veronica Taylor, Pennsylvania State University (January 12–April 17, 1981)

Kathryn Williams, George Washington University (January 12–April 17, 1981)

Program in Museum Studies

Deborah Confer, George Washington University (January 12–April 17, 1981)

Meryl Cohen, George Washington University (September 4, 1980–April 17, 1981)

Julia Daniel, American University (September 4, 1980–April 17, 1981)

Mary Lou Hansen, George Washington University (September 4, 1980–April 17, 1981)

Cheryl Hauser, Indiana University (January 12–April 17, 1981)

Roya Marefat, George Washington University (September 4, 1980–April 17, 1981)

Elizabeth Rodriguez, George Washington University (September 4, 1980–April 17, 1981)

Abigail Terrones, George Washington University (September 4, 1980–April 17, 1981)

Philip Wright, George Washington University (September 4, 1980–April 17, 1981)

CONSERVATION ANALYTICAL LABORATORY

Marino Maggetti, Ph.D., University of Fribourg, *Technology of Production of Imported and Locally Produced Spanish-Colonial Majolica*, with Jacqueline S. Olin, Conservation Analytical Laboratory, Office of Museum Programs and Richard E. Ahlborn, Department of Cultural History, Museum of American History, from June 29, 1981, through August 31, 1982.

SMITHSONIAN INSTITUTION TRAVELING EXHIBITION SERVICE INTERNS

Deborah Lerme, George Washington University. *Research and development of educational and interpretive materials*, with Ms. Marjorie Share, Education Department, from January through May 1981.

Alan Steiner, Wharton School, University of Pennsylvania. *Research and study on computer management*, with Mr. Antonio Diez, Assistant Director for Administration and Program Analysis, from May through August 1981.
Marta de la Torre, The American University. *Analysis of office space and exhibition and administrative work load*, with Ms. Eileen Rose, International Office, from May through August 1981.

SMITHSONIAN TROPICAL RESEARCH INSTITUTE SHORT-TERM FELLOWSHIPS/ASSISTANTSHIPS IN TROPICAL BIOLOGY

Scholarly Studies Program

Daniel Abel, Charleston College.
Bruce Alexander, Imperial College, London.
Thomas Barringer, University of Pennsylvania.
Robin L. Chazdon, Cornell University.
Kathleen Cole, University of Alberta, Edmonton.
Kathryn Dickson, Scripps Institute of Oceanography, University of San Diego.
Leo Fleishman, Cornell University.
Bruce Gill, Carleton University.
Debra Hoffmaster, Texas Technological University.
Theo Jacobs, Wageningen University, The Netherlands.
Kenneth Morgan, University of California at Los Angeles.
Patricia Parker, University of North Carolina at Chapel Hill.
William Pfitsch, University of Washington.
Gordon Rodda, Cornell University.
Jane Sherfy, University of California, Berkeley.
Jill Trainer, University of Michigan.
Carol Todzia, University of Texas at Austin.
Gayle VendeKerchove, University of Florida.
Jason Weintraub, Harvard University.
Lani West, Hopkins Marine Station, Stanford University.
Rolf Zell, Ruhr University, Bochum.

Educational Outreach Fund

Peggy Brodfuerhrer, De Pauw University.
Steve Gaines, Oregon State University.
Alan Herre, University of Chicago.
Noel Holbrook, Harvard University.
Luis Ibañez, Universidad de Panamá.
Julio Jaén, Universidad de Panamá.
Anthony Lent, Tufts University.
Stephen Mulkey, University of Pennsylvania.
Francis Ratnieks, New University of Ulster, Northern Ireland.
Rebecca Schad, Warren Wilson College.
David Snyderman, Alfred University.
Alex Villareal, Universidad Santa María La Antigua, Panamá.

EXXON Corporation

Rafael Araujo, Universidad de Panamá.
Victoria Batista, Universidad de Bogotá, Colombia.
Diana Botello, Universidad de Panamá.
Orlando Castillo, Universidad de Panamá.
Priya Davidar, University of Bombay.
Wilson Devia, Universidad Nacional de Colombia, Bogotá.

Sigl Dorugl, University of Papua, New Guinea.
Raghavendra Gadagkar, Indian Institute of Science, Bangalore, India.
Milton García, Universidad de Panamá.
Rigoberto González, Universidad de Panamá.
Nilka Grant, Universidad de Panamá.
María Dolores Heredia, Universidad de Sevilla.
Marta Lucía Martínez, Universidad del Valle, Cali.
Rodolfo Mendoza, Universidad de Panamá.
J. Enrique Moreno, Universidad Nacional de Colombia, Bogotá.
Dayra Mosley, Universidad de Panamá.
Beatriz de Pacheco, Universidad Nacional de la Plata.
Germán Parra, Instituto Valleucano de Investigaciones Científicas, Cali.
Elia Sandoval, Universidad de Panamá.
Frank Solís, Universidad de Panamá.
Eduardo Valdéz, Universidad de Panamá.
Luis Carlos Zamora, Universidad de Panamá.

APPENDIX 5. *Publications of the Smithsonian Institution Press
in Fiscal Year 1981*

GENERAL PUBLICATIONS

TRADE PUBLICATIONS

Esin Atil. *Renaissance of Islam: Art of the Mamluks*. 256 pages, 158 color and 20 black-and-white illustrations, 1 map. June 22, 1981. Cloth: \$47.50; paper: \$19.95.

———. *Kalila wa Dimna: Fables from a Fourteenth-Century Arabic Manuscript*. 95 pages, 26 color and 78 black-and-white illustrations. July 13, 1981. Cloth \$17.50; paper: \$9.95.

Walter J. Boyne. *Messerschmitt Me 262: Arrow to the Future*. vii + 188 pages, 8 color and 160 black-and-white illustrations. December 20, 1980. Cloth: \$19.95; paper: \$9.95.

M. L. Brown. *Firearms in Colonial America: The Impact on History and Technology 1492-1792*. 448 pages, 376 black-and-white illustrations. January 26, 1981. Cloth: \$45.00.

Steven R. Dorr. *Scholars' Guide to Washington, D.C. for Middle Eastern Studies*. (Seventh Guide in the series.) xiii + 540 pages. September 28, 1981. Cloth: \$27.50; paper: \$12.50.

Herbert Friedmann. *A Bestiary for Saint Jerome: Animal Symbolism in European Religious Art*. 378 pages, 6 color and 201 black-and-white illustrations. July 7, 1980. Cloth: \$35.00.

Paul A. Hanle and Von Del Chamberlain, editors. *Space Science Comes of Age: Perspectives in the History of the Space Sciences*. xiii + 194 pages, 70 black-and-white illustrations, 28 figures. March 20, 1981. Cloth: \$22.50; paper: \$12.50.

Mary Henderson. *Famous Personalities of Flight Cookbook*. 136 pages, 35 black-and-white illustrations. February 23, 1981. Paper: \$4.95.

Curtis M. Hinsley, Jr. *Savages and Scientists: The Smithsonian Institution and the Development of American Anthropology 1846-1910*. 319 pages, 22 black-and-white illustrations. May 25, 1981. Cloth: \$19.95.

Klaus Honnef, Joshua Taylor, and Gregory A. Vitiello. *Eisenstaedt: Germany*. (Co-published with Harry N. Abrams, New York) xvi + 96 pages, 94 black-and-white illustrations. October 30, 1980. Paper: \$12.50.

Warren B. King, compiler. *Endangered Birds of the World: The ICBP Bird Red Data Book*. (Reprinted text of Volume II, *Aves*, published in two parts in 1978 and 1979 by Iven Morges, Switzerland.) 624 pages. June 22, 1981. Cloth: \$19.95; paper: \$8.95.

Nathan Reingold, editor. *The Papers of Joseph Henry, Volume 4: The Princeton Years, January 1838-1840*. xxxiv + 475 pages, 279 line drawings. January 17, 1981. Cloth: \$30.00.

Hans Syz, J. Jefferson Miller II, and Rainer Rückert. *Catalogue of the Hans Syz Collection, Volume 1: Meissen Porcelain and Hausmalerei*. 607 pages, 37 color and 485 black-and-white illustrations. July, 1981. Cloth: \$80.00.

Herman Viola. *Diplomats in Buckskins: A History of Indian Delegations in Washington City*. 233 pages, 58 black-and-white illustrations. May 18, 1981. Cloth: \$17.50.

John H. White, Jr. *The John Bull: 150 Years a Locomotive*. 136 pages, 73 black-and-white illustrations. September 15, 1981. Paper: \$6.95.

TRADE BOOK REPRINTS

Walter J. Boyne and Donald S. Lopez, editors. *The Jet Age: Forty Years of Jet Aviation*. Second printing. 1981. vii + 190 pages, 213 black-and-white illustrations. Paper: \$8.95.

Adelyn Dohme Breeskin. *Mary Cassatt: A Catalogue Raisonné of the Graphic Work*. Second printing. 1981. 189 pages, 12 color and 264 black-and-white illustrations. Cloth: \$40.00.

Allan A. Hodges and Carol A. Hodges, editors. *Washington on Foot*. Second edition. Second printing. 1981. 202 pages, 124 black-and-white illustrations. Paper: \$4.25.

Margaret Brown Klapthor. *The First Ladies Hall*. Fourth printing. 1981. 24 pages, 9 color and 48 black-and-white illustrations. Paper: \$2.95.

TRADE SALE DISTRIBUTION

Bernice Johnson Reagon. *We'll Never Turn Back*. 75 pages, 142 black-and-white illustrations. February 1, 1980. Distributed for the Smithsonian Institution's Division of Performing Arts, Washington, D.C. Paper: \$7.95.

Constance M. Grieff. *John Notman, Architect*. 253 pages, 197 black-and-white illustrations. 1979. Distributed for the Athenaeum, Philadelphia. Paper: \$20.00.

TRADE SALE IMPORTS

G. Levy and P. Amitai. *Scorpiones: Arachnida I, Fauna Palaestina Series, Volume three*. 132 pages, 102 figures, 1 plate, 1 map. 1980. Distributed for the Israel Academy of Sciences and Humanities, Jerusalem. Cloth: \$22.50.

Susan M. Nicholson. *Catalogue of the Prehistoric Metalwork in Merseyside County Museums*. 148 pages, 379 line drawings, 2 maps. 1980. Distributed for the Department of Prehistoric Archaeology at the University of Liverpool. Paper: \$12.50.

S. Dillon Ripley. *A Naturalist's Adventure in Nepal: Search for the Spiny Babbler*. Published in 1952 by Ratna Pustak Bhandar, Nepal. Reprinted 1978. Second printing 1981. 301 pages, 18 plates, 1 map. Cloth: \$12.50.

Oskar Theodor. *Diptera: Asilidae, Fauna Palaestina Series, Volume Two*. 458 pages, 865 figures, 1 plate, 1 map. 1980. Distributed for the Israel Academy of Sciences and Humanities, Jerusalem. Cloth: \$22.50.

ANNUAL REPORTS

Chesapeake Bay Center for Environmental Studies, Annual Report, 1980. 16 pages, 1 black-and-white illustration. August 25, 1981.

Office of Membership and Development. *Benefactors of the Smithsonian Institution, 1980*. 104 pages. September 30, 1981.

Smithsonian Tropical Research Institute, Annual Report, 1979. 27 pages, 3 black-and-white illustrations. June 30, 1981.

Smithsonian Year, 1980. viii + 586 pages, 66 black-and-white illustrations. April 27, 1981.

Smithsonian Year, 1980. Statement by the Secretary. vi + 69 black-and-white illustrations. April 27, 1981.

EXHIBITION CATALOGUES

Freer Gallery of Art

Milo Cleveland Beach. *The Imperial Image: Paintings for the Mughal Court.* 237 pages, 24 color and 182 black-and-white illustrations. September 23, 1981.

Hirshhorn Museum and Sculpture Garden

Miranda McClintic. *Directions 1981.* 80 pages, 11 color and 39 black-and-white illustrations. February 11, 1981.

Phyllis Rosenzweig. *Larry Rivers: The Hirshhorn Museum and Sculpture Garden Collection.* 48 pages, 6 color and 50 black-and-white illustrations. July 9, 1981.

Joseph Shannon. *R. B. Kitaj.* 174 pages, 16 color and 86 black-and-white illustrations. September 16, 1981.

National Museum of American Art

The Animal Image: Contemporary Objects and the Beast. Preface and essay by Michael Monroe. 48 pages, 5 color and 40 black-and-white illustrations. September 16, 1981.

East and West: Painting/Poems by Sheila Isham. 40 pages, 5 color and 20 black-and-white illustrations. January 1, 1981.

The World of David Gilmour Blythe (1815–1865). Monograph and essay by Bruce W. Chambers. 216 pages, 6 color and 175 black-and-white illustrations. October 1, 1980.

National Museum of American History

Elizabeth Harris. *In Touch: Printing and Writing for the Blind in the 19th Century.* 31 pages, 10 black-and-white illustrations. April 21, 1981.

Deborah Warner. *Perfect in Her Place.* 22 pages, 33 black-and-white illustrations. August 30, 1981.

National Portrait Gallery

Dorinda Evans. *Benjamin West and His American Students.* 203 pages, 8 color and 148 black-and-white illustrations. October 9, 1980.

Smithsonian Institution Traveling Exhibition Service

Adelyn Dohme Breeskin. *Mary Cassatt: Graphic Art.* 64 pages, 9 color and 40 black-and-white illustrations. February 20, 1981.

Ricardo Muratorio. *A Feast of Color: Corpus Christi Dance Costumes of Ecuador.* 32 pages, 8 color and 93 black-and-white illustrations. February 11, 1981.

EXHIBITION CHECKLISTS

National Museum of American Art. *The World of David Gilmour Blythe (1815–1865).* 13 pages, 3 black-and-white illustrations. October 9, 1980.

———. *Jacob Kainen: Prints, A Retrospective*. (Supplement to "Checklist of Prints" in *Jacob Kainen: Prints, A Retrospective*.) 3 pages, 11 black-and-white illustrations. November 17, 1980.

———. *Art for All: American Print Publishing Between the Wars*. 16 pages, 11 black-and-white illustrations. December 17, 1980.

———. *Seventh Biennial Graphics Exhibition: High School Graphics VII*. 32 pages, 25 black-and-white illustrations. December 17, 1980.

———. *An American Perspective: Selections from the Bequest of Frank McClure*. 12 pages, 12 black-and-white illustrations. May 12, 1981.

———. *The Print in the United States from the 18th Century to the Present*. 22 pages, 14 black-and-white illustrations. September 28, 1981.

BOOKS

Anacostia Neighborhood Museum

Louise Daniel Hutchinson. *Anna J. Cooper: A Voice From the South*. 207 pages, 210 black-and-white illustrations. August 27, 1981.

National Air and Space Museum

Claudia M. Oakes. *Aircraft of the National Air and Space Museum*. 166 pages, 324 black-and-white illustrations. March 1, 1981.

National Museum of American History

Sami K. Hamarneh and Ernst W. Stieb. *Pharmacy Museums and Historical Collections on Public View in the United States and Canada*. 144 pages, 25 black-and-white illustrations. December 30, 1980.

National Museum of Natural History

Roger Pasquier. *Conservation of New World Parrots*. 485 pages, 9 black-and-white illustrations. September 18, 1981.

Radiation Biology Laboratory

William H. Klein and Bernard Goldberg. *Solar Radiation Measurements: 1978-1979*. 56 pages. December 1, 1980.

Smithsonian Institution

Official Guide to the Smithsonian. 144 pages, 165 color and 17 black-and-white illustrations, 2 maps. January 30, 1981.

BOOKLETS

Freer Gallery of Art. *The Whistler Peacock Room*. 32 pages, 1 color and 14 black-and-white illustrations. October 17, 1980.

National Museum Act Programs. *National Museum Act Grant Guidelines*. 24 pages. July 1, 1981.

National Museum of American Art. *Docent Handbook*. 20 pages, 2 black-and-white illustrations. August 1, 1981.

———. *Program of Memorial Service for Joshua C. Taylor*. 15 pages, 1 black-and-white illustration. May 18, 1981.

Office of Elementary and Secondary Education. *Let's Go to the Smithsonian: Learning Opportunities for Schools*. 39 pages, 54 black-and-white illustrations. July 31, 1981.

Office of Membership and Development. *James Smithson Society Fifth Annual Dinner*. 37 pages. September 17, 1981.

———. *James Smithson Society Invitation Booklet*. 7 pages. July 1, 1981.

Office of Fellowships and Grants. *Smithsonian Opportunities for Research and Study*. 146 pages. September 27, 1981.

Office of Public Affairs. *Smithsonian Institution—Welcome*. 19 pages, 15 black-and-white illustrations. October 5, 1981.

Visitors Information and Reception Center. *Planning Your Smithsonian Visit: National Associates*. Third printing. 11 pages. April 1, 1981.

———. *Planning Your Smithsonian Visit: Public Information*. Second printing. 14 pages. February 1, 1981.

FOLDERS

Freer Gallery of Art. *The Freer Gallery of Art*. Reprint. December 28, 1980. Second reprint. September 30, 1981.

Hirshhorn Museum and Sculpture Garden. *Directions 1981*. February 11, 1981.

National Museum of American Art. *Barney Studio House*. September 23, 1981.

———. *Barney Studio House Program II*. June 8, 1981.

———. *Barney Studio House Program III*. June 8, 1981.

———. *An Evening at Barney Studio House*. May 12, 1981.

———. *National Museum of American Art Gallery Guide*. May 1, 1981.

———. *National Museum of American Art, General Information*. June 29, 1981.

———. *Inventory of American Paintings Executed before 1917*. June 1, 1981.

———. *Late Nineteenth-Century American Architecture*. (University of Delaware/NMAA Symposium registration and program) March 16, 1981.

National Museum of Natural History. *The National Anthropological Archives*. March 30, 1981.

National Portrait Gallery. *The National Portrait Gallery*. May 19, 1981.

Office of Contributing Membership. *Funds Given in Support of the Smithsonian Go Far Beyond the Mall . . .* November 3, 1980.

Office of Elementary and Secondary Education. *Readers' Survey and Principals' Survey for "Let's Go."* January 1, 1981.

Office of Symposia and Seminars. *The Muses Flee Hitler: Program II*. December 22, 1980.

Radiation Biology Laboratory. *Radiation Biology Laboratory*. May 1, 1981.

Renwick Gallery. *1980–1981 Craft Lectures at the Renwick Gallery*. December 20, 1980.

FLYERS

Freer Gallery of Art. *Ancient Chinese Jade*. Revised, reprint. June 30, 1981.

———. *Chinese Buddhist Sculpture*. November 6, 1980. Reprinted July 31, 1981.

———. *Freer Gallery of Art General Information*. Reprint. August 8, 1981.

- . *The Imperial Image: Paintings for the Mughal Court*. September 23, 1981.
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326. Arthur H. Clarke. "The Tribe Alasmidontini (Unionidae: Anodontinae), Part I: *Pegias*, *Alasmidonta*, and *Arcidens*." iii + 101 pages, 32 figures, 24 tables. May 22, 1981.
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APPENDIX 6. *Publications of the Staff of the Smithsonian Institution and Its Subsidiaries in Fiscal Year 1981*

Publications are by staff members, research associates, and collaborating scientists.

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- Of Time and Place: American Figurative Art from the Corcoran Gallery.
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- . Book review of *Riding on a Blue Note*, by Gary Giddins. *Jazz Times* (June 1981).

RECORDS

- Handel: 7 Concerti Grossi, Opus 3.*
Twentieth Century Consort I.
Symphony in Black.
The Smithsonian Collection of Classic Country Music.
At Home Abroad.
Louis Armstrong and Sidney Bechet in New York: 1923–1925.
Duke Ellington: 1941.

OFFICE OF TELECOMMUNICATIONS

- Smithsonian Galaxy*, 104 2½-minute features.
Radio Smithsonian, 52 half-hour programs.
- The partial listing of *Radio Smithsonian* segments, which follows, contains material based on research done by Smithsonian curators or other personnel:
- Hair*. A visit to an exhibition surveying the styles and symbolism of hair design through the ages. [C–H] October 5, 1980.
- Up on the Roof*. A look at a new program to reintroduce peregrine falcons to the wild. [NMNH] October 5, 1980.
- Faster than Sound*. Charles E. "Chuck" Yeager, the first man to travel faster than the speed of sound, looks back at his career as a jet pilot. [NASM] October 19, 1980.
- The 1980 Festival of American Folklife*, Part I. Features sounds of Southeast Asian and traditional Georgian music, and the verbal artistry of auctioneers, hot-dog vendors, and street criers. [OAMERS] November 2, 1980.

- The 1980 Festival of American Folklife*, Part II. Features sounds of a Caribbean carnival and traditions and lore of Finnish-Americans. [OAMERS] November 9, 1980.
- Eisenstein and Griffith*. British film scholar Herbert Marshall, one of three Westerners to study with Sergei Eisenstein in Moscow, compares and contrasts the Russian's work with that of D. W. Griffith. [wwics] November 16, 1980.
- Buckaroos in Paradise*. New exhibition exploring past—and present—cowboy life in Paradise Valley, Nevada; the result of extensive research by the American Folklife Center of the Library of Congress. [NMAH] November 23, 1980.
- Western Views, Eastern Visions*. How early U.S. Geological Survey photographers shaped our image of the West with their hard-won photographs. [NMAH] November 23, 1980.
- Eisenstaedt's Germany*. Alfred Eisenstaedt, often called the "father of photojournalism," contrasts the Germany he knew in the thirties with the country he recently photographed for the first time in forty years. [NMAA] December 7, 1980.
- Discovering the Natural World*. A look at some new developments at the National Museum of Natural History with its new director, vulcanologist Richard Fiske. [NMNH] December 14, 1980.
- Webfoots and Bunchgrassers*. A visit to a new exhibition of folk art from Oregon at the Renwick. [NMAA] December 21, 1980.
- Animal Farm*. The National Zoo's Conservation and Research Center, where scientists seek to improve the care and breeding of rare animal species. [NZP] December 28, 1980.
- American Tap Masters*. A visit backstage with two of America's greatest tap dancers—Bunny Briggs and Sandman Sims. [DPA] January 4, 1981.
- Birdman of America*. Roger Tory Peterson talks about the new edition of his field guide. [RAP] January 4, 1981.
- Revolution in Art*. A remarkable exhibition on the Russian Avant-Garde; the highly influential and dynamic art produced there between 1910–1930. [HMSG] January 4, 1981.
- Life in a Coral Reef*. The exhibition where visitors can watch and scientists study what may be nature's most complex ecosystem at work in a 2,500-gallon tank. [NMNH] January 11, 1981.
- Lyndon Johnson: A "Presidential" Personality?* George Reedy, who worked with Lyndon Johnson through his Senate years and into the White House, examines this controversial man at a symposium exploring "presidential personality." [NPG] January 11, 1981.
- A Child's View of Appalachia*. Wendy Ewald, who teaches photography to Appalachian children, talks about their unique vision. [SITES] January 25, 1981.
- Clockwork Universe*. A remarkable exhibition of elaborate German clocks from the late Renaissance. [NMAH] February 1, 1981.
- A Voice from the South*. The life and writings of Anna J. Cooper, an Afro-American educator and advocate of human rights, whose career spanned the post-Civil War era to World War II. [ANM] February 1, 1981.
- Hammocks to Kimonos*. A group of craftsmen from New Hampshire who have brought their talents to the Renwick. [NMAA] February 15, 1981.
- Art for All*. The heyday of American print-making, when artists like Edward Hopper, Stuart Davis, and Thomas Hart Benton turned out prints—which are now collectors' items—for a pittance. [NMAA] February 22, 1981.
- Diving for the Indiana*. The story of a remarkable expedition to salvage the oldest surviving American-made engine from a freighter that sank in Lake Superior in 1858. [NMAH] March 1, 1981.

- East Meets West.* Featured is artist Sheila Isham, whose "painting/poems" are richly influenced by her study of Chinese calligraphy. [NMAA] March 1, 1981.
- Vanishing Jungles.* Eminent biologist Edward Ayensu examines one of the world's most critical problems—the rampant destruction of rain forests—which could trigger global repercussions. [NMMNH] March 8, 1981.
- Atlantic Fever.* Reflections on the dream of crossing the Atlantic in a balloon, attempted by many but only achieved in 1978 with the passage of the "Double Eagle II." [NASM] March 15, 1981.
- Directions 1981.* A look behind a new exhibition of contemporary art as artists prepare their works for display. [HMSG] March 15, 1981.
- Music of Fats Waller and James P. Johnson.* A Smithsonian recreation of some classic works by these two great masters of Harlem piano—pupil and teacher—hosted by Martin Williams. [DPA] March 22, 1981.
- The Code Duello.* A visit to an exhibit exploring the controversial practice of dueling—part of a "gentlemen's" everyday life in America until the 1840's. [NPG] March 29, 1981.
- A Curator's Dream.* A spectacular new bequest to the Smithsonian of military artifacts from the Napoleonic Wars to the Civil War. [NMAH] March 29, 1981.
- Fire in the Minds of Men.* James H. Billington, director of the Woodrow Wilson International Center for Scholars, discusses his new book, which probes the rise of the revolutionary spirit. [wwics] April 5, 1981.
- Sino-Smithsonian Science.* Secretary Ripley outlines the recent agreement encouraging scientific exchange between the Smithsonian and the Chinese Academy of Sciences. [SI] April 12, 1981.
- Zoos Around the World.* National Zoo director, Theodore H. Reed, explores dramatic changes in zoo-keeping and animal research. [NZP] April 12, 1981.
- China Revisited: An Affair of the Heart.* Americans who grew up in China reminisce about the land of their birth. [NMAA] April 12, 1981.
- Egypt Today.* Highlights from the national symposium celebrating the culture and people of Egypt. [RAP] April 26, 1981.
- Remembering Roberta Martin.* Members of the original Roberta Martin Singers—the pioneering gospel group—sing and reminisce about their days with the "Duke Ellington" of gospel music. [DPA] May 3, 1981.
- Collecting Tradition.* Noted Hungarian fiber artist Olga Fisch looks back at her nearly seventy years of collecting folk art, particularly the fiesta costumes of her adopted home, Ecuador. [Renwick, NMAA] May 10, 1981.
- How Fleeting Is Fame.* An exhibit exploring nineteenth-century celebrities now forgotten. [NMAA] May 17, 1981.
- New Expressions in an Ancient Art.* Major exhibition of new works in porcelain, which is becoming an increasingly popular medium for American artists. [Renwick, NMAA] May 24, 1981.
- Renaissance of Islam.* The opulent legacy of the Mamluks, thirteenth-century rulers of Egypt and Syria, as seen in the first major exhibition of art of that era, now beginning a national tour. [Freer] June 7, 1981.
- Great American Gardens.* A look at some of America's best-known gardens—what inspired them, and how they differ from their European counterparts. [RAP] June 14, 1981.
- The Trouble with Pandas.* A report on the struggles to mate the National Zoo's pandas, and how a recent research trip to China may provide some answers. [NZP] June 21, 1981.
- The Animal Image.* An exhibition exploring how contemporary American artists and craftsmen are depicting animals. [Renwick, NMAA] June 21, 1981.
- Thomas Jefferson and Science.* Our third president's contributions to a host of scientific fields, including paleontology, ethnology, archeology, and cryptology. [NMAH] June 28, 1981.

- On the Midway.* A celebration of American popular entertainment, including vaudeville performers, circus acts, and radio sound-effects creators. [DPA] July 5, 1981.
- Famous Personalities of Flight Cookbook.* From the Wright brothers to Neil Armstrong, a new collection of their favorite recipes shows a different side of the people who have made aerospace history. [NASM] July 12, 1981.
- Virtues of the Viol.* The long-forgotten viola da gamba, once the virtuoso stringed instrument of the European courts, plays again at the Smithsonian. [NMAH] July 12, 1981.
- Champions of American Sport.* A look at the first major exhibition ever devoted to outstanding American sports personalities. [NPG] July 19, 1981.
- Diplomats in Buckskins.* The story of how hundreds of Indians braved Washington in the mid-1800s to see the "Great Father," as told by Dr. Herman Viola, director of the National Anthropological Archives. [NMNH] July 26, 1981.
- New Directions? The United States and Europe in the 80's.* Highlights from a recent special program exploring political, military, and economic implications of our changing relationship with Europe. [RAP] August 2, 1981.
- Planes from the Palette.* A look at how a group of leading photo-realist painters have depicted flight. [NASM] August 16, 1981.
- The Spirit of Clara Barton.* A visit to a special exhibition marking the hundred years of humanitarian service performed by the American Red Cross. [NMAH] August 16, 1981.
- At Home with the Apes.* Visit to the new Great Ape House, with its illusion of jungle freedom. [NZP] August 16, 1981.
- Treasure of the Quicksilver Galleons.* Considered one of the most valuable finds in history, the recovered riches from two shipwrecked Spanish galleons shed new light on life in eighteenth-century Spain. [SITES] August 23, 1981.
- Catlin's Indian Gallery.* The life and work of George Catlin, who immortalized his personal impressions of Indians in hundreds of paintings. [NMAA] August 23, 1981.
- The 1981 Festival of American Folklife, Part I.* Highlights from the recent festival, featuring the sounds of classic "tent" minstrel shows, and crafts and music of Yugoslav-Americans and native American Ojibwes. [OAMERS] August 30, 1981.
- The 1981 Festival of American Folklife, Part II.* More sounds and music, from Southwesterners building an adobe house to Appalachian string bands and New England fiddlers. [OAMERS] September 6, 1981.
- The Changing American Farm.* In celebration of the 150th anniversary of McCormick's farm reaper, a look at how machines and agricultural research have forever altered the American way of farming. [NMAH] September 13, 1981.
- A Stradivari Treasure.* The sounds and history of one of Antonio Stradivari's most brilliant instruments, the so-called Servais cello of 1701, recently donated to the Smithsonian. [NMAH] September 20, 1981.
- Is Democracy for Everyone?* Experts on Latin America and Europe, from the Smithsonian's Woodrow Wilson International Center for Scholars, discuss what propels a nation toward the loosening of authoritarian rule, and why democracy succeeds in some countries while failing in others. [wwics] September 27, 1981.

SMITHSONIAN EXPOSITION BOOKS

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MEMBERSHIP AND DEVELOPMENT

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READING IS FUNDAMENTAL

RIF Bulletin. A quarterly publication for volunteers.

RIF Newsletter. A quarterly publication, reporting on RIF activities nationwide. The *Newsletter* is distributed to the public as well as to RIF projects. It reaches more than 20,000 readers.

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September 30, 1981*

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- Aerolineas Argentinas: model of a deHavilland Comet 4.
Col. William B. Arnold: General H. H. Arnold's flag of General of the Air Force; 1 painting *General Arnold*, by Charles Baskerville.
Aviation Warehouse, Inc.: B-17 ball turret.
Mrs. Audrey Balchen: 5 watercolors and 4 drawings by Bernt Balchen.
Black Hills Aviation, Inc.: Boeing B-17G Flying Fortress.
Mr. Richard L. Brant: model of Nakajima *Kitta*.
Mr. Steve Bryant: model of Bell P-59A Aerocomet.
Mr. Mark Chases: 1 untitled sculpture by Bijan Bahar.
Mr. Cliff M. Cheifetz: RCA-MI2045 headset and microphone.
Mr. E. D. Cook: 1 compass, 1 map, 1 mirror.
Mrs. Hereward L. Cooke: 1 drawing, *Moonscape*, by Hereward L. Cooke.
Desert Air Parts, Inc.: Beechcraft C-17L.
Mr. Alberta de Silva Pereira: 4 Air Portugal badges.
Dorothy Fiske Memorial Fund: 1 drawing, *Exploratory Moon-Probe Lunacycle "Maud,"* by Rowland Emmett.
Mr. Daniel J. Dossert: models of SAAB J29F and Heinkel He 178.
Mr. Frederick C. Durant: Navy flying headset.
Earth Satellite Corporation: 20 Landsat photographs.
Fairchild Republic Company: Fairchild Republic A-10 instrument panel.
GDA Advertising Inc.: 2 mixed-media art works, *Aviation*, by Chet Jezierski, and *Telecommunications*, by Mark English.
General Dynamics Corporation: model of General Dynamics F-16.
General Electric Corporation: GE CI 805 Turbojet.
Mr. Harvey Gernsback: 1 painting, *Gravity Flyer*, by Frank Paul.
Mr. William V. Gough: post-World War II, U.S. Naval aviator's suit, insignias, and accessories.
The James Smithson Society: 1 painting, *Bader Bail-Out*, by Frank Wootton.
Mrs. Benjamin Kelsey: 1 painting, *Curtiss JN-4d Jenny*, by Daniel J. Layman.
Mr. Gregory Kennedy: U.S. Army field belt.
Mr. Ray Kingan: World War II service cap.
Mr. Jury Koroliov: 1 painting, *General Constructor S. P. Koroliov*, by donor.
Mr. William Koster: model of MIG-15 and Gloster Meteor.
Mr. Edward Kuklewicz: U.S. Army shirt, World War II.
Laker Airways Ltd.: 1 painting, *Laker 30 . . . Cleared Oceanic*, by Walter Wright.
L'Association Francais Pour les Celebrations Nationales: commemorative medal for Flight of Bellonte & Costes, 1930.
Mr. Charles J. Leary: commemorative plaque, Transatlantic Flight by Bremen, 1928.
Mr. Andrew F. Lech: WACO-10 model.
Mr. Robert Lehmacher: miscellaneous pieces of USAAF, USAF, and USN equipment.
Lockheed Missile and Space Corporation: space telescope model.
Mr. Donald S. Lopez: air navigation computer.
Mr. and Mrs. E. F. Majewski: USAAF 7th Balloon Company map case.
Mr. Clarence Measelle: 1 painting, *Cessna*, by donor.
Mr. Louis K. Meisel: 1 silkscreen print, *Shatzi*, by Tom Blackwell.
Mr. Robert B. Meyer: insignia of Civil Air Patrol, USAF Auxiliary.
Mr. Robert C. Mikesch: Antilles Air Lines employee badge.
Military Aircraft Storage and Disposal Center, McDonnell RF-101C nose section.
Mr. F. Paul Miller: fabric from R-34 airship.
Ivonne and Harold S. Miller: original fabric from Wright 1903 Flyer.
Mr. Skip Miller: radio controlled sailplane model.

Dr. Frank K. Mitchell: model of Gloster E-28/29.
 Mr. Robert C. Mitchell: World War II Army belt and eyeglasses.
 MPB Corporation: 4 paintings, *Douglas A-D4 Skyraider*, *Curtiss SBC-4 'Scout Bomber'*, *Vought F4FU-4 'Corsair'*, and *Consolidated PBV-5A*, all by R. G. Smith.
 M. T. V. Company: replica of von Ohain He 53B turbojet engine.
 Mr. Richard A. Murray: sculpture, *Altravaz*, by donor.
 National Aeronautics and Space Administration: 3 drawings, *Esterna Circolare Destra*, *Interna Circolare Sinistra*, and *Tondo for Softlander*, by Charles Schmidt.
 National Aeronautics and Space Administration, Langley Research Center: 1 wind tunnel model, Boeing 767 model, Boeing 757 model, Lockheed L1011 model, DC-10 series model, structural test components, laminar flow control systems.
 National Space Club: 1 drawing, *Robert H. Goddard*, by Eldon Kaeding.
 Mr. Harvey Page: 2 aircraft recognition napkins.
 Mr. Richard G. Pallas: knife from Zeppelin.
 Paramount Pictures Corporation: 5 paintings of scenes from *Star Trek*, by Robert T. McCall.
 Mr. George A. Petersen: 1 electrically heated shoe insert.
 Capt. Matthew H. Portz: U.S. Navy shoes.
 Pratt & Whitney Corporation: Pratt & Whitney JT3 turbojet engine.
 Dr. George Duncan Robertson: Le Rhone 80 HP World War I rotary engine.
 Rockwell International Corporation: Space Shuttle model.
 Mr. Leo Sanders: U.S. Navy World War I compass.
 Mr. Allan F. Schanzle: glider model.
 Mr. R. H. Schlepper: 11 flight instruments.
 Guido Singer (gift of), courtesy of National Aeronautics and Space Administration: Delta 3914 model.
 Mr. V. D. Smith: pennant from International Aviation Meet, Chicago, 1911.
 Mr. John D. Stewart, Ms. Lynn C. Davis, and Mr. Van L. Hartman: fabric from the tail fin of Star Cavalier N-31N.
 Mr. Robert Storck: flying jacket, trousers, and shoes, Caproni-Campini model.
 Ms. Susan Tennant: sculpture, *Tri-Plane with Aerobatic Wing Walkers*, by donor.
 Ms. Alma W. Thomas: 3 untitled watercolors by donor.
 Mr. and Mrs. Milton Turner: 7 paintings entitled, *Space Interpretation*, by Ludwig Kroutie.
 U.S. Air Force: 1 cannon, 1 bomb.
 U.S. Navy, U.S. Atlantic Fleet: U.S. Navy life preserver, U.S. Navy flight deck crewman's equipment.
 U.S. Navy, Office of the Secretary: Nakajima B6N2 *Jill*.
 U.S. Senate, Committee on Commerce, Science, and Transportation: North American X-15 model.
 U.S. Department of Treasury, Bureau of Alcohol, Tobacco and Firearms: World War II German machine-gun magazine.
 Capt. Theodore G. Williams: World War I, U.S. Army uniform accessories.
 Mr. E. T. Wooldridge, Jr.: summer flying suit.

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L. A. T. Ege: 3 photographs of Colonel and Mrs. Charles A. Lindbergh.

Ms. Loredana Sgueglia Giurco: archival material on women in astronautics.

L. D. Groves: sketch of Lieut. Col. Harry Abbott.

Harry S. Truman Library: Horace E. Weihmiller's papers (1932–1962), aircraft designer and consultant.

A. E. Hill: 5 photographs of Glenn Curtiss, Tom Blakely, Frank H. Ellis, Marjorie Stinson, Eugene Ely, and the wreckage of Admiral Byrd's *America*.

Mr. Charles Holt: commemorative air-mail letters, dated May 15, 1918, and July 15, 1918.

Mr. Charles E. Johnson: scrapbook of Foggia, World War I Bomber Squadron, originally owned by Norman Sweetser.

Ira Milton Jones: program of the ninth and tenth Reunion of the World War I Overseas Flyers.

Lieut. M. J. Kasiuba: 40 slides of military aircraft.

Mr. Steward Luce: documentation of the restoration of the Northrop N3PB.

Mr. James P. Miller: correspondence about Zenos R. Miller in a letter from Major H. E. Hartney, dated July 28, 1918.

Mrs. Sandra Norell: photographic collection owned by Jesse Goss of Fokker *Tri-Motor*, Douglas TD seaplane, *City of Spokane*, and other commercial airliners.

Mr. John H. W. Palfrey: poem entitled, *Winged Victory*.

Mr. Jefferson Patterson: notebooks of Frank S. Patterson, student of aeronautical engineering.

Mr. Louis Anthony Petronio: combat record and list of missions.

Joseph de Casseres Reshower: correspondence of L. W. Brown and Dean B. Hammond; photographs of *Mister Mulligan* and *Lady Peace*.

Mr. Robert Salkeld: technical report entitled "Comparison of Advanced Manned Booster and Spacecraft Concepts Utilizing Ground and Airborne Launch Platforms."

Ryoichi Sasakawa: commemorative Space Expo Official Report (Tokyo, Japan).

Mrs. Margaret E. Schwartz: article entitled, *Fifty Golden Years of Alaskan History*.

Mr. Mark Spry: scrapbook on the *Air Battle of Ploesti*.

Mrs. Irene A. Thomas: aeronautical sheet music entitled, *Take Me Up With You Dearie*.

Mr. James J. White: recording of *Charles A. Lindbergh's Address before the Press Club at Washington, D.C., June 11, 1927*.

NATIONAL MUSEUM OF MAN, CENTER FOR THE STUDY OF MAN

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NATIONAL HUMAN STUDIES FILM CENTER

Mabel H. Brandon: 1,365 feet of master/print film shot by Frederick Wulsin in Africa.

Dr. Robert E. Haupt: 965 feet of master/print film shot in India.

Library of Tibetan Works and Archives: 11,860 feet of synch sound research footage of traditional Tibetan life and culture, filmed in Ladakh (Western

Tibet); 25,200 feet of synch sound research footage of traditional Tibetan life and culture, filmed in Tibetan monastic communities in India in 1981.
 Micronesian Area Research Center: 20,000 feet of synch sound research footage on traditional lifestyle of the Western Caroline Islands of Micronesia.
 Royal Nepal Academy: 53,550 feet of synch sound research footage on the cultural heritage of Nepal.
 Summer Institute of Linguistics, Institute of Papua New Guinea Studies, and the University of Papua New Guinea: 23,250 feet of synch sound research footage from traditional cultures in Papua New Guinea.
 William V. Vitarelli: 8,300 feet of master/print film shot in Micronesia 1951-1975.
 Professor Scott Williams, Bellevue Community College: 8,000 feet of synch sound research footage on traditional child behavior and social interaction in Micronesia.

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- Aarhus, University of, Denmark: 240 plants (322329, 341372).
Aberdeen, University of, Scotland: 1 mineral (342744, exchange).
Academia Sinica, China: 250 plants (341387, 343030, exchanges).
Academy of Sciences, USSR: 200 plants (341876, exchange).
Adelaide, University of, Australia: 36 plants (343485, exchange).
Agriculture, U.S. Department of: 639 plants (341432, 343907, 345505); 12 crustaceans (343243); 47,673 insects (342526, 342535, 342542, 344882, 344904, 344905, 346364).
Alaska, University of: 1 walrus (345783).
Alberta, University of, Canada: 10 plants (344597, exchange).
Alfred University: 5 sponges (345341).
American Museum of Natural History: 1 bird skeleton (345435, exchange); 280 echinoderms (250390, 344679); 8 weevils (344743), exchange); 1 mineral (345831, exchange).
A. Mickiewicz University, Poland: 2 worm slides (342834).
Annamalia University, India: 2 crustaceans (325402).
Antioquia, University of, Colombia: 31 plants (344601).
Aquatic Research Institute: 1 crustacean (345852).
Archäologisch-Zool. Arbeitsgruppe, Germany: 4 bird skeletons (342312, exchange).
Arizona, University of: 1 bird skin (344913, exchange); 50 birds (345746, 346001); 3 crustaceans (337518); 10 plants (342405).
Arkansas State University: 30 crustaceans (335200).
ARTROX: 1 mineral (342665).
Atomic Energy Commission, U.S.: 12 alligator skeletons (337505).
Auckland, University of, New Zealand: 21 crustaceans (342290, exchange); 3 mollusks (343228).
Australian Institute of Marine Science, Australia: 8 corals (340462).
Australian Museum, Australia: 10 crustaceans (345003); 2 snakes (345900, exchange).
Baltimore Zoo: 1 giant squirrel (341748).
Barry A. Vittor & Associates: 9 crustaceans (343688).
Bay Shore Group: 35 gemstones (343528).
Bergen, University of, Norway: 1 bamboo (345578).
Bernice P. Bishop Museum: 221 plants (341375, 345557, exchanges).
Bideaux Minerals: 3 minerals (342038).
Biological Station, Canada: 4 crustaceans (334321).
Bombay Natural History Society, India: 1 bird skin (343186, exchange).
Boston University, Marine Program: 4,534 crustaceans (341473, 342039, 342340).
Botanisches Museum, Germany: 14 plants (343470, exchange).
Brigham Young University: 1 plant (343478); 7 fossil sponges (345752).
Bristol University, England: 4 minerals (344715).
British Museum (Natural History), England: 2 insect slides (345302); 1 meteorite (342063, exchange); 4 mollusks (343239); 168 plants (342444, 343473, 345564, exchanges).
Calicut, University of, India: 136 plants (341428).
California Academy of Sciences: 18 crustaceans (324583).
California Department of Fish and Game: 100 crustaceans (343120).
California Department of Food and Agriculture: 46 insects (345308, 345309).
California, University of: 283 crustaceans and 29 crustacean slides (336521, 337342, 341657, 342585, 343253, 343552, 344050, 344192); 19 echinoderms (343552); 3 mollusks (343552); 567 plants (343499, 345506, exchanges); 25 worms (343552).

California State University: 3 plants (341857); 14 crustaceans (343650).
 Canada Biosystematics Research Institute, Canada: 3 insects (345632).
 Canada Geological Survey, Canada: 16 fossils (342503, 343890).
 Canada Pacific Biological Station, Canada: 4 crustaceans (342819).
 Canberra Botanic Gardens, Australia: 221 plants (343897, 344525, 345084, ex-
 changes); 36 plants (345558).
 Canfield Fund: 8 minerals (343063, 343215, 343217, 343233, 344657).
 Cape Town, University of, South Africa: 1 mineral (341947).
 Carnegie Museum of Natural History: 1 plant (345580); 4 turtles (345708, ex-
 change).
 Centre National de Tri D'Océanographie Biologique, France: 40 worms
 (344953).
 Centre National L'Exploration des Océans de Bretagne, France: 39 fossils
 (343652).
 Centre Oceanologique de Bretagne, France: 1 worm (345956).
 Centro Agronomico Tropical de Investigacion, Costa Rica: 26 plants (344587).
 Centro de Ciencias del Mar y Limnologia, Mexico: 21 crustaceans (341659).
 Centro de Estudios Farmacologicos y de Principios Naturales, Argentina: 8
 plants (341419).
 Centro de Pesquisas do Cacau, Ceplac, Brazil: 200 plants (336670).
 Chamberlain Fund: 1 mineral (340065); 1 topaz (344085); 1 cut emerald
 (344982).
 Charleston Museum: 2 bird skins (343288, exchange).
 Clemson University: 1 plant (317232).
 Colegio de Postgraduados, Mexico: 15 plants (343466).
 Colorado, University of: 14 plants (341371, exchange); 4 plants (342447,
 345532); 1 fruit fly (344887).
 Commerce, U.S. Department of: 2,011 crustaceans (341793, 342291, 344741); 2
 echinoderms (328009); 3 whale dolphins (346362); 3 sea turtles (341272).
 Commonwealth Associates, Inc.: 1 worm (346021).
 Commonwealth Scientific and Industrial Research Organization, Australia: 1
 bamboo (343956).
 Connecticut Agricultural Experiment Station: 5 insect slides (344421).
 Connecticut, University of: 1 plant (345015).
 Conservation Consultants, Inc.: 4 crustaceans (330727).
 Conservatoire et Jardin Botaniques, Switzerland: 107 plants (344537, 344610,
 exchanges); 1 plant (345528).
 Continental Shelf Associates, Inc.: 2 worms (344838).
 Copenhagen, University of, Denmark: 8 plants (341887, exchange); 4 lots of
 worms (344519).
 Cornell University: 55 plants (344619, exchange); 1 plant (344619); 45 worms
 (339290).
 Cureton Mineral Company: 10 minerals (345146, exchange).
 Dallas Museum of Natural History: 14 bird skeletons (345313).
 Dawes Jade Company: 1 pseudo jade (345404).
 Defense, U.S. Department of: 556 echinoderms (320217); 108 insects (344425,
 344890); 4 mollusks (342212).
 Delaware, University of: 1 mineral (341944, exchange); 1 crustacean (342067).
 Departamento De Conservacao Ambiental, FEEMA, Brazil: 15 plants (341855).
 Department of Scientific and Industrial Research, New Zealand: 915 plants
 (343491, 343925); 26 plants (341431, exchange).
 Drexel University: 2 worms (343730).
 Duke Power Company: 1 lot of worms (345930).
 Duke University: 76 plants (343896, exchange).
 Eastern Michigan University: 11 plants (344596).
 Edificio Centro Colon, Costa Rica: 350 crustaceans (330175).
 Ebusco Investment Company: 1 blue topaz (343388).

Environmental Protection Agency, U.S.: 20 crustaceans (340729).
Environmental Science and Engineering, Inc.: 30 crustaceans (343402).
Escuela Nacional de Agricultura, Mexico: 29 plants (345563, exchange).
Escuela Nacional de Ciencias Biologicas Herbario, Mexico: 59 plants (345034, exchange).
Estafeta Universidad de Panama, Panama: 4 plants (345027).
E.V.S. Consultants, Ltd. Canada: 1 worm and 1 worm slide (342157).
Exxon Research and Engineering Company: 1 mineral (344778, exchange).
Faculdade de Ciencias Medicas e Biologicas de Botucatu, Brazil: 31 plants (343015).
Fairchild Tropical Garden Herbarium: 48 plants (341412, 341827).
Field Museum of Natural History: 4 meteorites (265332, 342853, exchanges); 244 plants (341854, 345057, 341434, 344539, exchanges); 63 plants (341434, 342403).
Florida Atlantic University: 3 crustaceans (340726).
Florida Department of Natural Resources: 14 crustaceans (342012); 26 echinoderms (337664, 343802); 38 worms (342293).
Florida, University of: 22 echinoderms (343886); 12 moths (346333); 65 crustaceans (341186); 65 plants (343937, exchange); 3 plants (343937, 345092).
Florida State Museum: 82 crustaceans (341350, 342079, 343550, 345661); 34 echinoderms (341350).
Florida State University: 29 crustaceans (344721).
Forest Research Institute, India: 24 wood slides (324342, exchange).
Forschungsinstitut-Natur Museum Senckenberg, West Germany: 3 insect slides (345969).
Free University, Netherlands: 1 mineral (344727).
Fundacao Estadual de Engenharia Do Meio Ambiente, Brazil: 2 plants (341403).
Fundacao Instituto Agronomico do Parana-IAPAR, Brazil: 15 plants (341845).
Fundacao Instituto Brasileiro de Geografia e Estatistica, Brazil: 148 plants (344562, 345552, 345567).
Fundacao Universidade do Rio Grande, Brazil: 44 crustaceans (338530).
Fundacion e Instituto Miguel Lillo, Argentina: 400 plants (342446, exchange).
Geophysical Laboratory: 19 minerals (345833).
Georgia Department of Health, Education and Welfare: 13,357 insects (342849).
Georgia Department of Natural Resources: 11 echinoderms (342082).
Georgia Marble Company: 1 marble sample (346340).
Goteborg, University of, Sweden: 11 worm slides (343885).
Grassland Oil and Water Resources: 12 beetles (344129).
Great Falls, College of: 10 plants (344608).
Grice Marine Biological Laboratory: 24 crustaceans (345206).
Guam, University of, Guam: 10 plants (341878).
Guelph, University of, Canada: 1 echinoderm (344353).
Gulf Coast Research Laboratory: 21 crustaceans (342092, 342650, 342939); Museum: 684 crustaceans (341772).
Hansen Minerals: 17 minerals (342288, 342728, exchanges).
Harvard University: Biological Laboratories: 3 sponges (343406); Farlow Herbarium: 89 plants (345553); Gray Herbarium: 11 plants (343906, 345500); Mineralogical Museum: 2 minerals (343212, exchange); Museum of Comparative Zoology: 3 plants (343494).
Hattori Botanical Museum, Japan: 50 plants (344578, exchange).
Hawaii, University of: 19 crustaceans (341641); 2 plants (343924, exchange); 277 plants (324358, 343920, 341890, 342991); 79 pottery samples (345293).
Health, Education and Welfare, U.S. Department of: 513 mammals (344357).
See also Lassa Fever—Multimammal Mouse Project.
Helsinki, University of, Finland: 40 plants (343974, exchange).
Herbario "Barbosa Rodrigues," Brazil: 156 plants (345541).
Herbario Centro de Pesquisas do Cacau, Brazil: 231 plants (341882, 345517).

Herbario de la Universidad de Panama, Panama: 72 plants (344606).
 Herbarium Australiense, Australia: 455 plants (341885, 342443, exchanges).
 Herbarium of the Northern Territory, Australia: 5 plants (345508).
 Herbar du Centre Orstom de Cayenne, French Guiana: 4 plants (345531).
 Herbier National du Cameroun, Cameroun: 2 plants (343445).
 Heron Island Research Station, Australia: 3 crustaceans (337165, 343706).
 Hillman Fund: 2 minerals (343844).
 Hiroshima University, Japan: 15 crustaceans (344709, 344078).
 Horn Point Environmental Laboratory: 35 crustaceans (341773).
 Hubbs Sea World Research Institute: 12 seals (346360).
 Humboldt State University Herbarium: 1 plant (345035).
 Hungarian Natural History Museum, Hungary: 8 insects (343600); 20 moths (344881, exchange).
 Huntington Botanical Garden: 169 plants (343038, 345483).
 Huntsman Marine Laboratory, Canada: 2 crustaceans (333055).
 Idaho Department of Health and Welfare: 35 crustaceans (341650, 344771).
 Illinois Institute of Natural Resources: 20 insects (342531).
 Indiana University: 587 insects (331867, 346363); 10 plants (341433); 10 crustaceans and 13 slides (344284).
 Institute for Botanical Exploration: 57 plants (345089).
 Institute of Evolutionary Morphology and Ecology of Animals, USSR: 9 crustaceans (342778, exchange).
 Institute for Marine Biomedical Research: 2 crustaceans (344639).
 Institute of Jamaica Science Museum, Jamaica: 35 plants (345522, exchange).
 Institute of Ocean Sciences, Canada: 13 worm slides (343553, 343891).
 Institute for Systematic Botany, The Netherlands: 35 plants (342969, exchange); 61 plants (342969, 344617).
 Instituto Botanico, Venezuela: 572 plants (341447, 341874, 343008, 343031, 344549, 345026, 345054).
 Instituto Brasileiro de Geografia e Estatistica, Brazil: 258 plants (342413, 342442).
 Instituto de Botanica, Brazil: 13 plants (342968, exchange); 13 plants (343018).
 Instituto de Botanica Agricola, Venezuela: 5 plants (343515, 341415).
 Instituto de Botanica Darwinio, Argentina: 75 plants (343464).
 Instituto de Botanica del Nordeste, Argentina: 17 plants (342414).
 Instituto Nacional de Pesquisas da Amazonia, Brazil: 210 plants (344523, exchange).
 Interior, U.S. Department of:
 Bureau of Land Management: 514 lots of fishes (333929, 337093); 10,342 mollusks (340084); 1,200 fossils (337093), 340084, 342663); 617 worms (342663).
 Bureau of Mines: 2 petalites (343216).
 Fish and Wildlife Service: 128 crustaceans (316876, 339190, 342349); 1 whale (345782); 1,492 assorted mammals (346358); 1 tortoise, 3 snakes, 229 reptiles and amphibians (344951, 345834, 345937).
 Geological Survey: 2 corals (341475); 176 cores, rocks, ores and basalt glasses (342545, 342547, 345984, 346336, 346338); 71 minerals (317572, 342724, 343282, 344385, 344444, 345953); 60 mollusks (343788), 36,092 fossils (341183, 341196, 341328, 341532, 341925, 342579, 342706, 342773, 343232, 343237, 343734, 344177; 344356, 344718, 345005, 345134, 345198, 345225, 345226, 345291, 345397, 345413, 345593, 345611, 345662, 345808, 345809, 345857).
 National Fish and Wildlife Laboratories 1,763 birds (346354); 626 plants (341416); 1 turtle, 1 snake, 993 reptiles and amphibians (341273, 341697, 342581, 342775).
 National Fisheries Research Center: 32 crustaceans (339839).
 National Park Service: 12 lots of human skeletal remains (346321, 346322,

346323); 20 sea turtles and 1 egg (341471); 1 crustacean (342897).
 Water and Power Resources Service: 1 piece of fossil wood (345209).
 International Potato Center, Peru: 28 plants (345114).
 Iowa State University Herbarium: 5 plants (343511, exchange).
 Jardim Botânico de Rio de Janeiro, Brazil: 42 plants (341891, 345030); 11 plants (345527, exchange).
 Jardin Botanique National de Belgique, Belgium: 3 plants (342451).
 Kanagawa Horticultural Experimental Station, Japan: 11 insects (342521, exchange).
 Kansas Biological Survey: 6 water beetles (342530).
 Kansas, University of: 1 fish (343780).
 Katholieke Universiteit, The Netherlands: 27 mites (342532).
 Kent State University: 5 fossils (345208).
 Kentucky, University of: 14 beetles (342527).
 Kristalle: (345743). *See also* Stuart Fund.
 Laboratoire de Carcinologie et d'Océanographie Biologique, France: 18 crustaceans (342202, exchange).
 Laboratorio di Tecnologia della Pesca, Italy: 2 crustaceans (337662).
 Lamar University: 5 crustaceans (341653).
 Lassa Fever—Multimammate Mouse Project: (344357). *See also* Health, Education and Welfare, U.S. Department of.
 Ljubljana, University of, Yugoslavia: 8 crustaceans (335755, exchange).
 Longwood Gardens: 2 ferns (328062).
 Los Angeles County Natural History Museum: 126 plants (341871, 341829, 342424, 342425, 343447, 344580).
 Los Angeles Hall of Justice, Sheriff's Office: 1 child's skeleton (343161).
 Los Angeles Zoo: 56 mammals (342151).
 Louisiana State University Herbarium: 1 plant (345055).
 Loyola University: 585 crustaceans (341021).
 Lyon Arboretum: 38 plants (341378).
 Macquarie University, Australia: 151 worms (342204).
 Maine, University of: 11 crustaceans (344006).
 Manitoba, University of, Canada: 26 insect slides (344894); 3 plants (345105).
 Marie Selby Botanical Garden: 373 plants (314191, 343042, 345518, 345112, 345570).
 Marine Ecological Consultants: 19 crustaceans (343787).
 Marine Science Institute: 154 worms (300653).
 Maryland Office of the Chief Medical Examiner: human skeletal remains (343162, 346325).
 Maryland State Police: human skeletal remains (346324).
 Maryland, University of: 149 crustaceans (341456).
 Miami, University of: 5 echinoderms (344681).
 Michigan, University of: 100 crustaceans (338950); 687 insects (343635); 3 plants (343488, 343910); 1 mineral (342252); Herbarium: 57 plants (345020, exchange).
 Milwaukee Public Museum: 150 crustaceans (343262).
 Mineral Fund: 39 minerals (342378, 342708, 342936, 343337, 344217, 344514, 344729, 344730, 344980).
 Mineral Kingdom of Woodmere: 9 minerals (342130, exchange); 3 minerals (342935).
 Minnesota Science Museum: 9 mollusks (344004).
 Mississippi State University: 43 plants (343440).
 Missouri Botanical Garden: 461 plants (341826, 342990, 344565, exchanges); 1,885 plants (337752, 341819, 341826, 341842, 342430, 342436, 342440, 342473, 342495, 342970, 342990, 343014, 343476, 343507, 343901, 344541, 344565, 345025, 345036, 345091); Herbarium: 5 plants (343489).
 Missouri, University of: 24 plants (343455).

Musee d'Histoire National "G. Antipe," Romania: 17 insects (344895).
 Museo de Historia Natural Herbario San Marcos, Peru: 84 plants (341823).
 Museo Nacional de Costa Rica, Costa Rica: 14 plants (336679, 343012, 345577).
 Museo Nacional de Historia Natural, Uruguay: 25 worms (345889).
 Museo Paraense "Emilio Goeldi," Brazil: 32 plants (341856, 345070, 345079).
 Museu Botanico Municipal, Brazil: 90 plants (341888, 343913, 344613).
 Museu Nacional, Brazil: 1 crustacean (337908).
 Museul Deltei Dunarii, Romania: 1 fly (342190, exchange).
 Museum National d'Histoire Naturelle, France: 1 bird skin (343616, exchange);
 290 plants (344569, 344535, exchanges).
 National Academy of Sciences: 2 cores (345985).
 National Geographic Society: 38,993 insects (344903).
 National Herbarium, Botanical Research Institute, South Africa: 8 plants
 (343441, 342426).
 National Herbarium, Royal Botanic Gardens, Australia: 59 plants (342465, ex-
 change).
 National Museum, New Zealand: 2 echinoderms (343798).
 National Museum of Natural Sciences, Canada: 60 plants (344521, exchange).
 National Museum of Victoria, Australia: 3 crustaceans (344158); 1 bird skele-
 ton (345176, exchange).
 National Museums of Canada, Canada: 5 crustaceans (341714); 4 crustaceans
 (344272), exchange).
 National Science Foundation: 1 core and 1 lithologic log and log analysis
 (345986).
 National Science Museum, Japan: 2 minerals (345832, exchange).
 Naturhistorisches Museum, Switzerland: 32 fossils (345197).
 Naturhistorisches Museum Wien, Australia: 100 plants (342965, exchange).
 Nebraska, University of: 29 crustaceans (341806, 342802).
 New Brunswick, University of, Canada: 4 echinoderms (342582); 28 worms
 (345964).
 New Mexico, University of: 2 meteorites (281357, exchange); 1 fossil (342578).
 New York Botanical Garden: 2,660 plants (341446, 341881, 342410, 343010,
 343048, 343492, 344567, 345032, 345525, exchanges); 799 plants (341441,
 341913, 342431, 343425, 345058, 345059, 345099, 345142, 341435).
 New Zealand Oceanographic Institute, New Zealand: 69 fossils (343653); 5
 fossils (344178, exchange).
 North Carolina Department of Natural Resources and Community Develop-
 ment: 1 echinoderm (342083).
 North Carolina State College: 63 plants (341364).
 North Carolina State Museum: 2 insects (342528).
 North Carolina State University: 2 crustaceans (343293).
 North Carolina, University of: 50 sponge slides (339281); 67 plants (341907);
 11 crustaceans (341563, 342914).
 Northern Iowa, University of: 279 crustaceans (341647).
 Occidental College: 4 ferns (342406).
 Office De La Recherche Scientifique Technique Outre-Mer, France: 276 plants
 (343007, 343990, 344542, 345110).
 Ohio State University: 68 plants (344585, 342987); 23 mollusks (343240,
 343230).
 Oklahoma, University of: 1 sponge (341567).
 Oklahoma Baptist University: 1 crayfish (343191).
 Oregon State University: 2 echinoderms (333215); 3 insects (343367); 3 worms
 (344520).
 Pala Properties International: 82 minerals (341965, 342074, 342721, 343290,
 344207, 345844); 3 minerals (343845); 2 rhodonite plates, 3 desk implements,
 1 carved compote, 1 carved fruit group on a slate base (341993, exchange).
 Parma, University of, Italy: 1 meteorite (342856).

Paul and Beekman, Inc.: 19 insects, 30 crustaceans (339072).
 Pennsylvania, University of: 12 fossils (342938).
 Philadelphia Academy of Sciences: 2 minerals (342002, exchange).
 Philippines, University of: 2 echinoderms (342235); 10 bats (345195).
 Pomona College: 5 crustacean slides (325409).
 Pontificia University Catolica De Chile, Chile: 1 worm (345227).
 Port Harcourt, University of, Nigeria: 235 crustaceans (341654, 342577, 345205); 11 echinoderms (339762, 341700); 20 worms (341654).
 Purdue University: 5 mayflies (344430).
 Queensland Herbarium, Australia: 105 plants (344536, exchange).
 Queensland Institute of Medical Research, Australia: mites (344419).
 Queensland, University of, Australia: 8 echinoderm slides (343064); 13 crustaceans (344351).
 Radford University: 3 crustaceans (344141).
 Rama de Botánica, Mexico: 85 plants (341380, exchange).
 Rancho Santa Ana Botanic Garden: 217 plants (343942, exchange).
 Rhode Island, University of: 2 minerals (342003).
 Rhodes University, South Africa: 1 mineral (342934); 4 fishes (343757).
 Rijksherbarium, The Netherlands: 250 plants (344563, exchange); 3 plants (345097).
 Rijksmuseum van Natuurlijke Historie, The Netherlands: 14 crustaceans (339693, 344794, exchanges); 13 insects (344856).
 Roebling Fund: 227 minerals (337504, 342668, 342911, 342933, 343126, 343145, 343147, 343383, 343785, 343848, 344977, 344981, 344988, 345269).
 Royal Botanic Gardens, England: 823 plants (342479, 343049, 344540, 345075, 345144, exchanges); Herbarium: 190 plants (341373, exchange).
 Royal Botanic Garden, Scotland: 5 plants (344560).
 Royal Ontario Museum, Canada: 15 fossil fragments and slides (345885).
 Ryukyus, University of, Japan: 27 mosquitoes (342837); 2 echinoderms (345588).
 Saint Joseph College, India: 64 plants (341410).
 San Diego Museum of Natural History: 4 plants (341847, exchange).
 San Diego Zoological Gardens: 4 mammals (341746).
 San Francisco, University of: 39 crustaceans (263464).
 Santa Barbara Museum of Natural History: 4 echinoderms (345681).
 Sea Fisheries Institute, South Africa: 1 dolphin (344806, exchange).
 Shillong, University of, India: 3 crustaceans (339150).
 Six Flags Great Adventure: 1 tiger (346027).
 Skidaway Institute of Oceanography: 7 wet sponges (341566).
 South African Museum, South Africa: 8 crustaceans (343292).
 South Alabama, University of: 4 fishes (339678).
 South Australian Museum, Australia: 12 birds (343094, exchange).
 South Carolina Marine Resources Research Institute: 7 crustaceans (338532); 8 echinoderms, 1 fish, 2 mollusks, 1 worm (339880).
 South Florida, University of: 27 plants (344605).
 Southeastern Oklahoma State University: 221 plants (343918, exchange).
 Southern Arkansas University: 1,731 crustaceans (338620, 340240).
 Southern California, University of: 11 crustaceans (328274); 52 crustaceans, 200 mollusks, 1,296 worms (340919); Allan Hancock Foundation: 85 crustaceans (341562, 342835); 1 worm (343227); 6 echinoderms (344082).
 Southern Illinois University: 701 crustaceans (341561, 343255).
 Southwest Missouri State College: 10 plants (343448).
 S. S. and W. Investment Company: 1 mineral (343326).
 State University of Moscow, USSR.: 13 plants (343899).
 State University of New York: 2 minerals (343781).

Station Marine D'Endoume et Centre D'Océanographie, France: 2 crustaceans (341458); 407 fossils (343654).

Stuart Fund: 49 minerals (342691, 343794, 343846, 343847, 344084, 344086, 344087, 344171, 344290, 344643, 345412, 345665, 345743).

Swedish Museum of Natural History, Sweden: 475 plants (343980, exchange).

Tatsuo Tanaka Memorial Biological Station, Japan: 9 crustaceans, 1 fish (342347).

Technische Universität Braunschweig, West Germany: 1 mineral (343314).

Tennessee, University of: 30 plants (341381, 344609, 345078); 67 plants (342407, exchange); 657 crustaceans (340979, 344140).

TerEco Corporation: 50 shrimps (345201); 76 worms (345817).

Texas A&M University: 2,028 crustaceans (340916, 341780, 344080); 5 plants (343021).

Texas Instruments: 34 crustaceans (332037).

Texas, University of: 187 plants (343927, 343931, 343947, 345098); 41 plants (345098, exchange); 5 crustaceans (341923, 343687); 8 worms (344837); Herbarium: 47 plants (341377, 345098, exchanges).

Time-Life, Incorporated: 9 drawings and 4 paintings by Jay Matternes (345738).

Tiroler Landeskindliches Museum, Austria: 1,184 insects (344886).

Tokyo, University of, Japan: 131 plants (344611, exchange).

Toronto, University of, Canada: 140 plants (341436, exchange).

Transvaal Museum, South Africa: 4 moths (345422, exchange).

Tulane University: 22 crustaceans (344270, 344516); 1 echinoderm (345469).

Tufts University: 80 plants (340133, exchange).

Universidad Austral de Chile, Chile: 4 frogs (341629, exchange).

Universidad Católica Madre y Maestra, Dominican Republic: 1 plant (337710).

Universidad Central de Venezuela, Venezuela: 56 plants (345502); 30 mollusks (343238).

Universidad de Los Andes, Venezuela: 118 plants (343033, 344526, 345096, 345526).

Universidad Interamericana de Puerto Rico: 4 crustaceans (343380).

Universidad Mayor De San Andres, Bolivia: 352 plants (343430, 345052, 345074).

Universidad Nacional Autónoma de México, México: 1 plant (341376); 27 plants (341900, exchange).

Universidad Nacional de Cuyo, Argentina: 17 frogs (343699, exchange).

Universidad Nacional de Colombia, Colombia: 27 plants (343917, exchange); 1 plant (343917).

Universidad Nacional del Nordeste, Argentina: 36 plants (343016); 143 plants (343016, exchange).

Universidad Nacional Experimental de los Llanos Occidentales, Venezuela: 4 ferns (341382).

Universidade de Brasilia, Brazil: 39 plants (341406, exchange); 47 plants (341406).

Universidade De São Paulo, Brazil: 12 crustaceans (344640, exchange); 35 reptiles and amphibians (342645, 344950, exchanges).

Università Degli Studi di Firenze, Italy: 7 minerals (344728).

Università di Bologna, Italy: 1 meteorite (340486, exchange).

Université De Dijon, France: 1 crustacean (334575).

Université Libre de Bruxelles, Belgium: 2 crustaceans (329838).

Université Pierre et Marie Curie, France: 1 mineral (344165).

University College, Ireland: 1 worm (341712).

University Museum, England: 1 insect (345932).

University of the South: 4 crustacean slides (341655).

Upper Canada Minerals, Canada: 5 minerals (343801, exchange).

Virginia Institute of Marine Science: 792 crustaceans, 10 mollusks (341920); 629 echinoderms, 51 worms (344508); (340084). *See also* Interior, U.S. Department of.

Virginia Office of the Chief Medical Examiner: skeletal remains (346326).

Virginia Polytechnic Institute: 3 plants (345087, 345573).

Virginia Polytechnic Institute and State University; 16 insects (342522, 342529); 8 worm slides (344167).

Virginia State Library: 305 human skeletons, 100 cultural items. (345733).

Waikiki Aquarium: 2 fishes (342178).

Washington, University of: 1,667 crustaceans (340509).

Western Australian Museum, Australia: 1 crustacean (342818).

Western Ontario, University of, Canada: 3 minerals (342255, 345224).

West Florida, University of: 25 crustaceans (327379).

William and Mary College: 1 fossil finback (345818).

Windsor, University of, Canada: 8 crustacean slides (342602).

Wisconsin, University of: 100 crustaceans (343707); 9 plants (337741); 50 plants (343013, 343968, exchanges).

Wittenberg, University of: 122 crustaceans (329521).

Woods Hole Oceanographic Institution: 513 crustaceans (335612, 336918); 111 echinoderms (339246, 341249); 51 worms (343374).

Wyoming, University of: 13 plants (341899).

Yakima Valley Disposal, Incorporated: 1 tephra sample (340674).

Yale University: 8 birds (339349).

Zale Corporation: 1 opal (342256).

Zoological Institute, Sweden: 4 echinoderm slides (342898).

Zoologisches Institut und Museum der Universitat, Germany: 1 worm (345887).

Zoologisches Institut, Universitat, Germany: 332 rove beetles (345983, exchange). *See also* Ulrich Irmeler.

Zoologisk Instituut, Norway: 3 worms (331012).

Zoologisk Museum, Denmark: 5 crustaceans (326307); 30 mollusks (300323); 115 worms (330454); 2 insects (343700, exchanges).

INDIVIDUALS

Edward Aaron: 21 minerals (343531).

Marjorie Abbott: 2 daggers and a sword (343156).

Joseph Alhadef: 16 gems (338674).

John Hamilton Allan: 3 inscribed cuneiform tablets (343166).

Thomas E. Allen: 2 tektites (342851).

Omar M. Amin: 5 worm slides (343571).

G. E. Anderson: 6 crustaceans (343549).

Anonymous: 1 diamond and pearl "Owl" brooch (342100); 1 fossil slab (344750).

Arnfried Antonius: 1 echinoderm (343404).

Ronald L. Arbogast: 1 fossil bone (344172).

Robert Aronheim: 26 butterflies (345978).

Ted G. Arrowood: 7 minerals (345447).

Darrell R. Ashley: 1 fossil walrus bone (345453).

Eric Asselborn: 17 minerals (345966).

B. D. Auchard: 120 minerals (343298).

Harry M. Axman, 1 fossil (343256).

Ethel Bachelder: 37 minerals (343203).

Pranab Bagchi: 1 cut gem (343325).

Dave Baggett: 56 moths (342539).

Donnie Bailey: 32 fossils (341811, 342631, 342635, 343287, 344219).

Richard H. Bailey: 13 fossils (342774).
 H. Randy Baker: 2 worms (342323).
 Norma Brandt Bakke: 2 minerals (340439).
 George E. Ball: 9 beetles (342515).
 Pam Balogh: 109 plants (345038).
 Carlos Do Prado Barbosa: 2 minerals (345449).
 Georges Bargibant: 200 echinoderms (340617).
 Pierre Bariand: 1 opal (343127); 3 minerals (345331, exchange).
 Mr. and Mrs. John F. Barlow: 10 piece set of solid gold items embellished
 with diamonds, rubies, emeralds, and pieac (338685).
 Roger C. Barnett: 4 minerals (341533, 342008, 345350).
 Wolfgang Bartelke: 5 minerals (343820, exchange).
 John Bates: 500 mollusks (343756).
 John Baum: 2 minerals (342254).
 Robert C. Bechtel: 8 bees (344428).
 David W. Behrens: 4 mollusks (342228).
 Charles Bellamy: 31 seed beetles (345970); 12 wood-boring beetles (345970,
 exchange).
 L. N. Belova: 1 mineral (344997).
 Barney E. Berlinger, Sr.: 1 brown bear (346356).
 Mrs. Howard B. Berman: 8 cut gems (343413).
 Roberto Bertolani: 1 worm slide (341981).
 Ramona J. Beshear: 3 lace bugs (343626).
 Wes Bicha: 76 flies (343719, exchange).
 Jeffrey Bickart: 2 birds (345314).
 David Bickel: 8 fossils (345470).
 Barbara Bickelhaupt: 1 fossil seal (346028).
 Richard A. Bideaux: 1 mineral (342727).
 Arthur G. H. Bing: 1 cut gem (343260).
 Alastair Birtles: 2 echinoderms (343197).
 Theodore L. Bissell: 4 insect slides (343181).
 Doris H. Blake (Deceased): 12 stuffed and mounted turtles (342304).
 Andre Blanchard: 788 insects, 206 slides (343642).
 C. Blaszak: 2 mites (344122).
 D. A. Boag: 100 mollusks (342106, 342102).
 Robert F. Bolland: 49 worms, 50 mollusks, 15 echinoderms, 238 crustaceans
 (341664).
 Doreen Bolnick: 85 ethnological items (343165).
 Dr. and Mrs. Robert L. Bonsanti: 4 cut gems (343323).
 Mrs. Hollis Q. Boone: 263 mollusks (283663, 344711).
 Carl Bosch, Jr.: 1 pearl and diamond ring, 3 platinum crucibles (334480).
 Richard Bostwick: 4 minerals (345826).
 Roland Bostwick: 2 minerals (342085).
 H. Bougault: 32 glassy basalts (342548).
 William Bradley: 2 fossil seal bones (342632).
 Edward Brady: 3 Indian police badges (343151).
 Mr. and Mrs. Edward M. Braiman: 2 cut gems (343415).
 Twila Bratcher: 4 mollusks (344798).
 George Brewer: 38 minerals (341966, 343124, 343818, 344986, exchanges);
 (343383). (*See also* Roebing Fund.)
 Cheryl Bright: 5 worms (341490).
 Robert W. Brink: 1 blue topaz (343386).
 A. E. Brower: 5,890 insects (344896); 1 sparrow (344910).
 Clair A. Brown: 675 fossils (345004).
 Helmut Bruckner: 2 minerals (345829).

Howard Bruder: 3 cut beryls (343303).
 William C. Brumbach: 357 plants (315770, 319381, 321511, 341893, 342986, 345143).
 Arline Buehler and Dean Buehler: 1 fossil (343607).
 L. V. Bulgak: 1 mineral (344445).
 Mrs. John Q. Burch and Rose L. Burch: 2,234 mollusks (342041).
 Thomas A. Burch and Beatrice L. Burch: 280 mollusks (341198).
 E. A. J. Burke: 1 mineral (345828, exchange).
 John M. Burns: 1,381 butterflies (343641).
 Allen L. Burr: 1 blue topaz (343261).
 Roy J. Burroughs: a fossil seal pelvis (344174).
 Dr. and Mrs. Roy Burroughs: a fossil seal pelvis (342653).
 Percy L. Byrd: 1 bird (346003).
 J. M. Cadiou: 53 moths (343093, exchange).
 Mrs. J. M. Cairns: 4 fossils (306071, exchange).
 Samuel M. Call: 10 mollusks (341559).
 Joan R. Callahan: 4 squirrels (345760).
 George H. Capps: 2 carved ivory camels with diamonds, sapphires, rubies, and emeralds mounted on teak wood trimmed with diamonds (338775).
 Stephen Cardinal: 1 cut gem (343334).
 John L. Carr: 14 weevils (346016).
 Eric T. Carter: 1 black widow spider (344130).
 Mont A. Cazier: 79 flies (344422).
 Walter O. Cernohorsky: 2 mollusks (343559).
 Steve Chambers: 100 mollusks (345135).
 Ralph Chamness: 3 fossils (342705).
 George Chao: 2 minerals (344987).
 R. H. Chappell: 5 Asian items (343164).
 Anthony S. Cheke: 2 reptiles and amphibians (342078).
 John Chemask: 2 insects (345150).
 Paul J. Cheung: 2 echinoderm slides (345468).
 Mrs. C. A. Child: 20 land snails (344005).
 Robert C. C. Chiu: 28 minerals (342726).
 Demosthenes P. Choporis: 4 crustaceans (345001).
 J. Christiaens: 9 mollusks (345766).
 Kenneth Christiansen: 34 insects (344888).
 Carl Christianson: 6 mice (345194).
 Ben Chromy: 2 minerals (344288).
 John Cianciulli: 18 minerals (341946, 345223, 345819).
 Sharon Cisneros: 3 minerals (336958).
 Clarence F. Clark: 79 crustaceans (336859).
 Arthur H. Clarke: 60 mollusks (344194).
 J. F. Gates Clarke: 616 insects (343628, 345305).
 William J. Clench: 900 mollusks (344196).
 Mr. and Mrs. John P. Condon: 1 fossil (342704).
 Lawrence Conklin: 1 mineral (345352).
 Reginal W. F. Conway: 4 cut gems (343259).
 Leroy F. Cooley: 2 cut gems (343333).
 G. A. Cooper: 400 fossils (342154).
 John E. Cooper and Martha R. Cooper: 3,500 crustaceans (293515).
 Herb Corbett: 2 minerals (345952).
 Cecil Cosse: 5 minerals (345222).
 C. Cotton: 2 tekites (342852).
 Bruce C. Coull: 25 worms (344921).
 C. V. Covell: 472 insects (343644).
 M. E. Cowan: 2 echinoderms (343797).

Mrs. William C. Crane: 1 star sapphire set in a pendant with diamonds (343324).

Julian A. Cranfill: 5 minerals (344978).

Roger Cressey: 1 lizard (344949).

Jarrett Cross: 9,955 beetles (344427).

Stephen J. Culver: 72 fossils (343319).

Dr. and Mrs. E. J. Cunningham: 1 emerald and diamond pendant set in platinum (343414).

Rock Currier: 1 mineral (345448).

Hosny M. Aboul Dahab: 7 mollusks (342303).

Hawthorne Daniel: 5 items of Sioux Indian clothing (343158).

Julian T. Darlington: 1 worm, 7 slides (344384).

Hieronim Dastych: 234 worms, 28 slides, 71 eggs (345406).

Ken Davenport: 4 butterflies (344117).

Irving Davidson: 1 Irian mounted trophy skull (343157).

Donna Davis: 402 insects, 11 mollusks (341998).

John C. Dawes and Carroll J. Sumner: 1 jade (344680).

Fernando G. Dayrit: 25 mollusks (342043).

Charles DeBoer: 9 gems (338637, 345270).

Dr. and Mrs. Robert W. Decker: 6 drill-hole lava samples (346348).

Eliezer De C. Rios: 1 mollusk (341558).

John C. Deeming: 585 insects (342516, 344417, 344900).

Otto Degener: 14 plants (343893).

Otto and Isa Degener: 19 plants (345024).

T. E. DeLaca: 11 fossils (342803).

Maria Concepcion R. De la Cruz: 263 crustaceans (333583).

John R. De Laeter: 1 meteorite (342855).

Giovanni Dellacassa: 220 plants (342058, 345152, exchanges).

James J. De Palma and Marie V. De Palma: 1 cut gem (343294).

Mark Deyrup: 55 beetles (345300).

Aaron M. Diamond: 12 minerals (345355).

A. Dietz: 1 cut gem (344823, exchange).

Eugene V. Dillon: 1 fossil (342507).

Erich Dimroth: 22 precambrian pollwors and hyaloclastites (345998, exchange).

Alain Dinet: 14 worms and slides (343373, 344220).

C. Kenneth Dodd: 17 reptiles and amphibians (341744).

John Doleman: 1 mineral (343201).

Richard E. Dowds: 3 crustaceans (339060).

John C. Downey: 1 butterfly (343168).

L. Michael Druckenbrod: 21,423 insects (343638).

A. M. Duccan: 5 lava samples (345994).

David W. Dugas: 14 crustaceans (343649).

William A. Dunson: 3 hatchling turtles (341803).

James M. DuPont: 1 meteorite (342350, exchange); 1 gold specimen (342761).

J. Thomas Dutro: 6 minerals (343213).

Mr. and Mrs. Dan W. Eagle: 1 ash sample (342544).

S. Boyd Eaton, Jr., and W. C. Lang, Jr.: 1 blue topaz (343534).

Maria Economou: 3 minerals (344713).

Dr. and Mrs. George F. Edmunds, Jr.: 5,016 insects and arthropods, 3 crustaceans (343193).

L. G. Eldredge: 90 mollusks (345767).

Mr. and Mrs. John F. Ellingson: 1 section of an orbicular granite boulder (342859).

Peter Embrey: 1 mineral (345963).

K. C. Emerson: 523 insect slides (344436).

Robert K. Enders: 130 mammals (337097).

Haruo Endo: 50 mollusks (342103).
 Dodge Engleman: 1 stink bug (344119).
 Charles Entenmann: 48 gemstones (343329).
 Bernd-D. Erdtmann: 24 fossil slabs (342236).
 Chester Erseus: 1 worm, 9 slides (341980, 345160).
 Kim H. Esbensen: 1 coronite sample (345996).
 Clifford Evans and Betty Evans: 1 Brazilian mask (345736).
 Audrey Faden: 1 plant (345509).
 Kristian Fauchald: 57 worms (344199).
 Lawrence H. Feldman: 3 mollusks (343196).
 Bill Fink: 7 fossils (344175).
 Debra Fischer: 1 fossil (344749).
 Mrs. Carol M. Flint: 46 insects (343632).
 Oliver S. Flint, Jr.: 30 butterflies (343172).
 Hans Jurgen Flugel: 1 worm (344952).
 Robert L. Folk: 9 Jurassic radiolarites samples (345995).
 George C. Fonger: 50 fossils (345456).
 Ralph Fout (Deceased): human skeletal remains (346320).
 Carl Francis: 1 mineral (344984).
 John C. Franclemont: 3,146 moths (343630).
 Charles E. Freed: 1 mineral (343235).
 Amnon Freidberg: 1 hornets nest (342533); 11,766 insects and arthropods (343182).
 Robert C. Frey: 14 fossils (341812).
 Antonio M. Frias Martins: 1 mollusk (344710).
 Kenneth E. Frick: 1 butterfly (344116).
 Robert Fujimura: 20 crustaceans (339764).
 Tomoo Fujioka: 53 butterflies (342525, exchange); 6 insects (345977).
 Florence M. Fullerton: 3 Cheyenne beaded items (345737).
 Yoshiaki Furumi: 1 beetle (342845, exchange).
 Sayed Abdulla Abdel Gabbar: 4 mammals (345881).
 Richard Gaines: 1 mineral (345827).
 Wayne K. Gall: 2 crustaceans (341791).
 Sergio Gallo: 14 minerals (345148, exchange).
 Frank A. Garcia: 1 fossil walrus tusk (345454).
 S. L. Gardiner: 15 worms (341652).
 James E. Gardner: 1 crustacean (344285).
 Torgeir T. Garmo: 21 minerals (344375, exchange).
 Cecil B. Garrett (Deceased): 113 mammals (337651).
 John W. Garris: 1 fossil seal (342634).
 R. A. Gault: 5 minerals (345332, exchange).
 Piet Gelaude: 1 mineral (343184).
 Patricia Gensel: 3 fossils (341997).
 Robert Y. George: 1 crustacean (345762).
 Arthur Gerk: 3,000 fossils (341813).
 Sebastian Gerlach: 11 worm slides (342603).
 Mrs. Raye N. Germon: 51 mollusks (344510, 343194).
 Ewald Gerstmann: 6 minerals (342001).
 Ray Gibson: 3 worms (343656).
 Martha Ann Gilchrist: 1 diamond pomegranate (340738, exchange).
 James E. Gillaspay: 5 fishflies (346331).
 James P. Gills: 33 minerals (343390).
 George L. Godfrey: 7 moths (342523).
 Don Goeken: 15 minerals (337966).
 Robert H. Gore: 2 shrimps (345360).
 Edward J. Gorny: 7 gems (343411).

Stephen Grabe: 7 crustaceans (342711).
 Susan Gray: 22 mollusks (342077).
 Trevor H. Green: 2 petrology samples (345987).
 Ruth Greenberg: 6 mollusks (345440).
 Dr. and Mrs. Marshall Greenman: 1 cut gem (343302).
 Edward S. Grew: 7 minerals (341976).
 James B. Gross: 7 crustaceans (266594).
 Lloyd F. Gunther: 2 fossils (342289).
 Ashley B. Gurney: 72 insects (343180).
 Dr. and Mrs. Paul Gutlohn: 1 topaz (342937).
 William H. Hale: 55 fossils (345140).
 Mrs. Evelyn Annenberg Hall: 1 sapphire and diamond necklace, 36 sapphires,
 435 diamonds (343391).
 Jack C. Hall: 840 insects (343629).
 Valdimir Hanak: 16 bats (241333).
 Gunnar Heluig Hansen: 1 mineral (342690); 6 minerals (343827, exchange).
 Vanburen H. Hansford: 1 cut gem (342725).
 James Hardiman: 2 butterflies (342840).
 Alan Hardy: 2 insects (345303).
 David Hardy: 33 crustaceans (342776).
 D. Elmo Hardy: 210 insects (343174, 345299).
 Chris Harmatuk: 2 fossil seals (341809).
 Peter Harmatuk: 600 fossils (342629, 344696, 346043).
 Harold Harry: 25 mollusks (343804).
 Max E. Hartl: 1 cut gem (343391).
 David J. Hasinger and Barney E. Berlinger, Sr.: 1 squirrel (345883).
 Henry W. Haslam: 1 mineral (344163).
 Peter Hattenschwilder: 21 moths (345307).
 Richard Hauck: 7 minerals (342664).
 Mrs. Marion E. Havlik: 50 mollusks (343623).
 Bray O. Hawk: 1 necklace of pear shaped gems set in gold (343346).
 Bruce W. Hayward: 4 fossils (342652).
 John S. Hayward: 2 cut gems (343296).
 Robert B. Hayward and Elizabeth A. Hayward: 1 mineral (343200).
 Lita Annenberg Hazen: 2 diamond necklaces set in platinum, 1 diamond and
 ruby bracelet set in platinum (334522).
 Richard W. Heard: 10 crustaceans (345193).
 Mr. and Mrs. Harvard K. Hecker: 3 cut gems (343193).
 Stephen Blair Hedges: 424 reptiles and amphibians (327159).
 Phillip C. Heemstra: 14 fishes (342187).
 Ernst Heiss: 12 flat bugs (343825, exchange).
 F. Michael Heller: 2 plants (343468).
 R. F. Heming: 10 lava samples (345993).
 Edward P. Henderson, Jr.: 1 mineral (343082).
 William A. Henderson, Jr.: 4 minerals (345830).
 Thomas J. Henry: 10 insects (342536).
 Harry John Herbert: 4 ceramic sherds (345296).
 Gary Herbst: 89 crustaceans (331080).
 Henry A. Hesperheide: 9 weevils (34426, exchange); 2 beetles (344893).
 David F. Hess: 2 butterflies (342843).
 Geoffrey R. F. Hicks: 50 worms (344723).
 Dr. and Mrs. Ronald T. Hill: 1 pair of topaz and diamond earrings (342913).
 William S. Hlavin: 23 fossils (343573).
 Richard Hoare: 400 fossils (345929).
 Robert C. Hoerle: 650 mollusks (341565).
 Richard L. Hoffman: 45 reptiles and amphibians (332946).

D. D. Hogarth: 2 lapis samples (345342).
 James R. Hood: 69 mollusks (266445).
 L. Scott Hoopes: 1 carved-ivory tower (345949).
 Peter R. Hoover: 1,881 fossils (343403).
 H. Pearson Hooper: 78 sawflies and ants (344884).
 Clifford A. Hopson: 10 lava samples (342546).
 Robert J. Horodyski: 31 fossils (342324).
 Roland Houart: 2 mollusks (342017).
 Barbara Hovanitz: 201 moths (342541).
 Kim M. Howell: 1 African squirrel (345129).
 Chien Yeh Hu: 1 cut gem (343342).
 Francis M. Hueber: 1 silver specimen (344289).
 Jane E. Huffman: 43 mollusks (346140).
 P. Wagenaar Hummelinck: 350 mollusks (340237).
 John A. Hyatt: 2 butterflies (344424).
 W. R. B. Hynd: 6 insects (343179).
 Ulrich Irmiler: 2 insects (345983). *See also* Zoologisches Institut, Universitat.
 Ernie Iverson: 2 crustaceans (333860).
 Michael Ivie: 6 insects (345980).
 Olav R. T. Janse: 37 stone beads and amulets (343163).
 Daniel H. Janzen: 6,466 insects (343640).
 Craig Jarvis: 1 fossil (342153).
 Robert Jaxel: 1 mineral (342034).
 Norma and Robert Jaxel: 1 mineral (344162).
 John F. Jedlicka: 1 volcanic bomb (345349).
 D. G. Jenkins: 3 fossils (345196).
 Martha L. Jenkins: 1 three-piece Chinese costume (343149).
 Jose de Js. Jimenez A.: 7 plants (345574).
 J. G. Johnson: 35 fossils (343622).
 Ladd I. Johnson, Estate of: 120 Indonesian and African ethnological items
 (345292).
 Roy Johnson, Jr.: 167 centipedes (344418).
 Thomas L. Johnson: 130 mollusks (338319).
 Alice W. Jorg: 12 Ute Indian items (343152).
 Peter A. Jumars: 26 worms (342759).
 Walter Kahn: 31 minerals (345950, exchange).
 Virginia Kettering Kampf: 1 nephrite perfume vial, 1 quartz ruby and diamond
 pin, 2 gold cosmetic cases, 1 sapphire and diamond ring, 1 French 50-
 franc gold-coin watch (342873).
 Kenkichi Kanmiya: 39 flies (344265, exchange).
 Paul B. Kanno: 2 lace bugs, (344434).
 Rokuro Kano: 57 insects (344127); 2 insects (344127, exchange).
 Akira Kato: 15 minerals (341978, 343760).
 Erle Kauffman: 2 minerals (342035).
 James Kaufman: 6 minerals (342010).
 David H. Kavanaugh: 1 weevil (346057).
 Kenji Kawaoka and Suzanne P. Clark: 1 cut gem (343331).
 E. Alison Kay: 102 mollusks (344075).
 Lance E. Kearns: 4 minerals (342000).
 Donald M. Kellar, Jr.: 1 mineral (345948).
 Gerta Keller: 9 fossils (342651).
 Paul Keller: 6 minerals (341992, exchange); 3 minerals (344292).
 Robert W. Kelley: 2 insects (344744).
 Chris Kenney: 1 fossil seal femur (342508).
 Brett Kent: 1 mollusk (343195).

Mr. and Mrs. Arthur F. Kerckhoff: 3 cut gems (343335).
 Charles L. Key: 4 mollusks (341222); 8 minerals (342666).
 Robert M. King: 56 plants (341838).
 Vandall King: 5 minerals (342005, 344716).
 Ralph F. Kirchner: 173 insects (344885, 345167).
 Donald J. Klemm: 1 leech (342742).
 James E. Klijanowicz: 1 cut gem (341258).
 Dr. and Mrs. Richard J. Kloecker: 10 cut gems (333726); 1 carved zoisite and ruby parrot, 1 pair of carved amethyst herons, 1 pair of carved agate grebes (343412).
 William F. Klose II: 13 fossils (345006).
 Kenneth Knight: 34 mollusks (342196).
 John Kolic: 39 minerals (342760, 343784, 344291, 344983).
 Boris Kondratieff: 3 mayflies (345975).
 Bronisława Korczynska-Oszacka: 1 mineral (345843).
 Jacques Kornprobst: 17 petrology and volcanology samples (342860).
 Richard A. Kosnar: 4 minerals (345445).
 Rusty Kothovala: (342936). *See also* Mineral Fund.
 Mr. and Mrs. William Kramer: 3 minerals (340732).
 N. L. H. Krauss: 6 plants (342456); 4,544 insects (343643, 344902, 345739).
 Reinhardt M. Kristensen: 9 worms (341983, 344724).
 Carl Krotki: 3 cut gems (343297).
 Benjy Kuehling: 10 minerals (343257).
 Barry S. Kues: 1 fossil (343574).
 Jeanne C. Kwasney: 5 fossils (345133).
 James L. Lamb: 5 fossils (344641).
 Lewis K. Land: 2 minerals (343338).
 Gary N. Lane: 1 album containing 9 photos of the Kansas City crinoid collections (344726).
 Meredith Lane: 35 plants (341889).
 Harold F. Langworthy: 1 cut gem (343123).
 David Larence: 30 insects (344899).
 Hiram Larew: 5 moths (342518).
 Alf Olav Larsen: 9 minerals (343793).
 James W. LeDuc, Lynn W. Robbins, and Ralph E. Vaden: 51 insects (281430).
 Harry E. Lennon: 11 cut gems (338634).
 Stanley L. Leventhal: 1 cut gem (343327).
 Mrs. Hanna Le Wars: 1 fossil shark tooth (344176).
 David L. Lewis: 4 gold specimens (334776).
 Thomas Lewis: 1 mineral (343341).
 M. A. Lieftinck: 1 bee (344423).
 Mrs. Sheng-Hwa Lin Chow: 4 moths (343169).
 John J. Linskie, Family of: 1 Mexican Amazon parrot (344135).
 E. G. Linsley: 273 flies (343171).
 Jerold B. Lisson: 1 mineral, 2 cut gems (342910, 342376).
 Elbert L. Little, Jr.: 675 plants and trees (343004, 343477).
 John Ljubenkov: 5 echinoderms (341646).
 William Lohman and C. Howard Ellis: 9 fossils (345683).
 Charlene D. Long: 10 worms (341995).
 Alan Longbottom: 6 mollusks (342247).
 Mr. and Mrs. Jack Lord: 10 minerals (343416).
 Arthur Loveridge: 16 insects (338408).
 Peter Loveland: 2 minerals (343345).
 Charles O. Lowe: 2 minerals and 7 topazes (343385).
 Jack Lowell: 62 minerals (343792).
 F. S. Lukoschus: 1 centipede, 43 slides (342537, 345742, 345973).

Hal McClure: 51 fossils (343375).
Marion McDowell: 12 mollusks (344993, 345925); 12 echinoderms (345925); 2 mammals (346361).
Eileen McEwan: 37 insects (344123).
Craig McFarland: 161 crustaceans (325640).
Cecilia McGhee: 3 insects (343177).
Ron McGinley: 1 insect (345673).
W. W. McGuire: 10 butterflies (342841).
George C. McIntosh: 37 fossils (343572).
Tom McIntyre: 1 bird (346353).
Nancy J. Maciolek: 1 crustacean (341808); 30 worms (344441).
William P. MacKay: 18 ants (344120).
Jack H. McLellan: 37 fossils (345317).
F. Stearns MacNeil: 526 mollusks (344752).
Mr. and Mrs. Sandy A. Mactaggart: 2 mollusks (342942).
H. D. Maher: 1 fossil (343376).
Irina M. Maldonado: 2 minerals (343758).
J. Maldonado Capriles: 3,534 insects (342848, 344415, 344883, 345169).
Mr. and Mrs. Les J. Malone: 12 cut gems (343387).
Marvin D. Mangus: 3 ivory figurines (345294).
Mr. and Mrs. Roger H. Marble: 2 minerals (342009).
Alvin C. Martin, Michael Fourticq, and Edward J. Fourticq: 1 blue topaz (343535).
Norman T. Martin: 15 minerals (343289, exchange).
Robert L. Martin: 5 mammals (344354).
Dante E. Marinelli and Ida Marinelli: 1 jade urn (343336).
John C. Markham: 5 crustaceans (343803).
Ludwig Masch: 3 petrology and volcanology specimens (345992).
Ed Mastro: 52 mollusks (345955).
Edward Materne: 1 crocodile skull (340370).
Bryant Mather: 19 insects (344115, 344433); 1 insect (344414, exchange).
Wayne N. Mathis: 3,342 flies (343637).
Gerald M. Maynes: 7 mammal skulls (345781).
James Mead: 14 reptiles and amphibian skeletons (342176).
Heinz Meixner: 4 petrology and volcanology specimens (346335).
Chuck Messing: 5 echinoderms (344170).
Artie L. Metcalf: 23 mollusks (341505, 345765).
Eric H. Metzler: 7 moths (345463).
Peter Meyer: 14 basalt samples (346346).
Harding B. Michel: 7 worms (340435).
W. Micherdzinski: 6 insects (344416).
Gerald P. Mihok: 1 cut gem (343759).
Ann Miller: 31 fossils (344697).
Charles N. Miller, Jr.: 57 fossil slides, 3 fossil slices (343685).
James F. Miller: 42 fossils (343551).
Scott E. Miller: 939 insects (343183).
Walter B. Miller: 4 mollusks (344076, 344861).
Joseph C. Mitchell: 41 worms (341745).
Harold N. Moldenke: 2 plants (343438, exchange).
Mrs. Maier Moody: 1 mineral (343083).
Colin G. Moore: 25 worms (343318).
Letha N. Mordak: 5 fossil seal bones (342505).
Gilda Morigi: 1 cut stone (344996).
Mary S. Morris: 1 diamond ring, 2 diamond baguettes set in platinum (342511).
Walter H. Mosmann: 1 cut gem (343322).
William B. Muchmore: 174 insects (342540, 344121).

Russell E. Mumford: 1 spotted bat (345882).
 R. Muniappau: 2 worms (343657).
 Mr. and Mrs. Roy A. Myers: 1 blue topaz (342912).
 Steven Myers: 1 snake (342772).
 Joe Nagel: 1 mineral (344985).
 K. Nahamura: 10 crustaceans (343242).
 P. H. Nixon: 1 mineral (345824).
 W. Nutting: 55 beetles (342192).
 Herbert Obodda: 1 mineral (343122).
 Lois B. O'Brien: 51 insects (343175).
 Brendan O'Connor: 1 worm (342799).
 Baldomero M. Olivera: 1 mollusk (341221).
 David Olson: 28 insects (343178).
 William O'Neal, Jr.: 2 fossil seal teeth (346042).
 Hilda O'Neil and Jeff O'Neil: 2 fossil seal bones (342506).
 William Leslie Overal: 34 weevils (342609).
 Werner H. Paar: 3 minerals (343615, exchange).
 Adolf Pabst: 3 minerals (341977).
 Mrs. Gardner Palmer: 1 silver pendant, 1 pair of earrings (343148).
 Marlene Palmer: 2 insects (344128).
 Larry Pancoast: 1 prehistoric stone disc (343150).
 Warren T. Parker: 1 mollusk (342104).
 John L. Parnau: 2 minerals (344446).
 Mrs. Jefferson Patterson: 12 pieces of Canadian Eskimo Soapstone sculpture
 (343625).
 Donald Peacor: 7 minerals (342036).
 David L. Pearson: 6 tiger beetles (344118).
 Michael Pehachek: 7 fossil birds (342504).
 Paul J. Peltier: 3 cut gems (343410).
 Norman D. Penny: 5 slide insects (345276).
 Linda H. Pequagnat: 10 fossils (345581, exchange).
 Robert H. Perry: 135 insects (345971).
 W. R. Persons: 1 opal (342377).
 Emile A. Pessagno, Jr.: 94 fossils (344245).
 Gary Peters: 17 insects (344889).
 Mary E. Petersen: 14 worms (341982).
 Steven R. Peterson: 1 duck skin (346000).
 Edward Petuch: 5 mollusks (345139).
 A. R. Philpotts: 2 basalt samples (342858).
 Walter Pickut: 1 mineral (345348).
 Sid Pieters: 38 minerals (341979, 344164).
 Felix Pifano C.: 1 rice rat (342729).
 George Pigeon: 2 minerals (341945).
 William W. Pinch: 7 minerals (344642).
 Stephen R. Piper: 26 worms, 45 slides, 8 vials (342365, 342831).
 Sarah B. Pipkin (Deceased): 2,741 flies (346334).
 Riccardo Pittino: 84 insects (343517, exchange).
 Donald J. Pletsch: 1 toad (342305).
 R. Plotkin: 2 mollusks (344303).
 Michael Pogue: 5 moths (345968).
 John T. Polhemus: 105 insects (344429).
 Joff Pollon and Jonathan S. Pollon: 1 opal peacock (343849).
 Robert W. Poole: 2,248 moths (342836).
 Leroy Poorman: 5 mollusks (343556, 344800).
 Marjorie Merriweather Post, Estate of: 386 ethnological items from various
 localities (318782).
 Gregory K. Pregill: 9 reptiles and amphibians (342941).

J. Wayne Prentice: 1 bird (344137, exchange).
Mr. and Mrs. Isaac Putterman: 1 cut gem (343300).
William F. Pyburn: 9 frogs (342709).
James F. Quinn, Jr.: 9 mollusks (340443).
Teresa Radziejewska: 110 worms (345142).
Russell A. Rahn: 1,486 insects (342517, 343167, 345301, 345967, 346332).
A. A. Rasch: 4 cut gems (338753, 340268).
Anthony Raw: 43 bees (343170).
Judy Raynor: 1 fossil bird bone (342896).
M. L. Reaka: 39 crustaceans (335879).
James Reddell: 2 bugs (344879).
D. V. Reed: 1 meteorite (342543).
John E. Reeder: 1 petrology and volcanology sample (346345).
Steve M. Reilly: 2 salamanders (341643).
Dietmar Reinsch: 5 matabasites (345990).
Jeanne Renaud-Mornant: 20 worms, 13 slides (341984).
Patricia V. Rich: 380 fossil bird bones (345457).
Norm Riker: 2 fossils (341810).
Mary L. Ripley: 2 frogs, 1 lizard, 1 worm (344440).
S. Dillon Ripley: 1 bird, 1 owl feather (343154, 345312).
Donald C. Rhoads: 700 mollusks (345207).
Lynn W. Robbins: (See also Le Duc, James W.; 82 insects (344892).
Hubert Roeser: 24 petrology and volcanology samples (345988).
Martin J. Roess: 31 cut gems (338614).
Paul S. Rogell: 9 glass cat's eye stones (344442, 344770).
Mary Pickford Rogers, Estate of: 1 star sapphire (343125).
Romita Family: 1 cut gem (343408).
J. Perran Ross: 8 sea turtle skeletons (340614).
L. M. Roth: 5 cockroaches (345979).
William H. Rowe: 463 insects (343639).
Wayne A. Rowley: 1,116 insect slides (345972).
Neal Rulien: 8 beetles (346329).
Bruce Runnegar: 2 petrology and volcanology samples (345989).
David J. Russel: 9 crustaceans (345385).
Kenneth Russell: 4 mollusks (344448).
Loren Russell: 2 beetles (342519).
Curtis W. Sabrosky: 425 flies (344420).
Richard D. Sage: 1 house mouse (343655).
Yasuji Saito: 1 mineral (344402, exchange).
Frank P. Sala: 2,850 moths (342218).
Finn Sander: 1 mollusk (342203).
German Castro Sarmiento: 4 mollusks (343806).
Louis F. Saviano: 1 cut gem (342004).
Mortimer H. Saslaw: 108 minerals (338405).
John M. Saul: 67 minerals (341990, exchange).
Fritz Schiemer: 3 echnioderms (344054).
Frederick C. Schlauch: 22 water snakes (343648).
Ernest Schlichter: 2 minerals (345951).
Vincent P. Schneider: 23 fossils (342338, 342633, 345455).
Vincent P. Schneider and Judy Ravnor: 26 fossils (341936, 341937, 345316).
Detmar Schnitker: 9 fossils (344383).
C. H. Scholtz: 11 beetles (342534).
Richard Schooner: 3 minerals (344509).
Ed. Schrader: 3 petrology and volcanology samples (345999).
W. Schreyer: 3 granulite samples (346337).
Randy Scott: 3 fossils (346044).

Yale Sedman: 2 butterflies (342839).
 Michael E. Seidel: 5 turtles (344007).
 E. H. Sellards: 1 fossil shark egg case (345768).
 Raymond D. Semlitsch: 4 worms (340587).
 Annette Seymour: 2 fossils (342630).
 Irving A. Shepard: 1 cut gem (343382).
 William N. Shirey: 2 turtle skeletons (335997).
 John F. Shisko: 7 worms (344923).
 J. W. Short: 6 ferns (342471).
 William E. Sieker: 3 moths (344901).
 Robert M. Sigurdson: 1 cut gem (343761).
 Raul Sousa Silva: 12 mollusks (343799).
 Geddes W. Simpson: 2 insect slides (344906).
 Sidney Singer, Jr.: 24 minerals (344621).
 Dr. and Mrs. V. P. Singh: 1 carved-beryl Indian (343202).
 Arthur E. Smith: 9 minerals (343214).
 Clyde F. Smith: 14 insect slides (342520).
 Ronald P. Smith: 1 beryl (343529).
 Kathleen R. Smythe: 5 mollusks (342229, 343241).
 Martin A. Snyder: 4 mollusks (345954).
 Scott W. Snyder: 62 fossils (341924).
 Annelle Soponis: 1 insect (342538).
 Theodore F. Spall and Theodore Spall, Jr.: 1 blue topaz (338945).
 Brice W. Springer: 1 polished sphere with a pedestal (345132).
 M. S. Srinivasan: 5 fossils (345666).
 H. A. Stalder: 1 mineral (344773, exchange).
 Jon D. Standing: 8 crustaceans (341045).
 Frances G. Stehli: 82 fossils (342155).
 N. C. N. Stephenson: 1 granite sample (346341).
 Robert Stern: 29 volcanic rocks (342857).
 Thomas W. Stern: 2 quartz spheres with carved teak-wood bases (345446).
 Henry M. Stevenson: 10 nighthawks (345315).
 Kurt Stimpson: 2 worms (344160).
 Bruce L. Stinchcomb: 15 fossils, 1 cast (344667).
 Carl W. Stock: 31 fossils (346447).
 Craig S. Stolburg: 3 minerals (344360, exchange).
 Gary M. Stonedahl and John D. Lattin: 759 insects (344432).
 Leo F. Stornelli: 1 garnet, 1 blue topaz (338403).
 Henry L. G. Stroyan: 4 insect slides (343176).
 Robert J. Studders: 1 blue topaz (343530).
 Robert Suarez: 1 fossil walrus tusk (344211).
 Ken Sulak: 155 echinoderms (341920).
 Ester Sullivan: 1 mounted golden eagle (344439).
 William D. Sumlin III: 1,890 insects (344897).
 Walter R. Suter: 798 beetles (343173).
 Robert Svecz: 4 minerals (342011, 342253).
 Roy Swain: 5 crustaceans (337826).
 Mr. and Mrs. Rollin Swanson: 2 tephra samples (346350).
 Dr. and Mrs. Bernard T. Swaykus: 1 pendant with yellow sapphires set with diamonds in gold mounting (343343).
 Clyde Swindell: 81 fossils (342152, 344173, 346045).
 Dr. and Mrs. Yen T. Tan: 1 cut gem (343344).
 J. C. Tanguy: 11 lava samples (343647).
 Ralph W. Taylor: 526 insects (342018, 343627).
 Mr. and Mrs. Albert Taxson: 8 mollusks (346068).
 Leon Termin: 20 minerals (343782).

Daniel A. Taxtoris: 7 petrology and volcanology samples (345991).
 Donald B. Thomas: 51 stink bugs (343636, 344131).
 James D. Thomas: 1 crustacean (343254).
 Peter R. Thompson: 5 fossils (343246).
 R. T. Thompson: 2 insects (343134).
 Richard W. Thomssen: 3 minerals, 1 topaz (343234, 344979).
 R. W. Timm: 109 worm slides (305205).
 R. H. J. Tompkins: 13 bird eggs (344136).
 Robert Traub: 624 fleas (344132).
 Rodolfo Trevino: 1 meteorite (337951, exchange).
 Claude Triboulet: 16 petrology and volcanology samples (343185).
 Charles A. Triplehorn: 25 insects (346015).
 Robert G. Tuck, Jr.: 6 mammals (345130).
 George Turcott: 1 fossil (344836).
 Robert H. Turnbow, Jr.: 3 insects (344898).
 Mr. and Mrs. Milton Turner: 1 jadeite bead necklace, 1 oval bowl, 1 ring
 bangle, 1 carving of a boy, 1 nephrite bead necklace, 4 carved stylized fungi,
 1 carved urn, 1 Persian turquoise ring in white gold with diamonds and
 sapphires (343258).
 Ruth D. Turner: 683 worms (342380).
 Leonard D. Tuthill: 10,550 insects (345297).
 Joan M. Uebelaker: 5 worms (342066).
 Donald Wayne Umstead: 1 fossil walrus skull (342654).
 J. R. Underwood, Jr.: 1 meteorite (342850).
 Karl Valley: 1 moth (346330).
 W. Van den Hoven: 36 bird skeletons (334727, 329057, 335967, 337785, 342748,
 345911, exchanges).
 Mr. Van Der Voorn: 3 cut gems (343295).
 John D. Van Itallie: 9 minerals (344216).
 C. Vargas C.: 34 plants (253264).
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 Kurt Walenta: 2 minerals (344714).
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- Anne E. and Ronald D. Abramson: 2 vases made by Dale Chihuly and 1 vase made by Dan Dailey (1981.0016).
Raul Santiago Acosta Y Lara: a medal commemorating the 150th Anniversary of the Constitution (1981.0003).
Arthur S. Adams: sampler made by Sukey Foster, 1803 (1980.0849).
Anthony Adee: volleyball (1981.0139).
Louise Adkins: glass pitcher with a picture of Shirley Temple (1980.0836).
Adolfo: 3-piece suit designed by Adolfo and worn by Mrs. Ronald Reagan at the National Republican Convention of 1980 (1980.0850).
Rita J. Adrosko: 2 pieces of power-woven silk damask, 1 piece of power-woven figured silk fabric, and 1 piece of hand-brocaded silk fabric (1980.0368); 10 fragments of nineteenth century wool Shaker chair tapes (1980.0861).
Richard E. Ahlborn: lot of 37 fragments from Swann/Piercy kiln site in Alexandria, Virginia (1980.0181); "Taj Mahal & Ry Cooder" poster (1981.0142).
Albany Felt Company (through W. F. Fry): 8 pieces of felt, 4 sample cards, 2 fabric samples, and a fume bag (1980.0542).
Governor Lamar Alexander: button, "Reagan/Baker/80" (1980.0633).
Dennis Scott Alwood: 1 seventy-five-cent coin made of rhodium, picturing Charlie McCarthy and Mortimer Snerd (1980.0430).
Irving Amen: 4 lithographs, "The Tribes," by Irving Amen (1981.0243).
The American National Red Cross (through Hazel A. Braugh and Mary D. Doering): American Red Cross helmet, 3 posters, and 23 pins (1981.0284).
American School of Classical Studies (through Dr. Richard H. Howland): "Art Deco" chenille facecloth (1980.0434).
William H. Ammarell: 1 framed mourning picture by Emil Moutoux, dated 1896 (1980.0598).
Wally Amos and Christine Harris-Amos: 5 items pertaining to "Famous Amos" cookies, including 2 cookie bags, a cookie tin, a gauze shirt, and a Panama hat (1980.0886).
Anderson For President Headquarters (through Stan G. Lizama): Anderson For President campaign items, including 2 buttons, 2 bumper stickers, a lapel pin, a cap, and a poster (1980.0649).
Frank O. and Nancy L. Anderson: Civil War surgeon's kit (1979.1174).
Ernest Angelo, Jr.: Texas State Delegation button used at the 1980 Republican National Convention (1980.0674).
Anonymous: plate, coffee cup, and saucer ordered by Mrs. Abraham Lincoln for the White House in 1865 (1980.0571); color decal set illustrating shoulder sleeve insignia (1979.0691).
Government of Antigua, Barbuda Dependency, Barbuda Post Office: recent postage stamp issues of Barbuda (1980.0601).
Government of Argentina, Postal Administration (through Susana Cacedevant): 5 mint Argentinian postage stamps (1980.0744).
L. C. Aronoff: Broadside from the 1968 Poor People's Campaign and an anti-Vietnam War protest leaflet (1980.0555).

Arundel Asphalt Products, Inc. (through Frederick R. Diehlmann, Jr.): planimeter in case (1981.0348).

Association of Living Historical Farms and Museums (through Steven H. Lewis): Hand corn planter (320045).

Caroline Leonardo Baisden and Erminia C. Leonardo: contract, man's apron, cleaning formula, various tools, and accessories for manufacturing clothing, 1910-49 (1979.0063).

Michael Baldigo: 2 medals commemorating the Wisconsin Centennial and the Green Bay Tercentennial (1980.0983); bronze medal (1981.0005).

Bapsybanoo Marchioness of Winchester and Dr. Jal Pavry: autographed photographs of U.S. presidents, vice-presidents, governors, senators, and other political personalities of the twentieth century (1980.0480).

Ruth Barish: collection of Jewish New Year cards (1980.0285).

John D. Barry: 1 Speed Graphic press camera with a Graflite flashgun (1978.0234).

Dorothy W. Bartlett: 1 tool chest and 17 hand tools used by Harmony Bartlett (1980.0726).

Exidena Bassett: baseball cap and catcher's mitt (1981.0160).

Preston R. Bassett: 44 pieces of American glass, 8 pieces of earthenware, and 59 pieces of stoneware (1979.0577); 1 chandelier, c. 1820, a mold for tin soldiers, a mold for buttons, a wooden box with lid bearing the date 1822, and a wooden lemon reamer (1980.0250).

C. Leslie Batchelor and Grace Batchelor: drawing of an 1841 English locomotive (1980.0351).

Bates Fabrics, Inc. (through May Weston): 4 fabric samples (1980.0535).

Winifred H. Bauer, in memory of Captain Paul Sherman Bauer, and on behalf of Paul Sherman Bauer, Jr., Elizabeth Bauer Haviland, Robert Staunton Bauer, Karen Bauer Mitchell, and Ralph Sherman Bauer: a two-treadle flax spinning wheel (1980.0884).

Bruce S. Bazelon: 8 U.S. Navy items, including a Buships navigator's case with 2 dividers, a WW II aviator's wing insignia, 2 tailor trade cards, 1 draftsman's pen point, and 1 midshipman's dirk (1980.0652); 4 U.S. Marine Corps mess spoons and 2 Navy Department manuals (1981.0189); 2 U.S. Army mess cups, 1 Corps of Engineers Overseas cap, and 1 surgical instrument kit (1981.0440).

Bruce S. Bazelon and Edward Rubin: 1 Girl Scout blouse, a hunting vest, a jacket with Greyline patch, 2 Boy Scout jackets, a military style jacket, an Elks Club fez, and an Elks Club pennant (1980.0514).

William P. Bebbington: 1 violin labeled Joseph Guarnerius, by George August Gemunder (1980.0906).

May Becker: oval pincushion (1980.0751).

Robert Todd Lincoln Beckwith (through James T. Hickey): a platter from a service owned by Mrs. Abraham Lincoln (1980.0572).

Clay P. Bedford: French pinfire double-barrel fowling piece associated with Joseph Bonaparte during his residence in the U.S. (1980.0830).

Paul Z. Bedoukian: group of 7 Armenian medals (1979.1038).

Alan F. Beede: 1 lorgnette (1981.0029).

Michele Beiny: 3 Chelsea porcelain plates, c. 1755 (1979.1221).

Robert S. Bell, M.D., in honor of the Frank Bell family: appliqué quilt made by Mary C. Pickering (1981.0334).

Robert Benney: Japanese "Knee" mortar and a de-activated mortar shell, WW II (1980.0731).

Frank J. Berek: 1970 National Football League schedule in braille (1981.0141).

Charlotte V. Bergen: "Servais" violoncello made by Antonio Stradivari in 1701, and a bow and a wooden case (1981.0289).

- Berkey K & L Custom Services (through Leonard Zoref): 5 color photographic prints, by Douglas Faulkner, of underwater subjects (1980.0052).
- Catherine R. and Francis P. Bertrand: Navy register from 1900 and question-and-answer book in U.S. History (1980.0650).
- Rafael Betancourt: poster titled "Retrospective View of Operation-Sail" (1980.0492).
- Robert C. Bichan: mariner's compass (1981.0020).
- Israel I. Bick: 2 1980 "Stamp Expo" Presidential Covers (1981.0038).
- Mrs. Julian A. Black: a bronzed boxing glove, a towel from the 1938 Schmelting-Louis fight, and 3 pairs of boxing gloves related to Joe Louis's career (1980.0683).
- Mrs. Erwin A. Blackburn: 5 pieces of women's jewelry from the 1950s, designed by Nettie Rosenstein (1979.1088).
- Matthew Douglas Blair: host container and chalice from WW II period chaplain's kit, a pin, a poncho, a sleeping pad, and 6 insignia (1981.0151); Man-in-Service window sign and 17 pieces of sheet music, WW II period (1981.0257).
- Sophia B. Blume, in memory of Flora Edelsteen: motion picture projector, "The Movie Maker," with instruction sheets (1981.0259).
- Doris Boger: amateur baseball uniform worn by Marvin L. Rhodes between 1910 and 1914 (1980.0773).
- Geraldine and Joseph M. Boggio: 20 objects used in the exhibit *Buckaroos in Paradise*, including articles of clothing, personal grooming accessories, kitchenware, and tools (1981.0414); 1 "7 UP" branding iron and 1 "J-B" branding iron (1980.0338).
- Dorothy B. Bolognini, in memory of Maestro Ennio Bolognini: Cello made by Rovatti in 1915, Buenos Aires, Argentina (1980.0909).
- Ernst Nathorst Boos: Swedish private bank note for 10 kronor issued by the Helsinglands Enskilda Bank in Soderhamn, 1879 (1979.1054).
- Helen Marshall Borchard: 4 phonorecords of "Wendy Marshall," the "Toy Lady" (1980.0495).
- Boren for President (through Alice I. P. Boren): bumper sticker and button used in the "Boron for Vice President" campaign (1980.0669).
- John A. Borneman & Sons, Inc. (through John A. Borneman): 22 homeopathic pharmaceuticals, instruments, and accessories (1980.0770).
- Cecil Taylor Bradley and Kathleen Forrest Bradley: 2 diplomas and a commencement program (1980.0534).
- Margaret C. Brady: 11 pieces of Welsh theatrical costume worn by Gwyneth Hughes (1980.0485).
- Bettina Tytus Brawn and Adele Emerson Cotton: woman's hat, 1883 (1980.0544).
- George Breed: 2 "clumps" containing silver coins from the sea in the area of the Bahamas (1979.1188).
- Chester "Chet" Brewer: baseball glove and baseball uniform from the Kansas City Royals (1981.0203).
- John F. Bringmann: engraved woodblock for printing blank checks for the Waterbury National Bank in the 1880's (1980.0782).
- Sally L. Bristol and Nancy G. Cook in memory of Frances Carpenter Cook: Pewter teapot by Boardman & Hart, 1828-53 (1981.0081).
- Denise Brooks: fishing license, 1974-75 (1981.0140).
- Glenn Weindt Brown: 2 buttons and 2 ribbons of the American Independent Party (1980.0559).
- James Brown: 1 metal badge, 4 white buttons, and 1 bronze button (1981.0091).

Joan S. Brown: 2 glass fire extinguishers, each marked "HARDEN HAND GRENADE" and "STAR" (1980.0438).

Margaret S. Brown: linen and cotton tablecloth (1981.0256); a woven-patterned bookmark and a printed bookmark, both dated 1892 (1981.0470).

Mrs. Robert L. Brown: handmade Spanish-American War valentine (1980.0742).

Sally Ann Brown, in memory of Captain Dale Brown: Bausch & Lomb binoculars (1980.0879).

Ralph O. Brownfield: U.S. Air Corps uniforms and accessories (1979.0920).

Franklin R. Bruns III and James Bruns: 1 school badge awarded to outstanding students of Public School 33 in Bronx, New York, 1923-24 (1981.0210).

Miriam Hawkins Bryant: Walnut tilt-top table, c. 1750-1769 (1980.0989).

Lloyd A. Buchalter: a Bundy tilting steam return trap, c. 1895, and a collection of cast-iron roller pipe supports (1980.0228).

Budeke's Paints (through James A. McCormick): lid closer, c. 1923, spout cap sealer, c. 1920, and a gallon container of black rubbing varnish from Valentine & Co. (1981.0518).

Ida Reynolds Bumstead: 2 fans, 1905-1915, and a necklace, 1871 (1981.0505).

Ellen S. Burwell: vehicle lantern, c. 1910, and 22 horse bits (1979.0683).

Vannevar Bush: profile tracer (317853).

Robert Butman, in memory of William H. Finckel, Jr., and William H. Finckel, Sr.: 6 pamphlets, 1 article, and 6 letters related to William H. Finckel, Jr. (1979.1215).

Roger A. Byrnes: German spring gun, c. 1870's (1980.0953).

University of California, Los Alamos Scientific Laboratory (through Berlyn Brixner): 2 high-speed cameras, an oscilloscope camera with accessories, and 94 drawings & blueprints (1981.0238).

J. Duncan Campbell: 1 pair of hightop Blucher boots, 1945 Army issue (1979.0189).

Walter E. Campbell: U.S. Army aviator's badge, 1917 (1981.0095).

Government of Canada, Canadian Postal Administration: 10 postal cards from Canada (1981.0154).

Catherine B. and Lawson J. Cantrell: 15 gold medals, badges, or passes awarded to President W. H. Taft (1979.0042).

Audrey Captain: WW I objects, including identification tag, pair of breeches, coat, leggings, and 2 memorial certificates (1977.0910).

Carlisle Colonial Minute Men, Inc. (through Robert R. Heath): 2 Estabrook Trail Walk medals, 1980 (1980.0984).

Bonnie L. Carroll: a silver thimble and a cotton pieced-work quilt (1979.0933).

Anderson Carter (through Geraldine Carter): 1 New Mexico for Reagan button, 1980 (1980.0564).

Amy R. Chassid: metallurgical balance (1981.0406).

Republic of China, Directorate General of Posts, The Philatelic Department: 230 recent postal issues of the Republic of China (1981.0097).

Denise S., Melody, and Michelle J. Christian: 1 cheerleader's megaphone, a hat, a baton, a National Baton Twirling Association patch, a "NW" patch, and a "Pounce the Panthers" button (1981.0143).

Patrick K. C. Chun: 14 pacemaker electrode tips (1981.0376); 12 cardiovascular catheters (1981.0528).

University of Cincinnati, Department of Mechanical Engineering (through Ivan E. Morse): 4 planimeters, all in cases (1981.0301).

Nicholas J. Cinciotta: 16 gold-pointed fountain pens dating from 1933-1960 (1981.0103); 1 silver-pointed and 15 gold-pointed fountain pens dating from 1933-1960 (1981.0104).

- Citizen's Party-N.R.V. (through Myles Miller): 1 poster, "Vote Citizen's Party 1980" (1981.0308).
- Civic Host Committee, Inc. for the 1980 Republican National Convention (through Carol Gies): pennant used at the 1980 Republican National Convention (1980.0530).
- Elvira Clain-Stefanelli: pair of dies for silver staters of Metapontum (1979.1232); pair of dies for twenty litrae gold coins of Syracuse (1979.1239); pair of dies probably by Tardani for coins of Syracuse, Corinthian stater series, also trial strikes in lead (1979.1240); pair of dies for silver sixteen litrae pieces of Queen Philistis, wife of Hieron II of Syracuse (1979.1241); pair of steel dies with copper inserts for silver tetradrachms of the Siculo-Punic series showing head of Persephone and horse standing (1979.1243); pair of dies for Siculo-Punic silver tetradrachms with head of Hercules, and lead trial striking (1979.1244).
- Vladimir Clain-Stefanelli: pair of dies attributed to Tardani used for striking silver tetradrachms of Rhegium (1979.1233); pair of steel dies for ancient gold coins of Agrigentum, Sicily (1979.1234); pair of dies made of brass set in steel for silver tetradrachms of Messina, Sicily (1979.1235); pair of dies for silver didrachms of Segesta, Sicily (1979.1236); pair of steel dies for tetradrachms of Selinus, Sicily (1979.1237); pair of copper dies set in steel for silver tetradrachms of Selinus (1979.1238); U.S. and foreign used stamps (1981.0155).
- Geo. M. Clark: 3 WW II objects, including a herringbone twill jacket and trousers and a field jacket (1979.0301).
- Alan M. and Jean M. Clarke: US Staff Officer's uniform coat, sword, and scabbard (1980.0236).
- Edmund W. Clarke: Oliver number 9 typewriter accessories (1981.0105).
- Elizabeth Clarke: Anti-ERA brochures, leaflets, handouts, a poster, and an adhesive sticker (1980.0472).
- Ethel Clarke: 2 valentines with embossed envelopes (1980.0846).
- George M., Margaret F., and Thomas G. Cleveland, Frances C. Corcoran, Charlotte C. Look, and Ann C. Robertson: silk stockings and evening bag associated with Mrs. Grover Cleveland (1980.0979).
- Alan E. Cober: poster of the 1980 presidential candidates Carter and Reagan (1981.0222).
- Barbara J. Coffee: Painted silk chair seat covering (1981.0008); pair of white gloves (1980.0413).
- Francis Edwards, Ltd., and Mrs. Julian James: 2 fashion plates (1981.0357).
- Republic of Colombia, Ministry of Communications, National Postal Administration: 36 First Day Covers from Colombia (1981.0125).
- George L. and Mary E. Compton: political campaign memorabilia, including 7 candle lanterns, 3 banners, 3 clay pipes, 2 torch lights, a stoneware crock, a flag, a glass chimney, an ice pick, parade body armor, a parade torch, a pewter cup, and an umbrella (1980.0482).
- Computer Sciences Corporation, System Sciences Division (through Dr. Arturo Silvestrini and T. L. Gunther): Wang LCCI-2 desk computer, IBM Port-A-Punch, punch cards, and associated materials (1980.0096).
- Conchemco Incorporated (through James A. McCormick): Patterson Laboratory pebble mill and a paint mill (1978.0510).
- Joyce E. Cone: 3 coverlet samples handwoven by the donor in 1980 (1981.0045).
- Mrs. R. F. Conlisk: 82 phonorecords (1980.0339).
- The Right Reverend Eugene T. Connolly: copper plate with the Declaration of Independence engraved on it, 1859 (1980.0767).
- Government of the Cook Islands, Ministry of Posts, Philatelic Bureau: 34 mint and used stamps, First Day Covers and souvenir sheets (1981.0179).

- Grace R. Cooper: "Martha Washington"-style electric sewing machine manufactured by White Sewing Machine Company (1981.0254).
- CooperVision Incorporated, Optics Division (through John M. Blackmore): 6 soft contact lenses (1981.0275).
- Alton M. Costley in memory of Edgar M. and Lonnie S. Costley: 1914 Chevrolet roadster (1978.1027).
- Ron Council: 1 Argus C3 35mm camera and accessories (1980.0801).
- Mildred F. Councilor: 4 hangers, 1815–1925 (1979.0483).
- Margaret K. and W. S. Cowles: 1 twenty-dollar gold piece in high relief, 1907 (1979.1158).
- William R. T. Crolius: stoneware jug stamped with mark of Clarkson Crolius, ca. 1794–1838 (1980.0658); 1 stoneware inkwell made by Clarkson Crolius, ca. 1800–1830 (1981.0035).
- Crown Agent: sheet of 12 mint stamps from Christmas Island, 1977 (1981.0152).
- Jimmie Crutchfield: baseball shoes, 2 tickets, and a baseball contract (1981.0129).
- Will W. Curl III: officer's "tanker" jacket, Vietnam War period (1979.0804).
- Stephen Cutter: group of Spanish-American silver coins salvaged from the Galleon Nuestra Senora de Atocha (1979.1187).
- Marion G. and Robert G. Dalton: portrait of Mrs. Richard Nixon by Diana Neville (1981.0453).
- Mrs. Voldemars Dambekalns: toy scooter manufactured by "GENORGN" Wheel Co., ca. 1924 (1981.0215).
- Barry A. Davidson, M.D.: surgeon's kit, ca. 1840 (1981.0449).
- Edwin Davis, Jr., M.D.: group of Spanish-American silver coins salvaged from the Galleon Nuestra Senora de Atocha (1979.1186).
- Leon Day: baseball uniform, "Estrellas Importadas," including cap, pants, shirt, and socks (1981.0013).
- Mrs. Kalman J. DeJuhasz: 14 steam engine indicators, 6 gas engine indicators, patterns for casting indicator parts, photo recorder, indicator, and a Manograph (1981.0217).
- S. A. M. and S. U. Deraniyagala: 167 prints by Ranil Deraniyagala (1980.0489).
- Eleanor Dickinson: "fallout" and healing cloths, healing apron, towel for washing feet, wine glass and cracker used in a religious service (1980.0610); robe, hood, pamphlets, brochures, and literature from the Ku Klux Klan (1980.0481).
- District of Columbia, Department of Transportation (through Charles M. Stuart, Jr.): 4 1981 inaugural maps, 2 "No Parking" signs, and a map showing the portions of the city involved in the inaugural ceremonies (1981.0102).
- Alice L. C. Dodge: black lace fan with platinum and diamond monogram (1981.0056).
- Heer Dohrman (through Forest Beverly): Russian Nagant revolver and an English Webley revolver (1980.0845).
- Catherine Doig: U.S. flag with 45 stars, 1896–1908 (1981.0282).
- Alice A. Donaldson: November 15, 1918, edition of the *Stars and Stripes* newspaper (1980.0057).
- G. A. Donovan: little league jersey and cap (1981.0135).
- The Honorable R. K. Dornan: button with the slogan "Reagan/Kempt & Dornan '80" (1980.0667).
- Gladys C. Dougherty: 1 three-tine cooking fork, 1856 (1980.0549); 2 ambrotypes, 1 albumen carte-de-visite, 1 silver print, and 5 tintype photographs (1981.0239); 1 silver bookmark (1981.0411); women's jewelry, including 6 bracelets, 2 pairs of earrings, a brooch, and a headdress (1980.0092).

- Estate of Justice William O. Douglas (through Shelton S. Cohen and Martha C. Yopp): 2 buttons and a bumper sticker relating to the Democratic Party's attempt to draft William O. Douglas for president in 1952 (1980.0521).
- Edith Douglass and Mary Douglass Rackliffe: a miniature portrait of Andrew Ellicott, shoe buckles, wax seal, portable copying machine, photographs, maps, and literature related to Andrew Ellicott (1980.0761).
- Peg Downey: 174 objects from the 1980 Copenhagen World Conference of the United Nations Decade for Women (1980.0603).
- Julie B. Dreyfus: women's fashion plate from *Peterson's Magazine*, June 1870 (1978.0325).
- Governor Lee Sherman Dreyfus: button with the legend "Republican National Convention 1980 REAGAN" and a lapel pin worn by Wisconsin state delegates at the 1980 Republican National Convention (1980.0565).
- Arthur D. Dubin: pullman conductor's cap (1981.0327).
- J. H. DuBois: 15 celluloid cuffs, a pair of linen cuffs, a plastic artillery shell, and a collar cuff box (1981.0384).
- Alene B. Duerk: U.S. Navy uniforms and uniform items worn by the donor as the first woman appointed rear admiral in the Navy Nurse Corps (1979.0237).
- Jimmy Durante Children's Fund (through Robert Romano): a grey felt hat worn by Jimmy Durante and a plaque with the sheet music cover of "Inka Dinka Doo" (1980.0525); 2 pieces of sheet music "If the World Were Full of Durantes" and "You're One In a Million" (1981.0121).
- Georgia A. Dwight: Kansas City Monarchs baseball uniform (1981.0202).
- Wm. Jerry Eagle: 19 artifacts relating to Virginia Sullivan's medicine show (1980.0693).
- Central Bank of Egypt (through the Manager, Note Issue Department): Egyptian bank note L.E. 20 (1980.0557).
- Asbeth Lee Eichner and Jack M. Eichner: 71 phonograph records (1980.0284).
- Jo Anne and William A. Eidson: silver boatswain's trumpet, 1858 (1980.0464).
- Laurie Einstein: 1 phonograph record (1980.0774).
- H. K. Eklund: WW II mountain tent and accessories (1979.1213).
- Mary D. Ellingson: stoneware vase made by Marietta Hipple, ca. 1953 (1981.0006).
- Miriam Ellis: U.S. cover postmarked Cleveland, Ohio, 10 April 1947, incorporating the letters "D.P.O." (1981.0335).
- Robert C. Ely: Northwest Trade Gun, pattern 1886 (1980.0416).
- Marcie S. Emerson: 2 U.S. Army European operator's licenses (1981.0258).
- Lieut. Col. William K. Emerson: 3 blank letterheads of the U.S. Department of the Army and 12 blank certificates of award (1978.0604); 2 identification cards, 2 border passes, and 2 ration cards (1981.0171).
- Anne Eustis Emmet: glazed earthenware figure of a standing dog, made in the Shenandoah Valley in mid- to late-nineteenth century (1980.0439).
- Mrs. John H. Enns: collection of labels from Chinese New Year firecrackers (1980.0741).
- B. Frank Eshleman: collection of cigar bands (1980.0916).
- Evan-Picone (through Irving Spitalnick): 5 patterns, 1973-79 (1980.0137).
- Lin Renn Evans: printed cotton fabric, pre-Civil War era (1980.0433).
- Paul F. Evans: 2 ceramic objects made by the Chelsea Ceramic Art Works, Chelsea, Massachusetts (1979.1150).
- The Eyecatcher (through Joyce E. Hamula): 4 1980 presidential campaign buttons, 4 buttons relating to the opposition to the women's movement, and 1 anti-abortion button (1980.0732).
- Richard B. Farrar: 1 Premo folding camera, film, and a carrying case (1981.0265).
- Mathilde B. Faulkner: a campaign poster and a pin (1981.0382).

- Marguerite Faupel: 20 patterns of tin, paper, and steel for bits and spurs, and a catalogue from Miller and Tietjen (1980.0294).
- Federal Reserve Bank of New York (through Ralph A. Cann): Frahm system vibration tachometer (1980.0841).
- Barney J. Felix: boxing shoes (1981.0137).
- Michael P. Finerty: engraved spanish revolver that belonged to Maj. Gen. Alexander Orlov, Czarist Russian Army (1981.0379).
- Detmar H. Finke: Staunton Military Academy bag used by the donor's son while a cadet (1980.0103).
- Arlene J. Finley: 7 WW I postcards (1979.0290).
- Jane A. Finn: a 1931 movie banner (1980.0499).
- Lenore E. Fitzsimons: 21 etchings by Otto J. Schneider (1980.0833).
- Frank L. Flay: badge from the 1892 National Democratic Convention (1980.0804).
- Association of Flight Attendants (through Pamela J. Casey): a banner from the Sixth Biennial Board of Directors Meeting of the Airline Pilots Association. Steward and Stewardess Division (1980.0504).
- Florence Ott Focht: 1 buffalo robe (1980.0233).
- Donald W. Foote: 5 Army Air Force records of the donor (1980.0278).
- Rex J. Ford: 2 buttons, 1 for the Florida State Delegation, used at the 1980 Republican National Convention, the other used in Paula Hawkins's campaign for senator of the state of Florida (1980.0734); 2 buttons used in Paula Hawkins's campaign for senator of the state of Florida (1980.0825).
- Eric G. and Ivar Forsberg: tool chest and 132 silversmithing tools used by Karl Johan Forsberg (1981.0098).
- Alexander L. Fortunato: 1 Brownie 8mm movie camera, Falcon 127 rollfilm camera, 2 rolls of film, and a flashgun (1981.0315).
- Arlene J. Franchino: 1 croquet ball (1981.0136).
- Emma Freda in memory of Anthony Freda: Burroughs manual adding machine (1981.0058).
- Martha Gale Frew, on behalf of the James E. Frew Family: 1 C-tenor (melody) saxophone (1979.0863).
- Herbert G. Fritz: Phonograph record commemorating Elvis Presley, "Ole El Was Born For Institution" (1980.0625).
- Frontier Museum Historical Center (through John E. Bianchi): cased reproduction model of Louis S. Flatau's patent pistol and carbine holder (1981.0346).
- Fuller & d'Albert Incorporated (through John F. Meenehan): a Norwood Flashrite Exposure Meter (1981.0318).
- Katharine Morton Fulmore, in memory of Caroline Lexow Babcock: memorabilia concerning Peace Activism, The National Woman's Party, and the Equal Rights Amendment (1980.0475).
- Alan Arthur Funk, CLU: 2 pieces of twelve-point type with the Lord's Prayer cast on the face of each and a cardboard container (1981.0149).
- Julie L. Gaebe: tennis socks (1981.0148).
- Jean H. Gallahan: a pocket magnifier, a leather ring pad, and an engraver's block all used by master engraver Thomas Geraci and possibly by his wife Eva Geraci (1980.0718); miscellaneous tools and stones left by master engraver, Thomas Geraci and his wife Eva Geraci (1980.0589).
- D. L. Ganz: brass and iron pattern strikings for small dollar coins (1980.0962); copper and silver pattern strikings for small size dollar coins (1980.0961).
- Gardena Valley Democratic Club (through H. Belcher and J. H. Griffis): 2 campaign buttons, "Californians for Kennedy" (1981.0469).
- George and Julius Garfield: collection of 547 pharmaceutical artifacts from Garfield and Company, Edison, New Jersey (1979.1144).

- George E. Gary: WW I memorabilia, including 3 passes, 3 accounts, 2 train tickets, 1 membership card, and 1 letter (1978.0269).
- Julius H. Gass on behalf of Jodi Sheryl Sosnoff and Michael L. Gass: typewriter with keys arranged in a semi-circle (1981.0107).
- Mrs. William S. Gaud: 1 embroidered net collar and 1 printed chintz fabric (1981.0295).
- Murray Geller: electro-therapeutic machine contained in a case (1981.0447).
- Robert E. Gemmill: Edwards bar shears and lever (1981.0311); a square, 2 axle gauges, a brace, and a hub borer (1981.0364).
- Gibraltar Fabrics, Inc. (through Sheldon Farber): 4 nylon fabric samples (1980.0540).
- Lincoln J. Gilbert: U.S. underhammer "Bootleg" pistol (1980.0619).
- Frank B. Gilbreth, Jr.: 204 stereographs depicting the work and associates of Frank B. and Lillian M. Gilbreth (1980.0785).
- John M. Gilbreth: a "GILBRETH" pocket stop watch (1980.0808).
- Harold E. Good: WW I Chevron (1980.0663).
- B. F. Goodrich Company (through H. F. Bichsel): fabric sample used in the manufacture of space suits (1980.0539).
- Ronald S. Gordon: 2 eyepieces, a set of paired eyepieces, and a microscope (1978.2222).
- George E. Gorman: WW II period shoe inserts for shoe pacs (1981.0307).
- W. R. Grace Company (through James A. McCormick): 2 PPG wood stain and 1 PPG compo-drier (1981.0516).
- John P. Grady: a squash racket and ball (1981.0145).
- Margaret W. Gramling: a Comet Seeker, a telescope, and a rain gauge (1980.0709).
- Betty Grayson: tennis socks (1981.0458).
- Paula Green Inc. Advertising (through John Glucksman): 2 video cassettes containing the first two commercials produced for International Ladies Garment Workers Union (1981.0365).
- Mary A. Grefe: 16 objects from the 1980 Copenhagen World Conference of the United Nations Decade for Women (1981.0036).
- Cindy and John R. Grellman, Jr.: "Hard Times" token (1981.0004).
- Gries/Dynacast Company, Division of Coats and Clark Inc. (through Rita Miller): 4 president "Picker" coins (1980.0772).
- Robert H. Gross: necktie from the 1980 Republican National Convention (1980.0524).
- Nicholas Grossman: calculator (1980.0813).
- Sanford Grossman: 11 campaign buttons and a campaign T-shirt (1980.0517).
- Louis R. Groza: pair of football shoes worn by the donor (1980.0488).
- Dona Guimaraes: 1 woman's skirt, 1905-1915, and women's shoes, 1979 (1979.0885).
- Michele Guimarin: 15 objects concerning activist political activities against nuclear power (1981.0434).
- Government of the Republic of Guinea, Philatelic Agency: 48 mint stamps of Guinea (1981.0241).
- William H. Guthman: 9 military guns and 1 bayonet (1980.0856).
- Julian F. Hadley: a 35-star flag from the schooner *Henry P. Simmons*, ca. 1889 (1981.0283).
- Paul C. Hager: 6 used and 1 mint Nepalese stamps (1980.0599).
- Hascal Haile: classical guitar made by Hascal Haile in 1972 (1980.0681).
- Alfredo and Raquel Halegua: violin made by Giovanni Francesco Leonporri, Milan, Italy 1785 (1980.0838).
- John R. Hall: 2 shelf clocks (1981.0063).
- Henry Hamelly: U.S. First Day Covers (1980.0600).
- Hand Fans Unlimited (through William H. Wallo): 4 campaign fans, 2 with

- the slogan "I am a Reagan Fan," 2 with the slogan "I am a Carter Fan" (1980.0561).
- John P. Hankey: 3 rail knees (1981.0450).
- David A. Hanks, in honor of Dr. Richard H. Howland: An American Empire Revival-style cabinet by Sypher and Company, and a cast-iron stand for fire tools (1980.0688).
- Betty Hannigan: a pair of French binoculars, U.S. Signal Service (1980.0661).
- Jack E. Harris: Speed Graphic press camera with film pack adapter, flash gun, and bulb (1978.1032).
- Michael R. Harris: collection of 118 biologicals, patent medicines, and pharmaceutical sundries (1981.0170).
- Mrs. Victor Harris: game ticket "Negro National League at Yankee Stadium" (1981.0356).
- Ardyce E. Harrison: U.S. Smith and Wesson revolver (1981.0347).
- James A. Hart: pair of arctic boots and a pair of ski trousers (1981.0418).
- Hart, Schaffner, and Marx (through Robert G. Connors): 1919-1929 pressing machine (1979.0555).
- Hartford Electric Light Company, subsidiary of Northeast Utilities (through Walter F. Fee and Donald C. Switzer): 1 Mercury Unit Power Plant boiler section and 3 nameplates (1980.0908).
- Fred Hartman: platform lift truck (1981.0525).
- Thomas J. Haycroft: 1 8th Sky Cavalry shirt and 5 scarves (1980.0642).
- Elizabeth Haynes: 2 "Ike" tie pins from the Eisenhower campaign for president (1980.0842).
- Skip Headley: button "Republican Nat'l Convention Oklahoma/Reagan Country '80" (1980.0634).
- Margaret Healey Hearn: gold glazed cup and saucer made by Mary and Emily Healey. ca. 1895-1900 (1980.0749).
- Edith B. Hebblethwaite: Frejus bicycle, ca. 1963, used by Earle Avann Bronson (1979.0685).
- Ed Hedemann: 2 newsletters from 1976, *The Continental News Walk* and *WRL News* (1980.0586).
- Bruce A. and Georgia C. Hedrick: 2 pairs of Eskimo sunglasses (1981.0273).
- Oscar W. Heimberger: steam engine indicator (1981.0394).
- William H. Helfand: 63 pharmaceutical objects (1980.0678); arm-rest, wooden box, MA-LE-NA stomach liver pills, and a ball and socket advertising device (1980.0820); "Holloway's Pills and Ointments" medal, and Raccoon corn plasters (1981.0262).
- E. Y. Henderson-Taylor: 14 wood-engraved bookplates by E. Mervyn Taylor (1980.0781).
- A. L. Hendry & Company (through James A. McCormick): Pratt & Lambert ivory gloss paint (1981.0515).
- Patricia M. and Stewart M. Henry: Electro-therapeutic battery (1980.0803).
- William K. Henson: U.S. Army service coat (1979.0690); Polaroid "Speedliner" camera kit and accessories (1980.0818).
- Rochambeau A. Herosian: 5 accessory packets, 4 ration packets, and a bullet clip (1979.0836); U.S. Army raincoat (1980.0045); rain hood and goggles (1980.0195); combination tool for U.S. rifle (1980.0855); WW II facsimile letter signed by General D. D. Eisenhower (1981.0047); protractor, scale, card, and a graphic training aid (1981.0077); 2 cotton khaki shirts and a U.S. Army National Guard Distinguished Service medal (1981.0370).
- Claude L. Herrick: pocket watch with brass watch fob in the shape of a tractor (1980.0452).
- Robert F. Hester: embossed valentine and envelope (1981.0391).
- Hildegarde: 1 pair of gloves, 1 artificial red rose, 7 pieces of sheet music, and 1 lace handkerchief (1980.0403).

- Col. Georgia D. Hill, WAC: Army-green woman's service hat (312416.00).
 Robert L. Himrod: WW II civilian-style officer's boots (1979.0444).
 Mr. and Mrs. A. L. Hodge: 5 greeting swags (1981.0390); in memory of Mrs. Tillie C. Friend-Newman, 3 swags for making valentines (1980.0725).
 Georgie E. Holden: 1 g-string worn by Baltimore stripper "Moana Lee" (1980.0687).
 Lucia and Virginia Hollerith: Hollerith Association items (317982.00).
 Boyd M. Holliday: Communist Worker's Party rally handbill and a newspaper *Workers' Viewpoint* (1980.0844).
 Holtkamp Organ Company (through Walter Holtkamp, Jr.): Holtkamp portable organ made by Walter Holtkamp, 1935 (1981.0014).
 Elizabeth Horn: 1 mid-nineteenth-century valentine with envelope (1981.0116).
 Winter D. Horton: 2 radio transcriptions featuring Edward Everett Horton (1980.0487).
 Richard H. Howland: 3 cancellation notices and 2 invitations (1981.0310).
 Robert L. Hughes: U.S. five-dollar gold pattern, dated 1878 (1980.0976).
 Janet M. Huling: poster of the Susan B. Anthony dollar (1980.0477).
 Humphreys' Pharmacal, Inc. (through Willard Eldredge): 61 homeopathic patent medicines and 1 poster (1980.0769).
 James S. Hutchins: WW I print of a doughboy aiding a French soldier (316377.00); identification tag issued to the donor while a cadet at the U.S. Military Academy in 1942 (1981.0467).
 International Business Machines Corporation (through F. P. Frost): Reel of typewriter ribbon fabric (1980.0537); (through Edmund Bowles): section of tubing from Keely perpetual motion machinery, Keely Motor Company stock certificate, autographed photograph of John Keely, and 3 photographs of Keely machinery (1981.0383).
 International Union of Operating Engineers (through Frank Hanley): 5 union membership books, 5 union dues books, and 3 membership cards all used by A. H. Taylor of Charleston, West Virginia (1980.0656); (through Norman H. Fiske and Walter J. Hanley): 1 "Black Ball" ballot box, used by the International Union of Operating Engineers, Local Union 100 (1980.0402).
 Monte Irvin: pair of baseball shoes worn by the donor, ca. 1949 (1981.0446).
 Patricia Bull Jamison: WW II U.S. Army uniform items and post-WW II U.S. Army Insignia, badges, medals, and ribbon sets (1980.0640).
 Jefferson Parish, Louisiana (through Donald P. Crist): belt buckle, "Reagan/19Bush80" (1981.0490).
 Peggy Fleming Jenkins: pink chiffon costume worn by Peggy Fleming in her first T.V. special (1981.0362).
 Robert A. Jennings: Akeley 35mm motion picture newsreel camera and accessories (1980.0240).
 Joseph P. Jodoin: Krag-Jorgensen rifle cartridges (1980.0611).
 Joseph P. Jodoin, Jr.: 12 U.S. Army field rations from the Vietnam War period (1979.0356).
 Adelina S. Johnson: 9 pictures formerly owned by Norman Sweetser (1981.0209).
 Homer E. Johnson: Vibroplex key and box (1979.1016).
 John P. M. Johnston: pharmaceutical balance (1980.0763).
 Lee M. and Patricia M. Jones: mourning ring, 1784 (1981.0066).
 Morris R. Jones, Jr.: WW I uniform and accessories (1980.0490).
 Oliver M. Jones: German WW I trench map (1979.0581).
 William E. Jones: Automotive tax stamp, WW II (1981.0323).
 Jeffery V. Judson, Jr.: book by Edward Keane, *Howdy Doody's Circus* (1980.0626).
 Burke Kaplan: 6 modern manufacture belt plates (1980.0628).
 Edith B. Katz: 1 engraved steel-faced plate by Sir Peter Scott, depicting 7 ducks flying above a field (1980.0578).

Harry Kay: 2 incandescent lamps (1980.0257).
 Alice Anne Kelso: record album, "Mournful Sounds, In Memory of Abraham Lincoln" (1980.0608).
 Joseph L. Kennedy: 3 US seals and 2 figurines in military uniform (1979.0914); 2 US seals and a figurine in military uniform (1980.0035).
 Kenyon College (through Thomas B. Greenslade, Jr.): refractor telescope (1980.0802).
 Wayne D. Kerslake: poster, "Geo. D. Sweet's Famous Company" (1981.0502).
 Betty A. Kesner: WW II period plaque (1979.0426).
 Sandra M. Kidd: 1 gold-colored Swiss watch with portrait of Mr. and Mrs. Richard M. Nixon (1980.0690).
 Claudia B. Kidwell: 29 1960–1969 hair curlers (1981.0025).
 Maxine Kiefer: girl's sun bonnet, 1879 (1980.0380).
 James King: used copy of postage stamp, Switzerland, 1851 (1981.0255).
 Pee Wee King: cowboy hat and a "Country Music Hall of Fame" program (1981.0385).
 Le Roy O. Kittelson: Smith motor wheel, 1917 (1981.0407).
 Antonie J. Koenig: 24 objects associated with the American National Red Cross, including uniform items and accessories, certificates, stamps, a letter, a photograph, and a flag (1980.0604).
 Frank A. Koester: a one-pound wooden dumbbell (1981.0214).
 Martin F. Kushner: Army-green uniform consisting of 1 coat, 1 shirt, and 2 pairs of trousers (1981.0094).
 David S. Kyle: 6 WW I insignia (1979.0609); wool service coat (1979.1212).
 Cameron J. LaClair, Jr.: calculator (1981.0403).
 Fenton J. and Julius F. Lang: dual-action hydraulic ram (1981.0298).
 Anne R. and Margaret D. R. Langdon: 1 waistcoat fragment, 1 pillow case, and 1 passementerie tie-back (1981.0074).
 Margaret Langdon: 3 pageant posters (1980.0498).
 Mary Ruth Lashley: dress worn by Rebecca Todd Belton to the 1845 inaugural ball (1981.0424).
 Carolyn Waldo Law: Robert Burns commemorative towel and an 1886 plain woven linen sheet (1980.0375).
 Joyce M. Leiby: 70 harness-making tools used by Albert H. Steigerwalt (1980.0831).
 Lenox Incorporated (through Robert J. Sullivan): porcelain plate, "Golden-Crowned Kinglets" (1980.0156).
 Hardy M. Leonard: 31 stonemason's hand tools and 2 machinist's gauges (1980.0677).
 Walter "Buck" Leonard: baseball, baseball uniform, and travel bag used by the first baseman for the Homestead Grays (1981.0342).
 Walter F. Leonard: 13 pieces of baseball memorabilia (1981.0123).
 Alice A. Lescalleet: IBM typewriter keyed for typing technical reports (1981.0109).
 Hope Anthony Levy: linen doily commemorating the American Centennial of 1876 (1980.0374).
 R. Michael Levy: hockey puck made in Czechoslovakia (1981.0213).
 Edward R. Lewis, Jr.: Ramses fitting rings set (1980.0980); 4 "Coca Cola" glasses, 3 tumblers, an ice cream scoop, straw dispenser, dispenser bottle, and a "Hires" root beer mug (1980.0898).
 Faith Ward Libby: Chippendale-style side chair, ca. 1750 (1981.0177).
 James R. Libby: section of precast concrete pile removed from "B" Street Pier, ca. 1920, in San Diego Bay, California (1980.0728).
 The Libertarian Party (through William D. Burt): Libertarian Party campaign items, including 4 buttons and a poster (1980.0637).
 Thomas J. Liebel: power hacksaw ca. 1905 (1981.0018).

- Calvin Lieberman: Marchant calculator (1980.0805).
- Betty and Joseph A. Lisi: 5 buttons, 4 badges, 2 phonograph records featuring Joe Lisi, a tape titled "Labor History in Song," a "Boycott Kohler" T-shirt and tie, a "UAW" handkerchief, a key chain, a lapel pin, and a membership card (1980.0291).
- Dorothy A. Lloyd: woman's sunbonnet, ca. 1850-99 (1979.0385).
- Robert J. Locurto: 153 drugs and 32 pharmacy-related artifacts (1981.0219).
- Loena Music Publishing Company, Hanlit Publications (through Andrea Fodor Litkei and Ervin Litkei): 17 pieces of sheet music, 6 records, 2 posters, an envelope, a pamphlet, and a flyer (1981.0037).
- Daniel Clarke Loizeaux: engraver's tools and related equipment used by the late Elie Timothee Loizeaux (1980.0409).
- Long Island Coalition for Life (through Charles Williamson): 39 anti-abortion items (1979.0922).
- Kathryn A. Looney: book, *Columbia Gallery: A Portfolio of Photographs of the World's Fair* (1980.0648).
- LaVerne M. Love: 67 objects from the 1977 District of Columbia I.W.Y. State Meeting (1980.0470).
- Herman H. Lowenstein: mechanical pencil (1981.0106).
- Margaret E. Lowey: WW I U.S. Army coats, breeches, leggings, shoes, shovel, pick mattock, and hat (1977.0893).
- Tamara Lubar: 9 presidential campaign buttons (1980.0636).
- Inge D. and Henry D. Lynn: typewriter, Odell number 4 (1981.0108).
- Nancy L. MacGibbon and Randy Mueller: 2 cardboard posters and 1 paper tag, "ERA IS A TURKEY" (1981.0051).
- Jean S. MacKenzie: 14 pieces of opera costume worn by Tandy MacKenzie in *Aida*, sword and scabbard, and 4 phonograph records (1980.0629).
- Warren MacKenzie: stoneware bowl with "Shino" glaze and iron oxide decoration made by Warren MacKenzie, 1980 (1980.0506).
- Philip G. Magner, Jr.: incandescent lamp (1980.0259).
- John Davis Malloy: a "Romper Room School" diploma (1980.0533).
- Tullia Manca: 20 U.S. medal dies by Albino Manca (1979.1155).
- Frances W. and Frederick A. Mann: U.S. National Flag bearing 37 stars, 1867-1877 (1980.0671).
- Miguel Manteo: 1 Sicilian marionette, "Orlando," made by donor (1980.0431).
- Marimekko (through John Lagus and Ilkka Kalliomaa): 6 pieces of Marimekko printed fabric (1981.0333).
- Cara Goldberg Marks and Michael Neil Marks: Ketubah, a Jewish wedding contract (1980.0903).
- Peter K. Marsal: electronic flash unit (319932.00).
- The Honorable George Perkins Marsh: 1 Engraving, *Interior*, by Cornelis da Visscher, and 1 engraving, *The Wisemen*, by Henry Goltzius (1981.0442).
- Leona Marthaler: 27 labor union buttons from the International Union of Operating Engineers, Local 18, State of Ohio (1980.0496).
- Raymond K. Martin: photographic negatives of theatrical and society persons, ca. 1910-1930 from the Ira Hill Collection (1981.0463).
- Warren Martin: German Armed Forces flag, WW II period (1981.0299).
- Maryland-D.C. Rifle and Pistol Association, Inc. (through Jasper Richard Cummings and Richard C. Whiting): addressing machine, Elliott model 300 (1980.0427).
- Thomas A. Mason: 2 German naval foul weather jackets, 1 pair foul weather trousers, and 1 post-WW II amphibious flashlight (1980.0806).
- Madeline R. Massaro: woman's handbag (1979.1086); Dill's Best tobacco tin (1979.1111).
- The Honorable Burnita Shelton Matthews: judicial robe and briefcase used by Judge Burnita Shelton Matthews (1980.0911).

- Robert E. Matthews, Jr.: 6 presidential campaign buttons from 1980 (1980.0691).
- Rose Matthews: bronze medal produced by Cadillac Motor Car Division to commemorate the 1980 G.O.P. Convention (1980.0518).
- William D. Mauldin: 1 file display consisting of 221 Disston files and related tools, ca. 1905 (1980.0864).
- Emily Nelson Maxwell: program for the 1919 "Welcome Home Parade" (1980.0583).
- Mrs. Gerald J. Mayer: 1 book, *The Book of Presidents* (231569.00).
- Roberta A. McAllister: U.S. Army insignia, hat, sewing kit, anklets, and socks (1980.0662).
- Jean McCormack: model of a steam engine (1981.0520).
- Larry D. McCoy: Kennedy "Robot" button used at the 1980 Democratic National Convention (1980.0638).
- Patricia R. McFarland: 4 sterling silver plates, a sterling silver tray, cuff links, a watch, a mechanical pencil, a portfolio, a wooden clapper, brass bookends, and a chair used by former Attorney General Homer Stille Cummings (1980.0471).
- Martha Elaine Schmelz McGee: tote bag, "Welcome to Detroit Republican National Convention" (1980.0515).
- Doug and John McGraw: photograph album containing pictures of naval vessels, ca. 1898–1900 (1981.0201).
- Dorothy W. McIlroy, in memory of Malcolm S. McIlroy: materials related to Malcolm S. McIlroy and his Fluid-network Analyzer (316525.00).
- Elsa K. McIlwain: Confederate pardon by President Andrew Johnson and an oath of allegiance to U.S. government by Andrew Fudge (1980.0627).
- Beatrice Hale McIntosh: forage cap, model 1872 (317952.00).
- Ramona Miller McKean: nineteenth-century photograph album (1981.0175).
- McF Facilities Corp. (through Charles S. Rockwell): Moloch power hammer (1980.0952).
- George Meany Center for Labor Studies (through Genevieve M. Lutz): 4 booklets, 3 buttons, 2 posters, a phonograph record, lapel pin, badge, sticker, ashtray, matchbox, totebag, and a handbill (1980.0298).
- Vada K. Meehan: photomechanical post card and photographic post card (1981.0193).
- Edith R. Meggers: 442 miscellaneous manufactured objects, 18 silk fireman's ribbons, 1 lock nut, 21 musical instruments, 20 ceramic and glass items, 60 mechanical specimens including typewriters, phonographs, and clocks, 725 objects of political memorabilia, 156 military objects including swords, bayonets, and cartridges, 15 pairs of spectacles and safety goggles, 6 physical science objects including glass diffraction gratings, gas discharge tubes, and specimens of fused glass, 38 electrical objects including batteries, insulators, and receivers, 25 clothing specimens, 51 medals, 1 lapel pin, 10 transportation items including vehicle plates, wagon spring, and lamps, 27 textile-related objects, 1,493 photographic history objects (314637.00).
- Joseph F. and Mary E. Melfi, Jr.: 198 Tupper Pharmacy artifacts (1980.0698).
- Sarah P. Merrill: woman's hat, 1935–1939 (1980.0694).
- Andrew J. Metz: collection of mint and used U.S. and foreign postage stamps, numbering 6,379 objects (1980.0408).
- Mary Shipman Mian: jewelry owned by Mrs. Franklin Pierce (1980.0326).
- Dewey Michaels: 4 theater backdrops and a director's chair (1981.0041).
- Olive H. Milgate: photograph of USS *Leviathan*, WW I (1981.0235).
- Gerald and Judith Miller: banner, "WELCOME HOME HOSTAGES" (1981.0220).
- Herman Miller Incorporated (through Max De Pree): furniture designed by

- Charles and Ray Eames and manufactured by the donor (1981.0421, 1980.0554).
- Mississippi Department of Agriculture and Commerce (through Jim Buck Ross): middle buster walking plow (320029.00).
- Principality of Monaco, The Postal Administration: 122 mint stamps and souvenir sheets from Monaco (1980.0735).
- Patsy Montana: cowgirl costume worn by the donor (1981.0389).
- Clarence H. and Frances Keirn Moore, in the name of the family of Maj. Gen. Donald J. Keirn D.S.M., O.B.E.: surveyor's compass (1980.0809).
- Nancy C. Moore: Gothic-Revival table, ca. 1850-1857 (1980.0881).
- George L. Morena, in memory of Thomas J. Morena, Jr.: U.S. Army shaving kit, WW I period (1980.0837).
- Gladys Morgan: U.S. Navy Yeoman F uniform clothing, insignia, and buttons, and a WW I photograph (1980.0568).
- James V. and Wanda E. Morris: original photograph of the *uss Nashville*, ca. 1900 (1981.0117).
- Richard J. Morris, M.D.: Spectro-chrome, 1925 (1980.0529).
- Walter Morvay: Agfa Ansco rollfilm box camera (1981.0174).
- Mosaic Press (through Miriam D. Irwin): 2 miniature books on Carter and Reagan (1981.0040).
- Betty Jean Mowbray: U.S. Navy collar insignia of a Lieutenant, Senior Grade (1981.0476); a rifle cleaning cord with strong attachment and a distinctive insignia (1981.0542).
- Frances M. Rudell Moyer: 2 watches, 2 brooches, a necklace, cuff buttons, and a jewelry box (1980.0010).
- William B. Mozey: 23 "sweetheart" lapel pins and a cigarette holder, WW II period (1977.0876); U.S. Army razor set and a photograph of a soldier (1979.0694).
- René Müller: collection of postage stamps issued for use in occupied territories at the end of WW I (1981.0042).
- Mrs. John H. Murray: Rockingham glazed pitcher, blue spatter earthenware sugar bowl, earthenware toby jug, vase and 2 cache pots, 2 red earthenware plates, a redware pitcher, a brown earthenware pitcher, a miniature red earthenware pitcher and a yellow-glazed mold marked "John Bell," a whiteware teapot, an ironstone butter chip, 2 white pressed-glass dishes, a pressed-glass plate, a pink glass pitcher, and a pressed-glass "Savings Bank" (1980.0083).
- Museum of the American China Trade: 1 eighteenth century violincello made by Benjamin Crehore, Milton, Massachusetts (1981.0030).
- National Abortion Rights Action League (through Jan Ryan): 2 buttons, a fan, a handout, and a newsletter (1981.0266).
- National American Woman's Suffrage Association: written materials relating to Susan B. Anthony (1980.0810).
- National Postal Museum of London (through John N. Davis): 1 sheet and loose stamps of Great Britain (1981.0115).
- National Society Children of the American Revolution (through James H. Johnson): 1 Nottingham lace shawl, a white cotton bonnet with lace, a beadwork needlecase, and a wooden glove darner (1980.0562).
- Mr. and Mrs. C. Turner Nearing: philatelic chess collection (1981.0267); philatelic music collection (1981.0268).
- Mortimer Neinken: group of Hundi notes (1981.0497).
- John Nesbit, in memory of Hal Nesbit: vulcanized rubber check made in 1933 by Hal Nesbit (1980.0985).
- Government of The Netherlands Postal and Telecommunications Services: mint stamps and souvenir sheet from The Netherlands (1980.0736).
- Nevada Federation of Republican Women (through Mary E. Slocum): cow-

- boy hat worn by delegates from Nevada at the 1980 Republican National Convention (1980.0510).
- State University of New York at Buffalo, School of Medicine (through Dr. John Naughton and Dr. Robert L. Brown): electronic stimulating and recording unit (1981.0186).
- The New York Stock Exchange (through J. E. Buck): "Trading Post #13," built in 1930 (1981.0188).
- Government of New Zealand: 23 recently issued postal papers of New Zealand (1980.0745).
- Hayes A. Newby and Nannette Newby Warner: Civil War items including hardtack, tintype, canteen, and tin cup (1979.0916).
- Raymond F. Newman: 4 circus lithographs (1980.0902).
- News-Press (through Susan Bennett): 1 newspaper, *News-Press*, extra with headlines "Hostages Released" (1981.0410).
- Government of Niue, Ministry of Post Office: 58 recent postal papers of the Government of Niue (1981.0196).
- Norcliff Thayer, Inc. (through James H. Howe III): papier mâché "Pot of Gold" and "Wheel of Fortune" from the "Tums Pot o'Gold Radio Show" broadcast, 1939-41 and 1946 (1980.0437).
- Government of Northern Cook Islands, Penrhyn Post Office: 13 recent postal issues of Penrhyn (1981.0153).
- Northwest Energy Employment Development (through Betty Challinor, Dr. George Farag, and Charles F. Woods): 1 banner used in the 1980 National Democratic Convention (1980.0670).
- The O'Brien Corporation (through James A. McCormick): O'Brien's T.T.O. enamel (1981.0517).
- Dorothy C. and Frank A. O'Clair: Caloroil oil burner, compressor unit and relief valve, ca. 1923 (1980.0486).
- Genevieve I. O'Leary: 2 iron bedstead footpieces and 1 bed frame (1980.0342).
- John "Buck" O'Neil: Kansas City Monarchs jacket emblem (1981.0120).
- Elizabeth Durfee Oberst: woman's handbag, ca. 1930 (1979.0670).
- One Nation Under God (through John Golan and Carol I. Owens): poster from the Washington for Jesus rally (1980.0739).
- Orange County Health Department (through John McGarry, M.D.): 2 infant hand-scales, 1 Bright-Line haemocytometer, 1 Yankee certified blood diluting pipette, 1 suction apparatus for TB testing, and a "Vim" Forsbeck needle rack for group immunization (1980.0851).
- Eugene Ostroff: a "Pronto!" Polaroid Land Camera (1980.0780).
- Elias P. Pantazopoulos: "Old Heidelberg Rathskeller" softball team jersey (1981.0212).
- Jack Pardue: "KX County Washington D.C." poster (1981.0060).
- Charles H. Parks: 4 electric motors (1980.0847).
- Albert Eide Parr: Norwegian rifle, Norwegian semi-automatic pistol, and U.S. Army sleeping bag (1981.0019).
- Harry L. Parrott, Jr.: 12 Edison phonorecord cylinders in their original cartons (1980.0912).
- Charlene Pasco: tennis racket (1981.0211).
- Martha M. Patrick: 3 fire extinguishers (1980.0582); cocktail shaker and 8 matching cups made by Bernard Rice's Sons, Incorporated, patented on May 13, 1924 (1980.0954).
- Andrew L. "Pat" Patterson: baseball sliding pads (1981.0128).
- Mrs. Jefferson Patterson: 12 pieces of sports and recreational equipment and a baseball program (1981.0054); 9 panels of embroidered netting embroidered with linen thread (1981.0075); golf and tennis equipment (1980.0022); 8 pieces of sailing clothing (1980.0639).

- Harry J. Patton: "Ronald McDonald" hand puppet and a marionette ballet dancer (1981.0059); 6 photographic prints, a photographic price chart, and an electronic flash gun (1981.0195).
- Robert E. Peary, Jr.: an illuminated parchment signed by President Taft and 8 medals presented to Admiral Robert E. Peary (1981.0471).
- Marvin P. Pedroli: 10 objects used in the exhibit *Bucktarooos In Paradise*, including articles of clothing, kitchenware, and tools (1981.0087).
- Pellon Corporation: 10 die-cut battery separators, 9 fabric samples, 4 filter samples, 4 cylinders, 3 floor pads, and 2 mask samples (1980.0538).
- Augusta H. Petrone: sash, "Dutch's Dollies" worn at the 1980 Republican National Convention (1980.0863).
- The Pfaltzgraff Company (through Louis J. Appell Jr.) and The Gardner Miller Fund: portrait bust of George Washington, ca. mid-nineteenth century (1980.0659).
- Edward M. and Kathleen P. Pflueger: pair of Worcester soft-paste porcelain figures, ca. 1770 (1979.1222).
- Roger Pineau: 1 motion picture camera and 2 still cameras with accessories (1981.0313); Japanese Navy duty pouch (1980.0865).
- Albert John Pirner: "BARCO" gas-powered tamper (1981.0031).
- University of Pittsburgh, Faculty of Arts and Sciences, Department of Biological Sciences (through Professor R. A. McConnell): Monroe calculator (1980.0255).
- The Plain Dealer (through William C. Barnard and Robert H. Snyder): 3 printing plates from the front page of the newspaper, *The Plain Dealer* (1980.0913).
- Francis M. Plummer: 3 US Silver Certificates, Series of 1899 (1980.0944).
- Mrs. Muriel and Dr. Victor Polikoff: 2 plates and 1 cup and saucer set with "Liberty" motif made by Josiah Wedgewood and Sons, Ltd., ca. 1917-1929 (1980.0790).
- Douglas W. and Stanley V. Pope, in memory of Arthur Joseph Pope: 5 sub-machine guns (1981.0034).
- Julia C. Powell: overseas cap and ribbon, pair of long drawers, a *Naval Digest*, U.S. Coast Guard officer's cap, 2 white covers, blue cap cover, khaki cap cover, white uniform trousers, blue service dress uniform coat, and blue frock coat (1981.0321).
- Priscilla Davis Prather, in memory of Virginia Davis: A white-on-white embroidered counterpane, ca. 1812 (1980.0719).
- Precision Gauge & Tool Company (through James A. McCormick): Fineness grind gauge (1981.0514).
- Presidential Inaugural Celebration with Love (through Dr. James E. Johnson and Dr. Orv Owens): 7 tickets, 3 name tags, an invitation, schedule, envelope, letterhead, program, and a car pass from the Religious Presidential Inaugural Celebration with Love (1981.0101).
- Presidential Inaugural Committee—1981 (through Terry D. Hirz): jelly beans officially approved by the 1981 Presidential Inaugural Committee (1981.0260); (through J. L. Wallace): 58 objects from the 1981 presidential inauguration (1981.0279).
- Pullman Incorporated (through Rosemary A. Mazon): berth front, "Bird in the Bush" pattern (1980.0839).
- Mrs. Ernst W. Puttkammer: a collection of 681 German stamps (1980.0493).
- Radcliffe College, The Arthur and Elizabeth Schlesinger Library on the History of Women in America (through Eva Moseley): 19 pamphlets, 9 leaflets, 3 posters, a newspaper, a campaign card, and an invitation (1981.0349).
- Radio City Music Hall (through Patricia H. Robert): usher's uniform from Radio City Music Hall (1981.0493).

Rafshoon Communications (through Joseph M. Books III): 43 television tapes from the 1980 Carter campaign for president (1981.0053).

June Martens Ramsey: Woman's garnet brooch and earrings, ca. 1860–1879 (1980.0756).

Rapid City Public Schools (through Charles A. Lindly): Basketball uniform (1981.0494).

Frank H. Rath: red earthenware covered-bridge coin bank (1980.0450).

Mark M. Ravitch: 63 stapling instruments (1979.1092).

Ruth D. Ray: materials related to J. J. Ray's Multi-tester & Polygraph (1981.0248).

Realist Incorporated (through George Walker): Stereo Realist camera and viewer owned and used by General Eisenhower (1981.0191).

John A. Rehor: collection of photographic negatives documenting the right-of-way of the Wheeling & Lake Erie Railway (1981.0223).

Rensselaer Polytechnic Institute, Department of Chemistry (through Dr. Fred W. Billmeyer, Jr.): 2 colorimeters, 1 colorimeter with accessories, a reflectometer, a galvanometer, a reference standard, an integrator, and a tintometer with a box of glass standards (1981.0496).

Christopher and Richard E. Repetti, in memory of Ernest Repetti: "Hamilton Packers" football uniform (1981.0472).

Rexnord, Inc. (through D. Taylor and E. W. Mentzer): Nordberg collection of archival documents (1979.1249).

Mrs. Sula M. Rhiger: U.S. Navy uniform worn by the donor during WW I (1980.0313).

Harry David Richards: woman's headdress, ca. 1925 (1980.0545).

Oscar W. Richards: Interference microscope with accessories, an arc lamp, a transformer, a box of reagents, and a microscope slide (1980.0468).

Oleita Richter, in memory of William H. Goebel: crocheted white-cotton bedspread (1980.0501).

George Rinsland: 2 newspapers, *The Morning Call*, from Allentown, Pennsylvania (1980.0584); 1 badge, "HUNTINGTON Colonial Ladies—July 4th 1903" (1980.0733).

Ralph Rinzler: Dutch medwinterhorn (1981.0422).

Florence S. Robbins, in memory of Eugene Beauharnais Robbins: boy's cap, 1910–1915 (1980.0758).

Frank Roberts & Sons Inc. (through Fred Roberts): squibb-making machine and a box of empty squibbs (1980.0309).

Edwin K. Robinson: "Raggedy Ann" doll, ca. 1931, and a pastry blender patented in 1929 (1981.0168).

Captain Ray M. Robinson: Lafayette's umbrella (1980.0765).

Joseph F. and Rosemary L. Robrecht: 227 Pharmaceuticals, 21 patent medicines, 17 medicine and pharmacy bottles, and 4 pharmaceutical objects and instruments (1981.0227).

Francis D. Roche: Virginia Commission of Game and Inland Fisheries pamphlet (1981.0454).

Peter T. Roche: "Go Redskins/Go Navy" bumpersticker (1981.0500).

William H. Rogers: folding pocket Kodak camera (1981.0314).

William D. Rogosin: baseball autographed by Negro League players (1981.0180).

Pauline M. Rojas: footed Chinese porcelain plate, late eighteenth century (1979.1076).

Anne W. and John W. Rollins, Jr.: 10 puppets, 2 souvenir programs, and a bolt of puppet print fabric (1980.0910).

George M. Rosenstein: broom holder (1981.0412).

Rubin Brothers Waste Company (through Bruce S. Bazelon and Edward

- Rubin): 6 pillow cases, a scarf, a hat, and a flour sack (1980.0573); U.S. Navy, Coast Guard and Marine Corps enlisted men's uniform items (1980.0715); 14 U.S. Navy, Marine Corps and Coast Guard uniform items (1981.0236); (through Edward Rubin); U.S. Marine Corps sweater and necktie (1980.0716); 3 U.S. Marine Corps utility caps (1981.0124).
- Edward Rubin: 4 belts, 2 neckerchiefs, 2 street signs, a metal slide, and an armband (1979.0654); Woodsmen of the World Tunic (1981.0495).
- Fred J. Rutherford: 5 baseball tickets (1980.0432).
- Bessie C. Sanborn: fire hat with wick lamp (1980.0978).
- Dr. Arnold J. Sattler: Austrian silver 100 schillings commemorating the bicentennial celebration of the Burgtheater in Vienna, 1976 (1979.1109).
- Anne Marshall and Fredric Brice Saunier: print titled, *Braque Intarsia*, made by Fredric Brice Saunier (1981.0071).
- Melinda H. and Thomas S. Scarano: wooden box containing stereoscope and 83 glass transparencies of ww I subjects (1981.0237).
- Carl H. Scheele: 39 U.S. and foreign stamps, 6 covers, 4 First Day Covers, 1 souvenir sheet, and 1 souvenir card (1981.0207).
- Elbert O. Schlotzhauer: Slater's hammer (1980.0622).
- Esther Fowler Schmalz, in memory of George Fowler: bicycle uniform, ca. 1884 (1980.0165).
- Robert J. Schurk: radio guide, 1937 (1980.0840).
- Science Research Council (through J. E. Hailstone): Atlas Mark I computer components (317839).
- Robert Louis Scone, Sr.: "Right On Ronnie" T-shirt (1980.0507).
- Arthur Secunda: "Vesuvius" series of 28 prints and original etched plates (1981.0070).
- Security Symbols (through Marcia L. Smith): A bumper sticker and a pillow-case with legend "We're ready for Teddy" (1981.0052).
- Service Offset Printing Co. (through John R. Slavin): linotype broach (1980.0443).
- Leo Seybold: memorabilia associated with the service men's voting program during ww II (1980.0914).
- Carl Sferrazza: button, "Jerry and Linda in 1980" (1980.0570).
- Lynn Shapiro: blue felt pennant (1980.0766).
- Julius Sharat: collection of 50 plastic objects representing the history of the plastics industry (1981.0264).
- Adeline K. Shertzer: alto saxophone made by H. Selmer & Company, Paris, and played by Hymie Shertzer, member of the original Benny Goodman Orchestra (1980.0915).
- Jonathan R. Shils: metal sign, symbol of Old South (1980.0899).
- Isabel Shults: plate, finger bowl and stand, champagne glass, and 2 wine glasses made by the Salviati Glass Works (1979.1172).
- Ruth W. Shure: collection of 25 pieces of ww II memorabilia (1981.0473).
- Jose Silva, Jr., and Jose S. Silva: a bronze nineteenth century planking nail (1979.1140).
- Joseph S. Simms: 3 buckles, 3 brooches, 2 necklaces, and a headdress (1981.0083).
- A. C. Sims: section of a steam turbine-runner (1981.0360).
- Charlotte W. and Edgar Sittig: 68 samples of homespun fabric (1980.0453).
- N. G. Slater Corporation (through Robert Slater): button issued for the occasion of the peace mission on November 19 and 20, 1977, between Israel and Egypt (1980.0768).
- Betty S. and Richard G. Smith: Charles Frodsham chronograph (1981.0339).
- Beulah H. Smith: a black-glazed earthenware jug in the form of a swimming duck (1981.0064).
- Edith H. Smith: double deck of Kem playing cards, ca. 1930 (1980.0880).

- Dr. Edward J. Smith: Remington hand-operated adding machine (314592).
- Hilton L. Smith: "Chicago Ground Rules" card, "Brooklyn National League" ticket, "Monarchs vs. Cuban Stars" ticket, and a telegram to Hilton Smith (1981.0355).
- Nell Wilson Smith: clinical thermometer (1981.0114).
- Stephen P. and Virginia B. Smith: drafting tool and instruction booklet, 1905–1915, and a measure list, ca. 1907 (1980.0883); 6 embroidered panels, a panel of printed cotton velveteen rectangles, a piece of fabric, a painted pattern for embroidery, a religious card, and a printed fabric cigarette packet (1980.0883).
- Smithsonian Institution, Business Management Office, Mail Order Division (through Kathleen Craig): woman's brooch (1981.0028); Product Development (through Anne McClellan Miller): porcelain pitcher, reproduction of a pitcher manufactured by Tucker & Hulme, 1828 (1980.0707); 6 printed cotton fabric samples (1980.0789); Museum Shops (through Richard Griesel): reproduction of Stephen Decatur ring (1981.0312).
- Smithsonian Institution Libraries, National Museum of American History Bureau Library (through Ellen Wells): bound folio of 28 prints titled, *Choice Old Engravings* (1980.0800).
- John W. Snyder, Sr., and Family: barbed-wire display board (1978.2385).
- Ray E. Snyder, on behalf of Marshall Snyder and Family: Army song book, 1941 (1981.0150).
- Society for the Preservation of Long Island Antiquities (through Robert B. MacKay): Trump Brothers "Fleetwood" scroll saw, wooden toolbox, 28 sawblades, 6 paper patterns, and an assortment of wooden workpieces (1981.0061).
- The Society of Medalists (through Donald A. Schwartz): 2 bronze medals issued by The Society of Medalists (1980.0958).
- Gail E. Solomon: model of Winchester Blacksmith Shop (1980.0949).
- Joseph C. Sonntag: blade from 1927 Mercury Vapor Turbine (1980.0324).
- G. Frances Souther: 2 autographed photographic portraits of John Souther, dated 1909 and 1911 (1981.0216).
- Southern Labor Archives (through Leslie S. Hough): 10 labor badges (1980.0618).
- Charles M. Spearman: Selective Service System card, 1970 and Registration Certificate, 1973 (1980.0505).
- Rita Pond Spence: Steuben "Gold Aurene" glass vase (1980.0419).
- Jock A. Spencer: 2 insignia and a black beret (1979.0513).
- Robena Moses Spencer: miner's safety lamp (1981.0012).
- Sperry Rand Corporation, Sperry Division (through Kenneth H. Chase): 16 gyroscopes and 1 artificial horizon (1981.0386).
- Sperry-Sun Inc. (through M. Lee Murrell): original Sperry-Sun gyroscope (1981.0297).
- Janet H. Sprickman: toy furniture sets of metal with cardboard rooms, 1929–31 (1980.0497).
- Ruth St. Denis Foundation Inc. (through Karoun Tootikian): 2 posters of Ruth St. Denis and 1 silk scarf (1980.0796).
- St. Gregory the Great Roman Catholic Church (through Reverend Francis P. Kilcoyne): 1 rack-type dryer labeled, "Hygenic Gas Dryer," ca. 1900 (1980.0418).
- Benjamin, Harvey G., and Norman Stack: nineteenth-century silver bar from California (1979.1052); collection of mostly foreign paper currencies (1979.1053); collection of foreign stock and bond certificates (1979.1056); group of 3 foreign coins and medals (1979.1061); ancient aurei bearing portraits of Roman emperors of the first century A.D. and circulated in India (1979.1062); ancient Roman bronze medallion struck in the names of

- Alexander and Mammaea (1979.1063); group of ancient Greek coins (1979.1064); group of 8 ancient Roman Republican bronze coins (1979.1065); group of ancient Roman silver and bronze coins (1979.1066); ancient gold stater of Callatis (1979.1068); tetradrachm struck at Clazomenae (1979.1069); specialized collection of Depression scrip (1979.1070); medallion struck in the name of the Roman Emperor Gordianus III at Perinthus (1979.1098); group of ancient coins from Asia Minor (1979.1099); group of 3 late Roman bronze coins (1979.1100); bronze coin struck in the name of Aelia Zenonis (1979.1101); large silver "bracteates" from India (1979.1108); group of political medals by Karl Goetz (1979.1124); dies and hub for German necessity coinage of the ww I period (1979.1125); 3 steel dies for medals (1979.1126); group of dies for medals by Karl Goetz (1979.1127); master hubs and dies by Karl Goetz for coin patterns (1979.1128); U.S. medals, medallions, and plaquettes designed by Victor D. Brenner (1979.1129); group of U.S. notes, checks, and related historical material (1979.1189); 4 medals and 3 framed vignettes relating to George Washington (1979.1190); group of French medals and plaquettes (1979.1191); collection of German historical and art medals (1979.1192); banker's sorter for U.S. gold coins (1979.1193); original Charles Wesley Dickinson material encompassing documentation and examples of work produced on Dickinson's banknote engraving lathe (1979.1194); historical gold bar and "Veld Blank" from South Africa, 1901 (1979.1195); 2 historical foreign gold medals (1979.1196); gold life saving medal of the Benevolent (1979.1197); Japanese sixteenth-century gold koban (1979.1198); plaster plaque portraying George Washington (1979.1199); collection of Tabaristan silver coins struck in the name of Yahya, al-Harashi, and Sulaiman (1980.0889); specialized collection of half-dirhems struck in the names of Jaris, Macadd, and Hani (1980.0890); specialized collection of silver coins, struck in the name of Muqatil of Tabaristan (1980.0892); specialized collection of silver half-dirhems, struck in the name of the Abbasid Governor of Tabaristan Hani (1980.0895); cut-out bronze "strip stock" and planchets used in the medal-manufacturing process (1980.0901); Star Mining Company gold ingot (1980.0921); gold bar of the U.S. Assay Office in New York (1980.0922); 4 U.S. commemorative medals and 1 Belgian medal (1980.0929); specimen printing for back of five-dollar demand note of 1861 (1980.0930); proofs for the front and back of one-hundred-dollar, three-year interest-bearing notes (1980.0931); specimen printings for fifty-dollar two-year interest-bearing notes (1980.0932); group of ancient Roman aurei (1980.0933); cast bronze medal portraying President Harry S. Truman, 1949 (1980.0936); Roman medallion struck in the name of Emperor Commodus (1980.0937); presentation volume prepared by Bureau of Engraving and Printing (1980.0940); U.S. gold certificate for ten thousand dollars (1980.0941); Eagle Mining Company gold ingot (1980.0920).
- The Standard-Times (through Donald J. Clifford): printing press, ca. 1840 (1980.0955).
- Daniel P. Stanton: Boy Scouts of America knapsack (1980.0299).
- Esther L. Stanton: U.S. Army equipment consisting of 3 canteen covers, 3 canteens, 2 canteen cups, 1 pistol belt, and 1 cartridge belt (1978.2101); ww II helmet liner (1980.0279).
- Maria J. Stein: 2 grain sacks and a hand-woven towel (1980.0502).
- R. E. Steiner: 62 phonorecords (1980.0950).
- Peter G. Steinhauser: 3 gum-bichromate prints (1981.0482).
- Mrs. Robert B. Stephens: 16 trade cards, 3 dye recipes, 1 lucet, 1 drizzling tool and a tambour needle (1981.0113); pieced-work quilt, needlework sample book, and 2 Jacquard woven bookmarks (1981.0417).

- J. P. Stevens & Co., Inc. (through Les Rossi): 4 automobile upholstery fabric samples (1980.0541).
- W. B. Stevens: Merrill's Marauders shoulder sleeve insignia, WWII (1979.0817).
- Virginia Stickley: woman's curling iron (1981.0065).
- Olga Y. Stillwell: 2 pairs of spectacles (1980.0467).
- John N. Stine: carrying case for sniper scope used on German sniper rifles during ww ii (1980.0854).
- T. E. Stivers: Georgia state delegations button produced and worn at the 1980 Republican National Convention (1980.0560).
- Philip Stoddard: 4 bobbins, a bobbin lace border, a lace pillow, a lace handkerchief, a pillow horse, a twig, and an embroidered infant's cap (1980.0685).
- James D. Stokoe: collection of linen tracings from the Hydraulic-Press Brick Company of Saint Louis, Missouri (1980.0807).
- Storz Instrument Company (through Robert Blankemeyer): 4 Forceps, 2 needle holders, needle, canula, scissors, erisiphake, trephine, spoon, loop, and keratome (1980.0347); (through B. Charles Bono): 4 pairs of scissors, 2 keratomes, 2 sclerotomes, 1 anchor (1980.0848).
- George D. Stovall: "Zoomar" variable-focal length lens (1981.0017).
- Lewis H. Strauss: ww i draft bowl capsule (1979.0793).
- Sam Streeter: baseball (1981.0130).
- Sheryl Swed: 60 objects from the 1980 Copenhagen World Conference of the United Nations Decade for Women (1980.0593).
- Government of Sweden Postal Administration: recent postal papers of Sweden (1980.0729).
- Melodie Sweeney-Kosmacki: 1968 hair curler set (1981.0069).
- John R. Switzer: wagon steering gear (1980.0579).
- Robert H. Taylor: overcoat worn by Richard Nixon during the 1973 Inaugural Parade and a photograph of President and Mrs. Nixon at the White House (1980.0824).
- Tewksbury Antiques (through Mr. and Mrs. J. Douglas Wiss), The Alfred Duane Pell Fund, and The Gardner-Miller Fund: earthenware sgraffito plate, ca. 1823 (1980.0180).
- Texas Heart Institute (through Denton A. Cooley, M.D.): mechanical heart used in world's first application of an artificial heart (1978.1002).
- Virginia D. Thibodeau: 2 buttons and a T-shirt designed by the donor to be used in the 1980 Republican Presidential Campaign (1980.0585).
- Mrs. Stuart W. Thomas: British officer's gorget, 1800-1830 (1980.0247).
- Thomason Industries (through Martin Stecklow): Yellow ribbon rosette used to decorate the Washington, D.C., parade route for the hostages' return from Iran (1981.0159).
- Thomasville-Thomas County Chamber of Commerce (through Lloyd Eckberg): a political mug (1980.0710).
- Fred C. Thompson: U.S. Colt's magazine rifle (1981.0329).
- James R. Thompson: a button and badge from the Illinois Delegation at the 1980 Republican National Convention (1980.0713).
- Leonora Gill Thompson: 5 cartes-de-visites and 2 photographs (1980.0799).
- Carol Thomssen: 2 campaign bumper stickers (1981.0050).
- Governor Richard L. Thornburgh (through Mike Kraus): 2 Pennsylvania state delegation buttons (1980.0567).
- Evelyn Tidball: metal box, "Imperial Brand Ginger," containing an embroidery design-stamping kit (1980.0500).
- Jeffrey W. Tinsley: Charlie McCarthy, ventriloquist dummy (1980.0977).

- Robert E. Todd: 4 original patents for the inventions of John Wells (1981.0252).
- Paul A. Tolovi: a Joint Services Commendation medal (1977.0485); a Joint Services Commendation medal with lapel pin, pendant with ribbon, case, and a Civilian Defense Communications Agency cloth patch (1980.0660).
- Trans-Lux Corporation (through Albert Boyars): two rolls of yellow ticker tape for use in the N.Y. city parade honoring the returning hostages from Iran (1981.0491).
- Robert Jeffery Trimmer: journal, logs, diary, maps, booklets, and original photographs of the Spanish-American War, kept by Yeoman Ben D. McGee (1981.0118).
- Trinity United Methodist Church (through Lawrence H. Harris): woven church-hanging with valance (1980.0860).
- Percival Arthur Tripp: 10 photographic postcards (1980.0948).
- James R. and Sara Turnbull: wood canteen, early nineteenth century (1979.0036).
- Lillian and Milton Turner: 4 Daum glass plates, 1 porcelain plate, and 1 desk piece (1979.1145); 3 salts, 3 vases, a teapot, sugar bowl and cream pitcher (1980.0379).
- Stephen R. Turner: glass paperweight with engraved head of Albert Einstein made by Vicke Lindstrand, 1963 (1980.0093).
- George D. Tuttle: 3 planes, 1 hand saw, and 1 commander (1981.0397).
- Johanna Ullmann: 2 pattern books, 1895 (1979.0074).
- Marjorie E. Ulsamer: off-white cotton and navy-blue wool overshot coverlet (1980.0373).
- Underwood & Underwood Illustration Studios (through L. M. Nowak): stereo, glass, and film negatives (1981.0507).
- William Underwood Company (through George C. Seybolt): 3 canning devices (320020.00).
- United Nations Postal Administration: 111 mint United Nations stamps, singles and multiples (1981.0178).
- Unknown: 7 campaign buttons (1980.0635).
- U.S. Department of Commerce, Maritime Administration (through R. J. Blackwell): 245 objects from the luxury liner S.S. *United States*, including furniture, china, glassware, silverware, murals, and life preservers (1978.2219).
- U.S. Department of Defense, Defense Supply Agency, Defense Property Disposal Service (through George R. Beam): Whitneyville armory rifle (1979.0900). Department of the Air Force: M1943 Russian light machine gun (1980.0874). Department of the Army, Army Natick Research and Development Command: pair of canvas leggings, 1941 (1981.0218). Fort Benjamin Harrison Museum: 2 U.S. Marine Corps equipment-carrying straps (1979.0219). Fort Jackson Museum: U.S. Marine Corps field pack, 1941 (1978.0106). The Institute of Heraldry (through Robert L. Burton): 34 distinctive military insignia (1979.0235); U.S. shoulder sleeve insignia (1979.0608); 41 shoulder sleeve insignia (1980.0039). The Pentagon: 2 U.S. Army promotion certificates and 1 appointment certificate (1981.0078). U.S. Army Center of Military History (through William F. Strobridge): Vogel Award medal, 1967 (1978.0961). U.S. Marine Corps reversible camouflage helmet covers (1979.0805); (through Norman Carey): 5 bayonets (1979.0578). Historical Services Division: decorations for Cambodia, Indonesia, Korea, and the Philippines (1979.1156). U.S. Army Recruiting Command Headquarters: 18 U.S. Army posters (1981.0234). U.S. Army Transportation Museum (through Dennis Mrocowski): 3 steel helmets and 2 liners (1979.0116). Office of Deputy Secretary of Defense: 1 Belgian automatic rifle, 1 French Army revolver,

- and 1 Spanish Miquelet pistol (1981.0226). Office of the Secretary of Defense (through Gordon L. Bowlby): computer tape and reel (317980).
- U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health (through William M. Veasey): 5 spectrophotometers, a spectrophotofluorimeter, a fluorimeter, a photomultiplier attachment, and an analytical balance (1981.0535).
- U.S. Department of Health, Education, and Welfare, Public Health Service, National Institutes of Health: National Bureau of Standards microcite machine (314612).
- U.S. Department of the Interior, Bureau of Reclamation, Lower Colorado Dams Project Offices (through M. Coffry): 26 U.S. Colt revolvers (1981.0523).
- U.S. Department of State, Office of the Chief of Protocol: Taiwan gold commemorative coin (1979.0650).
- U.S. Department of the Treasury, Bureau of Engraving and Printing: 52,093 certified proofs for national currency notes (297219); certified proofs of Silver Certificates, series of 1899 (297377); 277 proof printings of bonds, U.S. Treasury seals, and U.S. Treasury notes (297378); certified proofs of U.S. Treasury notes, series of 1869 through series of 1901 (297379); certified proof sheets of U.S. Treasury notes, certificates, bonds, and related materials (1978.0946); certified proof sheets of U.S. Treasury notes, certificates, bonds, and related materials (1978.0947); certified proof sheets of U.S. Treasury notes, certificates, bonds, and related materials (1978.0948); certified proof sheets of U.S. Treasury notes, certificates, bonds, and related materials (1978.0949); certified proofs for Federal Reserve notes and other financial documents (1980.0654). Bureau of the Mint (through Alan J. Goldman): a philatelic-numismatic commemorative, postmarked August 21, 1976, Los Angeles (1979.1037). Internal Revenue Service: Ruger new model "Blackhawk" revolver (1980.0105); U.S. Colt's Mark IV semiautomatic pistol (1980.0581); M1875 Remington army revolver and an M1866 commemorative carbine (1980.0821); Colt's "Texas Ranger" revolver and a Harrington & Richards revolver (1981.0340). Division, Communications and Records Management Branch, Office of Administrative Programs, Facilities Services (through Sarah J. Allen): 309 currency materials (1979.1185).
- U.S. Legislative Branch, Library of Congress, Exchange and Gift Division (through Nathan R. Einhorn): group of American paper currencies and bonds (1979.1130); 3 Spanish orders and 3 U.S. medals (1979.1131).
- U.S. Office of Personnel Management (through Leonard J. Bassoff): 3 plaques, a flag, and a photograph relating to the U.S. Civil Service Commission (1980.0520).
- U.S. Postal Service, Office of International Postal Affairs (through Michael J. Regan): 1816 mint postage stamps of the world, 88 mint souvenir sheets, 7 mint booklets of Sweden, and 1 mint booklet of German Democratic Republic (1978.2392); 2,090 mint postage stamps, and 115 mint souvenir sheets of the world (1978.2397).
- U.S. Postal Service, Stamp Management Branch: 8 uncut sheets of U.S. postage stamps (1981.0290).
- The White House (through the Honorable J. P. Tumulty): a carved cane sent to President Wilson by Geo. F. Moon (1980.0764).
- Anthony D. Valente: "Teddy Bear" examining table (1981.0343).
- Henry P. and Wendy D. Van Gorder: 74 phonorecords (1980.0340).
- Mrs. Robert D. van Roijen, on behalf of the Women's Committee of the Smithsonian Associates: 1 engraving, *View of the City of London Taken through One of the Centers of the Arches of the New Bridge at Westminster*, by R. Parr (1981.0156).
- Grace Hewitt Van Sickle: pension certificate, 1865 (1980.0819).

- Catherine Pesch Vidano: 1 tilt-top table and sewing table made by Peter Glass c. 1890 (1980.0102).
- Dorothy Anne and Joseph J. Virostek: 1 round campaign button, "ABC Anybody but Carter" (1980.0878).
- Arthur B. Voorhees, Jr., and Margaret R. Voorhees: pack of cigarettes, "Sweet Caporal," marked with tax stamp "Series of 1896" (1981.0519).
- Noble M. Wade: 1 button, "Local Union 101, Greater Kansas City, AFL," ca. 1947 (1980.0335).
- Rachel Parker Fowler Wahl: a belt and silk fabric from an 1868 wedding dress and 2 pieces of silk fabric from a 1903 wedding dress (1980.0435).
- Mrs. Frances E. Waldrop: 1860 booklet "On A New Photo-Lithographic Process" (1980.0630).
- Charles Lynn Walker: water-polo ball and 14 water-polo caps (1980.0451).
- Mort Walker: Beetle Bailey comic strip, artist's original (1981.0221).
- Janet and John P. Wallach: umbrella with the likeness of George Washington engraved on the handle, 1824-26 (1980.0526).
- Bernard A. Wambsganss: a valentine (1981.0392).
- William W. Warner: bumper sticker, "I Like Butts" (1980.0528).
- C. Malcolm Watkins: 24 pieces of sheet music from 1866 to 1905 (1979.1154).
- Joan Pearson Watkins: 11 potter's coloring oxides, 4 kiln trivets, 1 lot of 38 stacking wedges (1979.0108); spectacles and case, basket, tea kettle, newspaper baby's rattle, doll, fork and spoon, window shade, and stove lifter (1980.0569).
- Lura W. Watkins (through C. Malcolm Watkins): woman's cap, 1915-1925 (1979.0779).
- Lucille McWane Watson: a miniature portrait attributed to Louis Lie Perin-Salbroux, a red leather wallet with multiple pockets, containing several locks of hair and numerous handwritten notes by the original owner, William Short (1980.0762).
- Marna H. Wattenberg: plain woven drapery with printed and applied design (1980.0788).
- Walter C. Wattles: 4 bonds issued by the Confederate States of America (1979.0674).
- Buel F. Weare: 1905 teddy bear (1981.0351).
- Chester E. Weaver: headphones (1980.0281).
- Thomas E. Weber: Wilson basketball, 1974 (1980.0682).
- Weider Hardware Wholesalers (through Sam Weider): furnace ash sifter and clinker tongs (1981.0198).
- Elina D. Weil: identification card, insignia, pendant, U.S. Army Certificate of Service, and U.S. Army separation record (1980:0199).
- Wellesley College, Department of Physics (through Dr. Phyllis J. Fleming): electric egg, Holtz tube, canal ray tube, and an X-ray tube (1981.0043).
- Elizabeth Baker Wells: flax-spinning wheel (1980.0885).
- Wells, Rich, Greene, West Inc. (through Peter R. Johns): poster, "The 1979 Los Angeles International Film Exposition" (1980.0297).
- Richard N. Weltz: a printing press with carrying case, and a tool kit (1980.0730).
- Wendell Fabrics Corporation (through Allan Silverman): "Grille Fabric" sample used in recording and music industries (1980.0536).
- Donna Werner: "Donna Werner for State Representative" campaign button (1980.0474).
- F. Hasso von der Weth: 2 tin medals commemorating private mint opening in Bremen, Germany, 1977 (1980.0956).
- Geneva Whisnant: 1862 Oath of Allegiance to the U.S. Government (1980.0280).

- J. H. White, Jr.: a Zeiss Ikon Ikomat rollfilm camera (1981.0225).
- Robert L. White: comic books: 3 "Voyage to the Bottom of the Sea," 2 "Navy: History and Traditions," and 1 "Combat" (1980.0575).
- Roger B. White: 1 book, *Life of George Washington*, and a premium certificate (1981.0261).
- Mr. and Mrs. O. C. Whitehead: phonograph record of the "Gettysburg Address" and "Dixie" (1980.0605).
- Thomas J. Wicker: songbook from the Harrison/Tyler campaign, dated 1840 (1980.0686).
- Madeline Wilkinson: clergyman's record of the date of Franklin Delano Roosevelt's death (1981.0416).
- Alta M. Williams: 8 pieces of fabric (1980.0365).
- Frank H. Williams: motion picture camera, 2 detachable cranks, a lens, and 2 film magazines (1981.0224).
- Jack F. Williams: 1 button, "The Bayou State-Reagan Country" (1981.0039).
- Williams & Miller (through H. David Williams): 3 1980 presidential campaign buttons (1980.0784).
- Mrs. Vivian Willner: 15 model military vehicles, guns, and soldiers (312428.00).
- Willson Safety Products (through Donald C. Dahl): spectrophotometer, battery box, and a voltage regulator (1981.0420).
- Rosalie E. Wilson, in the name of Jay Lee Wilson: 3 overshot coverlet fragments (1980.0372).
- Dr. Paul Winchell: Ventriloquist's puppet "Jerry Mahoney" (1981.0395).
- Mrs. Bentley Windsor: poster with a portrait of MacArthur used at the 1952 Republican Convention (1980.0760).
- Frank H. Winter: ticket with a portrait of Senator John F. Kennedy from the 1960 Democratic Convention (1980.0265).
- H. Edward Winter: 2 report cards from Dunham School (1981.0457).
- A. M. and Cul Kim Withers: specialized collection of Parthian silver and bronze coins, including some ancient Greek and Sassanian pieces (1979.1216).
- Hanna O. Wood: Handwoven blanket (1980.0834).
- George W. Workman: 78 police badges of Long Beach, California, 1924-1979 (1980.0853).
- Charles T. Wright: U.S. Navy enlisted man's white uniform including jumper, trousers and hat, worn by donor's grandfather, ca. 1870 (1980.0574).
- George H. Yeager: view camera with accessories, ca. 1896 (1979.0841).
- Alfred C. Young: precision aligning level, pocket compass and an indenture of William J. Young for an apprenticeship as a mathematical instrument maker (1981.0511).
- Dunya Chernenko Lit Zaitzeff (through Betty P. Callahan): collection of women's headwear including 23 combs, 16 hairpins, and 1 hairclip (1980.0085).
- Delfina Zatica: low stool with laced seat (1980.0295).
- Naomi D. Zeavin: button, "Virginia/GOP '80/Mother of States & Statesman" (1980.0522).
- Edward F. Zelan: Civilian Conservation Corps Company 1382 flag (1980.0509).

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Netherlands-America Amity Trust, Inc.: funds for the director's participation, as vice-chairperson for culture and publications, in connection with activities being planned to commemorate the bicentennial of the 1782 opening of diplomatic relations and the signing of a treaty of amity and commerce between the two countries.

Smithsonian Foreign Currency Program: a grant from Egyptian excess currency funds, covering per-diem costs for three trips to Egypt by the director in preparation for *Egypt Today*.

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The Smithsonian's basic trust funds have provided the Institution with the elements of flexibility and independence essential to its creative, innovative growth. Trust funds traditionally have made possible many of the research, acquisition, and educational programs, which are central to the Smithsonian's present resources and achievements.

The Smithsonian is extremely grateful to the foundations, corporations, and individuals listed below for their gifts, bequests, and contributing memberships in the Smithsonian Associates. If the name of any benefactor has been omitted from the following list, it is unintentional and in no way lessens the Smithsonian's appreciation.

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APPENDIX 10. *Visitors to the Smithsonian Institution in Fiscal Year 1981*

Month	Smithsonian Institution Building	Arts and Industries Building	Natural History Building	Air and Space Building	Freer Gallery of Art	National Museum of American History
October 1980	74,701	79,056	290,352	446,949	32,358	308,489
November	47,758	68,308	323,023	407,369	22,963	243,327
December	40,994	52,244	218,511	297,739	19,358	229,339
January 1981	33,790	52,252	234,242	329,841	16,890	244,735
February	44,007	58,738	234,857	348,882	16,770	260,001
March	67,970	74,065	358,866	527,138	24,170	363,698
April	124,301	130,735	704,015	977,187	32,082	748,981
May	102,246	131,461	620,658	918,756	31,024	639,371
June	118,494	139,570	524,298	814,848	27,809	581,725
July	120,465	159,072	633,765	1,028,473	29,996	740,645
August	114,592	151,923	589,576	959,415	29,358	573,045
September	66,872	77,278	266,573	482,357	22,663	229,096
TOTALS	956,190	1,174,702	4,998,736	7,538,954	305,411	5,162,452

Month	American Art & Portrait Gallery	Renwick Gallery	Hirshhorn Museum	Anacostia Neighborhood Museum	Cooper-Hewitt Museum	Museum of African Art	Totals
October 1980	31,792	20,920	64,184	2,712	9,567	6,184	1,367,264
November	48,308	23,553	72,254	2,499	8,589	6,002	1,273,953
December	25,276	17,542	60,704	Closed	13,696	6,375	981,778
January 1981	27,289	29,410	68,097	38	7,610	5,068	1,049,262
February	27,919	14,366	66,685	7,513	9,500	5,422	1,094,660
March	27,594	21,813	71,086	3,776	11,414	9,157	1,560,747
April	31,164	20,932	94,778	3,117	10,553	8,700	2,886,545
May	27,008	17,379	89,757	2,436	14,997	8,292	2,603,385
June	33,648	16,688	88,269	2,449	13,494	8,326	2,369,618
July	37,704	33,923	96,421	4,155	16,551	27,600	2,928,770
August	38,112	15,389	93,025	3,007	20,484	6,636	2,594,562
September	28,414	11,985	59,545	2,007	10,470	4,552	1,261,782
TOTALS	384,228	243,900	924,805	33,709	146,925	102,314	21,972,326

Note: Not reflected in the above tabulation are an estimated 3,300,000 visitors to the National Zoological Park in calendar year 1981. The very nature of the Park, with its indoor and outdoor exhibits and its several vehicular and pedestrian entrances, makes it impossible to obtain exact visitor statistics. To overcome this difficulty, NZP has developed a reliable sampling system, which was used to determine the 1981 estimate.

